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Ethnic Prejudice: A Cross-Fertilization Approach for Understanding its Development and Correlates from Adolescence to Emerging Adulthood

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English Abstract

Understanding how attitudes toward diversity develop during the developmental phase of adolescence is crucial to promote the cohesion of current multicultural societies and support youth's adjustment to their increasing ethnic and cultural complexity. Such development does not occur in a social void but is rather influenced by the experiences and interactions that adolescents have across multiple environments. Relatedly, the current dissertation aimed to examine the development of affective and cognitive ethnic prejudice as embedded in and resulting from multiple proximal and distal influences. Chapter 1 provides an overview of the main theoretical underpinnings of the current dissertation, which is informed by the ecological systems and transactional models of development and the innovative multidimensional account of affective and cognitive prejudice. The following chapters (Chapter 2 to 10) present a series of empirical studies divided in four sections, tackling the individual and identity correlates (Section A), the role of proximal (Section B) and distal (Section C) contexts, and the consequences of ethnic prejudice (Section D) in adolescence.

Section A focused on the role of individual and identity correlates of ethnic prejudice in adolescence and emerging adulthood. Specifically, Chapter 2 highlighted the intertwined nature of prejudice and empathic competences and the crucial protective role of empathic concern in preventing the development of negative feelings and attitudes toward ethnic minorities. Chapter 3 identified three latent trajectory groups of youth based on their low, moderate, and high levels of prejudices and found that the extent to which adolescents explored in-depth their personal (i.e., educational) identity choices could predict their membership to one of the different prejudice groups. Chapter 4 further extended our understanding of the interplay between identity and prejudice by highlighting how

momentary increases in the levels of identification with the national and human groups were linked to significant decreases in prejudice against different ethnic minorities.

Taking a step further, Section B examined how ethnic prejudice changes within the multiple proximal contexts of development. Along this line, Chapter 5 identified the unique, combined, and synergic influences of parents and classmates in contributing to significant changes in adolescents' affective and cognitive prejudice, regardless of youth's age and identification with these proximal groups. Further, Chapter 6 unraveled that the ways in which retrospectively narrate their study abroad experiences during the adolescence years is linked to how they consolidate their identity commitment in relevant social domains (i.e., national and European identity) and in turn contributes to lower levels of affective and cognitive prejudice.

Beyond the role of proximal contexts and experiences, Section C tackled the role of distal factors for changes in adolescents' prejudice. Specifically, Chapter 7 found that the valence (i.e., neutral, positive, negative) and the target (i.e., migrant, foreigner, refugee) of news reports about ethnic minorities can contribute to significant changes in adolescents' affective and cognitive prejudice, regardless of their direct consumption of national newspapers. Consistent with this, Chapter 8 highlighted that as the salience of newspaper reports on the Russia-Ukraine war increased, the negative feelings against the Ukrainian minority in Italy significantly decreased equally among adolescents with low and high levels of newspaper consumption.

Section D circled back to the individual level with the aim of understanding the consequences of prejudice for the well-being of ethnic minority and majority youth. Chapter 9 systematically reviewed longitudinal studies on the exo- and macro-contextual determinants of sleep quality in adolescence and highlighted the detrimental consequence of discrimination and violence for youth's adjustment. This systematic review showed the lack of research

addressing the consequences of holding prejudicial attitudes for ethnic majority adolescents in current multicultural societies. Relatedly, Chapter 10 sought to fill this gap by examining the medium- and short-term interplay between prejudice and multiple well-being indicators. It found that day-to-day increases in well-being contributed to changes in prejudice, whereas medium-term increases in prejudice led to lower adjustment of adolescents.

Last, the concluding chapter (Chapter 11) summarized and discussed the main findings of the current dissertation in light of its strengths and limitations. Additionally, it highlighted the main theoretical and practical implications of this work. Overall, the current dissertation underscores the importance of adopting a multidimensional and ecological account of ethnic prejudice when building interventions aimed at supporting the adjustment of youth in current multicultural societies.

Keywords: ethnic prejudice; adolescence; empathic competences; identity; family; classroom context; media influences; well-being

Abstract Italiano

Comprendere in che modo gli adolescenti sviluppano i loro atteggiamenti nei confronti della diversità è fondamentale per promuovere il benessere e l'integrazione dei giovani nelle società multiculturali attuali. Lo sviluppo degli atteggiamenti è influenzato dalle esperienze e dalle interazioni che gli adolescenti hanno nei numerosi contesti di vita. Pertanto, questo lavoro di tesi si è posto l'obiettivo di studiare in che modo molteplici influenze prossimali e distali contribuiscono allo sviluppo del pregiudizio affettivo e cognitivo. Il Capitolo 1 offre un inquadramento teorico generale del presente lavoro, orientato dal modello dei sistemi ecologici e dalla teoria transazionale allo sviluppo. I capitoli successivi (dal Capitolo 2 al Capitolo 10) presentano una serie di studi empirici organizzati in quattro sezioni che indagano il ruolo di fattori individuali e identitari (Sezione A), l'influenza dei contesti prossimali (Sezione B) e distali (Sezione C), e infine le conseguenze del pregiudizio etnico in adolescenza (Sezione D).

Gli studi inclusi nella Sezione A hanno indagato in che modo i fattori individuali e identitari contribuiscono a cambiamenti nei livelli di pregiudizio. Nello specifico, il Capitolo 2 ha evidenziato le associazioni tra pregiudizio e competenze empatiche e il ruolo cruciale della comprensione empatica nel prevenire lo sviluppo di emozioni negative e stereotipi nei confronti delle minoranze etniche. Il Capitolo 3 ha invece distinto gli adolescenti in tre gruppi caratterizzati da livelli bassi, moderati, e alti di pregiudizio affettivo e cognitivo e ha osservato come la tendenza degli adolescenti a esplorare in profondità le loro scelte identitarie nel dominio educativo sia predittiva della loro appartenenza a uno dei diversi gruppi di pregiudizio. Il Capitolo 4 ha ulteriormente esteso la nostra comprensione delle associazioni tra identità e pregiudizio evidenziando come un aumento momentaneo nei livelli di identificazione con il gruppo nazionale e quello degli esseri umani possano contribuire a

una significativa riduzione dei livelli di pregiudizio nei confronti di diversi gruppi etnici minoritari.

La Sezione B ha posto l'attenzione su come i contesti prossimali di sviluppo possano contribuire ai cambiamenti nei livelli di pregiudizio. Da una parte, il Capitolo 5 ha fatto emergere in che modo i genitori e compagni di classe possono influenzare cambiamenti nei livelli di pregiudizio degli adolescenti agendo come contesti di socializzazione sia separatamente che in modo combinato, e come queste influenze vengano mantenute indipendentemente dall'età e dai livelli con cui gli adolescenti si identificano con questi gruppi prossimali. Dall'altra, il Capitolo 6 ha evidenziato che il modo in cui i giovani narrano le loro esperienze passate di studio all'estero in adolescenza si associa al consolidamento della loro identità nazionale ad europea e a minori livelli di pregiudizio.

La Sezione C ha poi indagato le influenze di fattori distali sui cambiamenti nei livelli di pregiudizio degli adolescenti. Nello specifico, i risultati del Capitolo 7 hanno evidenziato che la valenza (neutrale, positiva, o negativa) e il target (migrante, straniero, rifugiato) delle notizie di giornale riguardanti persone appartenenti alle minoranze etniche possono contribuire a cambiamenti significativi nei livelli di pregiudizio, indipendentemente dal fatto che i giovani fruiscano dei quotidiani nazionali come mezzo d'informazione. In modo analogo, il Capitolo 8 ha osservato come all'aumentare della salienza mediatica delle notizie relative alla guerra tra Russia e Ucraina si associ una diminuzione significativa del pregiudizio nei confronti della minoranza Ucraina in Italia.

La Sezione D ritorna ad un focus sull'individuo con l'obiettivo di comprendere le conseguenze del pregiudizio per il benessere di giovani appartenenti sia al gruppo etnico minoritario che a quello maggioritario. Il Capitolo 9 ha revisionato in modo sistematico gli studi longitudinali che hanno indagato l'influenza dei fattori eso- e macro-contestuali sulla qualità del sonno e ha evidenziato che appartenere al gruppo etnico minoritario ed essere

esposti a forme di violenza e discriminazione hanno un impatto negativo sui livelli di adattamento. Questa ricerca ha altresì mostrato la mancanza di studi volti ad indagare le conseguenze in termini di benessere per gli adolescenti che mostrano alti livelli di pregiudizio. Alla luce di ciò, il Capitolo 10 ha indagato le relazioni nel medio e nel breve termine tra pregiudizio etnico e molteplici indicatori di benessere in un gruppo di adolescenti del gruppo maggioritario. Questo studio ha evidenziato che un aumento giornaliero nei livelli di benessere contribuisce a una riduzione significativa nei livelli di pregiudizio, mentre un aumento nei livelli di pregiudizio nel medio termine conduce a una riduzione significativa del benessere.

Infine, il capitolo conclusivo (Capitolo 11) discute i risultati principali di questa ricerca alla luce dei suoi limiti e punti di forza. Inoltre, ne evidenzia le implicazioni pratiche e teoriche. In generale, questo lavoro di tesi sottolinea l'importanza di adottare una prospettiva multidimensionale ed ecologica per studiare il pregiudizio etnico e progettare interventi volti a favorire l'adattamento dei giovani alle società multiculturali attuali.

Parole chiave: pregiudizio etnico; adolescenza; competenze empatiche; identità; famiglia; contesto classe; influenze mediatiche; benessere

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CHAPTER **1**

General Introduction

General Introduction

Increasing migration flows and globalization have contributed to significant demographic and cultural changes that are central to the social fabric of current societies (Meissner, 2019). This means that many adolescents nowadays live in multicultural contexts and engage in frequent interactions with adults and peers of different ethnic backgrounds (Bagci & Rutland, 2019). Therefore, to promote the cohesion of current societies and the positive adjustment of both majority and minority members, it is crucial to understand how attitudes toward ethnic diversity develop, especially in adolescence. This is an important life phase for forming and consolidating attitudes and beliefs about the self and others (Meeus, 2019). The progressive sophistication of cognitive competences (Kuhn, 2009) and the advancements in social and moral reasoning (Killen & Smetana, 2014) support youth in the definition of their values and views. In turn, adolescents' beliefs and attitudes are maintained over time and orient their social and political stances in adulthood (Rekker et al., 2015). In other words, understanding the development and correlates of ethnic prejudice in adolescence might offer fruitful insights into the social and political orientations characterizing the future generation of adults (Crocetti et al., 2021).

Ethnic prejudice can be defined as a set of negative emotions, attitudes, and behaviors against ethnic minority individuals "based upon a faulty and inflexible generalization" (Allport, 1954, p. 9). As can be inferred from this definition, prejudice is a multifaceted and social phenomenon. On the one hand, it encompasses not only an affective (i.e., negative emotions and disliking), but also a cognitive (i.e., stereotypes and negative beliefs) facet, which together can orient behavioral expressions ranging from avoidance to overt aggression (Brown, 2011). On the other hand, ethnic prejudice results from processes of social categorization and identification with relevant groups (Brown, 2020; Reicher et al., 2011). Specifically, Self-Categorization Theory (SCT; Turner et al., 1987) posits that, depending on

a combination of individual and contextual conditions, people can define themselves as individuals (i.e., personal identity), as members of relevant groups (i.e., social identity), or as members of the superordinate human group (i.e., human identity). Relying on one or the other level of self-categorization has important implications for intergroup attitudes and experiences. Relatedly, according to Social Identity Theory (SIT; Tajfel & Turner, 1979), when group identities are psychologically salient, individuals display a preference for ingroup members compared to outgroup others ("Us vs. Them") because these favorable evaluations reflect positive on their sense of self. Despite stemming from hard-wired cognitive strategies, ethnic prejudice is not endorsed equally by all individuals. This means that interindividual differences in ethnic prejudice need to be tackled by deepening the understanding of how ethnic prejudice is formed, consolidated, and expressed throughout the lifespan (Bigler & Liben, 2007).

Building upon these premises and answering a call for a combined social and developmental approach to studying prejudice in youth (Rutland et al., 2007), the present dissertation benefitted from a cross-fertilization among these two disciplines. On the one hand, it combined the theoretical pillars of both social (i.e., social identity theory and self-categorization theories; Tajfel & Turner, 1979; Turner et al., 1987) and developmental (i.e., social identity development theory; Bigler & Liben, 2007; Nesdale, 2004) fields. On the other hand, it adopted a developmental methodology (i.e., longitudinal design) to study the correlates of an inherently social phenomenon (i.e., ethnic prejudice). These theoretical and methodological approaches were situated within the ecological systems (Bronfenbrenner, 1992; Bronfenbrenner & Morris, 2007) and the transactional (Sameroff, 2009) models as overarching frameworks to tackle the development and correlates of ethnic prejudice in adolescence.

Ethnic Prejudice Development in Context

Ethnic prejudice can have heinous consequences for the positive adjustment of individuals as well as for the cohesion of society (Graf et al., 2020). Therefore, it is crucial to understand how individuals form their attitudes toward diverse others throughout the lifespan. Social developmental theories (e.g., Aboud & Amato, 2002; Nesdale, 2004) contend that young children can already distinguish relevant social categories (e.g., gender, ethnicity) and progressively display a preference for peers and adults who are similar to them. Such ingroup preference represents the building block of prejudice, which can emerge under facilitating individual (e.g., strong identification with the ingroup) and contextual (e.g., salience of ethnic categories) conditions (Nesdale, 2004). In line with these assumptions, prior meta-analytical findings have highlighted that ethnic prejudice emerges in early childhood, peaks between 5 and 7 years, and slightly decreases in late childhood (Raabe & Beelmann, 2011). Additionally, it was found to remain relatively stable throughout adolescence (Crocetti et al., 2021), possibly as a consequence of opposing processes that contribute to either reducing (e.g., more sophisticated cognitive abilities; Albarello et al., 2020) or increasing (e.g., decreased social trust; Flanagan & Stout, 2010) negative attitudes and feelings toward diverse others. Thus, these findings about mean-level stability do not imply that ethnic prejudice levels do not change for any adolescents. For instance, some youth might display significant decreases, while others maintain their initial levels, and others report significant increases in negative intergroup attitudes (Crocetti et al., 2021). Thus, it is of utmost importance to uncover different developmental trajectories. Furthermore, prior longitudinal research on the development of ethnic prejudice has mostly neglected its multifaceted nature, limiting our understanding of similarities and differences across its components. The present dissertation sought to overcome these limitations by adopting a multidimensional and person-centered approach to study how ethnic prejudice changes throughout adolescence (Chapter 3). Further,

it aimed to offer additional insight on the development of ethnic prejudice by examining its longitudinal changes across different time scales (i.e., daily, monthly, yearly) and age groups (i.e., early and late adolescents, emerging adults).

Besides understanding if and how multiple facets of ethnic prejudice change throughout adolescence, it is crucial to unravel which factors can influence these trajectories. In line with the ecological system framework (Bronfenbrenner, 1992, 2005), the development of ethnic prejudice can be conceived as embedded in and influenced by the encounters and conditions that youth experience across the multiple proximal and distal contexts that surround them (see Figure 1). Additionally, such development is not unidirectional but rather it implies continuous dynamic transactions between adolescents and their environments (Sameroff, 2009). In other words, ethnic prejudice levels change as a consequence of external influences. At the same time, they also shape how youth perceive and approach diversity and the extent to which they successfully adjust to the profound changes of their contexts of development. Along this line, the present dissertation sought to examine the individual and identity (Section A) correlates of ethnic prejudice, as well as those positioned in the proximal (Section B) and distal (Section C) contexts of development, and to unravel the implications of holding prejudicial attitudes for self-adjustment and others' well-being (Section D).

Figure 1.1
Ecological model of ethnic prejudice development
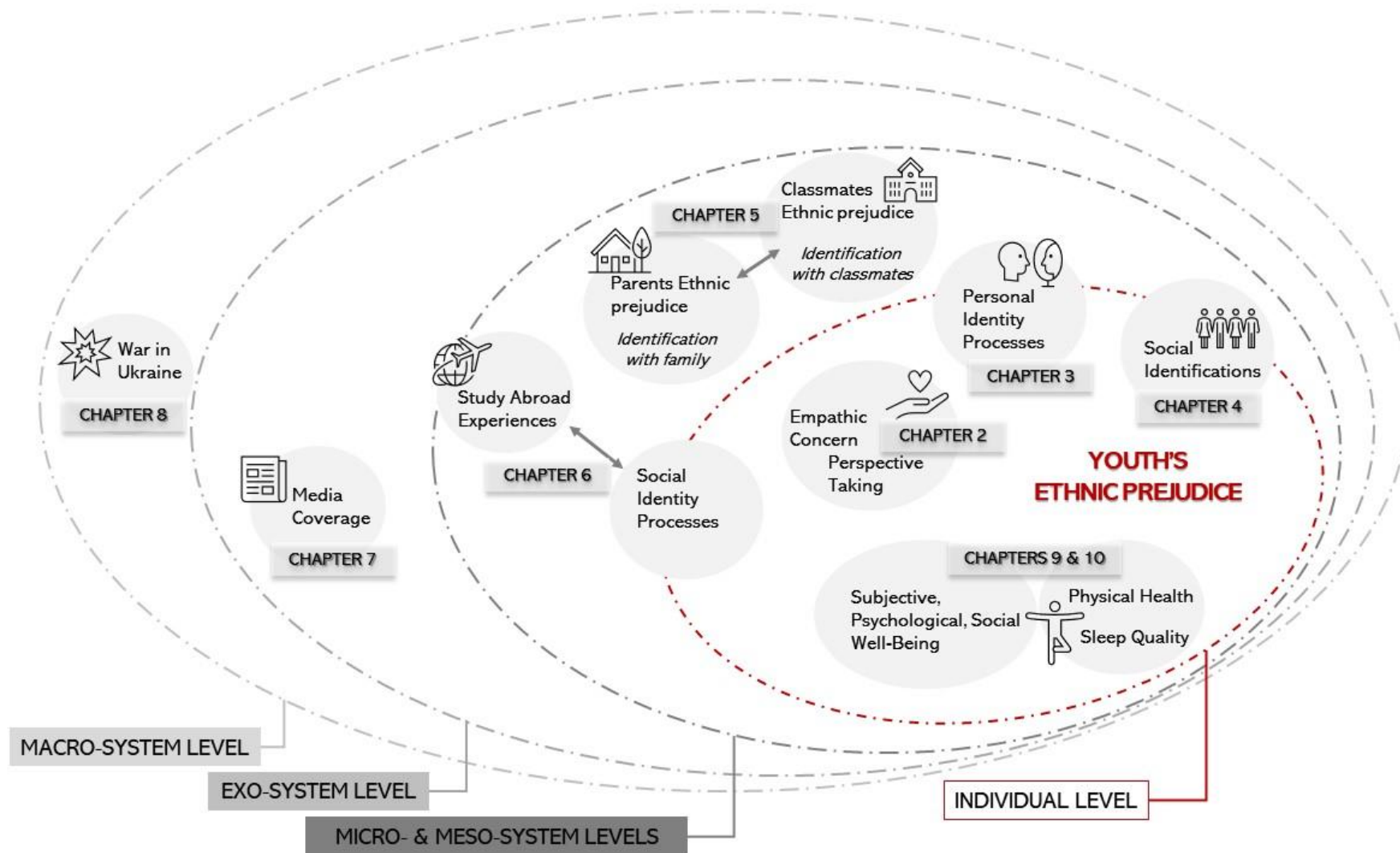
Section A: Individual and Identity Factors

The literature on correlates of ethnic prejudice has considered several factors that can be grouped into individual and socio-contextual variables (Crocetti et al., 2021). Section A of the current dissertation focused on the former to unravel how the development of ethnic prejudice is intertwined with the crucial advancements that characterize adolescence and the transition to emerging adulthood. Specifically, at this life phase, youth can rely on more sophisticated socio-cognitive competences, among which empathy (for a review, see Van der Graaff et al., 2020), and consolidate their personal and social identity (Crocetti, 2017). The three studies included in this section aimed to understand whether these processes can influence how youth think and feel about diverse others.

The Role of Empathic Competences

Empathic competences refer to the affective (i.e., empathic concern) and cognitive (i.e., perspective-taking) responses to others' emotional condition (Eisenberg, 2000) that can support prosocial behavior in interpersonal and intergroup situations (Rutland & Killen, 2015). For instance, prior research has highlighted that higher levels of empathic competences supported youth in developing more positive attitudes towards diverse others (e.g., Miklikowska, 2018; van Bommel et al., 2020). Nevertheless, the interplay between different components of empathic competences and prejudice is still largely underexplored.

To fill this gap, **Chapter 2** adopted a multidimensional and longitudinal approach to delve into the interplay between multiple dimensions of empathic competences (i.e., empathic concern and perspective-taking) and different facets of ethnic prejudice (i.e., affective, cognitive, and behavioral) in early adolescence. In doing so, it shed light on the associations within and across the components of each construct. Such knowledge is crucial not only to extend the theoretical understanding of these phenomena, but also to build evidence-based and developmentally-sensitive interventions to equip adolescents with fundamental

competences to deal with the increasing diversity of current societies (Beelmann & Lutterbach, 2021).

The Role of Personal and Social Identity

The definition and re-definition of one's identity represent a crucial developmental quest that can support well-being and adjustment, especially in adolescence (for a review, see Crocetti et al., 2023). During this life phase, youth can form multiple personal identity commitments in relevant domains (e.g., education; Negru-Subtirica & Pop, 2018) and similarly develop a sense of social identification with several groups (e.g., national and human groups). Relatedly, the ways in which adolescents approach diversity might be influenced by how they define themselves as individuals (i.e., personal identity) and members of relevant groups (i.e., social identity). However, there is a dearth of studies addressing the interplay between identity and prejudice in adolescence (Albarello, Crocetti, et al., 2018).

The studies included in the present dissertation aimed to fill this gap along multiple lines. On the one hand, **Chapter 3** addressed the development of affective and cognitive prejudice in the transition from late adolescence to emerging adulthood and examined whether personal identity commitment in the educational domain can contribute to different trajectories of growth in prejudice levels. On the other hand, **Chapter 4** unraveled the associations between national and human identifications and prejudice against the most represented ethnic minorities in the Italian context (ISTAT, 2020), by disentangling their stable and fluctuating levels. Overall, these studies offered important insight into the intertwined development of identity and prejudice and paved the way to examining both processes as embedded in multiple proximal contexts.

Section B: The Proximal Contexts of Development

According to the ecological systems framework (Bronfenbrenner, 1992, 2005), individual development occurs within multiple micro-contexts, mainly the proximal

environments with which youth come into direct and frequent contact. In this vein, the family and classroom/school represents primary socialization contexts for adolescents (e.g., Degner & Dalege, 2013; Miklikowska & Bohman, 2019). On the one hand, social agents (e.g., parents, classmates) in these micro-systems can act as important reference points to orient youth in defining their own identity, attitudes, and behaviors. On the other hand, these environments shape the experiences and opportunities (e.g., studying abroad) that adolescents have the opportunity to encounter diversity. Additionally, the influences at play within one micro-context (e.g., the family) are not isolated from the ones occurring in another (e.g., the school). Rather, these contexts closely interact with one another (i.e., meso-system level) and can either extend or narrow the range of opportunities and experiences that youth encounter. The studies included in Section B aimed to unravel how ethnic prejudice is fed by proximal contexts and experiences.

The Role of the Family and Classroom Contexts

Social learning and socialization approaches underscore that attitudes can be learned and acquired through the observation of relevant others, such as parents and peers (Allport, 1954; Bandura, 1977). The family represents the foremost context for such socialization practices because parents not only overtly communicate their own attitudes and beliefs, but also manage their offspring's social world and opportunities (Grusec, 2011). Both processes contribute to parent-child similarity in attitudes, as highlighted by previous research (for reviews, see Degner & Dalege, 2013; Zagrean et al., 2022). Moreover, the classroom context becomes increasingly relevant in adolescence by offering a social setting where youth can meet diverse others, learn about the shared norms and attitudes, and develop their own personal social and political views (e.g., Kudrnáč, 2021; Miklikowska et al., 2022; Thijs & Verkuyten, 2013).

However, most research tackling the role of parents and peers in influencing ethnic prejudice has relied on cross-sectional designs and examined each context separately. Additionally, prior studies have not investigated the individual and identity factors that can facilitate or hinder the transmission processes at play. Therefore, **Chapter 5** sought to shed light on the longitudinal, and possibly reciprocal, influences occurring in the family and classroom contexts, the social identity factors contributing to these processes, and on their synergic effects for changes in youth's affective and cognitive prejudice.

Study Abroad Experiences and Ethnic Prejudice

Besides the direct and indirect influences exerted by the main social agents in the proximal contexts of development, school and family can also offer opportunities to enlarge adolescents' knowledge about themselves and others. In other words, these contexts can help youth transition from one life condition to another, and offer the chance to experience different physical, relational, and cultural environments. For instance, with the support of their parents (Falcon Campon, 2018) and schools (e.g., Potts, 2015), adolescents nowadays have the opportunity to approach and navigate different cultural contexts through study abroad experiences. International mobility represents a crucial transition moment that heighten the salience of identity-related questions and exposes individuals to different cultural practices and conditions (e.g., Greischel et al., 2019; McKay et al., 2019).

Although these experiences are becoming increasingly more common in adolescence (e.g., European Commission, 2022; Knight, 2013), most research has tackled the implications of studying abroad for the development and adjustment of university and college students. To fill this gap, the study in **Chapter 6** sought to unravel the implications of international mobility experiences in adolescence for their social identity processes (in the national and European domains) and affective and cognitive prejudice levels in emerging adulthood. By relying on a mixed-method design, this study linked the ways in which youth retrospectively

narrate their study abroad experiences in adolescence to their current social identity and intergroup processes to further extend the knowledge on the implications of international mobility for individual development and society integration.

Section C: Distal Contexts of Development

Most research on youth's development has focused on the role of the micro- and meso-systems, due to their physical and relational proximity to the individual. These proximal contexts are themselves embedded in and influenced by broader factors positioned in the outer layers of individuals' ecological environments (Bronfenbrenner & Morris, 2007). Specifically, the exo-system includes formal and informal influences (e.g., media and information environment) occurring in contexts that indirectly impact the individuals, whereas the macro-system encompasses the events, shared beliefs, and climate that set overarching contextual conditions under which youth develop. Despite their distal position in human ecology, these systems can be especially powerful because they can exert an influence not only on adolescents' development but can also shape the dynamics at play within youth's proximal contexts. Building upon these premises, studies included in Section C sought to examine the role of media and the information environment in influencing adolescents' feelings and thoughts about diverse others.

The Role of Media and Information Environment

Media play an important role in shaping how adults think about diverse others because they provide stereotypical representations of outgroups which become readily accessible for later judgments (for a review, see Mastro, 2009). However, less is known about their impact on youth's beliefs and emotions. Therefore, the present dissertation aimed to fill this gap by examining which features (i.e., quantity, valence, status of the target) of the news about ethnic minorities can contribute to changes in adolescents' affective and cognitive ethnic prejudice.

Relatedly, **Chapter 7** delved into the role of media in influencing prejudice by focusing on the quantity, the valence (i.e., neutral, positive, or negative statements), and the category assigned to the target (i.e., migrant, refugee, foreigner) in the national newspaper. Further, this study examined whether the extent to which youth relied on the newspaper as a source of information would moderate the mediatic influences at play (if any). This knowledge is crucial to identify the factors that put adolescents at higher risk of developing or consolidating negative intergroup attitudes via direct and indirect media consumption.

The Role of Historical Events

The media are an important source of information that extends beyond the national context and offer insights into the global world and historical events characterizing the shared chrono-system. In other words, they represent a "window" into the broader world. Along this line, prior research has highlighted the implications of the media salience of negative historical events involving ethnic minority groups (e.g., terrorist attacks, migration waves) for adults' attitudes (e.g., Czymara & Dochow, 2018; de Rooij et al., 2015). On the contrary, it is less clear whether the attention given to events that are negatively affecting others (e.g., portraying the sufferings of a foreign population) could impact how adolescents come to feel about them. For instance, through mediatic recounts, far-away places become accessible, and others' experiences can be empathetically observed, thus possibly influencing individuals' beliefs and emotions.

Relatedly, over the past year, the media have provided detailed recounts of the Russia-Ukraine war, the first active conflict occurring in the European continent since the end of World War II. Therefore, **Chapter 8** aimed to examine whether the media salience of the Russia-Ukraine war can contribute to changes in adolescents' feelings toward the Ukrainian minority group in Italy. This study focused on both traditional (i.e., national newspaper) and modern (i.e., Twitter) media outlets, and examined whether the direct consumption of these

information sources would moderate their influence on adolescents' prejudice. Understanding whether and how distal contexts and events that are only indirectly experienced can alter individuals' attitudes is crucial to increase the effectiveness of interventions targeting ethnic prejudice and intergroup relations in adolescence and supporting individuals' adjustment and well-being.

Section D: Implications of Ethnic Prejudice

Ethnic prejudice can have heinous consequences not only for the cohesion of multicultural societies, but also for the well-being of individuals. Specifically, due to the increasing diversification of the multiple contexts of youth development, successfully navigating such diversity becomes a crucial skill (McKeown et al., 2019). Along this line, the studies included in Section D sought to examine the implications of prejudicial behaviors, thoughts, and feelings for the positive adjustment of ethnic minority and majority adolescents.

The Distal Determinants of Sleep Functioning in Adolescence

Adolescence is characterized by several changes in biological and interpersonal factors that contribute to altering the duration and quality of sleep (Carskadon, 2011; McGlinchey, 2015). In turn, a compromised sleep functioning can impair adolescents' mental health and adjustment across multiple domains (e.g., Jamieson et al., 2020; Owens, 2014). Such changes are not only dependent upon individual (e.g., pubertal changes; Foley et al., 2018) and proximal factors (e.g., parent-child relationship; for a review, see Varma et al., 2021), but are strongly intertwined with structural conditions (e.g., ethnic minority status) and experiences (e.g., violence, discrimination) in the distal environments. For instance, ethnic-based discrimination has been found to threaten the victims' self-esteem (e.g., Greene et al., 2006), psychological and social adjustment (e.g., Huynh & Fuligni, 2010; for a meta-analysis,

see Schmitt et al., 2014), and physical health (for a meta-analysis, see Pascoe & Richman, 2009).

Along this line, **Chapter 9** systematically reviewed the literature on the exo- (i.e., neighborhood characteristics and experiences) and macro-contextual (i.e., ethnicity and discrimination) factors associated with longitudinal changes in sleep duration, quality, and disturbances in adolescence. Findings from this systematic review pointed to the detrimental consequences of discrimination and ethnic minority status on the sleep functioning of ethnic diverse youth. However, they also highlighted the lack of studies examining the implications of holding prejudicial attitudes for ethnic majority adolescents in current multicultural societies.

Does Holding Ethnic Prejudice Influence the Well-Being of Ethnic Majority Adolescents?

Extensive research has tackled the detrimental consequences of perceived discrimination for ethnic minority youth (for reviews, see Benner, 2017; Benner et al., 2018). On the contrary, only a few studies (e.g., Dinh et al., 2014; Gordon, 2018) have examined whether having high levels of prejudice could impair the well-being of ethnic majority individuals in current multicultural societies. However, prior research on this topic has almost exclusively focused on young adult (i.e., university students) and adult samples and has neglected to examine the interplay of prejudice and well-being in adolescence.

Building upon these premises, **Chapter 10** aimed to fill this gap by examining the medium-term (Study I) and daily (Study II) longitudinal interplay between affective and cognitive prejudice and well-being. In line with World Health Organization (WHO) guidelines, this study included a multidimensional account of well-being, defined as a state of physical (i.e., general health and positive sleep functioning), subjective, psychological, and social adjustment that allows adolescents to thrive and realize their full potential across their multiple contexts of development (Ross et al., 2020). Further, this study adopted a person-

centered approach by disentangling association between averaged levels and within-person fluctuations in prejudice and well-being outcomes.

Outline of the Present Dissertation

In light of these considerations, the present dissertation sought to delve into the development and correlates of ethnic prejudice by adopting a cross-fertilized, multidimensional, and ecological approach. Specifically, it examined ethnic prejudice as embedded in and hesitating from the dynamic interplay with several factors, agents, and events in the multiple layers of youth's developmental environment (see Figure 1). As briefly outlined above, the empirical studies included in the present dissertation are organized in four sections, tackling the individual and identity factors (Section A), the role of proximal (Section B) and distal (Section C) contexts, and the implications (Section D) of ethnic prejudice in adolescence and during the transition to emerging adulthood. Table 1 provides an overview of the aim(s), constructs, and context(s) examined in each study included in this dissertation.

Overall, this research aimed to provide a comprehensive and nuanced understanding of the development, correlates, and implications of ethnic prejudice in youth. On the one hand, such knowledge is crucial to extend the current theoretical framework for the study of intergroup attitudes and relationships. On the other hand, it may also inform age-sensitive interventions that focus on core factors contributing to the development of negative emotions and cognitions about ethnic minorities and prevent its negative consequences for the successful adjustment of adolescents in current multicultural societies.

Table 1.1

Overview of the studies included in the present dissertation

Chapter	Aim(s)	Facets of Prejudice	Construct(s)	Context(s)
Section A: Individual and Identity Factors				
Chapter 2	To investigate the longitudinal reciprocal associations across and between multiple components of empathic competences and prejudice.	Affective, cognitive, behavioral	Empathic concern, Perspective-taking	Individual
Chapter 3	To study (a) the development of ethnic prejudice from adolescence to emerging adulthood, and (b) the role of educational identity processes in influencing trajectories of change.	Affective, cognitive	Educational identity processes	Individual
Chapter 4	To understand the longitudinal interplay between (a) prejudice and national identification, and (b) prejudice and human identification.	Affective	National identification, Human identification	Individual
Section B: Proximal Contexts of Development				
Chapter 5	To examine (a) the unique, common, and synergic longitudinal influences of parents and classmates on adolescents' prejudice, and (b) whether social identification processes and age moderate these links.	Affective, cognitive	Parents' prejudices, Classmates' prejudices, Identification with family, Identification with classmates	Family, classroom, individual
Chapter 6	To understand whether the retrospective narratives about studying abroad in adolescence influence (a) social identity processes directly, and (b) ethnic prejudice directly and indirectly (via social identity).	Affective, cognitive	Narratives of study abroad, National identity processes, European identity processes	Individual, country/cultural context

Section C: Distal Contexts of Development			
Chapter 7	To understand whether (a) the quantity, valence, and target of the news about foreigners influence ethnic prejudice, and (b) these effects hold regardless of youth's direct consumption of the news.	Affective, cognitive	News features, Newspaper consumption	Media
Chapter 8	To examine whether (a) media salience of the Russia-Ukraine war was linked to changes in prejudice against the Ukrainian minority, and (b) media consumption moderate these effects.	Affective	Newspaper salience, Twitter salience, Newspaper consumption, Social media consumption	Media, historical context
Section D: Implications of Ethnic Prejudice			
Chapter 9	Systematically review findings on the longitudinal associations between exo- and macro-contextual factors and experiences and sleep.	Discrimination	Sleep duration, sleep quality	Neighborhood, macro-context
Chapter 10	To study the interplay between ethnic prejudice and adjustment outcomes (a) in the medium-term, and (b) at a daily level.	Affective, cognitive	Physical health, subjective, social, psychological well-being, sleep quality	Individual

Study Designs and Samples

The empirical studies (from Chapter 2 to Chapter 10) included in the current dissertation relied on data from four research projects: the EMPATHY "Empathy and intergroup relationships in adolescence" project (Chapter 2), the WHO AM I? "Identity formation and psycho-social well-being in adolescence" project (Chapter 3), the ABROAD "Study abroad experiences in adolescence: A retrospective research" project (Chapter 6), and the IDENTITIES "Managing identities in diverse societies: A developmental intergroup perspective with adolescents" project (Chapters 4, 7, 8, and 10). While the EMPATHY, WHO AM I?, and IDENTITIES studies relied on a longitudinal design, the ABROAD project was a retrospective mixed-method research. Table 2 details information concerning the design and provides an overview of the sample of each empirical study included in the present dissertation.

Table 2.1

Information on study design and sample of the empirical studies included in the dissertation

Chapter	Project	Study Design	Waves (if any)/Procedure	Sample	
				N	*M*$_{age}$ at T1
Section A: Individual and Identity Factors					
Chapter 2	EMPATHY	Longitudinal	T1: April 2021 T2: May 2021 T3: October 2021	259 Italian adolescents	15.60
Chapter 3	WHO AM I?	Longitudinal	T1: November 2016 T2: February 2017 T3: May 2017 T4: May 2018 T5: May 2019	297 Italian adolescents	17.48
Chapter 4	IDENTITIES	Longitudinal	T1: January/February 2022 T2: April/May 2022 T3: September/October 2022 T4: January/February 2023	883 Italian adolescents	15.66
Section B: Proximal Contexts of Development					
Chapter 5	IDENTITIES	Longitudinal Multi-informant	T1: January/February 2022 T2: January/February 2023	688 Italian adolescents 603 mothers 471 fathers	15.61 49.51
Chapter 6	ABROAD	Retrospective Mixed-method	Online questionnaire followed by an interview on their past experience abroad. Interviews were coded for agency and self-event connections.	117 Italian youth who completed a period abroad in adolescence	22.71

Section C: Distal Contexts of Development					
Chapter 7	IDENTITIES	Longitudinal	T1: April/May 2022 T2: September/October 2022	962 Italian adolescents	15.67
Chapter 8	IDENTITIES	Longitudinal	T1: January/February 2022 T2: April/May 2022	1,016 Italian adolescents	15.66
Section D: Implications of Ethnic Prejudice					
Chapter 9	-	Systematic review, Meta-analysis	Studies were systematically reviewed following PRISMA guidelines.	10 studies	-
Chapter 10 (Study I)	IDENTITIES	Longitudinal, Multi-method	T1: January/February 2022 T2: April/May 2022 T3: September/October 2022 T4: January/February 2023	1,103 Italian adolescents	15.66
Chapter 10 (Study II)	IDENTITIES	Daily diary, Multi-method	Daily assessment over one week in January/February 2023	458 Italian adolescents	15.58

SECTION A

Individual and Identity Factors

CHAPTER **2**

"I Feel You!": The Role of Empathic Competences in Reducing Ethnic Prejudice Among Adolescents

Bobba, B., & Crocetti, E. (2022). "I feel you!": The role of empathic competences in reducing ethnic prejudice among adolescents. *Journal of Youth and Adolescence*, *51*, 1970–1982. https://doi.org/10.1007/s10964-022-01650-0

Abstract

Empathic competences might help adolescents navigate current multicultural societies by supporting harmonious intergroup relations. Yet it is unclear how each component of empathy (empathic concern and perspective-taking) is associated with different dimensions (affective, cognitive, behavioral) of ethnic prejudice. The current study aims to fill this gap. A total of 259 Italian adolescents (M_{age}=15.60, 87.6% female) completed online questionnaires at three time points (i.e., April, May, and October 2021). The results of cross-lagged models indicated that empathic concern was directly and indirectly associated with reduced affective, cognitive, and behavioral ethnic prejudice, while perspective-taking was linked to increases in cognitive and one facet of behavioral (i.e., lower contact willingness) prejudice. Furthermore, the prevalence of affect over cognition was found, with the affective component of both empathic competences (i.e., empathic concern) and ethnic prejudice exerting the strongest influence on the cognitive ones.

Keywords: empathic competences; ethnic prejudice; intergroup attitudes; perspective-taking; longitudinal

Introduction

Migration flows and geopolitical changes have brought adolescents to live in increasingly multicultural societies and interact with peers and adults of different ethnic backgrounds (Bagci & Rutland, 2019). However, prejudice of ethnic majority adolescents against ethnic minorities and immigrants is still a matter of concern (Crocetti et al., 2021). In this regard, young people are generally more tolerant toward social groups that have traditionally been marginalized (such as sexual minorities), but they are less accepting of the immigrant groups compared to older generations (Janmaat & Keating, 2019). Therefore, a core issue is to understand which factors could reduce adolescents' prejudice in order to promote more inclusive relations in multicultural societies. While empathy can play a key role in lessening negative intergroup attitudes (Aboud & Amato, 2002; Rutland & Killen, 2015), the ways in which affective and cognitive components of empathic competences are developmentally related to distinct facets of prejudice are still largely unknown. Therefore, this study took a multidimensional approach to examine longitudinal associations between different dimensions of empathic competences and multiple components (i.e., affective, cognitive, and behavioral) of ethnic prejudice in adolescence. To unravel these links is of utmost importance to develop evidence-based interventions aimed at improving the quality of relations among adolescents of different ethnic groups.

Empathic Competences: The Interplay of Empathic Concern and Perspective-Taking

In adolescence, youth undergo significant changes in personality and relationships and develop more refined cognitive, social, moral, and emotional competences (Meeus, 2019). These crucial advancements influence adolescents' views of themselves and others, which progressively stabilize into mature attitudes and approaches to society and diversity (Crocetti et al., 2021). A key individual skill that has been linked to positive intergroup experiences and adjustment is empathic competences.

As a trait, empathic competences refer to the individuals' general disposition of engaging in an affective and cognitive response after the apprehension of someone else's emotional state (Malti & Ongley, 2014). Experiencing emotions consistent with those of a target person (the so-called parallel empathy) often results in *empathic concern*, which involves other-oriented feelings of sorrow and sadness for the person's unfavorable condition and represents the affective component of empathic competences (Eisenberg et al., 2006). The cognitive component is *perspective-taking*, which implies the ability to understand and take on the point of view of a target person (Van der Graaff et al., 2020).

Although interdependent, empathic concern and perspective-taking are distinct constructs. Besides relying on different neural bases (Stietz et al., 2019), they follow specific developmental trajectories (Van der Graaff et al., 2020). While most studies highlighted an increase in perspective-taking abilities (e.g., Miklikowska et al., 2011), research on the development of empathic concern reported mixed findings (for a review, see Van der Graaff et al., 2020). Furthermore, empathic concern and perspective-taking have shown unique associations with several outcomes (e.g., prosocial behavior, conflict resolution; Van der Graaff et al., 2018; Van Lissa et al., 2016) in adolescence.

From a theoretical standpoint, emotional contagion (or parallel empathy) is expected to precede the cognitive appraisal of the other person's point of view (i.e., perspective-taking), which in turn causes empathic concern (Batson, 2009; Decety, 2005). Empirical research testing these theoretical assumptions is still scarce, and findings are mixed. For instance, reciprocal longitudinal associations were found between empathic concern and perspective-taking among Swedish (Miklikowska, 2018) and Dutch adolescents (Van der Graaff et al., 2018), with the former predicting subsequent levels of the latter and vice versa. However, when separating within- and between-person variance, the effect of empathic concern on perspective-taking was stronger than its reverse (Miklikowska, 2018). In line with

this, another study that followed adolescents longitudinally only found a significant effect of empathic concern on subsequent levels of perspective-taking (van Lissa et al., 2014), highlighting the key role of the affective component.

Taken together, there is preliminary support for the prevalence of affect over cognition in the interplay of the two dimensions of empathic competences. The current study aimed to contribute to the literature by unraveling the longitudinal associations between empathic concern and perspective-taking. Additionally, it examined the unique associations of each dimension of empathic competences with different components of ethnic prejudice.

Ethnic Prejudice and its Components

Ethnic prejudice can be defined as "any attitude, emotion, or behavior" (Brown, 2011, p. 7) that people hold against one or more ethnic outgroup(s). Therefore, prejudice implies multiple components, which are facets of the same general orientation. *Affective prejudice* refers to negative feelings and evaluations (i.e., disliking) elicited by one or more ethnic group(s). In contrast, *cognitive prejudice* implies a set of usually negative beliefs and opinions (i.e., stereotypes) about members of the outgroup. Additionally, prejudice also includes *behavioral tendencies* (e.g., avoidance, discrimination) that usually express underlying cognitions and affects (Brown, 2011; Cuddy et al., 2007). This three-dimension model aligns with the traditional Affect-Cognition-Behavior (ABC) models of attitudes (Eagly & Chaiken, 1993; Rosenberg & Hovland, 1960).

It has long been debated whether a predominant component of prejudice over the others could be identified, with the former leading the organization of the latter (Hamilton & Mackie, 1993). One approach considers cognitive processes (i.e., categorization, salience, biases) as pivotal driving forces influencing emotional reactions and behavioral tendencies toward a target outgroup. For instance, the classic experiments on the minimal group paradigm (Tajfel et al., 1971) showed that mere categorization in different groups drive

preference for one's own group and discrimination against members of other groups (Bigler & Liben, 2007). Additionally, the stereotype content model (Fiske et al., 2002) highlighted that cognitive prejudice (i.e., stereotypes) stemming from social categorization and appraisal processes lead to emotional reactions (i.e., the affective component of prejudice) toward the target groups. Additionally, these theoretical approaches have considered affective prejudice a key antecedent of behavioral tendencies (Dovidio et al., 2004) and a mediator in the association between cognitive and behavioral prejudice (Cuddy et al., 2007). Conversely, other approaches underline the precedence of affect over cognition and behavior (e.g., Zajonc, 1998). For instance, intergroup emotions (i.e., emotions stemming from self- and other-categorization into relevant social groups; Smith & Mackie, 2008), rather than stereotype knowledge, have been found to mediate the association between intergroup contact and affective and cognitive components of prejudice (Miller et al., 2004). Overall, different theoretical approaches and findings within each line of research have provided support for the leading role of one or the other dimension of prejudice.

However, to the extent of our knowledge, no previous study has empirically tested the longitudinal associations between the affective and cognitive components of ethnic prejudice and how these dimensions might in turn influence their behavioral counterpart in adolescence. Affective, cognitive, and behavioral prejudice have been found to display different developmental trajectories (Bobba, Albarello, et al., 2023) and levels of rank-order stability in adolescence (for a meta-analysis, see Crocetti et al., 2021). Therefore, accounting for all three components is crucial to shed light on how ethnic prejudice develops and organizes during this life stage, considering youth's concurrent advancements in cognition, morality, and emotion regulation. Are affective, cognitive, and behavioral prejudice reciprocally associated? Or is it possible to identify a dimension driving changes in the

other(s)? More importantly, do empathic competences impact these dimensions of prejudice differently?

Empathic Competences and Ethnic Prejudice: What is Known and Open Questions

Being able to take on the perspective of other people might increase perceived similarities between self and others and reduce the dichotomous view of "Us vs. Them", which is at the core of negative intergroup attitudes and experiences (Tajfel & Turner, 1979; van Bommel et al., 2020). Moreover, empathic concern could increase interest in others' well-being and motivate direct altruistic behaviors to alleviate someone else's unfavorable conditions (De Waal, 2008). Experimental research has generally confirmed these theoretical assumptions. For instance, inducing participants to take on the perspective of an outgroup member increased their liking of the target outgroup (e.g., Shih et al., 2009) and improved intergroup attitudes (e.g., Dovidio et al., 2004; Vescio et al., 2003) and behaviors (e.g., Adida et al., 2018; Sierksma et al., 2014). Additionally, a recent meta-analysis on prejudice reduction interventions has highlighted the effectiveness of empathy training, which appears to be the second most effective intervention to reduce prejudice after direct intergroup contact (for a review, see Beelmann & Heinemann, 2014).

The Empathy-Attitudes-Action model (Batson et al., 1997, 2002) provides a useful framework to understand the associations between empathic competences, prejudicial attitudes, and prosocial tendencies in intergroup contexts. Specifically, this four-step model implies that (a) people assume the perspective of others and develop other-oriented feelings, (b) which increase the valuing of others' well-being, and in turn (c) translates into more positive attitudes, that (d) underlie and support more prosocial intentions (Batson et al., 2002). Experimental findings with adults (e.g., Batson et al., 2002) and children (Taylor & Glen, 2020) have generally confirmed this model: eliciting empathic responses causes a reduction in prejudice which in turn increases helping intentions toward the outgroup.

These associations have also been tested in a recent longitudinal study with adolescents (Taylor & McKeown, 2021). Trait empathy was associated with more positive feelings toward the outgroup, higher helping intentions, realistic helping, and collective action over time, with attitudes mediating the link between empathic competences and prosocial actions. However, this longitudinal study did not distinguish the effect of affective and cognitive empathic competences, leaving an open question about the unique role played by these components. On this line, bidirectional longitudinal associations between empathic concern, perspective-taking, and (cognitive) prejudice emerged among adolescents (Miklikowska, 2018). However, when examining within-person changes (while controlling for between-person differences), perspective-taking was directly associated with changes in prejudice, while empathic concern indirectly influenced subsequent prejudice levels via its effect on perspective-taking (Miklikowska, 2018).

These longitudinal findings confirm the role of trait empathic competences in reducing ethnic prejudice. However, they have mostly examined the associations of empathic competences with one form of ethnic prejudice at a time and have not accounted for its multifaceted nature. Therefore, prior studies do not provide a comprehensive understanding of how empathic concern and perspective-taking might differentially influence the affective, cognitive, and behavioral components of ethnic prejudice. Such influence might be specifically powerful between dimensions that pertain to shared psychological spheres, mainly the affective and cognitive ones. That is, empathic concern (i.e., the affective component of empathic competences) might exert the strongest influence on affective ethnic prejudice, while perspective-taking (i.e., the cognitive component of empathic competences) might be more strongly associated with cognitive ethnic prejudice over time. Additionally, empathic concern might also influence the behavioral component of prejudice, as intergroup behaviors are usually guided by affective mechanisms (Dovidio, Johnson, et al., 2010). This

study aimed to fill the gaps outlined above by testing this dimension-matching effect and providing a more nuanced understanding of the longitudinal reciprocal associations across and between multiple components of empathic competences and ethnic prejudice.

The Current Study

Extensive research has highlighted that empathy can lessen prejudice over time but has neglected to account for the multifaceted nature of both empathic competences (i.e., empathic concern and perspective-taking) and prejudice (i.e., affective, cognitive, and behavioral). Thus, the purpose of the current study was threefold. First, it aimed to test the predominant role of the affective dimension of empathic competences and ethnic prejudice in leading changes in the other component(s) of each construct. Second, this study examined the reciprocal direct associations of empathic competences and ethnic prejudice over time to test a dimension-matching hypothesis. That is, the affective (i.e., empathic concern and affective prejudice) and cognitive (i.e., perspective taking and cognitive prejudice) components of both constructs were expected to be strongly associated with each other. Third, mainly adopting an exploratory approach, this study aimed to test possible indirect associations across and between empathic competences and prejudice components. For instance, perspective-taking could mediate the association between empathic concern and cognitive ethnic prejudice, whereas empathic concern might be indirectly associated with cognitive prejudice via its effects on affective prejudice.

Methods

Participants

Participants in this three-waves longitudinal study were 259 adolescents (M_{age} = 15.60, SD_{age} = 0.63, 87.6% females) attending the 1st and 2nd year of a high school located in the North-East of Italy. Since the focus was on prejudice against ethnic minorities, only Italian adolescents were included in the current study (i.e., youth of immigrant descent were

excluded). At baseline, most students reported their parents were married (73.4%), while 22.4% reported their parents were separated or divorced. Regarding parents' educational level, most of the adolescents' mothers (51.8%) had a medium educational level (i.e., high school diploma), while some (29.3%) had a high (i.e., university degree or higher) and a few (18.9%) a low (i.e., up to middle school diploma) educational level. As for fathers, most of them (47.9%) had a medium educational level, followed by those with low (27.4%) and high (24.7%) educational level.

Most adolescents participated in all three assessments (71.8%), while almost all of them (95.6%) in at least two assessments. Within each assessment, completion rate of the questionnaires was very high (99.6% at T1 and T3, 100% at T2). Therefore, missingness was mostly due to participants not filling out the questionnaire, mainly because they were not in school on the day of data collection. The Little's (1988) Missing Completely at Random (MCAR) test conducted on the study variables yielded a normed χ^2 ($\chi^2/df = 340.339/332$) of 1.025, indicating that data were likely missing completely at random. Therefore, the total sample of 259 participants was included in the analyses, and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater Studiorum University of Bologna (Italy). Permission from the school principal and active consent from parents and adolescents were obtained prior to data collection. Participation in the study was voluntary, and students were informed they could withdraw their consent at any time. Data collection consisted of three waves spanning across two academic years. The first two waves were one month apart in April (T1) and May (T2) 2021, while the last follow-up was at the beginning of the following academic year (T3: October 2021). Due to the COVID-

19 pandemic, data were collected during remote (T1), hybrid (T2), and in-presence (T3) school hours. At all waves, participants completed online questionnaires on Qualtrics and were required to create a personal code to ensure confidentiality and link their responses over time. An extract of the study materials can be retrieved at: https://osf.io/k8ypz/ .

Measures

Demographics

Participants' socio-demographic information (i.e., age, gender, nationality, family composition, living conditions, parents' educational level) were collected at T1.

Empathic concern

The affective component of empathic competences was assessed using the empathic concern subscale of the Interpersonal Reactivity Index (IRI; Davis, 1980; Italian validation by Albiero et al., 2006). This subscale comprises seven items (e.g., "I often have tender, concerned feelings for people less fortunate than me") and participants were asked to rate their agreement on a 5-point Likert scale (from 1 "*completely disagree*" to 5 "*completely agree*"). Cronbach's Alphas were .68, .73, .76 at T1, T2, and T3, respectively.

Perspective-taking

The perspective-taking subscale of the Interpersonal Reactivity Index (IRI; Davis, 1980; Italian validation by Albiero et al., 2006) was used to evaluate the cognitive component of empathic competences (seven items; e.g., "I sometimes try to understand my friends better by imagining how things look from their perspective"). Participants rated their agreement with each statement using a 5-point Likert scale (from 1 "*completely disagree*" to 5 "*completely agree*"). Cronbach's Alphas were.74, .79, .80, at T1, T2, and T3, respectively.

Affective Prejudice

The affective component of prejudice was assessed using the Feeling thermometer (Haddock et al., 1993; for the Italian version, see Albarello & Rubini, 2011), asking

participants to rate how much they like different outgroups (i.e., Romanians, Albanians, Moroccans, Chinese, and Ukrainians were chosen since they are the most represented groups of foreigners in Italy according to ISTAT, 2020) on a scale from 0° (*not at all*) to 100° (*very much*). The scale was reversed to simplify the interpretation of results, with higher scores indicating higher prejudice. A total affective prejudice score was computed using the mean level of liking expressed for these different outgroups. Cronbach's Alphas were .97, .98, .96 at T1, T2, and T3, respectively.

Cognitive Prejudice

To evaluate the cognitive component of prejudice, nine items (e.g., "Foreign people should be marginalized in Italian society") were adapted from Brown et al. (2008). Participants rated their agreement on a 5-point Likert scale (from 1 "*completely disagree*" to 5 "*completely agree*"). Cronbach's Alphas were .88, .93, .90 at T1, T2, and T3, respectively.

Behavioral Prejudice

The behavioral dimension of prejudice was assessed using two different scales. The contact willingness scale (Titzmann et al., 2015) consists of three items asking participants whether they would enjoy different interactions with outgroup members (e.g., "I can imagine having immigrant friends"). Additionally, six items were selected from the outgroup helping intentions scale (Johnston & Glasford, 2018), asking respondents whether they would help a target outgroup person in need (e.g., "You give directions to a foreign stranger who appears to be lost"). Participants rated their answers using a 5-point Likert scale (from 1 "*completely disagree*" to 5 "*completely agree*"). The responses were recoded, so that higher scores were indicative of higher behavioral prejudice (i.e., less contact willingness and intentions to help). Cronbach's Alphas were .72, .77, .75 for contact willingness and .70, .77, .76 for helping intentions, at T1, T2, and T3, respectively.

Results

Preliminary Analyses

Descriptive analyses were computed using IBM SPSS Version 23.0 for Windows.

Means, standard deviations, and correlations among study variables are reported in Table S1

of the Supplemental Materials. All the remaining analyses were conducted in M*plus 8.6*

(Muthén & Muthén, 1998-2017), using Maximum Likelihood Robust (MLR) estimator

(Satorra & Bentler, 2001). Analyses codes and outputs can be retrieved from

https://osf.io/k8ypz/ . As a preliminary step, longitudinal measurement invariance was

examined separately for all study variables. Metric invariance could be established for all

constructs (see Table S2 of the Supplemental Materials), and therefore we could proceed with

testing the main hypotheses.

Cross-Lagged Associations of Empathic Competences and Ethnic Prejudice

The current study aimed to disentangle reciprocal longitudinal associations between

the affective (i.e., empathic concern) and cognitive (i.e., perspective-taking) dimensions of

empathic competences and the affective, cognitive, and behavioral dimensions of ethnic

prejudice. To this end, a cross-lagged panel model with observed variables was tested. First,

an unconstrained model (M1) with cross-lagged paths between empathic competences and

dimensions of ethnic prejudice was estimated, controlling for: (a) stability or autoregressive

paths (i.e., T1→T2, T2→T3, T1→T3), and (b) within-time correlations among all variables

(i.e., correlations among variables at T1, and correlated changes at T2 and T3). This model

showed a very good fit (Table 1), based on a combination of the following indices (Byrne,

2012): the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), with values

higher than .90 and .95 indicative of acceptable and very good fit, respectively; and the Root

Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual

(SRMR) with values below .08 and .05 indicative of an acceptable and very good fit,

respectively. Additionally, the RMSEA's 90% confidence interval's upper bound lower than

.10 indicates an acceptable model fit (Chen et al., 2008). Next, to identify the most

parsimonious model of reciprocal associations, a model (M2) with cross-lagged paths fixed to

be equal across waves (i.e., T1→T2 paths constrained to be equal to T2→T3 paths) was

tested and compared against the unconstrained one, and a model (M3) with fixed cross-

lagged paths and fixed correlated changes (i.e., within-time correlations at T2 and T3) was

tested and compared against M2. Differences between models were identified if at least two

of the following criteria were met: a $\Delta\chi^2_{SB}$ significant at $p < .05$ (Satorra & Bentler, 2001),

ΔCFI $\geq$ -.010, and ΔRMSEA $\geq$ .015 (Chen, 2007). Results indicated that time-invariance of

both cross-lagged paths and correlated changes could be established (Table 1). Thus, the most

parsimonious model (M3) was retained as the final one. Stability paths are reported in Table 2

together with within-time correlations (T1) and correlated changes (T2 and T3). Significant

cross-lagged paths are reported in Figure 1.

To address the first aim of the study, within-construct associations were examined.

The hypothesis of affect prevalence was confirmed by the data. Results showed that empathic

concern was positively associated with perspective-taking over time, while the opposite was

not true, and affective prejudice predicted subsequent levels of its cognitive counterpart but

not the other way around. As for the two behavioral components, contact willingness was

influenced by all the other dimensions of ethnic prejudice over time, while helping intentions

was not.

To tackle the second aim of the study, associations between empathic competences

and ethnic prejudice over time were examined. The dimension-matching hypothesis was

partially confirmed by the data. Specifically, empathic concern was negatively associated

with affective and one measure of behavioral (i.e., low helping intentions) ethnic prejudice

over time. However, empathic concern was also, albeit marginally (p=.046), significantly

associated with lower cognitive prejudice over time. Thus, while the association between empathic and affective prejudice confirmed the dimension-match hypothesis, additional paths highlighted a more nuanced pattern of associations. Furthermore, perspective-taking was positively associated with cognitive and one measure of behavioral (i.e., low contact willingness) ethnic prejudice. Regarding associations in the opposite direction, ethnic prejudice dimensions were associated with lower empathic competences over time. Specifically, affective and cognitive prejudice contributed to lower perspective-taking, while behavioral prejudice (i.e., low helping intentions) was negatively associated with empathic concern.

Finally, in line with the third aim of the study, taking an exploratory approach, all possible indirect effects were examined using the indirect command procedure available in M*plus*. Two significant indirect effects were found (see results displayed in Figure 1, bold arrows). First, empathic concern at T1 was associated with lower levels of cognitive prejudice at T3 via affective prejudice at T2 (standardized indirect effect = -.012 [-.024, .000], p = .043). Additionally, empathic concern at T1 was associated with lower levels of contact (un)willingness at T3 via helping intentions at T2 (standardized indirect effect = -.025 [-.037, -.002], p = .026). Contrary to our expectations, perspective-taking at T2 did not mediate the relation between empathic concern at T1 and ethnic prejudice dimensions at T3.

Table 2.1

Cross-lagged panel model: Model fit indices and model comparison

Models	χ_{SB}^2	df	CFI	TLI	SRMR	RMSEA [90% CI]	Models	$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
				Model fit				Model comparisons		
Unconstrained (M1)	44.210	30	.992	.963	.016	.043 [.006, .068]				
Cross-lagged paths fixed (M2)	84.814	60	.986	.968	.032	.040 [.017, .059]	M2-M1	40.803 (30)	-.006	-.003
Cross-lagged paths and within time correlations fixed (M3)	115.682	75	.977	.958	.041	.046 [.028, .062]	M3-M2	29.100 (15)[*]	-.009	.006

Note. χ_{SB}^2 = Satorra-Bentler scaled chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. [*] $p < .05$

Table 2.2
Standardized results of the cross-lagged panel model

Stability paths	T1→T2	T2→T3	T1→T3
Empathic concern	.614***	.457***	.217**
Perspective-taking	.504***	.449***	.193***
Affective prejudice	.709***	.594***	.189*
Cognitive prejudice	.504***	.288**	.353***
Behavioral prejudice - Contact willingness	.396***	.214*	.136*
Behavioral prejudice - Helping intentions	.623***	.395***	.235**

Correlations	T1	T2	T3
Empathic concern ↔ Perspective-taking	.299***	.289***	.315***
Empathic concern ↔ Affective prejudice	-.241***	-.113**	-.129**
Empathic concern ↔ Cognitive prejudice	-.110	-.139*	-.155**
Empathic concern ↔ Contact willingness	-.191**	-.201***	-.185***
Empathic concern ↔ Helping intentions	-.377***	-.321***	-.281***
Perspective-taking ↔ Affective prejudice	-.202***	-.124**	-.154**
Perspective-taking ↔ Cognitive prejudice	-.251***	-.115*	-.139*
Perspective-taking ↔ Contact willingness	-.231***	-.166**	-.167**
Perspective-taking ↔ Helping intentions	-.321***	-.177***	-.169***
Affective prejudice ↔ Cognitive prejudice	.530***	.266***	.338***
Affective prejudice ↔ Contact willingness	.437***	.223***	.235***
Affective prejudice ↔ Helping intentions	.397***	.175**	.175**
Cognitive prejudice ↔ Contact willingness	.580***	.488***	.501***
Cognitive prejudice ↔ Helping intentions	.513***	.245***	.239***
Contact willingness ↔ Helping intentions	.501***	.392***	.317***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 2.1
Significant standardized results of the cross-lagged model
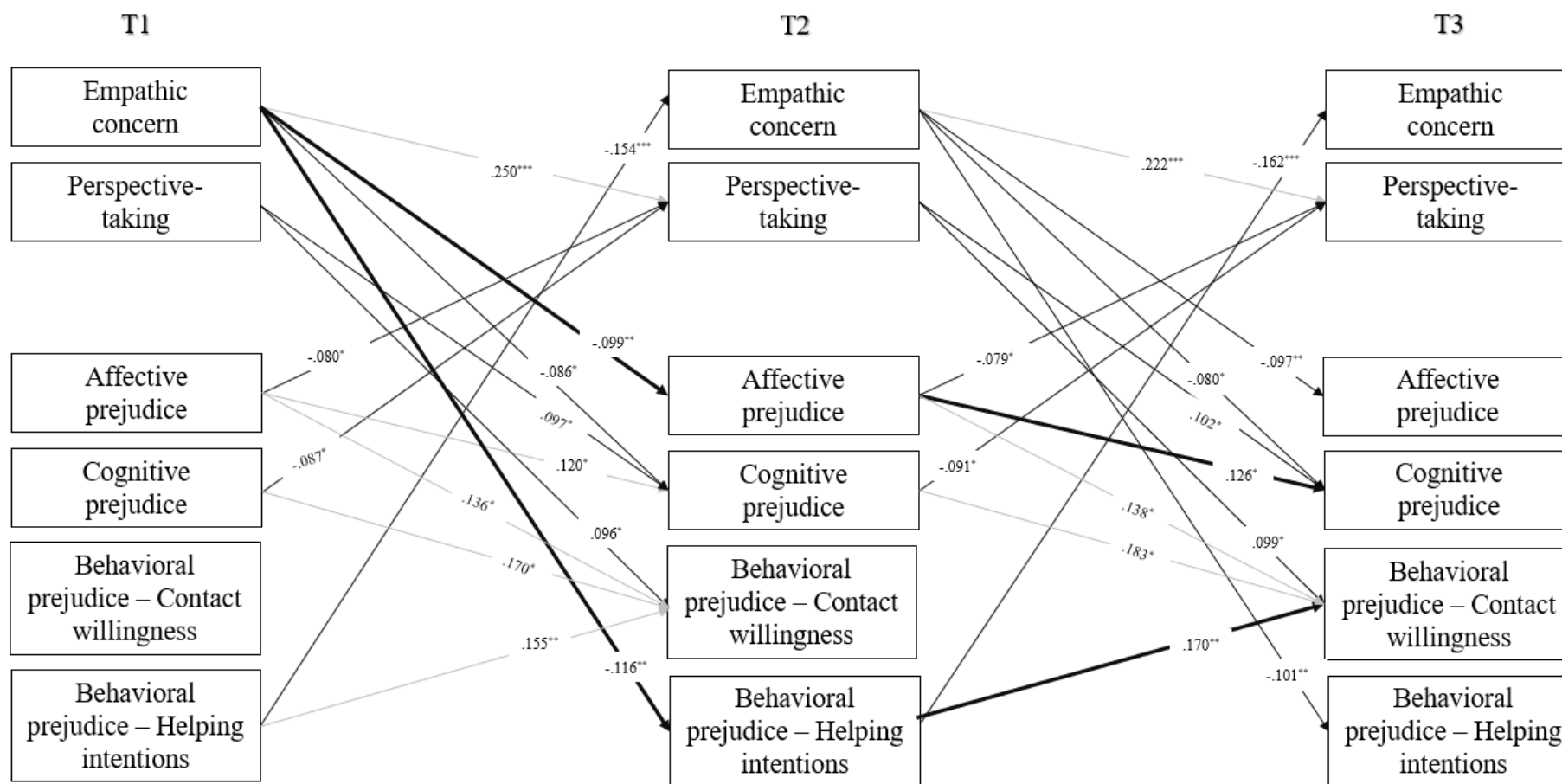
Note. For sake of clarity, only significant cross-lagged paths are displayed. Affective prejudice, cognitive prejudice, contact willingness, and helping intentions have been coded with higher values indicative of higher (affective, cognitive, or behavioral) ethnic prejudice.
Grey arrows indicate within-construct effects (i.e., paths between components of empathic competences and paths between components of ethnic prejudice). Bold arrows indicate the chain of significant indirect effects. * $p < .05$; ** $p < .01$; *** $p < .001$

Sensitivity Analyses

As ancillary sensitivity analyses, the same cross-lagged panel model was tested including participants' gender and their parents' educational level as covariates. These demographic variables have been previously associated with adolescents' prejudice levels (Rekker et al., 2015; Weber, 2019) and differences in levels and developmental trends of empathic competences (Van der Graaff et al., 2014). Except for a couple of paths (which were marginally significant in the original model and lost significance when accounting for covariates), the model was largely replicated, highlighting the robustness of the findings. Results of these sensitivity analyses are reported in Tables S3a and S3b of the Supplemental Materials.

<p align="center">Discussion</p>

Adolescence is a crucial phase for the development of more sophisticated cognitive, moral, and social competences (Meeus, 2016). Such advancements are the foundations upon which youth form specific views of themselves, others, and society (Crocetti, Moscatelli, et al., 2016; Crocetti et al., 2021). Therefore, it is crucial to understand which individual competences, such as the empathic ones, might effectively support positive intergroup experiences and enhance adolescents' adjustment in multicultural societies (Titzmann & Jugert, 2019). The current study advanced extant knowledge by taking a multidimensional perspective to disentangle the unique associations between each component of empathic competences (i.e., empathic concern and perspective-taking) and multiple dimensions (i.e., affective, cognitive, and behavioral) of ethnic prejudice among adolescents. Overall, these findings highlighted the predominant role of affective over cognitive processes, and the protective role of empathic concern in preventing the development of negative intergroup emotions, attitudes, and behaviors. Such knowledge is crucial not only to extend the theoretical understanding of these associations, but also to design evidence-based

interventions aimed at equipping adolescents with useful competences to approach diversity and support harmonious intergroup relations.

What Drives Change? The Predominant Role of Affective Components

The first goal of the present research was to test the predominant role of affect over cognition in influencing the other dimension(s) of empathic competences and ethnic prejudice. Results confirmed this hypothesis. Regarding empathic competences, empathic concern was found to influence subsequent levels of perspective-taking, while the reverse was not true. This finding aligns with previous research on adolescents (van Lissa et al., 2014), highlighting the leading role of empathic concern over perspective-taking and confirming the precedence of affect over cognition in understanding others' experiences. This is also in line with research on the developmental trajectories of empathic competences, which consistently highlighted higher levels of empathic concern compared to perspective-taking among adolescents (Van der Graaff et al., 2014). As the neural bases of empathic concern have been found to develop early on (Singer, 2006), the affective dimension of empathic competences displays higher stability than its cognitive counterpart (van Lissa et al., 2014), which might explain the unidirectional association found in the current study. Following a "top-down" approach (De Waal, 2007), cognitive processes such as perspective-taking stem from and are driven by affective ones. Therefore, feelings of sorrow and concern for other people's misfortunes might induce adolescents to understand the experiences of others better by taking their perspective.

Similarly, affective prejudice was associated with higher levels of cognitive prejudice over time, but not the other way around. That is, the affective reactions towards members of the outgroup inform and orient subsequent stereotypes and beliefs against them, which then inform behavioral tendencies in intergroup contexts. The present study considered two different forms of behavioral ethnic prejudice: low willingness of contact with members of

the foreign group and low intentions to help foreign people in need, which displayed very different patterns of associations. The former was influenced by both affective and cognitive prejudice, while the latter appeared to be influenced by empathic concern only. It could be argued that low contact willingness represents the behavioral conversion of adolescents' ethnic prejudice, while helping intentions might tap into the general domain of prosociality rather than being a measure of behavioral prejudice per se. Prior research has confirmed the strong associations between empathic competences and prosocial behaviors (e.g., Metzger et al., 2018; Van der Graaff et al., 2018; for a review, see Malti et al., 2021), and might therefore explain the unique inverse reciprocal links observed in the current study among empathic concern and low helping intentions.

Empathic Competences and Prejudice: The Protective Role of Empathic Concern

Regarding the second aim of the present study, results showed reciprocal longitudinal associations between empathic competences and ethnic prejudice, although the dimension-matching effect was only partially supported. Specifically, empathic concern was indeed directly associated with lower levels of affective prejudice and of one form of behavioral prejudice (i.e., low helping intentions), but it was also linked, to a lesser extent, to lower levels of cognitive prejudice. These different effects partially support the dimension-matching hypothesis, that is empathic concern (i.e., the affective dimension of empathic competences) tackles the affective component of prejudice more directly because they both tap into affects and emotions. These findings highlight the crucial role of empathic concern in reducing affective, cognitive, and behavioral components of ethnic prejudice.

Moving into perspective-taking, our findings displayed a complex pattern of concurrent and longitudinal associations with ethnic prejudice. Concurrent associations were in line with a wide literature (e.g., Adida et al., 2018; Miklikowska, 2018), showing that higher levels of perspective-taking were linked with lower affective, cognitive, and

behavioral ethnic prejudice. In contrast, cross-lagged paths indicated that perspective-taking was associated with higher levels of cognitive prejudice and of the other form of behavioral prejudice (i.e., low contact willingness) over time. These latter longitudinal findings could be interpreted in light of the literature on cognitive empathy and bullying. In fact, the ability to take on the perspective of others and understand their point of view might serve either altruistic or egoistic purposes (Eisenberg et al., 1991). This means that perspective-taking skills do not automatically imply an increased interest in other people's well-being and subsequent prejudice reduction, as argued by the Empathy-Attitudes-Action model (Batson et al., 1997, 2002). Adolescents might understand the perspective of others but still maintain their negative feelings and cognitions about them and, even worse, engage in bullying and victimization (Bayram Özdemir et al., 2020). On the contrary, those who display higher empathic concern might be more sensitive to other people's sufferings, display stronger awareness of the negative consequences of discrimination against minorities, and therefore show lower ethnic prejudice.

Confirming the Precedence of Affect over Cognition: Longitudinal Mediations

Regarding the third and final aim of the present study, the longitudinal indirect associations across and between empathic competences and ethnic prejudice dimensions confirmed the precedence of affect over cognition. First, empathic concern was associated with reduced cognitive prejudice via its effect on affective prejudice, while the reverse direction (i.e., from empathic concern to affective prejudice via cognitive prejudice) was not supported by the results. Additionally, empathic concern was indirectly associated with decreases in low contact willingness, via its effects on helping intentions. When the same associations were tested with perspective-taking, no significant indirect effect was found.

Moreover, perspective-taking did not mediate the associations between empathic concern and different dimensions of ethnic prejudice. This finding is in contrast with previous

longitudinal research (Miklikowska, 2018). However, it should be noted that in the current study perspective-taking alone was associated with increased prejudice, whereas empathic concern was found to reduce prejudice over time. Thus, these opposite effects might have counteracted each other, resulting in no significant indirect effect from empathic concern to prejudice via perspective-taking.

Overall, these findings speak for the precedence of affective processes over and above the cognitive ones. Immediate affective and emotional reactions arising in intergroup contexts (i.e., intergroup emotions; Smith & Mackie, 2008) might first inform affective responses (i.e., disliking members of minority ethnic groups), which in turn drive their cognitive counterpart (i.e., negative beliefs and stereotypes against minorities). Disentangling associations between and across empathic competences and ethnic prejudice allows not only for advancements in the theoretical understanding of these phenomena, but also for planning evidence-based interventions aimed at supporting adolescents' intergroup relations.

Practical Implications

Overall, this study has important practical implications. First of all, it highlighted the prevalence of affective over cognitive processes and the crucial role played by empathic concern in reducing ethnic prejudice. Previous intervention and experimental studies (e.g., Adida et al., 2018; Shih et al., 2009) have generally focused on the perspective-taking component to support more positive intergroup attitudes and relationships. Although it might be easier to induce participants to take on the point of view of others rather than to sympathize with them (van Lissa et al., 2014), empathic concern seems to be the key to breaking the vicious dichotomous view of "Us vs. Them". Therefore, training adolescents in socio-emotional skills (such as empathic concern) might prove effective for supporting positive intergroup relations in current multicultural societies. To maximize their

effectiveness, intervention programs should be developmentally sensitive to students' starting level of empathic competences, their strengths and difficulties (Malti et al., 2016).

Moreover, as affective prejudice appears to influence cognitions and behaviors in intergroup contexts in adolescence, interventions should also tackle this dimension first, which might have a snowball effect on the others. For instance, previous studies have found that positive intergroup contact experiences work very well in reducing affective prejudice (e.g., Aberson, 2015; Tropp & Pettigrew, 2005). Therefore, interventions based on contact might be a useful tool to reduce ethnic prejudice by tackling its affective dimension first and, consequently, its cognitive and behavioral manifestations.

Limitations and Suggestions for Future Research

This study contributed to disentangling longitudinal associations across and between multiple dimensions of empathic competences and ethnic prejudice in adolescence and has important theoretical and practical implications. However, some limitations should be considered. First, participants were not equally distributed based on gender, with females comprising more than two-thirds of the sample. Previous research confirms that male and female adolescents report different levels and developmental trends of empathic competences (e.g., Van der Graaff et al., 2014); for a review, see Meeus, 2019) and ethnic prejudice (Rekker et al., 2015), as also emerged from the sensitivity analyses (i.e., when gender was included it was related to increases in empathic concern over time). Therefore, current findings might have been influenced by the sample's gender imbalance, and generalization should be made with caution.

Additionally, using a traditional cross-lagged panel model did not allow for the distinction of between- and within-person variance (Hamaker et al., 2015). However, it was not possible to test the same reciprocal associations between empathic competences and ethnic prejudice using the random intercept cross-lagged panel model because of convergence

issues, which have been highlighted in previous research (Orth et al., 2021; Usami et al., 2019).

Finally, the current three-waves study covered a relatively short period (i.e., six months). This limited the possibility to highlight significant developmental changes in empathic competences and ethnic prejudice, which might occur at a slower pace. Thus, future studies could benefit from including multiple yearly assessments to examine how these longitudinal associations unfold over the course of a longer time span.

Conclusion

Research has supported the notion that feeling concern for and assuming the perspective of others might be useful competences to overcome the dichotomous view of "Us vs. Them" that is at the core of heinous forms of ethnic prejudice. However, prior studies have neglected to consider the multifaceted nature of both empathic competences and ethnic prejudice. This study took a step forward uncovering the longitudinal associations across and between different dimensions of these constructs. Looking at within-construct associations, the prevalence of affect over cognition was found by showing that the affective component of both empathic competences (i.e., empathic concern) and ethnic prejudice exerted the strongest influence on the cognitive ones. Additionally, examining between-construct associations, this study found empathic concern to reduce all forms of prejudice either directly or indirectly, while perspective-taking was linked to increases in prejudice over time. These findings might inform future interventions to foster adolescents' interpersonal and intergroup competences and support harmonious relations in current multicultural societies.

Supplemental Materials

Table S2.1

Means, standard deviations, and correlations among study variables

	M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1.Age																				
2.Gender			-.20**																		
3.EC T1	3.61	0.57	-.05	.09																	
4.PT T1	3.32	0.53	-.07	.03	.30***																
5.AP T1	39.70	30.93	.18**	-.01	-.25***	-.20**															
6.CP T1	1.70	0.58	.10	-.00	-.12	-.25***	.53***														
7.BP Contact T1	1.80	0.66	.06	-.06	-.20**	-.23***	.44***	.58***													
8.BP Helping T1	1.80	0.58	.12	-.17**	-.38***	-.32***	.40***	.51***	.50***												
9.EC T2	3.54	0.56	-.06	.14*	.72***	.36***	-.34***	-.25***	-.24***	-.42***											
10.PT T2	3.41	0.58	-.11	.09	.47***	.61***	-.33***	-.31**	-.22**	-.32***	.62***										
11.AP T2	35.08	33.01	.16*	.04	-.31**	-.11	.76***	.54***	.44***	.40***	-.37***	-.31***									
12.CP T2	1.84	0.70	.09	-.08	-.25***	-.09	.42***	.62***	.47***	.38***	-.31***	-.23**	.52***								
13.BP Contact T2	2.00	0.75	.08	-.10	-.29***	-.09	.46***	.56***	.63***	.48***	-.35***	-.25***	.52***	.76***							
14.BP Helping T2	1.95	0.64	.09	-.23**	-.41***	-.20**	.38***	.43***	.41***	.72***	-.50***	-.33***	.41***	.47***	.57***						
15.EC T3	3.55	0.58	-.17**	.22**	.63***	.31***	-.28***	-.25***	-.30***	-.42***	.75***	.50***	-.33***	-.29***	-.35***	-.55***					
16.PT T3	3.44	0.60	-.10	.07	.46***	.58***	-.30***	-.34***	-.23***	-.35***	.59***	.76***	-.32***	-.28***	-.26***	-.41***	.55***				
17.AP T3	39.10	31.31	.16*	-.03	-.23**	-.11	.68***	.52***	.37***	.33***	-.35***	-.30***	.80***	.43***	.45***	.33***	-.33***	-.33***			
18.CP T3	1.90	0.64	.18**	-.18**	-.13*	-10	.46***	.71***	.51***	.41***	-.25***	-.24**	.54***	.65***	.58***	.48***	-.32***	-.32***	.60***		
19.BP Contact T3	1.98	0.69	.14*	-.15*	-.13	-.03	.39***	.54***	.51***	.34***	-.26***	-.22**	.46***	.57***	.65***	.52***	-.40***	-.32***	.49***	.65***	
20.BP Helping T3	2.12	0.71	.21*	-.22**	-.29***	-.21**	.28***	.43***	.33***	.56***	-.35***	-.33***	.33***	.37***	.45***	.64***	-.54***	-.41***	.35***	.49***	.55***

Note. Gender: 0 = male, 1 = female. EC = empathic concern; PT = perspective-taking; AP = affective prejudice; CP = cognitive prejudice; BP Contact = Behavioral prejudice, Contact willingness scale; BP Helping = Behavioral prejudice, Helping intentions scale. For the sake of results interpretation, higher levels of contact willingness and helping intentions represent higher behavioral prejudice (i.e., represent lower willingness for contact with and lower intentions to help foreign people). * $p < .05$; ** $p < .01$; *** $p < .001$.

Longitudinal Measurement Invariance of Study Variables

As a preliminary step, configural and metric levels of longitudinal measurement invariance were tested for each variable included in the Cross-Lagged Panel Model. To this end, the configural models function as baseline models and should therefore display a good fit, evaluated based on the following criteria. The Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI) with values higher than .90 and .95 indicative of an acceptable and very good fit, respectively. The Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) with values below .08 and .05 indicative of an acceptable and very good fit, respectively (Byrne, 2012). Additionally, the RMSEA's 90% confidence interval's upper bound lower than .10 indicates an acceptable fit of the model (Chen et al., 2008). In order to establish metric invariance (i.e., constraining factor loadings to be equal across time), changes in fit indices from the configural to the metric model were evaluated (e.g., Cheung & Rensvold, 2002). Specifically, a significant $\Delta\chi^2_{SB}$ (Satorra & Bentler, 2001), and $\Delta CFI \geq -.010$ supplemented by $\Delta RMSEA \geq .015$ (Chen, 2007) are indicative of non-invariance. Metric invariance (which is the minimum requirement for cross-lagged panel analyses) was established for all variables included in this study. Results are displayed in Table S2.

Table S2.2

Longitudinal measurement invariance of study variables

Models	Model fit						Models	Model comparisons		
	χ^2	df	CFI	TLI	SRMR	RMSEA [90% CI]		$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
Empathic Concern										
Configural (M1)	208.280	165	.965	.955	.046	.032 [.016, .044]				
Metric (M2)	222.361	177	.963	.956	.057	.031 [.016, .044]	M2-M1	14.146 (12)	-.002	-.001
Perspective-taking										
Configural (M1)	204.382	165	.971	.963	.052	.030 [.013, .043]				
Metric (M2)	221.965	177	.967	.961	.064	.031 [.015, .044]	M2-M1	18.618 (12)	-.004	.001
Affective Prejudice										
Configural (M1)	185.630	114	.973	.964	.024	.049 [.036, .062]				
Metric (M2)	201.146	124	.971	.964	.027	.049 [.036, .061]	M2-M1	15.205 (10)	-.002	.000
Cognitive Prejudice										
Configural (M1)	27.993	15	.990	.975	.023	.058 [.022, .091]				
Metric (M2)	27.156	19	.993	.988	.025	.041 [.000, .073]	M2-M1	0.735 (4)	.003	-.017
Behavioral Prejudice - Contact Willingness										
Configural (M1)	21.985	15	.985	.964	.031	.042 [.000, .078]				
Metric (M2)	21.269	19	.995	.991	.033	.021 [.000, .060]	M2-M1	0.576 (4)	.010	-.021
Behavioral Prejudice – Helping Intentions										
Configural (M1)	5.347	15	1.00	1.00	.014	.000 [.000, .000]				
Metric (M2)	18.939	19	1.00	1.00	.043	.000 [.000, .054]	M2-M1	14.328 (4)[**]	.000	.000

Note. M = model; χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. [**] $p < .01$

Sensitivity Analyses

As ancillary sensitivity analyses, we checked whether the cross-lagged panel model results significantly changed when accounting for demographic variables which have been previously associated with adolescents' prejudice (Rekker et al., 2015; Weber, 2019). Specifically, first, we estimated an unconstrained model (M1) with cross-lagged paths between empathic competences and dimensions of ethnic prejudice, controlling for: (a) stability or autoregressive paths (i.e., T1→T2, T2→T3, T1→T3), (b) within-time correlations among all variables (i.e., correlations among variables at T1, and correlated changes of variables at T2 and T3), and (c) the effects of participants' gender (0 = male, 1 = female) and mothers' and fathers' educational level (1 = low, 2 = medium, and 3 = high). This model showed a very good fit (Table S3a). Next, a model (M2) with cross-lagged paths fixed to be equal across waves (i.e., T1→T2 paths constrained to be equal to T2→T3 paths) was tested and compared against the unconstrained one, and a model (M3) with fixed cross-lagged paths and fixed correlated changes (i.e., within-time correlations at T2 and T3) was tested and compared against M2. Both models included the effects of covariates, which were left unconstrained allowing them to exert potentially different effects on empathic competences and ethnic prejudice measured over time. The model comparison confirmed that model (M3) with fixed cross-lagged paths and fixed correlated changes was not different from M2 and was retained as the most parsimonious solution.

Results of the cross-lagged panel model are reported in Table S3b. When compared with results reported in the manuscript, only two differences were found. First, empathic concern was not significantly associated with lower levels of cognitive prejudice over time. Second, cognitive prejudice was not significantly associated with lower perspective-taking abilities over time. Both paths were significant at $p < .05$ in the original model. Therefore, including participants' gender and their parents' educational level in the model as covariates

did not change the model substantially. Additionally, participants' gender was significantly associated with empathic concern at T3 and helping intentions at T2, and marginally with cognitive prejudice at T3: female adolescents displayed significantly higher levels of concern and lower levels of behavioral prejudice.

Table S2.3a

Cross-lagged panel model with covariates: Model fit indices and model comparison

Models	χ_{SB}^2	df	CFI	TLI	SRMR	RMSEA [90% CI]	Models	$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
			Model fit					Model comparisons		
Unconstrained (M1)	46.114	30	.993	.950	.014	.046 [.014, .070]				
Cross-lagged paths fixed (M2)	89.235	60	.987	.955	.028	.043 [.022, .061]	M2-M1	43.260 (30)	-.006	-.003
Cross-lagged paths and within time correlations fixed (M3)	123.003	75	.978	.941	.036	.050 [.033, .065]	M3-M2	31.937 (15)**	-.009	.007

Note. M = model; χ_{SB}^2 = Satorra-Bentler scaled chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter.
** $p < .01$

Table S2.3b

Standardized results of the cross-lagged panel model with covariates

Stability paths	T1 → T2	T2 → T3	T1 → T3
Empathic concern	.618***	.434***	.231**
Perspective-taking	.500***	.452***	.188**
Affective prejudice	.719***	.601***	.181*
Cognitive prejudice	.504***	.270**	.362***
Behavioral prejudice - Contact willingness	.397***	.211*	.139*
Behavioral prejudice - Helping intentions	.589***	.366***	.237**

Cross-lagged paths	T1 → T2	T2 → T3
Empathic concern → Perspective-taking	.247***	.220***
Empathic concern → Affective prejudice	-.094**	-.092**
Empathic concern → Cognitive prejudice	-.075	-.071
Empathic concern → Contact willingness	-.078	-.071
Empathic concern → Helping intentions	-.115**	-.101**
Perspective-taking → Empathic concern	.057	.056
Perspective-taking → Affective prejudice	.051	.056
Perspective-taking → Cognitive prejudice	.096*	.102*
Perspective-taking → Contact willingness	.097*	.100*
Perspective-taking → Helping intentions	.024	.024
Affective prejudice → Empathic concern	-.073	-.070
Affective prejudice → Perspective-taking	-.078*	-.077*
Affective prejudice → Cognitive prejudice	.132**	.138**
Affective prejudice → Contact willingness	.142*	.144**
Affective prejudice → Helping intentions	.047	.045
Cognitive prejudice → Empathic concern	-.005	-.005
Cognitive prejudice → Perspective-taking	-.081	-.085
Cognitive prejudice → Affective prejudice	.065	.075
Cognitive prejudice → Contact willingness	.163*	.176*
Cognitive prejudice → Helping intentions	.058	.060
Contact willingness → Empathic concern	-.004	-.004
Contact willingness → Perspective-taking	.055	.055
Contact willingness → Affective prejudice	.045	.050
Contact willingness → Cognitive prejudice	.072	.077
Contact willingness → Helping intentions	.021	.020
Helping intentions → Empathic concern	-.125**	-.131**
Helping intentions → Perspective-taking	-.037	-.040
Helping intentions → Affective prejudice	-.048	-.056
Helping intentions → Cognitive prejudice	.041	.047
Helping intentions → Contact willingness	.152**	.167**

Covariates	T1 → T2	T1 → T3
Gender → Empathic concern	.073	.120**
Gender → Perspective-taking	.040	-.002
Gender → Affective prejudice	.008	-.057

Gender → Cognitive prejudice	-.106	-.121[†]
Gender → Contact willingness	-.069	-.057
Gender → Helping intentions	-.148[**]	-.080
Educational level mother → Empathic concern	.009	.009
Educational level mother → Perspective-taking	.014	.010
Educational level mother → Affective prejudice	.095	-.029
Educational level mother → Cognitive prejudice	.048	.027
Educational level mother → Contact willingness	.019	-.010
Educational level mother → Helping intentions	-.049	-.057
Educational level father → Empathic concern	-.028	-.032
Educational level father → Perspective-taking	.020	.035
Educational level father → Affective prejudice	-.063	-.027
Educational level father → Cognitive prejudice	-.127	-.045
Educational level father → Contact willingness	-.022	-069
Educational level father → Helping intentions	.080	.046

Correlations	T1	T2	T3
Empathic concern ↔ Perspective-taking	.298[***]	.290[***]	.319[***]
Empathic concern ↔ Affective prejudice	-.244[***]	-.111[**]	-.126[**]
Empathic concern ↔ Cognitive prejudice	-.113	-.126[*]	-.140[*]
Empathic concern ↔ Contact willingness	-.189[**]	-.196[***]	-.183[***]
Empathic concern ↔ Helping intentions	-.372[***]	-.307[***]	-.265[***]
Perspective-taking ↔ Affective prejudice	-.195[**]	-.123[**]	-.153[**]
Perspective-taking ↔ Cognitive prejudice	-.245[***]	-.111	-.135[*]
Perspective-taking ↔ Contact willingness	-.228[***]	-.162[**]	-.164[**]
Perspective-taking ↔ Helping intentions	-.325[***]	-.178[***]	-.167[***]
Affective prejudice ↔ Cognitive prejudice	.525[***]	.259[***]	.326[***]
Affective prejudice ↔ Contact willingness	.436[***]	.216[***]	.227[***]
Affective prejudice ↔ Helping intentions	.406[***]	.184[**]	.180[**]
Cognitive prejudice ↔ Contact willingness	.580[***]	.480[***]	.495[***]
Cognitive prejudice ↔ Helping intentions	.524[***]	.244[***]	.234[***]
Contact willingness ↔ Helping intentions	.499[***]	.392[***]	.313[***]

Note. For the sake of results interpretation, higher levels of contact willingness and helping intentions represent higher behavioral prejudice (i.e., represent lower willingness for contact with and lower intentions to help foreign people). Results highlighted in grey are those that differ from the main model reported in the manuscript (in the main model these paths were marginally significant, while in the current model with covariates they did not reach significance anymore). [*] $p < .05$; [**] $p < .01$; [***] $p < .001$; [†] $p = .05$

CHAPTER **3**

Addressing Ethnic Prejudice in Youth: Developmental Trajectories and Associations with Educational Identity

Abstract

Studying how attitudes develop in the transition from late adolescence to emerging adulthood offers unique insights into future generations' perceptions of society and of others. However, findings on ethnic prejudice during this life period are mixed. The current research aims to examine the development of affective and cognitive ethnic prejudice, adopting a person-centered approach. Furthermore, it examines the associations between educational identity processes and prejudice. A sample of 297 Italian adolescents (M_{age}=17.48, SD_{age}= 0.79, 37.8% males) participated in a five-wave longitudinal study. At the mean-level, cognitive prejudice decreased slightly over time, while affective prejudice remained stable. Additionally, rank-order stability coefficients were high ($r \geq .526$). Moreover, for each dimension of prejudice (i.e., cognitive and affective) taken separately, three groups of participants were identified based on their high, moderate, or low scores, respectively. Finally, higher levels of educational identity in-depth exploration at baseline significantly increased the chances of adolescents falling into the low rather than the moderate group for both cognitive and affective prejudice. Conversely, it significantly reduced the chances of being in the high compared to the moderate group for affective prejudice. This study highlights the importance of considering multiple components of prejudice and their reciprocal associations with identity processes to identify at-risk segments of the adolescent and emerging adult populations.

Keywords: ethnic prejudice; prejudice development; educational identity; youth

Introduction

Immigration flows to Europe have steadily increased over the last decade (EUROSTAT, 2020), contributing to a progressive diversification of the population of several countries. Increased ethnic diversity may have a complex impact on the inclusion of minority groups. On the one hand, it might enhance intergroup contact opportunities (Allport, 1954), leading to reduced prejudice toward minorities (for a review, see Pettigrew & Tropp, 2008). On the other hand, diversity could elicit threatening perceptions of immigrants and subsequent enhancement of ethnic prejudice (e.g., Vervoort et al., 2011; Wilson-Daily et al., 2018).

In light of the current political and social challenges posed by society's diversification, it is of utmost importance to advance knowledge on the development and correlates of ethnic prejudice, which implies negative attitudes, feelings, and behaviors against others for their different ethnic background (Brown, 2011). Social psychologists have long investigated this phenomenon, exploring possible factors and interventions that could effectively reduce negative attitudes in intergroup contexts (e.g., Allport, 1954; Fiske, 1998). Responding to a call for the adoption of transdisciplinary approaches to better understand the unique features of ethnic prejudice among younger generations (Rutland et al., 2007), the current study aims to explore the development of multiple components of prejudice in the transition from late adolescence to emerging adulthood. Beside the inherently social nature of this phenomenon, studying prejudice among youth requires adopting a developmental perspective that takes into account the unique features of this life stage (e.g., Albarello et al., 2020). In this vein, the present study adopts a cross-fertilization approach combining social and developmental perspectives.

Adolescence is considered a critical life period characterized by steady and progressive development in several psychosocial domains (Meeus, 2019). As adolescents

proceed along this stage, they acquire more sophisticated cognitive abilities (see Kuhn, 2009), advance their moral reasoning (see Killen & Smetana, 2014; Nucci & Turiel, 2009), and face the pivotal task of defining and re-defining their personal and social identities (Albarello, Crocetti, et al., 2018; Crocetti, 2017). A crucial turning point is the transition from late adolescence to emerging adulthood (Arnett, 2000). During this period, social and political attitudes established during adolescence tend to progressively consolidate (Eckstein et al., 2012; Niemi & Klingler, 2012; Rekker et al., 2015) and can offer an insight into future political orientations and views of society and culture (Hooghe & Wilkenfeld, 2008; Rekker, 2016).

Despite the significant changes expected during adolescence, meta-analytic studies (Crocetti et al., 2021; Raabe & Beelmann, 2011) have shown that ethnic prejudice remains relatively stable over this period. However, less is known about how it develops and is organized during the transition from late adolescence to emerging adulthood. The few longitudinal studies (e.g., Rekker et al., 2015; Wölfer et al., 2016) exploring prejudice during this transitional phase have mostly adopted a variable-centered perspective, focusing on general developmental trends in the population. Understanding the development of prejudice can highly benefit from adopting a person-centered approach, which recognizes that individuals vary considerably in how they develop and function (Bergman et al., 2003; Von Eye & Bogat, 2006). By moving beyond the study of mean-level changes, this approach helps understand whether within a given population it is possible to differentiate groups that show a specific profile, accounting for the unique heterogeneity in social and psychological features (Bergman et al., 2003; Bergman & El-Khouri, 2003). Additionally, besides studying the unique developmental patterns of different groups of individuals, it addresses possible predictors of membership to one group rather than another, which can be useful to set future

interventions targeting individuals at higher risk of developing prejudice (Crocetti et al., 2021).

The Development of Ethnic Prejudice

Ethnic prejudice can be defined as a form of antipathy against members of a specific group (usually referred to as outgroup or minority) because of their cultural and ethnic background (Allport, 1954; Brown, 2011) or, even worse, "thinking ill of others without sufficient warrant" (Dixon, 2017, p. 1). It is a multifaceted phenomenon that encompasses both cognitive (i.e., stereotypes and negative beliefs) and affective (i.e., negative emotions and dislike) dimensions, which in turn can inform behavioral tendencies (i.e., discrimination, avoidance, aggression) in intergroup contexts (Brown, 2011).

Numerous studies have addressed this issue and provided researchers with evidence on prejudice development during the lifespan. Social developmental theories of intergroup prejudice (Aboud, 1988; Bigler & Liben, 2007; Nesdale, 2004) posit that children from a very young age are able to perceive and distinguish relevant social categories such as gender and ethnicity and preferentially engage in activities with those similar to them. This first applies to group membership based on gender and then extends to ethnic-based categorization (for a review, see Nesdale, 2004).

A meta-analysis by Raabe and Beelmann (2011) explored prejudice development from childhood to adolescence and found that ethnic prejudice follows an inverted U-shaped trajectory, progressively increasing from early (i.e., 2-4 years) to middle (i.e., 5-7 years) childhood, and then slightly decreasing in the transition from childhood to preadolescence (i.e., around 10 years). However, the authors could not find any significant change in the years following preadolescence, primarily because of the lack of longitudinal studies investigating this age period (Raabe & Beelmann, 2011). Building upon these findings and subsequent research targeting adolescents, a more recent meta-analysis (Crocetti et al., 2021)

concluded that ethnic prejudice does not change during this life period, probably due to opposing trends in adolescents' cognitive development and life experiences. For instance, in line with the social-cognitive developmental theory of prejudice (Aboud, 1988), increased cognitive abilities coupled with advancements in moral reasoning could lead to decreased ethnic prejudice because adolescents move beyond a dichotomous view of "Us vs. Them", embrace more complex views of their own and others' identities (Albarello, Crisp, et al., 2018), and endorse values of diversity, tolerance, and equality to a larger extent than before (Rutland & Killen, 2015). At the same time, however, adolescents have been found to report progressively lower social trust (Flanagan & Stout, 2010) and may perceive minority groups as potential threats to their own future (see Albarello et al., 2019), which in turn may cause an increase in prejudice over time.

In addition to mean-level changes in prejudice, studies have also focused on rank-order stability, which indicates whether the relative standing of individuals within a group, based on their levels of a specific trait, is maintained over time (Bornstein et al., 2017). Many psychological and personality characteristics have been found to show high rank-order stability throughout adolescence (Meeus, 2019). A meta-analysis (Crocetti et al., 2021) highlighted that the same applies to ethnic prejudice: Rank-order stability is high during adolescence, increases linearly over time, and is inversely related to the time lag across measurement points (i.e., the shorter the time interval, the higher the stability).

Findings presented so far have focused on adolescence. But what happens in the transition from this life stage to the following years? Emerging adulthood refers to the period of life between 18 and 25 years, a specific developmental phase in current societies, with unique features and goals regarding romantic, job, civic, and social life domains (Arnett, 2000). As such, it would seem essential to investigate how ethnic prejudice develops and is organized during these years. Available findings are somewhat mixed in this regard. For

instance, affective ethnic prejudice in a sample of 18-year-old White Americans was found to be relatively stable across five years (Bratt et al., 2016; study 2). On the contrary, while some studies reported a decrease in ethnocentrism (i.e., the belief that the ingroup is superior to the outgroup; Rekker et al., 2015) and in negative evaluation of ethnic minority groups (Wölfer et al., 2016) over time, others highlighted a decrease of affective prejudice followed by a slight increase from the age of 20 to 21 (Weber, 2019). In the light of these mixed findings, the development of ethnic prejudice from late adolescence to emerging adulthood appears to need further clarification.

Additionally, studies investigating changes in ethnic prejudice during this life transition have focused primarily on group-level changes, assuming that adolescents are all alike in their attitudes toward ethnic minority groups. Adopting a person-centered approach (Bergman et al., 2003) makes it possible to explore whether adolescents' heterogeneity (if any) could be traced back to several sub-groups based on different developmental trajectories and to identify possible antecedents of membership to these sub-groups (Crocetti et al., 2021). Moreover, since prejudice is a multifaceted construct (Brown, 2011), it is crucial to examine whether distinct developmental trajectories can be identified for its components, such as the cognitive and affective dimensions, which can inform behavioral patterns in intergroup contexts (Cuddy et al., 2007).

Antecedents of Prejudice: The Importance of Identity Processes

The literature on antecedents of ethnic prejudice in youth has considered several factors that can be grouped into individual and socio-contextual variables (Crocetti et al., 2021). Among the individual variables, gender differences in prejudice have been examined. For instance, male adults have generally reported higher levels of prejudice (for a review, see Dozo, 2015). This might be associated, for instance, to the tendency of males to support the status quo to a greater extent and display higher social dominance orientation than females

(Foels & Reid, 2010; Pratto et al., 2006). Additionally, gender-specific socialization practices often encourage girls to care for and nurture others (for a review, see Carlo, 2014), and display other-oriented feelings (e.g., empathy; Carlo et al., 2015; Van der Graaff et al., 2014), which in turn might be associated with lower ethnic prejudice (e.g., Bobba & Crocetti, 2022; Taylor et al., 2020). Nevertheless, findings among adolescents and emerging adults are quite mixed. Some studies have reported no effect (e.g., Weber, 2019) or weaker effects of gender on ethnocentrism from adolescence to the following years (e.g., Hooghe et al., 2013), while others have found males to display higher ethnocentrism and prejudice compared to females (e.g., Rekker et al., 2015). A clearer picture is provided by other individual variables examined in the literature. Specifically, ideologies such as social dominance orientation (Sidanius & Pratto, 2001) have been found to heighten prejudice (e.g., Albarello et al., 2020), while social-cognitive (i.e., multiple categorization; e.g., Albarello, Crisp, et al., 2018; Albarello, Crocetti, et al., 2018; Albarello & Rubini, 2012; Crisp et al., 2001) and socio-emotional (i.e., empathy and perspective-taking; e.g., Miklikowska, 2017) factors were found to be negatively associated with prejudice.

Much attention has also been given to socio-contextual factors, which might play a role in molding adolescents' attitudes and feelings towards others. In this regard, the family context has been explored as a possible source of influence (Crocetti et al., 2021), starting from the parents' level of education. For instance, several studies have shown that level of education is negatively related to prejudice, and that highly educated parents have less ethnically prejudiced children (e.g., Meeusen et al., 2013; Miklikowska, 2017). These findings have been explained in relation to multiple factors. Low educated people might display less cognitive sophistication, which hinders the ability to overcome the simplistic dichotomous view of "Us vs. Them" in favor of a more inclusive perception of diversity (Meeusen et al., 2013). Additionally, the realistic intergroup threat theory suggests that lower

educated individuals might perceive migrants as direct competitors in the labor market and

therefore hold negative attitudes against them (Quillian, 1995; Riek et al., 2006), which might

then influence adolescents' prejudice levels (e.g., Miklikowska, 2016, 2017). However, the

overall effects of parental education on adolescents' ethnic prejudice were found to be

somewhat weak (Rekker, 2016; Weber, 2019). Somewhat stronger effects were found for

parents' attitudes: Acting as modeling agents, parents appear to influence adolescents in their

attitudes and prejudice levels (e.g., Miklikowska, 2016, 2017). Peers' prejudice levels,

intergroup friendships and contacts have been investigated, confirming strong associations

with adolescents' attitudes (e.g., Miklikowska, 2017; Trifiletti et al., 2019; van Zalk et al.,

2013). Finally, school inclusion norms and ethnic diversity in the class have been found to

reduce prejudice and support positive intergroup experiences among students (e.g.,

Schwarzenthal et al., 2018; Thijs & Verkuyten, 2014).

Moreover, the ways in which adolescents approach ethnic and cultural diversity might

also be influenced by how they define themselves and their own identities in relevant

domains. Individuals usually embrace multiple dimensions of personal and social identity

simultaneously (Albarello, Crocetti, et al., 2018; Albarello et al., 2021; Crocetti et al., 2013).

Personal commitments in relevant domains are intertwined with individuals' membership to

significant social groups (e.g., group of classmates or work group; Albarello, Crocetti, et al.,

2018; Crocetti, Avanzi, et al., 2014). Therefore, it could be argued that identity processes can

provide a parsimonious way to explain adolescents' attitudes toward others by linking the

individual and the socio-contextual dimensions.

A salient identity domain for late adolescents is that of education. Educational identity

comprises goals, values, and choices that people define, endorse, and follow in their

educational context (Negru-Subtirica & Pop, 2018). School is an important social context

where adolescents spend a considerable amount of time and develop their own identity in

conjunction with continuous interactions with diverse others (Benner et al., 2015). School experience is common to almost all adolescents and it involves many factors of human experience: it is a context in which individuals can prove their personal value by putting into play their intellectual and motivational abilities and energies (Eccles, 2004). At the same time school is a context in which people experience many interpersonal and intergroup contacts which are fundamental to start appreciating cultural and group diversity as buffering factors of prejudice (Thijs & Verkuyten, 2014).

The three-factor identity model (Crocetti et al., 2008) represents a parsimonious and reliable theoretical model and methodological tool to capture how individuals deal with their identities in relevant domains such as that of educational identity (for a discussion, see Crocetti, 2017). Within this framework (Crocetti et al., 2008), educational identity commitment refers to the stable and enduring choices made about the educational domain and how those choices foster adolescents' sense of self-confidence and personal evaluation. In-depth exploration, on the other hand, refers to the active process of reflecting on current commitments, looking for additional information, and talking about them with others. Reconsideration of commitments refers to the comparison between present educational commitments and possible alternatives, with the ultimate decision of abandoning the former in favor of more satisfying opportunities (Crocetti et al., 2017). These three identity processes capture the dynamics through which identity-relevant information is elaborated and used to form, maintain, and revise identity in relevant domains over time (Crocetti et al., 2018). From specific combinations of the identity processes, it is possible to classify adolescents into distinct identity statuses, referring to different ways in which adolescents engage in identity-related issues, exploring them and making meaningful choices (Crocetti & Meeus, 2015). Therefore, identity statuses differ among adolescents depending on the specific configuration of the identity processes characterizing them (e.g., high commitment, high in-depth

exploration, and low reconsideration of commitment corresponds to the status of identity achievement). Thus, while considering identity statuses makes it possible to examine differences among groups of adolescents showing different profiles, focusing on identity processes allows a closer look into the dynamic cycles through which individuals form and consolidate their identity over time (Meeus, 2011, 2019).

Identity processes in the educational domain have been previously linked to key individual and social outcomes. At the individual level, educational identity processes have been associated to the identity styles used by adolescents to elaborate identity relevant information (Berzonsky, 2011). For instance, in-depth exploration of educational commitments was found to promote an information-oriented style, whereby individuals seek relevant information and engage in thoughtful reflection (Negru-Subtirica et al., 2017). Moreover, regarding relevant social outcomes, commitment and exploration of educational identity have shown significant concurrent associations with adolescents' identification with the proximal groups of classmates and friends (Albarello, Crocetti, et al., 2018). In turn, identification with classmates was found to be associated with stronger identification with the superordinate human group which might buffer intergroup discrimination (Albarello et al., 2021). Thus, these findings suggest that such processes might not only affect the development of educational identity per se, but also expand to the experiences and relations within and outside the educational context, ultimately influencing how youth behave as members of their social groups and interact with others in the broader community.

Although no previous study has examined the associations between educational identity processes and prejudice, the process of in-depth exploration is likely to play an important role. That is, adolescents who engage in in-depth exploration of their relevant identities might be less susceptible to the use of the cognitive simplification processes (e.g., ingroup favoritism, biases) that lead to prejudicial thinking (Fiske et al., 2002). Indeed, youth

with high in-depth exploration might adopt more sophisticated reasoning and cognitive processes (e.g., multiple categorization, counter-stereotypical thinking) which are known to reduce negative intergroup attitudes (e.g., Albarello et al., 2020; Gocłowska et al., 2013). Empirical evidence supports these assumptions. For instance, in-depth exploration has been previously linked to social responsibility and civic engagement (Crocetti et al., 2012), as well as to openness to experience (Crocetti et al., 2010; Hatano et al., 2016), which has been associated to lower racism and generalized prejudice (for a meta-analysis, see Sibley & Duckitt, 2008). Moreover, in-depth exploration is a core feature (Crocetti et al., 2013; Zimmermann et al., 2012) of the information-oriented identity style and, as previously mentioned, high levels of exploration of educational identity commitments have shown to be associated with the adolescents' adoption of this style (Negru-Subtirica et al., 2017). In turn, this style was found to be positively associated with pro-diversity and pro-equality values (Erentaitė et al., 2019) and civic engagement (Crocetti, Erentaitė, et al., 2014), and negatively associated with forms of closure to experiences or others, such as the need for cognitive closure (Crocetti et al., 2009). Additionally, late adolescents who adopt an information-oriented style endorsed less traditional or conservative opinions, showing lower need for closure, right-wing authoritarianism, and cultural conservatism (Soenens et al., 2005).

Thus, reflecting on personal identity choices seems to go hand in hand with a broader intellectual curiosity and thorough information processing, which may be extended to the social and interpersonal domains. Building upon evidence that identity processes in the educational domain interact with social identity processes and their outcomes (e.g., Albarello, Crocetti, et al., 2018; Albarello et al., 2021) and extending available evidence on the associations between information-oriented style and conservatism (Soenens et al., 2005), the current study aims to test for the first time whether educational identity processes—and

specifically educational in-depth exploration—might predict membership to one of the different ethnic prejudice groups identified within the population.

The Current Study

In line with the research reviewed above, the present longitudinal study aims to fill the existing gaps in the literature on ethnic prejudice, its developmental trajectories, and possible antecedents in the transition from late adolescence to emerging adulthood. This life phase is unique as it presents individuals with experiences, expectations, and goals inherently different from both those of adolescence and those of adulthood (Arnett, 2007).

Our goals, hypotheses, and analysis plan were pre-registered and can be retrieved from: https://osf.io/swx8y. Specifically, the purpose of this research is threefold. First, it aims to study the development of cognitive and affective prejudice in terms of mean-level changes and rank-order stability. In line with the literature (for a meta-analysis, see Crocetti et al., 2021), we hypothesize that cognitive and affective prejudice would remain relatively stable over time and that rank-order stability would be high for both components of prejudice (Meeus, 2019).

Second, this study adopts a person-centered approach (Bergman et al., 2003) to identify different developmental trajectories of cognitive and affective ethnic prejudice. Specifically, we expect to detect significant variability in ethnic prejudice and to trace it back to the existence of different sub-groups of participants. Being conceived as a social attitude and individual orientation (Brown, 2011), prejudicial affects and cognitions could be endorsed either at low, moderate, or high levels. Therefore, we hypothesize that participants could be differentiated into three subgroups (i.e., low, moderate, and high) based on their mean level (i.e., intercept) of ethnic prejudice. We expected this to be the main discriminant between groups, while we did not have specific hypotheses concerning differences in the rate of change. Meta-analytic evidence shows that during adolescence mean-levels of prejudice do

not change (Crocetti et al., 2021) and thus the same trend could be replicated across different groups. Nevertheless, from a theoretical standpoint, it is not possible to exclude that different sub-groups of adolescents would display different rates of change. Therefore, regarding this aspect we took a mainly exploratory approach.

Finally, and most interestingly, given the interconnection between personal and social identity processes in this specific life period (Albarello, Crocetti, et al., 2018) and the crucial identity domain of education for late adolescents (Arnett, 2000; Negru-Subtirica et al., 2017), the third aim of the current investigation is to explore whether educational identity processes (i.e., commitment, in-depth exploration, and reconsideration of commitment; Crocetti et al., 2008) could predict participants' membership to such groups. Building upon previous research on the correlates of identity processes and styles (Crocetti, Erentaitė, et al., 2014; Hatano et al., 2016; Soenens et al., 2005), we expect adolescents' in-depth exploration to be linked to low prejudicial attitudes toward migrants. Further, we control for personal (i.e., participants' gender) and family (i.e., parents' educational level) demographics as covariates, in light of the fact that these variables have been previously examined as significant factors shaping prejudice development (Rekker et al., 2015; Weber, 2019), although the extant findings are relatively mixed.

Method

Participants

The present data were collected as part of a larger longitudinal project. Participants included in the current study were 297 adolescents ($M_{age} = 17.48$, $SD_{age} = 0.79$ at T1, 37.8% males) attending the 11th and 12th grades in a large high school complex located in the North-East of Italy (specifically, in the Emilia-Romagna region). This upper secondary education institution comprised two main tracks, offering both academic-oriented (i.e., lyceum) and technical programs. In the current study, six classes from the lyceum and eight classes from

the technical programs were included. Since the focus was on prejudice against ethnic-minority adolescents, only Italian adolescents were included in this study (i.e., youth of immigrant descent were excluded). Most students reported their parents were married (75.2%), while 18.8% reported their parents were separated or divorced. Among participants, 78.9% had one or more siblings. Regarding parents' educational level, 47.6% of the adolescents' fathers had a low (i.e., up to middle school diploma), 42.9% had a medium (i.e., high school diploma), and only a few (9.5%) had a high educational level (i.e., university degree or higher). Participants' mothers (53.2%) mostly had a medium educational level, followed by those with a low (34.7%) and high (12.1%) educational level.

Following suggestions from simulation studies (Hamilton et al., 2003), the sample size of about 300 participants was deemed appropriate for conducting growth analyses within a Structural Equation Modeling (SEM) framework. Additionally, a retrospective power analysis was conducted using Monte Carlo features available in M*plus* (Muthén & Muthén, 2002). Information about the procedure followed and results of the simulation studies are reported in Supplemental Materials 1, which can be retrieved from: https://osf.io/pfjy5/. The sample size of the current study falls above the minimum number of observations required (i.e., 100 without missing data and 150 with missing data) to reject the null hypothesis that the mean of the slope growth factor is equal to zero.

A total of 280 participants completed three, and 236 completed four waves, while approximately half (*N*=135) of the total sample completed all five assessments. Little's Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df) of 1.208, indicating that data were likely missing completely at random (Bollen, 1989). Therefore, the total sample of 297 participants was included in the analyses, and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater Studiorum University of Bologna (Italy). Prior to conducting the study, the schools' principals and teachers agreed on participating in the research project. The study was presented to 11th and 12th grade students who were asked to read and sign the informed consent form. Additionally, informed consent was collected from parents of minors. Participation in the study was voluntary, and students were informed they could withdraw their consent at any time. Data collection consisted of five waves. The first three were three months apart (November 2016, February 2017, and May 2017), while the last two were one year apart (May 2018 and May 2019). Thus, the first three waves examined in-depth the span of one academic year (Albarello et al., 2020; Pop et al., 2016), while the additional two waves monitored the transition from late adolescence to emerging adulthood.

Participants completed paper-and-pencil questionnaires during school hours at each wave until their graduation (i.e., up until wave 4 and wave 3 for 11th- and 12th-graders, respectively). For the following waves, they were provided with a link by e-mail to access online questionnaires on Qualtrics. Thus, the data attrition pattern reported above could be largely attributed to the difficulties in retaining participants after they graduated from high school. Adolescents were required to create a personal code to ensure confidentiality and pair their responses over time. Questionnaires at each wave comprised measures of identity, attitudes, and well-being as part of a larger longitudinal project (see Albarello et al., 2020, 2021). The present investigation focuses specifically on cognitive and affective prejudice and educational identity measures among Italian students. An extract of the study materials can be retrieved from: https://osf.io/pfjy5/.

Measures

Demographics

At Time 1, participants reported on demographic information, including their age, gender, family composition, and parents' educational level. Regarding parental education, participants were required to report the highest level of education reached by their father and mother separately. For the current study, these data were aggregated in a composite score ranging from 0 (indicative of both parents' low educational level, i.e., up to middle school diploma) to 4 (indicative of both parents' high educational level, i.e., university degree or higher).

Cognitive Prejudice

The cognitive dimension of prejudice was evaluated using the Modern and Classical Racial Prejudice scale (Akrami et al., 2000; Italian validation by Gattino et al., 2011). This scale assesses prejudicial cognitions (i.e., stereotypes and negative beliefs) about migrants expressed in two forms, i.e., the Classical prejudice subscale expressing open rejection of immigrants, and the Modern prejudice subscale stressing resentment for special treatment of immigrants, denial of continue discrimination, and antagonism against minority groups' demands. This scale was chosen since it was explicitly developed to capture the attitudes towards ethnic minorities in Europe by adapting it to the changed normative climate that makes old-fashioned forms of prejudice socially unacceptable (Akrami et al., 2000; Gattino et al., 2011). It consists of 12 items scored on a 5-point Likert scale from 1 (*completely false*) to 5 (*completely true*). Sample items are the following: "Migrants do not take care of their personal hygiene" (classical racial prejudice; 7 items) and "Migrants are getting too demanding in the push for equal rights" (modern racial prejudice; 5 items). Items were coded such that the higher the score, the higher the prejudice. Cronbach's Alphas of Classical prejudice subscale were .82, .85, .85, .83, .85 at T1, T2, T3, T4, and T5, respectively.

Cronbach's Alpha of Modern prejudice subscale were .67, .70, .74, .67, .76 at T1, T2, T3, T4, and T5, respectively.

Affective Prejudice

The affective component of prejudice (i.e., the negative emotions or dislike elicited by social groups) was assessed with the Feelings Thermometer (Haddock et al., 1993; for the Italian version, see Albarello & Rubini, 2011), asking participants to express their feelings toward the group of migrants on a scale from 0°C (*cold feelings*) to 100°C (*warm feelings*). To simplify the presentation of results, the scale was reversed, with higher scores indicating higher prejudice.

Educational Identity Processes

Commitment, in-depth exploration, and reconsideration of commitment in the educational domain were measured with the Utrecht-Management of Identity Commitments Scale (U-MICS, Crocetti et al., 2008; Italian validation by Crocetti et al., 2010). The instrument consists of 13 items scored on a 5-point Likert-type rating scale, ranging from 1 (*completely false*) to 5 (*completely true*). Sample items include: "My education gives me certainty in life" (commitment; 5 items), "I think a lot about my education" (in-depth exploration; 5 items), and "I often think it would be better to try to find a different education" (reconsideration of commitment; 3 items). Cronbach's Alphas were .87, .72, and .80 for commitment, in-depth exploration, and reconsideration of commitment subscales at T1.

Strategy of Analyses

Descriptive analyses were computed using IBM SPSS Version 23.0 for Windows. The main analyses were conducted in M*plus* 8.4 (Muthén & Muthén, 1998-2017), using Maximum Likelihood Robust (MLR) estimator (Satorra & Bentler, 2010). As a preliminary step, we tested whether participants' self-reported measures of Classical and Modern prejudice (separately and combined) showed longitudinal measurement invariance. First,

configural models (M1s) for Classical prejudice, Modern prejudice, and the two scales combined were estimated. Next, these models were compared with the respective metric models (M2s) with factor loadings constrained to be equal across time. Finally, if metric invariance was reached, these models were tested against the scalar models (M3s) which imply also fixing intercepts to be equal across time points. Multiple indices were used to evaluate model fit (Byrne, 2012). The Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI), with values higher than .90 and .95 being indicative of an acceptable and excellent fit, respectively. The Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) with values below .08 and .05 being indicative of an acceptable and very good fit, respectively. Additionally, the RMSEA's 90% confidence interval's upper bound lower than .10 indicates an acceptable fit of the model (Chen et al., 2008). Differences between models were identified if at least two of the following criteria were met: a $\Delta\chi^2_{SB}$ significant at $p < .05$ (Satorra & Bentler, 2001), ΔCFI $\geq$ -.010, and ΔRMSEA $\geq$ .015 (Chen, 2007).

Next, to study the development of affective and cognitive dimensions of prejudice at the mean-level and their rank-order stability, multiple analytical strategies were used. First, Latent Growth Curve Models (LGCM) were applied. Specifically, a univariate LGCM was estimated for affective prejudice, while a multivariate LGCM was used to assess changes in Classical and Modern prejudice combined. This strategy allows to estimate the mean levels (i.e., intercepts) and rates of change (i.e., slopes) of each dimension and the variability of these parameters. The fit of the linear models was tested relying on the same indices as presented above (Byrne, 2012).

Moreover, to assess the rank-order stability of manifest affective, Classical, and Modern prejudice scores, Pearson's test-retest correlations (i.e., correlation between Classical prejudice at T1 and T2, at T2 and T3, and so forth) were computed in IBM SPSS.

Additionally, the significance of differences in rank-order stability across adjacent time points was tested using the Fisher *r*-to-*z* transformation to convert correlation coefficients into *z*-scores and compare them for statistical significance ($p < .05$). Furthermore, in line with the latent mean-level change models used, we also assessed latent rank-order stability of Classical and Modern prejudice scores in M*plus*. To assess whether latent rank-order coefficients significantly differed across adjacent time points, the Wald test procedure was used, with a significant Wald test indicative of significant differences between adjacent rank-order coefficients.

Moving to the second main goal of the present study, Latent Class Growth Analysis (LCGA) was performed. This analytical strategy assumes no within class variance of intercepts and slopes and therefore allows to identify homogeneous subgroups within the population (Jung & Wickrama, 2008). Models with an increasing number of classes were tested for cognitive (multivariate LCGA, with Classical and Modern prejudice scores) and affective (univariate LCGA) dimensions of prejudice. A combination of fit indices, theoretical meaningfulness, and parsimony criteria was used to determine the best solution. Regarding fit indices, adding one group should result in improvement in model fit, as highlighted by a decrease in the Sample Size Adjusted Bayesian Information Criterium (SSA-BIC; Sclove, 1987), a significant value of the adjusted Lo–Mendell–Rubin Likelihood Ratio test (Lo et al., 2001), and an Entropy value equal to or higher than .75 (Reinecke, 2006). As regards theoretical meaningfulness, we expected adolescents to show low, moderate, and high prejudice levels. Additionally, besides considering comparison fit indices and theoretical expectations, the more parsimonious class solution should be retained. Finally, each subgroup identified by the LCGA procedure should comprise at least 5% of the total sample for meaningful interpretation of findings. Considering all these criteria, the best fitting class solution was identified for cognitive and affective prejudice.

The two LCGAs performed would result into categorical variables identifying participants membership to one of the groups of cognitive and one of the groups of affective ethnic prejudice respectively. Therefore, to tackle the last goal of the current study, two multinomial logistic regressions were conducted. The first assessed whether educational identity processes (i.e., commitment, in-depth exploration, and reconsideration of commitment) measured at T1 would predict membership to one of the different groups of participants based on their cognitive prejudice levels, also accounting for participants' gender and their parents' educational level. The second multinomial logistic regression tested whether educational identity processes at T1 would predict membership to one of the different classes of participants based on their affective prejudice levels, controlling for their gender and their parents' educational level. Multinomial logistic regression implies the contrast with a reference class, which in the case of this study was identified in the moderate prejudice group for both cognitive and affective prejudice. Since the two multinomial logistic regression models included five independent variables each, a Bonferroni correction was used to account for multiple testing. This implies that the alpha level of 0.05 should be divided by the number of tests being performed on the same dependent variable, which in this case was five (as three independent variables and two covariates were included in each model). Therefore, results were deemed to be significant at $p < .01$.

<div align="center">**Results**</div>

Preliminary Analyses

Descriptive statistics are reported in Supplemental Materials 2. All levels (i.e., configural, metric, and scalar) of longitudinal measurement invariance of Classical and Modern prejudice subscales separately and combined in one model were established. Results are reported in Supplemental Materials 3. Supplemental Materials can be retrieved from:

. Additionally, codes and outputs of all the analyses of the current study are available at the following link: https://osf.io/4s6ue/.

Development of Prejudice

The first goal of the present study was to assess the development of cognitive and affective prejudice in the transition from late adolescence to emerging adulthood, examining mean-level changes and rank-order stability.

Mean-Level Changes

Latent Growth Curve Models (LGCM) were used to examine mean-level changes in cognitive and affective prejudice. For the cognitive component of prejudice, classical and modern prejudice dimensions were modelled in a multivariate LGCM. The model fit the data well: $\chi^2 = 74.548$, df = 41, CFI = .964, TLI = .961, RMSEA = .052 [.033, .071]. As can be seen from Table 1, both classical and modern prejudice showed a slight, although significant, linear decrease over time. Additionally, intercepts were significantly and positively correlated with each other as were slopes, highlighting developmental relations between the two dimensions of cognitive prejudice (Figure 1). As regards affective prejudice, the linear growth model fit the data well: $\chi^2 = 33.027$, df = 10, CFI = .961, TLI = .961, RMSEA [90% CI] = .088 [.056, .122], although the upper value of the RMSEA was slightly above the cutoff. Results (Table 1) showed a general stability of affective prejudice over time. For both cognitive and affective prejudice, our sample displayed significant variability in both intercepts and slopes, suggesting that different subgroups could be differentiated within the general sample, as our study aimed to do.

Table 3.1

Unstandardized growth estimates

	Intercepts		Slopes	
	M (*SE*)	σ^2 (*SE*)	*M* (*SE*)	σ^2 (*SE*)
Cognitive prejudice				
Classical prejudice	2.889*** (0.037)	0.330*** (0.041)	-0.055** (0.020)	0.050*** (0.013)
Modern Prejudice	3.153*** (0.039)	0.376*** (0.043)	-0.052* (0.022)	0.040** (0.014)
Affective prejudice	58.239*** (1.615)	672.383*** (50.482)	-0.137 (0.799)	71.806*** (17.021)

* $p < .05$; ** $p < .01$; *** $p < .001$.

Figure 3.1

Correlations between intercepts and slopes of Classical and Modern prejudice
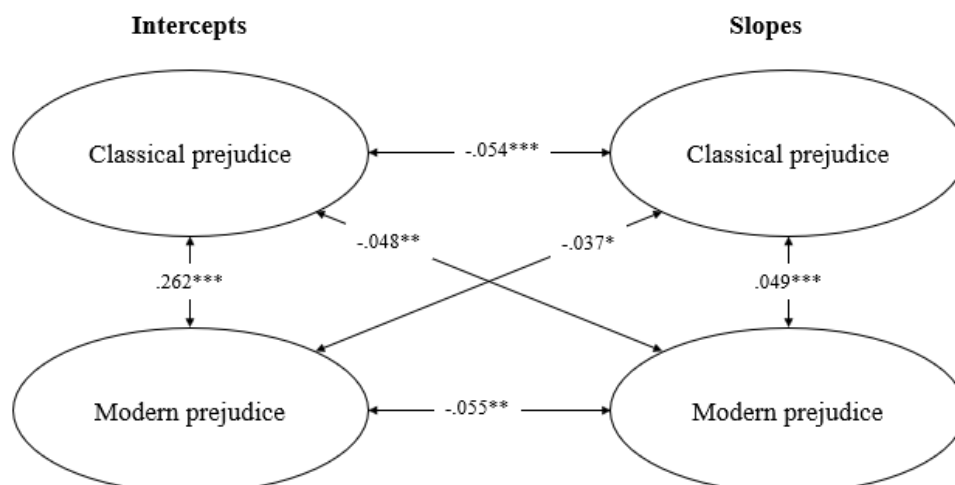
Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Rank-Order Stability

Results of the manifest and latent rank-order stability are reported in Table 2. Coefficients equal to or higher than .60 can be interpreted as indicative of high stability (Mroczek, 2007). As can be inferred, overall rank-order stability was generally high for all manifest and latent variables across all time points. However, T1-T2 and T2-T3 rank-order stability was in some cases higher than T3-T4 and T4-T5 stability. These results can be easily explained considering the differences in the time lag (3-month time lag between T1-T2 and T2-T3; 1-year time lag between T3-T4 and T4-T5) since rank-order stability is inversely

related to the time lag between assessments (i.e., the shorter the time lag, the higher the

stability; Crocetti et al., 2021). However, comparisons of rank-order stability across adjacent

time points yielded only one significant difference between T2-T3 and T3-T4 coefficients of

manifest affective prejudice.

Table 3.2
Rank-order stability with manifest and latent variables

	T1-T2	T2-T3	T3-T4	T4-T5
Manifest rank-order				
Cognitive Prejudice				
Classical Prejudice	.699***	.745***	.679***	.649***
Modern Prejudice	.710***	.642***	.611***	.526***
Affective Prejudice	.806***	.823***	.720***	.681***
Latent rank-order (standardized results)				
Cognitive Prejudice				
Classical Prejudice	.804***	.845***	.752***	.768***
Modern Prejudice	.968***	.837***	.835***	.583***

Note. T = time. *** $p < .001$

Latent Class Growth Analyses

The second goal of this study was to determine whether adolescents could be

classified into different groups based on their cognitive and affective prejudice

developmental trajectories. To this end, multivariate and univariate LCGAs were performed

with cognitive (Classical and Modern prejudice combined) and affective prejudice,

respectively (Table 3).

Unstandardized parameter estimates of the two LCGA models are reported in Table 4.

For cognitive prejudice, the three-class solution provided the best fit to the data (Table 3).

The first group, comprising 66% of participants, was characterized by moderate levels of

prejudice, which remained relatively stable over time. This group was labeled *moderate*

cognitive prejudice. The second group was made up of 20% of our participants, who

displayed higher levels of prejudice, which significantly decreased over time for the Modern

component but not for the Classical component of prejudice. This group was labeled *high cognitive prejudice*. A third group, comprising the remaining 14% of participants, was characterized by low levels of prejudice, which remained stable over time. This group was labeled *low cognitive prejudice*. The developmental trajectories of the three groups are displayed in Figure 2. Wald test confirmed that intercepts were significantly different across groups for both the Classical and the Modern dimensions. However, no difference was found in slopes among groups for the Classical prejudice dimension. On the contrary, the slope of the high cognitive prejudice group significantly differed from that of the moderate and the low groups for the Modern prejudice dimension.

Regarding affective prejudice, the three-group solution was retained in the end, even though the four-group solution was associated with a decrease in SSA-BIC and a significant Adjusted LMR-LRT. However, the four-class solution had a poorer Entropy value and violated the parsimony principle, as adding one more group did not highlight any profile substantially different from those already detected (Table 3). Therefore, the three-class solution provided the best fit. The first group, comprising 47% of participants, was characterized by moderate levels of affective prejudice, which remained stable over time. The second group included 29% of participants who showed high affective prejudice, which slightly decreased over time, although not significantly. A third group, comprising the remaining 24% of the sample, displayed low levels of affective prejudice, which slightly increased over time, although not significantly. The three groups were labeled *moderate affective prejudice*, *high affective prejudice*, and *low affective prejudice*, respectively (see Figure 2). Additionally, Wald test comparisons indicated that intercepts were all significantly different across the three groups, while slopes were not.

Table 3.3

Class solutions resulting from Latent Class Growth Analysis

Solution	SSA-BIC	Entropy	Adj. LMR-LRT	Trajectory group prevalence (%)			
				1	2	3	4
Cognitive prejudice[1]							
1-class solution	5161.213	-	-	100			
2-class solution	4527.201	.853	624.681**	71	29		
3-class solution	**4210.935**	**.906**	**317.718****	**66**	**20**	**14**	
4-class solution	4098.097	.883	121.193	59	23	13	5
Affective prejudice[2]							
1-class solution	11218.512	-	-	100			
2-class solution	10700.002	.812	496.957**	52	48		
3-class solution	**10427.087**	**.903**	**264.952*****	**47**	**29**	**24**	
4-class solution	10367.518	.868	63.411*	42	28	21	9

Note. SSA-BIC = Sample Size Adjusted Bayesian Information Criterium; Adj. LMR-LRT = Adjusted Lo-Mendell-Rubin Likelihood Ratio Test. [1] Multivariate Latent Class Growth Analysis of Classical and Modern prejudice scores. [2] Univariate Latent Class Growth Analysis of Affective prejudice scores. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 3.4

Unstandardized parameter estimates of LCGA models

	Intercept M (SE)	Linear slope M (SE)
Cognitive prejudice[1]		
Moderate class (66%)	2.838*** (0.043) // 3.052*** (0.044)	-0.035 (0.025) // -0.021 (0.027)
High class (20%)	3.623*** (0.105) // 4.057*** (0.108)	-0.107 (0.060) // -0.177** (0.066)
Low class (14%)	2.047*** (0.105) // 2.305*** (0.109)	-0.029 (0.082) // -0.023 (0.071)
Affective prejudice		
Moderate class (47%)	56.742*** (1.336)	0.684 (1.429)
High class (29%)	90.058*** (1.334)	-1.775 (1.402)
Low class (24%)	23.241*** (2.191)	1.808 (1.764)

Note. [1] Cognitive prejudice was analyzed with a multivariate LGCA. Parameter estimates before the double dash (//) refer to the Classical subscale, parameter estimates after the dash (//) refer to the Modern subscale. ** $p < .01$; *** $p < .001$

Figure 3.2

Developmental trajectories of prejudice classes extracted with LCGA

COGNITIVE PREJUDICE

AFFECTIVE PREJUDICE
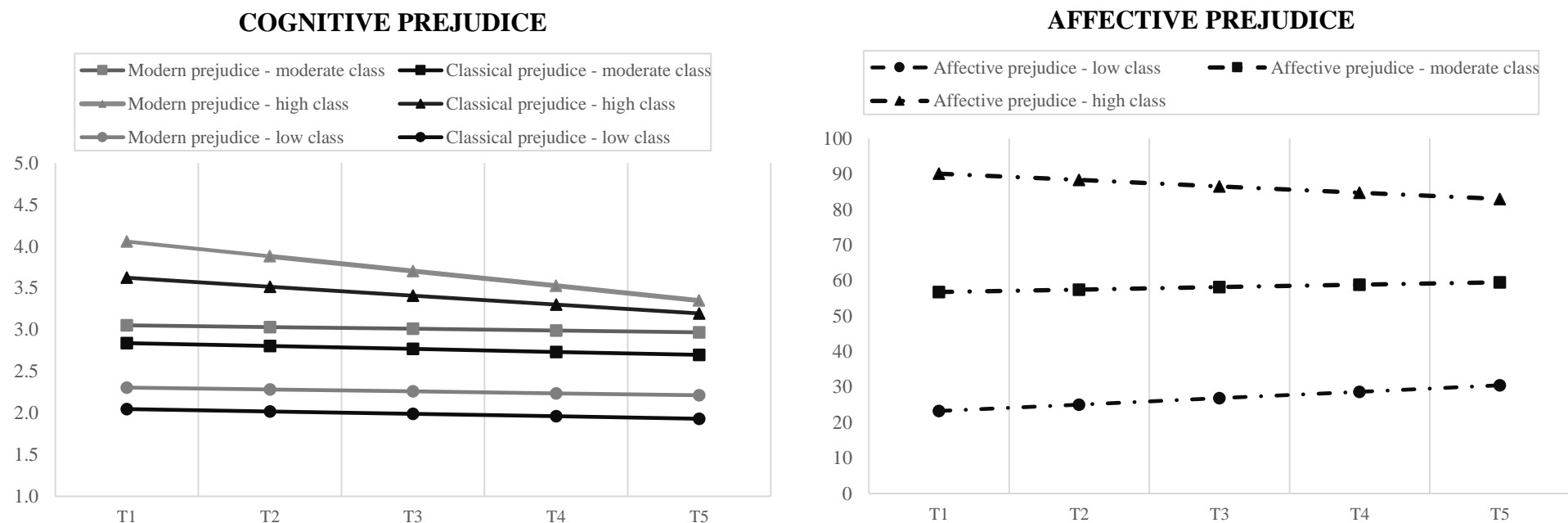
Note. Different classes of participants were extracted by means of a Latent Class Growth Analysis, based on respondents' levels (high, moderate, and low) of cognitive (on the left) and affective (on the right) prejudice. Cognitive prejudice scores ranged from 1 (low cognitive prejudice) to 5 (high cognitive prejudice). Affective prejudice scores ranged from 0 (low affective prejudice) to 100 (high affective prejudice).

Multinomial Logistic Regression

The third aim of this study was to investigate predictors of different prejudice developmental trajectories, focusing on the role of educational identity processes, controlling for participants' gender and family educational level. For cognitive prejudice, results (Table 5) of the multinomial logistic regression revealed that educational identity exploration at T1 significantly predicted the likelihood of being in different cognitive prejudice groups, but only for the comparison between low and moderate cognitive prejudice. Specifically, those with high educational identity exploration were twice as likely to fall into the low cognitive prejudice group than in the moderate prejudice group. However, educational identity commitment and reconsideration of commitment measured at T1 were not significant predictors.

For affective prejudice, results (Table 5) confirmed that educational identity in-depth exploration measured at T1 significantly predicted the likelihood of falling into one group of affective prejudice rather than another, while educational identity commitment and educational identity reconsideration of commitment did not. Specifically, educational identity in-depth exploration at T1 doubled the chances of participants falling into the low rather than the moderate group of prejudice and halved the likelihood of participants being in the high rather than the moderate affective prejudice group. In both models, the covariates (i.e., participants' gender and their parents' educational level) did not significantly account for prejudice group membership.

Table 3.5

Results of multinomial logistic regression for cognitive and affective prejudice classes (unstandardized parameters)

	Cognitive prejudice				Affective prejudice			
	Low prejudice Vs Moderate prejudice		High prejudice Vs Moderate prejudice		Low prejudice Vs Moderate prejudice		High prejudice Vs Moderate prejudice	
T1 predictors	*B* (*SE*)	OR [95% CI]	*B* (*SE*)	OR [95% CI]	*B* (*SE*)	OR [95% CI]	*B* (*SE*)	OR [95% CI]
Educational identity								
Commitment	-0.483 (0.336)	0.617 [0.319, 1.191]	-0.036 (0.253)	0.965 [0.587, 1.585]	-0.197 (0.259)	0.821 [0.494, 1.363]	-0.020 (0.216)	0.980 [0.641, 1.498]
Exploration	**0.930**[**] **(0.339)**	**2.535 [1.305, 4.925]**	-0.534 (0.291)	0.586 [0.331, 1.037]	**0.750**[**] **(0.289)**	**2.116 [1.202, 3.726]**	**-0.746**[**] **(0.267)**	**0.474 [0.281, 0.800]**
Reconsideration	0.109 (0.208)	1.116 [0.742, 1.677]	0.067 (0.170)	1.070 [0.766, 1.494]	0.176 (0.170)	1.192 [0.855, 1.663]	-0.174 (0.163)	0.840 [0.610, 1.157]
Gender	0.178 (0.382)	1.194 [0.565, 2.525]	-0.495 (0.316)	0.610 [0.328, 1.133]	0.466 (0.327)	1.594 [0.840, 3.025]	-0.039 (0.304)	0.962 [0.530, 1.746]
Parents' education	-0.051 (0.171)	0.950 [0.680, 1.329]	0.102 (0.125)	1.107 [0.867, 1.414]	0.189 (0.145)	1.208 [0.909, 1.604]	0.335 (0.132)	1.398 [1.079, 1.811]

Note. T = time; OR = Odds Ratio; CI = Confidence Interval. To control for multiple testing, the Bonferroni correction was applied. [**] $p < .01$

Discussion

Characterized by the progressive consolidation of youth's social and political attitudes, the transition from late adolescence to emerging adulthood appears to offer an insight into the future generation's views of society and others (Hooghe & Wilkenfeld, 2008; Rekker, 2016). However, previous studies on the development of ethnic prejudice during this life stage (e.g., Bratt et al., 2016; Rekker et al., 2015; Wölfer et al., 2016) reported mixed findings and mainly focused on mean-level changes. The present research aimed to address these gaps in the literature. First, it investigated the development (in terms of mean-level changes and rank-order stability) of cognitive and affective components of ethnic prejudice in the transition from late adolescence to emerging adulthood. Second, it adopted a person-centered approach (Bergman & El-Khouri, 2003) to extend these findings and identify different groups within the population, based on participants' levels (i.e., high, moderate, low) of cognitive and affective prejudice dimensions. Third, given the intertwined nature of personal and social identity domains, it examined educational identity processes (i.e., commitment, in-depth exploration, and reconsideration of commitment; Crocetti et al., 2008) as possible predictors of membership to one of the identified prejudice groups. Overall, this study provides novel insights on how ethnic prejudice changes during this life stage and which factors might contribute to different levels of its cognitive and affective dimensions, as further discussed below.

Ethnic Prejudice: Multifaceted Nature and Developmental Trends

As regards the first aim, contrary to our expectations, the present study found that at the mean-level ethnic prejudice showed different developmental patterns depending on the component that was considered. The cognitive component of ethnic prejudice displayed a slight and significant decrease over time, in line with previous research on interethnic attitudes (e.g., Rekker et al., 2015; Wölfer et al., 2016). On the other hand, affective ethnic

prejudice remained relatively stable over time, confirming prior findings in the literature ; (Bratt et al., 2016; study 2). These findings might be explained in light of a differential effect of cognitive development on the two dimensions of prejudice. That is, the cognitive facet of prejudice might be more susceptible to changes due to increased cognitive skills that help late adolescents and emerging adults recognize the multiple complex belongingness of others (Albarello et al., 2020, 2021; Kuhn, 2009), thus leading to a decrease in prejudicial beliefs. On the contrary, the affective facet of prejudice, being an immediate reaction to others (which might involve automatic neurophysiological processes; Amodio, 2014), might be less sensitive to cognitive development and thus more resistant to change. Additionally, these results appear to be in line with emotion intensity theory (Brehm, 1999) and recent empirical findings (Pantaleo & Contu, 2021), highlighting dissociations in cognitive and affective components of prejudice in response to counter-attitudinal information. Overall, the results of the current and previous studies confirm the multifaceted nature of prejudice (Brown, 2011) and suggest the importance of considering its different components in order to reach a more complex and effective understanding of this phenomenon.

Moving to rank-order stability, as expected based on previous findings (for a meta-analysis, see Crocetti et al., 2021), the coefficients were high across all time points for both cognitive and affective dimensions of ethnic prejudice. This evidence is consistent with research on the rank-order stability of personality (e.g., Borghuis et al., 2017; Klimstra et al., 2009; Roberts & DelVecchio, 2000), self and identity (e.g., Crocetti, Rubini, et al., 2016; Klimstra et al., 2010), social judgments (e.g., Crocetti et al., 2019), and political views (e.g., Rekker et al., 2015). Although modern prejudice displayed a different pattern, with a low rank-order coefficient at T4-T5 compared to the cutoff point of .60 (Mroczek, 2007), this value was not significantly different from the coefficient at T3-T4. The only decrease in rank-order coefficients was observed in affective prejudice from T2-T3 to T3-T4 coefficients. This

result might be a consequence of the time lag of assessments points, since rank-order stability was previously found to be inversely associated with the time lag between waves—that is, the larger the lag, the lower the stability observed (Crocetti et al., 2021). While the first three waves (T1, T2, and T3) were conducted three months apart, the following two (T4 and T5) were one year apart. Therefore, the decrease in affective prejudice rank-order coefficients could be attributed to the change from a shorter to a longer time lag.

Overall, our findings extend prior results in the literature (Crocetti et al., 2021) by informing on the specific developmental trends (in terms of both mean-level changes and rank-order stability during the transition from late adolescence to emerging adulthood. When developmental trajectories at the mean-level are coupled with high rank-order stability, conclusions about normative development can be drawn (Meeus, 2019). This information is crucial to expand the knowledge of how ethnic prejudice changes in the transition from late adolescence to emerging adulthood and identify a space for appropriate interventions to support positive intergroup relations and attitudes. For instance, interventions at this life stage might be more effective when tackling the cognitive dimension of prejudice, benefiting from the development of more sophisticated cognitive abilities (Albarello et al., 2020). These could help emerging adults to recognize and understand counter-stereotypical information, ultimately supporting a more complex view of their own and other people's identities.

Capturing Variability in Ethnic Prejudice Levels: The Benefits of a Person-Centered Approach

Examining the longitudinal development of cognitive and affective ethnic prejudice at the mean-level highlighted significant variability in both intercepts and rates of change, setting the stage for the second goal of the study, which was to investigate whether such variability could be traced back to different groups based on prejudice levels (i.e., high, moderate, low). Consistently with expectations, participants were assigned to one of three

different groups of cognitive ethnic prejudice (i.e., high cognitive prejudice, moderate cognitive prejudice, and low cognitive prejudice) and to one out of three groups of affective ethnic prejudice (i.e., high affective prejudice, moderate affective prejudice, and low affective prejudice). Interestingly, participants in the high cognitive prejudice group displayed slightly different developmental trajectories for the dimensions of Classical and Modern prejudice: while Classical prejudice did not change, Modern prejudice slightly but significantly decreased over time. This difference could be a consequence of the different forms of prejudice tackled, with the former assessing blatant (and less socially acceptable) instances and the latter evaluating more subtle manifestations of this attitude (Akrami et al., 2000; Gattino et al., 2011). Thus, the assessment of Classical prejudice may have been sensitive to the respondents' desire to display more socially acceptable positions. Nonetheless, more data is needed to evaluate this tentative interpretation.

For both dimensions of prejudice, the most represented group was the one with moderate levels of prejudice (66% and 47% of participants in the moderate group for cognitive and affective prejudice, respectively), followed by the one with high (20% and 29% of participants in the high group for cognitive and affective prejudice, respectively) and with low levels (14% and 24% of participants in the low group for cognitive and affective prejudice, respectively), indicating that only a small proportion of late adolescents display low ethnic prejudice. These patterns are in line with recent research showing that young people are generally more tolerant towards social groups that have traditionally been marginalized or discriminated (such as sexual minorities), but they are less accepting of immigrants than older generations (Janmaat & Keating, 2019).

From a practical standpoint, adopting a person-centered approach (Bergman et al., 2003) allows the identification of adolescents at risk of developing negative relationships with people of different ethnic backgrounds and offers pivotal information to plan

developmentally appropriate interventions (Beelmann & Lutterbach, 2021). For instance, the fact that approximately a quarter of our participants displayed high levels of cognitive and affective prejudice substantiates the need for interventions aimed at reducing negative intergroup attitudes and relations. This is crucial in light of the heinous consequences that negative intergroup experiences (e.g., prejudice, discrimination, negative contact) might exert on both minority and majority youth (Bagci & Rutland, 2019).

Fighting Prejudice: The Protective Role of Educational Identity

The third aim of the present research was to investigate the role of educational identity processes in predicting membership to one of the cognitive and affective prejudice groups over and above a reference group (i.e., the moderate prejudice group for both dimensions). Gaining more knowledge on this aspect is of utmost importance in planning tailored interventions to promote positive intergroup relations. Specifically, educational identity processes were chosen as a parsimonious construct at the intersection between individual and socio-contextual factors, and in light of the importance attributed to school during this life stage (Negru-Subtirica & Pop, 2018), especially for the development of adolescents' identity (see Verhoeven et al., 2019), positive intergroup experiences and attitudes (Schachner et al., 2016; Schwarzenthal et al., 2020). We found that adolescents who at the beginning of the study engaged in in-depth exploration of their commitment in the educational domain to a higher extent were more likely to fall into the low rather than the moderate prejudice group for both cognitive and affective components and were less likely to fall in the high rather than the moderate prejudice group, although this was true only for the affective dimension of ethnic prejudice. Commitment and reconsideration of commitment were not significant predictors of group membership, thus showing that such processes might be relatively unrelated to the views individuals develop about others in their social context.

These findings confirm our hypothesis about the key role played by thoughtful exploration and are in line with previous research on identity processes (Crocetti et al., 2010, 2012; Hatano et al., 2016) and styles (Crocetti, Erentaitė, et al., 2014; Erentaitė et al., 2019; Soenens et al., 2005), which highlighted the associations between in-depth exploration and multiple personal (e.g., openness to experience; Crocetti et al., 2010; Hatano et al., 2016) and social (e.g., civic engagement; Crocetti et al., 2012) aspects that inform individuals' views of others within society (Brandt et al., 2015; Pancer et al., 2007). Besides extending the literature on associations between personal identity processes and social identity processes (Albarello, Crocetti, et al., 2018), our findings also highlight for the first time the link between in-depth exploration and ethnic prejudice among late adolescents. Active and thoughtful reflection—i.e., the cornerstone of identity exploration—not only informs personally relevant decisions but also extends to the interpersonal domain by guiding adolescents' ways of feeling and thinking about others and preventing the development of cognitive and affective prejudice against ethnic minorities. Following the line of research on counter-stereotypes, which have been found to activate flexible thinking (Gocłowska et al., 2013) and reduce dehumanization (i.e., an aggravated form of prejudice denying full humanness to others; Albarello & Rubini, 2008) and the use of heuristics (Prati et al., 2015), in-depth exploration might be an expression of a general mindset characterized by greater cognitive flexibility and less reliance on stereotypical thinking. Such mindset might support adolescents in embracing the peculiarity and diversity of interpersonal encounters in a multicultural world. Although flexibility and willingness to engage in thorough information processing define the in-depth exploration process, it could also be argued that these cognitive features are even amplified when it comes to the exploration of educational identity commitment. For instance, the exploration of relevant commitment in this domain might rely on social comparisons between personal and others' (e.g., classmates) educational choices.

These might in turn heighten perceived similarities based on the shared educational commitments made (i.e., all classmates made similar educational choices), increase identification with the group of classmates (Albarello, Crocetti, et al., 2018), and ultimately help adolescents recognize commonalities beyond diversity and avoid prejudicial thinking. In this vein, it might be argued that educational in-depth exploration has unique and specific associations with ethnic prejudice. However, these considerations should be further addressed in future studies examining differences and commonalities in exploration processes of multiple relevant domains.

In our models, the participants' gender and parental education were used as covariates. Prior studies have suggested the importance of these factors although they have reported mixed findings on their associations with prejudice (e.g., Rekker, 2016; Weber, 2019). In the current study participants' gender and their parents' educational level did not play a role in predicting prejudice group membership. These findings are in line with previous research (Hooghe et al., 2013; Weber, 2019; for a meta-analysis, see Crocetti et al., 2021) attributing a marginal role to these factors in influencing ethnic prejudice development.

Limitations and Suggestions for Future Research

The current research contributed to the literature on ethnic prejudice by extending knowledge about its development in the transition from late adolescence to emerging adulthood, identifying different groups of youth based on their levels of cognitive and affective prejudice, and pointing to the predicting role of educational identity in-depth exploration. These findings, however, should be read in the light of some limitations. First, it should be noted that the sample size was adequate as indicated by the power analysis, but some participants dropped out after graduating from high school and did not participate in the final (those attending 11th grade at T1) or the last two waves (those attending 12th grade at T1) of the study. Second, our results come from a sample of Italian late adolescents living in

a specific region of Italy (i.e., Emilia-Romagna), which was chosen since it is the one with

the highest percentage of immigrants among the student population (Ministero della Pubblica

Istruzione, 2019). The generalizability of the present findings should be considered carefully,

as Italy is quite different in terms of migrant share in the population, history of migration, and

policies about inclusion and citizenship compared to other European countries and the

American context (MIPEX, 2020). Third, the current study tackled the cognitive and

affective dimensions of prejudice but did not explore its behavioral counterpart. Prejudice is a

multifaceted construct (Brown, 2011), and future studies should investigate all its

components because each of them may show different developmental trajectories. Finally,

this study investigated the role of educational identity processes in predicting membership to

different groups of prejudice. However, additional individual (e.g., values, socio-emotional

competences, personal experiences) and socio-contextual factors (e.g., family, peers,

intergroup contacts) might play a role in shaping developmental trajectories of ethnic

prejudice. For instance, evaluating adolescents' social identification with their (national)

ingroup might provide a more comprehensive picture of how personal identity processes and

those of social identity might jointly contribute to the development of prejudice among youth

(e.g., Meeus et al., 2010). Therefore, future research should include additional predictors and

strive to disentangle the relative importance of each of them at different life stages.

Conclusions

This study addressed the development of ethnic prejudice in the transition from late

adolescence to emerging adulthood by considering both its cognitive and affective

components. It was found that cognitive ethnic prejudice displayed a significant decrease

over time, while affective prejudice remained relatively stable. Additionally, rank-order

stability was high, indicating that individuals tend to maintain their position in terms of

attitudes relative to their peers. Moreover, by applying a person-centered approach (Bergman

& El-Khouri, 2003), we found that variability in terms of prejudice levels could be traced back to different groups within our sample, distinguishing between those with high, moderate, and low levels of prejudice, for both its cognitive and affective components. Finally, we highlighted that educational identity in-depth exploration significantly predicted membership to one of these groups.

Overall, the findings from the current study are particularly relevant not only because they extend knowledge of how ethnic prejudice develops over time but also because they highlight important predictors of such development, increasing the understanding of the intertwined nature of personal and social identity processes. Such knowledge is crucial to inform future interventions aimed at supporting harmonious relations within our societies. This research confirmed that the study of prejudice development could be particularly effective when adopting a person-centered approach, which tackles the variability within the general population and allows for a deeper understanding of psychological phenomena. Additionally, supporting adolescents in the in-depth exploration of their identity commitments might be a useful strategy to reduce their ethnic prejudice and improve the quality of their interactions with members of other social groups.

APPENDIX A3: Ancillary Sensitivity Analyses with "*Type = Complex*"

Ancillary sensitivity analyses have been conducted to account for the nested structure of the current data. Specifically, participants of the current study were nested in 14 classrooms within the same school complex. Given the group-based nature of ethnic prejudice, it could be worth examining whether main results reported in the manuscript would be replicated when accounting for non-independence of observations. To this end, we performed all the analyses (i.e., longitudinal measurement invariance, latent growth curve models, latent class growth analysis, and logistic regressions) using the "*Type = Complex*" feature in M*plus* with MLR estimator. This procedure allows to estimate robust standard errors accounting for the nested structure of the data. However, given the low number of clusters (i.e., 14 classes), robust standard errors estimates might not be stable and reliable (see the M*plus* outputs). Therefore, we report these findings as ancillary analyses here in Appendix A.

Results that differ from those reported in the manuscript are highlighted in grey. Notably, three main differences emerged after correcting for non-independence of the data. However, they are marginal and do not lead to changes in the main findings and conclusions of the current study. First, regarding the Latent Class Growth Analysis (LCGA), the adjusted Lo-Mendell-Rubin Likelihood Ratio Test (Adj. LMR-LRT) displays some slight differences in significance for both cognitive and affective prejudice. However, considering changes in this fit index in combination with the other indicators (i.e., lower SSA-BIC and increased Entropy) would not lead to any change in the best class solution identified. Moreover, the number of participants within each class is equivalent to the results reported in the paper.

A second slight difference is observed in the parameter estimates of the three groups identified. Specifically, when accounting for the nested structure of the data, the high cognitive prejudice group shows a significant decrease in Classical prejudice scores over time

while in the main results the linear slope for Classical prejudice was negative but not

significant ($p = .078$).

Third, in the multinomial logistic regression with "Type = Complex", educational

identity exploration appears to significantly ($p = .032$) reduce the chances of being in the

higher cognitive prejudice class compared to the average prejudice class. However, when

applying the Bonferroni correction to account for multiple testing (i.e., results are deemed

significant at $p < .01$), this regression path cannot be considered significant. Overall, results

are largely replicated when accounting for the nested structure of our data.

Table A3.1

Results of the longitudinal measurement invariance of study variables with "Type=Complex"

	Model fit						**Model comparisons**			
Models	χ^2	df	CFI	TLI	SRMR	RMSEA [90%CI]	Models	$\Delta\chi^2$	ΔCFI	ΔRMSEA
Classical Prejudice										
Configural (M1)	825.017	480	.906	.883	.068	.049 [.043, .055]				
Metric (M2)	831.911	504	.911	.894	.078	.047 [.041, .052]	M2-M1	19.902 (24)	.005	-.002
Scalar (M3)	882.718	532	.904	.893	.080	.047 [.042, .053]	M3-M2	50.565 (28)**	-.007	.000
Modern Prejudice										
Configural (M1)	351.670	215	.928	.899	.063	.046 [.037, .055]				
Metric (M2)	372.210	231	.926	.903	.070	.045 [.037, .054]	M2-M1	19.978 (16)	-.002	-.001
Scalar (M3)	404.288	251	.919	.903	.070	.045 [.037, .053]	M3-M2	32.081 (20)*	-.007	.000
Cognitive Prejudice (Classical and Modern combined)										
Configural (M1)	2738.460	1545	.828	.803	.079	.051 [.048, .054]				
Metric (M2)	2771.542	1585	.829	.809	.087	.050 [.047, .053]	M2-M1	43.359 (40)	.001	-.001
Scalar (M3)	2848.459	1633	.824	.810	.088	.050 [.047, .053]	M3-M2	77.476 (48)**	-.005	.000

Note. χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. * $p < .05$; ** $p < .01$

Table A3.2

Results of the Latent Growth Curve Model with "Type=Complex"

Models			Model fit				Unstandardized growth estimates			
							Intercept		Linear slope	
	χ^2	df	CFI	TLI	SRMR	RMSEA [90%CI]	*M* (*SE*)	σ^2 (*SE*)	*M* (*SE*)	σ^2 (*SE*)
Affective Prejudice	28.008	10	.965	.965	.071	.078 [.045, .113]	58.239*** (2.766)	672.383*** (63.619)	-0.137 (1.069)	71.806*** (19.072)
Cognitive Prejudice										
Classical	76.539	41	.963	.960	.078	.054 [.035, .073]	2.889*** (0.061)	0.333*** (0.055)	-0.055* (0.026)	0.050** (0.017)
Modern							3.153*** (0.047)	0.376*** (0.047)	-0.052* (0.021)	0.040*** (0.013)

Note. χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter.

* $p < .05$; ** $p < .01$; *** $p < .001$

Table A3.3

Results of the Latent Class Growth Analysis with "Type=Complex"

				Class solutions			
			Adj. LMR-	Trajectory group prevalence (%)			
Solution	SSA-BIC	Entropy	LRT	1	2	3	4
Cognitive prejudice[1]							
1-class solution	5161.213	-	-	100			
2-class solution	4527.201	.853	624.681[*]	71	29		
3-class solution	**4210.935**	**.906**	**317.718**	**66**	**20**	**14**	
4-class solution	4098.097	.883	121.193	59	23	13	5
Affective prejudice[2]							
1-class solution	11218.512	-	-	100			
2-class solution	10700.002	.812	496.957	53	47		
3-class solution	**10427.087**	**.903**	**264.952**[**]	**47**	**29**	**24**	
4-class solution	10367.518	.868	63.411	42	28	21	9

Unstandardized parameter estimates		
	Intercept *M* (*SE*)	Linear slope *M* (*SE*)
Cognitive prejudice[1]		
Moderate class (66%)	2.838[***] (0.050) // 3.052[***] (0.057)	-0.035 (0.032) // -0.021 (0.030)
High class (20%)	3.623[***] (0.145) // 4.057[***] (0.105)	-0.107[*] (0.047) // -0.177[***] (0.050)
Low class (14%)	2.047[***] (0.074) // 2.305[***] (0.119)	-0.029 (0.088) // -0.023 (0.080)
Affective prejudice[2]		
Moderate class (47%)	56.742[***] (1.646)	0.684 (1.321)
High class (29%)	90.058[***] (1.994)	-1.775 (1.125)
Low class (24%)	23.241[***] (1.716)	1.808 (2.588)

Note. SSA-BIC = Sample Size Adjusted Bayesian Information Criterium; Adj. LMR-LRT = Adjusted Lo-Mendell-Rubin Likelihood Ratio Test. [1] Multivariate Latent Class Growth Analysis of Classical and Modern prejudice scores. [2] Univariate Latent Class Growth Analysis of Affective prejudice scores. Parameter estimates before the double dash (//) refer to the Classical subscale, parameter estimates after the dash (//) refer to the Modern subscale. [*] *p* < .05; [**] *p* < .01; [***] *p* < .001

Table A3.4

Unstandardized results of the multinomial logistic regression with "Type=Complex"

	Cognitive prejudice				Affective prejudice			
	Low prejudice Vs Average prejudice		High prejudice Vs Average prejudice		Low prejudice Vs Average prejudice		High prejudice Vs Average prejudice	
T1 predictors	*B* (*SE*)	OR [95% CI]	*B* (*SE*)	OR [95% CI]	*B* (*SE*)	OR [95% CI]	*B* (*SE*)	OR [95% CI]
Educational identity								
Commitment	-0.483 (0.280)	0.617 [0.356, .068]	-0.036 (0.162)	0.965 [0.702, .325]	-0.197 (0.205)	0.821 [0.549, .228]	-0.020 (0.179)	0.980 [0.691, .391]
Exploration	**0.930** [**0.336**]	**2.535 [1.313, .897]**	**-0.534*** **(0.249)**	**0.586 [0.359, .956]**	**0.750** [**0.220**]	**2.116 [1.375, .257]**	**-0.746** [**0.281**]	**0.474 [0.274, .822]**
Reconsideration	0.109 (0.165)	1.116 [0.807, .542]	0.067 (0.138)	1.070 [0.816, .401]	0.176 (0.129)	1.192 [0.927, .534]	-0.174 (0.127)	0.840 [0.655, .078]
Gender	0.178 (0.415)	1.194 [0.530, .693]	-0.495 (0.358)	0.610 [0.302, .231]	0.466 (0.314)	1.594 [0.861, .953]	-0.039 (0.286)	0.962 [0.550, .684]
Parents' education	-0.051 (0.198)	0.950 [0.644, .402]	0.102 (0.136)	1.107 [0.848, .446]	0.189 (0.205)	1.208 [0.808, .804]	0.335 (0.173)	1.398 [0.995, .964]

Note. T = time; OR = Odds Ratio; CI = Confidence Interval. When applying the Bonferroni correction to control for multiple testing, the effect highlighted in grey does not reach significance. * $p < .05$; ** $p < .01$

Supplemental Materials

Retrospective Power Analysis with Monte Carlo Simulation

Monte Carlo simulations are widely used to determine sample size requirements given specific models and fit indices (Muthén & Muthén, 2002). This procedure allows generating data from a population with specified parameters (usually chosen based on prior studies and theoretical reasoning) and examining multiple criteria to determine the sample size requirements. For the purpose of the current study, power analysis was conducted retrospectively using the Monte Carlo option available in M*plus* (Muthén & Muthén, 1998-2017). The syntaxes used to perform the simulation studies with Monte Carlo can be retrieved at the following link on the OSF project page: https://osf.io/4s6ue/ .

A multivariate Latent Growth Curve Model (LGCM) with five time points was chosen with population's parameters defined based on the results of our multivariate LGCM (i.e., the one used to analyze cognitive prejudice development). Data were generated using the following population values. The time scores used in the multivariate model were chosen because of the specific time lags between waves in the current study. The first three waves were three months apart (i.e., a quarter of a year), therefore time scores were 0, 0.25, and 0.5. The last two waves occurred one year apart, therefore time scores used were 1.5 and 2.5. The mean of both intercepts was 3 and the mean of both slopes was set to 0.1. The variances of the two intercepts were set to 0.3 and 0.4 respectively, and the variances of the slopes were 0.05 and 0.04, respectively.

Multiple simulations were conducted using this model with increasing complexity in sample size and missing data patterns to analyze changes in power for rejecting the null-hypothesis that the mean of the slope growth factor is zero. First, multiple simulations were conducted with increasing number of observations (i.e., 50, 100, 150, 200, 250, 300). Next, the same simulations were conducted also accounting for possible missing data pattern. In the simulations with missing data, the data are generated to reflect an increase in missing data over

time due to attrition. Specifically, missingness increased significantly in the transition from the third to the fourth and from the fourth to the last wave reflecting the specificity of our sample (see the "Procedure" section of the Manuscript for further information). Results of the simulations are reported in Table 1. As can be inferred, for the multivariate LGCM without missing data, a sample size of at least 100 is needed for power of .96 and .98 to reject the hypothesis that the mean of the slope growth factor is zero. When including missing data pattern in the simulation, a sample size of at least 150 is needed for power of .96 and .98 to reject the null hypothesis. The sample size of our study is way above these requirements, even when accounting for missing data.

Table S3.1
Results of Monte Carlo simulations

	POWER	
	No missing data	*Missing data*
$N = 50$	.747/.808	.565/.601
$N = 100$	.961/.978	.866/.895
$N = 150$	.996/.998	.966/.978
$N = 200$	1.000	.991/.996
$N = 250$	1.000	.999/.992
$N = 300$	1.000	1.000

Table S3.2

Means, standard deviations, and correlations among study variables

	M	SD	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Classical prejudice T1	2.84	0.63	.519***	.737***	-.027	-.231***	-.027	.699***	.504***	.650***	.663***	.435***	.598***	.577***	.427***	.561***	.401***	.320***	.342***
2. Modern prejudice T1	3.13	0.71		.607***	-.126*	-.269***	.067	.493***	.710***	.585***	.426***	.619***	.557***	.415***	.561***	.526***	.438***	.436***	.408***
3. Affective prejudice T1	55.87	27.48			-.039	-.279**	-.069	.647***	.588***	.806***	.539***	.540***	.735***	.499***	.509***	.665***	.373***	.376***	.475***
4. Educational identity commitment T1	2.89	0.80				.517***	-.302***	-.088	-.118*	-.130*	-.005	-.110	-.089	.068	-.124	-.110	.131	.148	.098
5. Educational identity in-depth exploration T1	3.02	0.68					-.066	-.261***	-.211***	-.292***	-.171**	-.212***	-.273***	-.104	-.238***	-.269***	-.171	-.181*	-.191**
6. Educational identity reconsideration T1	3.19	0.97						.007	.040	-.073	.016	.049	-.060	-.085	-.015	-.029	-.039	-.078	-.075
7. Classical prejudice T2	2.91	0.66							.613***	.732***	.745***	.509***	.635***	.619***	.456***	.576***	.361***	.249**	.323***
8. Modern prejudice T2	3.17	0.73								.632***	.499***	.642***	.550***	.444***	.596***	.510***	.326***	.397***	.384***
9. Affective prejudice T2	59.93	27.41									.571***	.563***	.823***	.554***	.529***	.766***	.404***	.394***	.546***
10. Classical prejudice T3	2.91	0.66										.527***	.627***	.679***	.485***	.531***	.489***	.288***	.325***
11. Modern prejudice T3	3.14	0.76											.604***	.519***	.611***	.517***	.396***	.439***	.367***
12. Affective prejudice T3	59.06	28.95												.570***	.522***	.720***	.472***	.392***	.579***
13. Classical prejudice T4	2.80	0.68													.569***	.633***	.649***	.497***	.456***
14. Modern prejudice T4	3.04	0.74														.668***	.478***	.526***	.409***
15. Affective prejudice T4	58.03	31.28															.550***	.551***	.681***
16. Classical prejudice T5	2.75	0.70																.655***	.618***
17. Modern prejudice T5	3.06	0.82																	.674***
18. Affective prejudice T5	53.79	30.58																	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Longitudinal Measurement Invariance

As a preliminary step, all levels (i.e., configural, metric, and scalar) of longitudinal measurement invariance were tested for Classical and Modern racial prejudice subscales (Akrami et al., 2000), both separately and combined. The configural models (for Classical, Modern, and the two subscales combined) function as baseline models to attest measurement invariance and should therefore display a good fit, evaluated based on the following criteria. The Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI) with values higher than .90 and .95 are indicative of an acceptable and excellent fit, respectively. The Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) with values below .08 and .05 are indicative of an acceptable and very good fit, respectively (Byrne, 2012). Additionally, the RMSEA's 90% confidence interval's upper bound lower than .10 indicates an acceptable fit of the model (Chen et al., 2008). In order to establish metric and scalar invariance, changes in fit indices from one model to the next (e.g., from the configural to the metric, and from the metric to the scalar one) were evaluated (e.g., Cheung & Rensvold, 2002). Specifically, a significant at p < .05 $\Delta\chi^2_{SB}$ (Satorra & Bentler, 2001), and ΔCFI $\geq$ -.010 supplemented by ΔRMSEA $\geq$ .015 (Chen, 2007) are indicative of non-invariance. All levels of measurement invariance were established, as can be inferred from the following table.

Table S3.3

Longitudinal Measurement Invariance of Classical and Modern prejudice

	Model fit						Model comparisons			
Models	χ^2	df	CFI	TLI	SRMR	RMSEA [90% CI]	Models	$\Delta\chi^2$	ΔCFI	ΔRMSEA
Classical prejudice										
Configural (M1)	815.315	480	.908	.886	.068	.048 [.043, .054]				
Metric (M2)	831.373	504	.910	.894	.078	.047 [.041, .052]	M2-M1	23.006	.002	-.001
Scalar (M3)	890.329	532	.902	.890	.080	.048 [.042, .053]	M3-M2	60.544***	-.008	.001
Modern prejudice										
Configural (M1)	354.679	215	.928	.899	.063	.047 [.038, .055]				
Metric (M2)	371.597	231	.927	.905	.070	.045 [.037, .054]	M2-M1	17.334	-.001	-.002
Scalar (M3)	408.578	251	.918	.902	.070	.046 [.038, .054]	M3-M2	37.621**	-.009	.001
Classical and Modern prejudice										
Configural (M1)	2726.768	1545	.829	.804	.079	.051 [.048, .054]				
Metric (M2)	2761.844	1585	.829	.809	.087	.050 [.047, .053]	M2-M1	44.148	.000	-.001
Scalar (M3)	2852.232	1633	.823	.808	.088	.050 [.047, .053]	M3-M2	90.905***	-.006	.000

Note. χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. ** $p < .01$; *** $p < .001$

Us, Them, We: How National and Human Identifications Influence Adolescents' Ethnic Prejudice

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Abstract

Although there have been numerous studies on the relations between group identification and ethnic prejudice, it is less clear whether their associations reflect stable individual tendencies or rather situational or temporal fluctuations. This longitudinal multilevel study aimed to fill this gap by examining the between- and within-person associations of identification with the national and superordinate human groups and levels of prejudice against multiple ethnic minorities. A total of 883 Italian majority adolescents (M_{age}=15.66, SD=1.15 at T1, 49.7% females) completed questionnaires at four time points over the course of one year. Results showed that national identification was related to more prejudice at the between-person level but to decreases in prejudice at the within-person level. Additionally, human identification contributed to lower levels of and steeper decreases in prejudice at both the between- and within-person levels. Common and unique associations also emerged across different ethnic minority targets, but only for between-person effects. Overall, this study highlights the importance of distinguishing stable individual levels and momentary fluctuations of both ingroup identifications and ethnic prejudice in order to orient future interventions aimed at improving the quality of intergroup relationships.

Keywords: Ethnic prejudice; national identity; human identity; social identity; adolescence; longitudinal; multilevel

Introduction

«We must conclude that prejudice cannot be explained entirely by approaching it at the level of generalized personality structure and dynamics. Situational, historical, and cultural factors are also important.»

(Allport, 1954, p. 73)

As indicated by this quote from Allport's seminal work *The Nature of Prejudice*, prejudice can depend on both personal and contextual factors. Still, the social psychological literature on this topic has been characterized by competing explanations whereby each set of factors is considered the main, although not unique, determinant of prejudice in spite of the other (Akrami et al., 2009; Hodson, 2009). According to the social identity perspective (Tajfel & Turner, 1979), prejudice is mostly a *situational phenomenon* stemming from momentary processes of ingroup identification that guide intergroup attitudes and behaviors in a given context (Reynolds et al., 2017). Yet prejudice can also be conceived as a relatively stable characteristic that is mostly explained by *individual differences* in ideologies and personality factors (Altemeyer, 2004; Sibley & Duckitt, 2008). To make meaningful considerations about individual versus contextual influences it is important to distinguish the stable components of the latter from the fluctuating ones. However, this has not been systematically done in the literature, as previous studies (e.g., Curtis, 2014; Pehrson, Vignoles, et al., 2009) have mostly relied on one-time measures, which means that it is not always clear whether these characteristics themselves are fully stable. This also holds for ingroup identification, which tends to vary between individuals but also between situations (Reimer et al., 2022).

To fill this gap, the present research used a longitudinal multilevel design to uncover how ethnic prejudice is structurally ('between-person level') and temporally ('within-person level') related to national and human identifications in a large sample of Italian adolescents. Additionally, it examined whether the structural and temporal effects of identifications were outgroup-dependent, by considering the most represented ethnic minority groups in the Italian society (i.e., Romanians, Albanians, Moroccans, Chinese, and Ukrainians; ISTAT, 2020). As a

result, we could provide more nuance to the person-context debate on prejudice, and the role of ingroup identification in particular.

Ethnic Prejudice: Stability and Fluctuations

Ethnic prejudice can be defined as a negative orientation or attitude toward others because of their different ethnic and cultural background (Allport, 1954). It implies both negative emotions (i.e., affective component) and stereotypes (i.e., cognitive component) expressed toward ethnic individuals and groups. Together, the affective and cognitive facets can lead to behavioral expressions of prejudice, which range from avoidance to aggression and discrimination (Brown, 2011; Cuddy et al., 2007).

Much of the social psychological work on prejudice has examined interpersonal differences and has relied on the assumption that these individual differences are relatively stable over time. By contrast, developmental psychologists are not only interested in stability, but also in fluctuations and systematic change. Along this line, prior developmental work has examined how changes in ethnic prejudice throughout childhood and adolescence are intertwined with the progressive advancements of individual cognitive, social, and moral competences and the socio-contextual influences to which youth are exposed (for a review, see Rutland & Killen, 2015). These processes can be especially impactful in adolescence, when youth face multiple developmental tasks, such as defining their personal and social identity (e.g., Crocetti et al., 2023), acquiring meaningful social and political stances (e.g., Rekker et al., 2015), and becoming engaged members of their community(e.g., Jahromi et al., 2012). Moreover, prior research has highlighted that attitudes formed in adolescence function as important organizing principles of their adult political orientations (Rekker, 2016). Relatedly, shedding light on individual and intergroup processes occurring in adolescence is relevant not only in light of the important developmental changes that characterize this life phase, but also for their long-lasting impact on future generations' social and political views.

Meta-analyses (Crocetti et al., 2021; Raabe & Beelmann, 2011) have found that ethnic prejudice emerges early on, reaches a peak in middle childhood followed by a decrease, and progressively consolidates from adolescence onward. At this life stage, mean levels of ethnic prejudice as well as interindividual differences in both affective and cognitive facets remain relatively stable. This general stability trend does not necessarily imply an absence of change or a lack of temporal fluctuations (Crocetti et al., 2021). For instance, within the general population, subgroups of youth might follow multiple and divergent developmental trajectories (Bobba, Albarello, et al., 2023). Additionally, adolescents as well as adults might also display fluctuations around their own personal mean, as a consequence of momentary individual (e.g., social dominance orientation; Osborne et al., 2021) or macro-contextual changes (Allport, 1954). For instance, longitudinal research among adults has highlighted how temporal fluctuation in contextual features (e.g., media salience of terrorist attacks, increases in the share of immigrant population and unemployment rate) can contribute to temporal increases in prejudice against ethnic minorities (e.g., Finseraas & Listhaug, 2013; Legewie, 2013; Mitchell, 2019). Therefore, adopting a longitudinal, person-oriented approach (Bergman et al., 2003) that separates between- and within-person levels is fundamental to gain a more nuanced understanding of the stability and fluctuations in prejudice (see Molenaar, 2004; Von Eye & Bogat, 2006).

Further, socio-contextual and historical factors can impact ethnic prejudice differently, depending on the minority target considered. In this regard, prior studies highlighted how socio-contextual factors can differently influence changes in prejudice against some but not other ethnic minorities, rather than exerting a generalized effect across groups (e.g., Czymara & Dochow, 2018; de Rooij et al., 2015). These findings support the notion that, beyond common variance among different prejudices—the so-called generalized prejudice – it is important to consider the feelings and emotions toward different ethnic groups (Bergh &

Akrami, 2018). Building upon these premises, the current research took a group-specific approach by focusing on the Romanian, Albanian, Moroccan, Chinese, and Ukrainian groups, which, due to immigration, are the most represented ethnic minorities in the Italian context (ISTAT, 2020). These ethnic outgroups differ not only by region of origin (i.e., Eastern Europe, Northern Africa, Asia) and history of migration to Italy (for reviews, see Abbondanza, 2017; Zincone & Caponio, 2006), but also in terms of their religious background (i.e., Catholic vs. non-Catholic) and appearance (e.g., skin color) that could make their minority status more or less apparent. Additionally, one of the ethnic groups (Ukrainians) was involved in an international active conflict for most of the time of the current study (i.e., from early 2022 to early 2023). Together, these group-specific characteristics and socio-contextual conditions can increase self- and other-categorization processes, which are considered key antecedents of ethnic prejudice (Reicher et al., 2011).

Ethnic Prejudice and Group Identification: The Social Identity Approach

The social identity approach is one of the most widely used perspectives within the social psychological study of intergroup attitudes and behaviors (Abrams & Hogg, 2010; Brown, 2020; Reicher et al., 2011). It includes Social Identity Theory (SIT; Tajfel & Turner, 1979) and Self-Categorization Theory (SCT; Turner et al., 1987) and holds that outgroup prejudice depends on the extent to which individuals categorize themselves and others as group members, and the meanings they derive from these categorizations. SIT postulates that when group identities are psychologically salient, people are motivated to prefer their ingroups over their outgroups because this so-called positive distinctiveness reflects positively on their selves (Tajfel & Turner, 1979). Ingroup preference can take the form of outgroup negativity and prejudice, but this is not inevitable and depends on other factors, including the ways that people define and understand their group (McGarty, 2001; Reicher et al., 2011). SCT explains when group identities are psychologically salient by specifying the conditions under which

individuals self-categorize as group members rather than unique individuals. Because it posits that the activations and meanings of social identities are context-dependent, the social identity approach is typically regarded as a situational account of prejudice (Hodson & Dhont, 2015). However, it also acknowledges that the variation in how people categorize themselves depends on individual differences in addition to contextual conditions. On the one hand, SCT claims that people are more likely to self-categorize as a member of a particular group when the differences between this group and other groups in a particular situation are perceived to be relatively large (*comparative fit*) and in line with expectations (*normative fit*). On the other hand, it also states that some individuals are more likely to use particular categorizations than others (*perceiver readiness*), and the degree to which they identify with the groups in question is typically regarded as an indicator of this (Turner et al., 1994).

Although it has long been acknowledged that ingroup identification is not necessarily related to outgroup negativity (e.g., Brewer, 1999; Hinkle & Brown, 1990), findings on the link between national identification and ethnic prejudice are largely in line with the social identity approach. Individuals who strongly identify with their national ingroup tend to have more negative attitudes against immigrant minorities than those who weakly identify with it (e.g., Kende et al., 2019; Luedtke, 2005; Pettigrew et al., 2007) but these associations are not inevitable and depend on other factors (see Pehrson, Brown, et al., 2009; Smeekes et al., 2011; Spiegler et al., 2022). How national identity is represented is one of these factors, and research has shown that national identification is associated with more anti-immigrant prejudice in countries where there is a more cultural definition of nationhood (Pehrson, Vignoles, et al., 2009). In Italy, the context of the present study, such a definition seems to be present as well. For example, individuals of immigrant descent (i.e., born abroad or from immigrant parents) who live in Italy have limited opportunities to be involved in the country's political sphere, to vote, or to obtain the nationality (MIPEX, 2020). Relatedly, Italian (i.e., ethnic majority)

adolescents were found to mostly endorse a cultural definition of citizenship (Reijerse et al., 2015). Therefore, it would be reasonable to expect a positive relation between their national identification and ethnic prejudice.

Further, SCT also posits a more inclusive level of self-categorization, that of humanity. Self-categorization at this level implies a focus on similarities with other humans rather than differences between ethnic groups. Therefore, consistent with the Common Ingroup Identity model (Gaertner et al., 1993; Gaertner & Dovidio, 2000), considering oneself as a human being is assumed to facilitate a more positive attitude toward individuals belonging to different ethnic groups (see also Albarello, Crisp, et al., 2018; Albarello & Rubini, 2012). Along this line, research has shown that a stronger identification with humanity goes together with less ethnocentrism and less prejudice (for a review, see McFarland et al., 2019).

Stability and Fluctuations in National and Human Identification

In the social identity approach, group identification is typically conceived of as the degree to which group membership is incorporated in the self-concept (McGarty, 2001; Reimer et al., 2022). This conception suggests stability. However, social identity theorists have warned against "the idea that identification expresses some kind of fixed and stable self-structure or personality trait which is chronically salient across situations" (Turner & Reynolds, 2001, p. 139). Instead, there is the acknowledgement that group identification "varies from individual to individual *and* from situation to situation" (Reimer et al., 2022, p. 276, italics added). This suggests that identification can have both stable and fluctuating components. However, to the best of our knowledge, those have not been systematically differentiated in the existing literature.

The stable component of a particular group identification (e.g., national, human) can be estimated by measuring it repeatedly over time and calculating the mean across different measurement occasions. It indicates the degree to which the group membership is structurally

important to the individual, and it varies between persons. By contrast, the fluctuating component varies within persons. It represents the extent to which an individual's group identification at a particular time deviates from their personal (stable) mean, and thus whether the group membership is more or less important than it usually is. Whereas the stable component could be used to examine why some individuals are generally more or less prejudiced than others (stable means) or become so over time (change rates), the fluctuating one could be used to examine why they are temporally more or less prejudiced than they normally are (see Thijs et al., 2023). Importantly, these are different questions. Thus, results at the between- and the within-person levels might not be the same, and this may have significant consequences for theory and intervention. For instance, several recent studies on intergroup contact (e.g., Friehs et al., 2023; Sengupta et al., 2023) found that outgroup contact was positively associated with more outgroup positivity and solidarity at the between-person level – which was in line with theory (see Allport, 1954) – but also that it had no significant (lagged) effect at the within-person level. The latter indicates that personal increases in contact did not result in personal improvements in intergroup attitudes and behaviors.

Just like contact, national identification may be differentially related to ethnic prejudice at the between- and within-person levels. The social identity approach does not provide clear expectations about this, because it has not systematically considered the theoretical implications of the distinction between both levels. However, one tentative possibility is that positive within-person level fluctuations in the importance of one's national identification reflect a more deliberate processing of the content of one's identity, which could either activate its default meaning or lead to a critical re-evaluation of it. Given their cultural definition of nationhood (see Reijerse et al., 2015), the default meaning of national identity for Italian adolescents may be one that excludes ethnic others, implying a negative effect of national identification on prejudice at the between-person level. However, at the within-person level,

the active processing of the content of their national identity might lead individuals to temporarily embrace either a more or less exclusive view of it. On the one hand, temporal increases in national identification might result in a momentarily heightened sense of nationalism that is based on exclusive views of group membership (e.g., Mihelj & Jiménez-Martínez, 2021; Zhuravlev & Ishchenko, 2020) and thus contribute to higher levels of prejudice against ethnic minorities (e.g., Pehrson, Brown, et al., 2009). On the other hand, temporal increases in national identification might represent moments of strengthened security and sense of belonging to the national group due to exploration processes in which individuals seek information about their identity and actively reflect on its meaning and implications. Prior experimental research has highlighted that inducing participants to explore their national identity weakened the identification-prejudice link and led to more positive attitudes toward ethnic minorities (Spiegler et al., 2022). Thus, nuanced effects may be uncovered.

Whereas national identification may generally imply the exclusion of ethnic others but might nonetheless foster positive intergroup attitudes upon active and thorough exploration, the impact of human identification may be more unequivocal. Human identification implies an inclusive way of thinking about self and others as members of the same superordinate group. Therefore, both its stable levels and temporal fluctuations can lead individuals to adopt more positive views, generally and momentarily, about ethnic diversity.

The Current Study

The purpose of the current study is threefold. First, this research aims to study the associations between national identification and ethnic prejudice at the between- and within-person levels. At the between-person level, it examines whether and how stable differences in levels of national identification are associated with average levels of and average rates of change in affective prejudice. At the within-person level, it studies whether and how temporal fluctuations in levels of identification with the national group are linked to temporal

fluctuations in prejudice. National identification is expected to be linked to significantly higher average levels of prejudice at the between-person, whereas its association with average rates of change will be examined from an exploratory perspective. Further, at the within-person level, fluctuations in levels of identification with the national group could either contribute to increases or decreases in prejudice.

Second and similarly, this study aims to examine whether and how stable differences and fluctuation in levels of human identification are associated with average levels and between-person changes on the one hand, and within-person fluctuations on the other in ethnic prejudice. At both levels, human identification is expected to be significantly associated with lower stable levels and momentary decreases in prejudice against all ethnic minorities, while the associations between stable levels of human identification and between-person changes in prejudices will be examined from an exploratory point of view. Last, this study will explore whether the effects of national and human identification on ethnic prejudice are group-specific or rather similar across the five most represented ethnic minorities in the context of the study. Figure 1 outlines the expected associations between identifications and prejudices at the between- and within- person levels.

Figure 4.1
Hypothesized associations
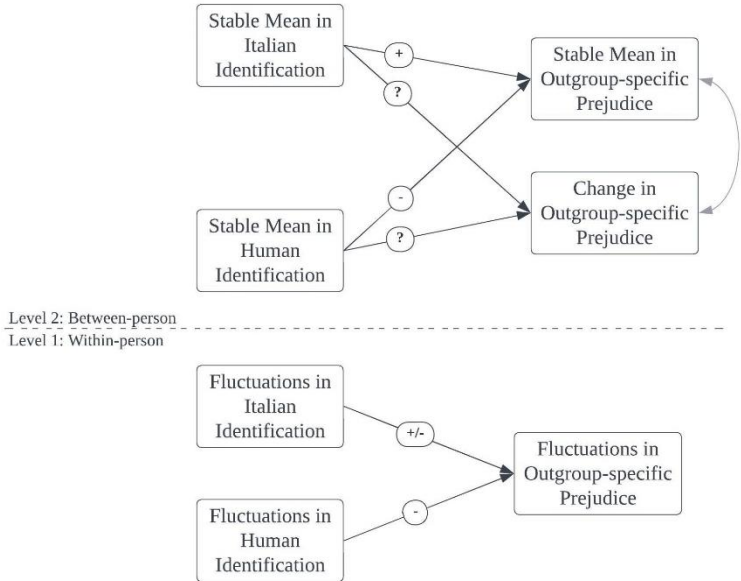
Methods

Participants

Data for this research are drawn from the "Managing identities in diverse societies: A developmental intergroup perspective with adolescents" IDENTITIES ongoing longitudinal project, a cohort sequential study conducted in the North-East part of Italy (i.e., Emilia-Romagna region). Specifically, participants included in the current study were 883 adolescents (M_{age} = 15.66, SD = 1.15 at T1, 49.7% females) attending, at the beginning of the study (i.e., 2022), the 1st (48.2%) and 3rd (51.8%) year of high school. Participants completed four assessments, in January/February 2022 (T1), April/May 2022 (T2), September/October 2022 (T3), and January/February 2023 (T4), respectively.

Only adolescents with Italian descent (i.e., whose parents were both born in Italy) were included in the current study. At baseline, adolescents reported that most of their fathers (48.3%) and mothers (50%) had a medium educational level (i.e., high school diploma). Among fathers, some of the remaining (26.7%) had a low (i.e., up to middle school diploma) followed by those (25%) with a high (i.e., university degree or higher) educational level. Conversely, most of the remaining (34.9%) mothers had a high and only a few (15.1%) had a low educational level.

All adolescents included in the present study completed at least two out of the four assessments, while more than half (59.70%) completed questionnaires at all time points. Within each assessment, the completion rate was high (ranging from 70.1% of items at T4 to 87.3% of items at T2) and missingness was mostly due to participants not filling out the questionnaire because they were not in school on the day of data collection. Little's (1988) Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df = 4405.62/3283) of 1.34, indicating that data were likely missing completely at random. Therefore, the total sample of

883 participants was included in the analyses, and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Enders, 2013b).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater Studiorum University of Bologna as part of the IDENTITIES project. Schools were selected through a stratified (by track and level of urbanization) randomized method and principals were approached to present the project. Upon their approval, the study was presented to students and their parents who also received written and detailed information. Active consent from parents was obtained prior to their children's participation. Active consent was also obtained from adolescents of age, while their underage peers provided their assent to participate in the project. Participation in the study was voluntary, and students were informed that they could withdraw their consent at any time. At each wave, adolescents completed an online questionnaire during school hours. Research assistants were present in the class to answer possible questions from students. Adolescents were required to create a personal code to ensure confidentiality and pair their answers over time.

Measures

Ethnic Prejudice

Ethnic prejudice was assessed using the Feeling thermometer (Haddock et al., 1993; for the Italian version, see Bobba & Crocetti, 2022), a scale that has been extensively used to examine the affective component of prejudice among adults (for a review, see Dovidio et al., 2001) and adolescents (for a review, see Crocetti et al., 2021). In this version of the measure, participants are asked to rate how much they like the five most represented ethnic minorities in the Italian context (i.e., Romanians, Albanians, Moroccans, Chinese, Ukrainians; ISTAT, 2020) on a sliding scale from 0° (*at all*) to 100° (*very much*). The scale was reversed to simplify the

interpretation of results, with higher scores indicating higher prejudice against each of the ethnic minority groups.

National Identification

Identification with the Italian national group was assessed with a shortened version of the Group Identification Scale (Thomas et al., 2017). This shortened version included three items (e.g., "Being a member of the Italians' group is important to who I am"), which adolescents rated on a 5-point Likert type scale from 1 (*completely false*) to 5 (*completely true*). Cronbach's Alphas were .74, .76, .82, and .84 at T1, T2, T3, and T4, respectively.

Human Identification

Adolescents' identification with the human group was assessed with the Human Identification Scale (Albarello & Rubini, 2012). This scale included four items (e.g., "I identify with all human beings") which adolescents rated on a 5-point Likert type scale from 1 (*completely false*) to 5 (*completely true*). Cronbach's Alphas were .78, .78, .84, and .83 at T1, T2, T3, and T4, respectively.

Results

Preliminary Analyses

Descriptive analyses were performed in IBM SPSS Version 28.0 for Windows, while the remaining analyses (i.e., measurement invariance, multilevel models) were conducted in M*plus* version 8.6 (Muthén & Muthén, 2017) using the Maximum Likelihood (ML) estimator (Finch & Bolin, 2017). Means and standard deviations of the study variables are reported in Table S1, while correlations are reported in Table S2 (see Supplemental Materials). Rank-order stability levels were high for ethnic prejudices ($.47 < r < .77$), Italian identification ($.54 < r < .58$), and human identification ($.55 < r < .59$). As a preliminary check, longitudinal measurement invariance of Italian and human identification scales was tested. Results are

reported in Table S3 of the Supplemental Materials. Both Italian and human identification scales reached partial scalar invariance, therefore we could proceed with the main analyses.

Further, the intraclass correlation coefficients (ICCs) of national and human identifications were examined by running an unconditional multilevel model in M*plus*. Results indicated that slightly more than half of the variance in identification with the Italian (51.30%) and the human (52.40%) groups was at the between level, while the remaining (48.70% for national and 47.60% for human) was at the within-person level. This means that separating the stable (between-person) from the fluctuating (within-person) components was necessary to capture the interplay of social identity and ethnic prejudice. It is important to note, however, that part of the within-person variance could also be attributed to measurement error.

Multilevel Analyses

Multilevel modeling was used to examine the associations between national and human identification and prejudice against several ethnic minority groups at both the within-person (Level 1) and between-person (Level 2) levels. Specifically, Level 1 represents the associations between within-person (or over-time) fluctuations (i.e., deviations from an individual stable mean) in ethnic prejudice and within-person (over-time) fluctuations in both Italian and human identifications. Conversely, Level 2 examines whether adolescents' stable levels of identification with the national and human groups would be associated with stable over-time mean and change (i.e., linear slope) in levels of ethnic prejudice against the Romanian, Albanian, Moroccan, Chinese, and Ukrainian groups. Group-mean centering was used for the predictors included at the within-person level, while grand-mean centered cluster means of the Level 1 predictors were included at the between-person level (Enders, 2013a).

The final multilevel model was built through multiple steps. First, the fit of each model was evaluated relying on a combination of low deviance (-2LL) scores and small AIC and BIC values as indicative of good fit. Next, nested models were compared against each other and a

significant likelihood ratio test (Δ-2LL) indicated a significant improvement from the simpler to the more complex model (Finch & Bolin, 2017; Hox et al., 2018). Last, once the final fully constrained model with predictors at both levels was established, the log-likelihood ratio was used to understand whether the associations between each identification and prejudice were significantly different depending on the ethnic minority group examined, at both the within- and between-person (i.e., intercepts and slopes) levels. The most parsimonious and best fitting model was retained. In all models, the residuals for the ethnic prejudice scores were allowed to correlate at both Level 1 and Level 2. Model fit indices are reported in Table 1, while unstandardized regression coefficients of the multilevel analyses are reported in Table 2.

Intraclass Correlation

As a preliminary step, a null model was specified that partitioned the variances of the (correlated) dependent variables in their within-person (Level 1) and between-person (Level 2) components and allowed the calculation of the intra-class correlations (ICC). Results of this model (Model 1) indicated that between half and two-third of the variance in ethnic prejudice measures was at the between-person level (ranging from 53.7% for Ukrainians to 65.1% for Moroccans). Thus, a substantial portion of variance (ranging from 34.9% for prejudice against Moroccans to 46.3% for prejudice against Ukrainians) was at the within-person level (although it included measurement error), indicating that time-specific fluctuations matter and multilevel analyses are warranted to examine the correlates of ethnic prejudice at both levels.

Table 4.1

Multilevel model: Fit indices and variance explained in ethnic prejudices

Model	LL (df)	AIC	BIC	Δ-2LL	Residual Variance	Romanians	Albanians	Moroccans	Chinese	Ukrainians
		Model fit				Prejudice vs.				
Model 1 Unconditional	-64916.674 (35)	129903.349	130112.876		Level 1	418.946***	393.272***	408.029***	416.522***	511.868***
					Level 2	650.495***	685.755***	762.299***	752.961***	593.853***
Model 2 Fixed linear slope	-64893.807 (40)	129867.615	130107.075	45.734 (5)***	Level 1	418.643***	393.210***	406.697***	416.515***	508.375***
					Level 2	650.219***	685.755***	763.085***	752.891***	593.644***
Model 3 Random linear slope	-64839.344 (50)	129778.688	130078.014	108.926 (10)***	Level 1	398.591***	383.180***	377.124***	392.442***	507.779***
					Level 2	720.708***	751.738***	841.179***	790.957***	592.470***
Model 4 Predictors at Level 1 and 2 (unconstrained)	-64005.396 (80)	128170.792	128648.892	1667.896 (30)***	Level 1	386.018***	376.815***	369.299***	383.791***	492.096***
					Level 2	615.217***	637.977***	640.010***	713.437***	501.374***
Model 5: Predictors at Level 1 and 2 (constrained[1])	-64017.039 (60)	128154.079	128512.654	23.286 (20)	Level 1	386.302***	376.892***	369.656***	384.602***	492.394***
					Level 2	615.135***	638.387***	639.993***	712.130***	503.459***

Note. LL = Log Likelihood; df = Degree of freedom; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; Δ = change in fit indices.
[1] In this model, the following paths were unconstrained: (a) the Level 2 association between Italian identification and over-time mean in prejudice against Moroccans; (b) the Level 2 association between Italian identification and over-time mean in prejudice against Chinese; (c) the Level 2 associations between human identification and over-time mean in prejudice against Moroccans; and (d) the Level 2 association between human identification and over-time change in prejudice against Chinese. *** *p* < .001

Table 4.2

Results of the multilevel model: Unstandardized regression coefficients

	Romanians		Albanians		Moroccans		Chinese		Ukrainians	
	Outcomes: Prejudice vs. B [95% CI]									
	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2
Model 2: Fixed linear slope										
Time	-0.43 [-1.13, 0.27]	-	-0.01 [-0.69, 0.67]	-	0.86* [0.17, 1.56]	-	0.01 [-0.69, 0.72]	-	-1.59*** [-2.36, -0.82]	-
Model 3: Random linear slope										
	-	-	-	-	-	-	-	-	-	-
Model 4: Predictors at Level 1 and Level 2 (unconstrained)										
Italian Identification (w)	-1.35 [-3.08, 0.40]	-	-0.96 [-2.65, 0.73]	-	-1.28 [-2.99, 0.43]	-	-1.82* [-3.56, -0.08]	-	-1.80 [-3.72, 0.12]	-
Human Identification (w)	-2.82*** [-4.55, -1.09]	-	-2.90*** [-4.59, -1.21]	-	-4.06*** [-5.77, -2.35]	-	-2.55** [-4.29, -0.80]	-	-1.92 [-3.84, 0.01]	-
Italian Identification (b) → Average	-	10.01*** [6.55, 13.37]	-	9.64*** [6.17, 13.04]	-	14.79*** [11.32, 18.20]	-	11.99*** [8.36, 15.54]	-	9.15*** [5.70, 12.43]
Italian Identification (b) → Slope	-	0.25 [-1.01, 1.51]	-	0.15 [-1.06, 1.34]	-	-0.17 [-1.45, -1.10]	-	-1.03 [-2.32, 0.26]	-	-0.72 [-2.06, 0.62]
Human Identification (b) → Average	-	-12.66*** [-15.93, -9.37]	-	-15.01*** [-18.31, -11.70]	-	-18.99*** [-22.29, -15.66]	-	-12.28*** [-15.74, -8.82]	-	-14.03*** [-17.25, -10.76]
Human Identification (b) → Slope	-	-2.13** [-3.34, -0.91]	-	-1.14 [-2.31, 0.02]	-	-1.64** [-2.88, -0.41]	-	-0.37 [-1.62, 0.88]	-	-1.41* [-2.70, -0.11]
Model 5: Predictors at Level 1 and Level 2 (constrained)										
Italian Identification (w)	-1.40* [-2.79, -0.06]	-	-1.40* [-2.79, -0.06]	-	-1.40* [-2.79, -0.06]	-	-1.40* [-2.79, -0.06]	-	-1.40* [-2.79, -0.06]	-
Human Identification (w)	-3.01*** [-4.41, -1.62]	-	-3.01*** [-4.41, -1.62]	-	-3.01*** [-4.41, -1.62]	-	-3.01*** [-4.41, -1.62]	-	-3.01*** [-4.41, -1.62]	-
Italian Identification (b) → Average	-	9.69*** [6.75, 12.63]	-	9.69*** [6.75, 12.63]	-	14.58*** [11.36, 17.79]	-	11.95*** [8.60, 15.30]	-	9.69*** [6.75, 12.63]
Italian Identification (b) → Slope	-	-0.32 [-1.31, 0.68]	-	-0.32 [-1.31, 0.68]	-	-0.32 [-1.31, 0.68]	-	-0.32 [-1.31, 0.68]	-	-0.32 [-1.31, 0.68]
Human Identification (b) → Average	-	-13.60*** [-16.40, -10.80]	-	-13.60*** [-16.40, -10.80]	-	-19.02*** [-22.12, -15.92]	-	-13.60*** [-16.40, -10.80]	-	-13.60*** [-16.40, -10.80]
Human Identification (b) → Slope	-	-1.59** [-2.57, -0.60]	-	-1.59** [-2.57, -0.60]	-	-1.59** [-2.57, -0.60]	-	-0.22 [-1.36, 0.92]	-	-1.59** [-2.57, -0.60]

Note. B = Unstandardized regression coefficients; CI = Confidence Interval; (w) = predictors entered at the within-person level; (b) = predictors entered at the between-person level. * $p < .05$; ** $p < .01$; *** $p < .001$.

Stability and Change in Ethnic Prejudices

To examine within-person fluctuations, as well as over-time means and changes at the between-person level in ethnic prejudice, the effect of time was first added as a predictor of ethnic prejudices at Level 1 (Model 2). As shown in Table 1, adding linear slopes for time significantly improved model fit. However, as can be inferred from Table 2, time was not a significant predictor of ethnic prejudice against the Romanian, the Albanian, and the Chinese groups. Conversely, while ethnic prejudice against Moroccans displayed an increase over time, ethnic prejudice against Ukrainians showed a significant linear decrease.

In the next step, the linear slopes for time were randomized at the between-person level, meaning they freely estimated for all participants to acknowledge the possibility that individuals differ in their rate of change in prejudice (Model 3). This resulted in improved model fit and decreased residual variance of ethnic prejudices at both Level 1 and Level 2. Estimates of the over-time means and slopes in ethnic prejudices at Level 2 are reported in Table 3. As can be inferred, most slopes displayed a significant variance, indicating that adolescents significantly differed among each other in the linear rate of change in ethnic prejudice against the Romanian, the Moroccan, and the Chinese groups. Conversely, no variation emerged for the linear slope of ethnic prejudice against the Albanian and the Ukrainian groups. In other words, adolescents in the sample did not display a significant change in prejudice against the Albanian group, whereas they reported significant decreases in ethnic prejudice against Ukrainians.

Table 4.3

Multilevel model with random slopes (Model 3): Unstandardized estimates of ethnic prejudice

| | Level 2 parameter estimates | | | |
| | Average | | Slope | |
Prejudice vs.	M (*SE*)	σ^2 (*SE*)	M (*SE*)	σ^2 (*SE*)
Romanians	43.22 (1.09)***	720.71 (40.95)***	-0.43 (0.37)	10.89 (3.29)**
Albanians	40.23 (1.10)***	751.74 (42.75)***	0.00 (0.35)	5.20 (2.99)
Moroccans	43.85 (1.15)***	841.18 (46.96)***	0.84 (0.37)*	16.57 (3.77)***
Chinese	40.91 (1.13)***	790.96 (46.05)***	0.00 (0.38)	14.70 (3.79)***
Ukrainians	41.87 (1.07)***	592.47 (39.15)***	-1.60 (0.39)***	0.16 (4.34)

Note. M = Level 2 means; *SE* = Level 2 Standard Error; σ^2 = Level 2 variance.
* $p < .05$; ** $p < .01$; *** $p < .001$.

The Role of Italian and Human Identification

In the following model, fluctuations in Italian and human identification were entered as predictors of fluctuations in ethnic prejudice at Level 1, and over-time means of both identifications were entered as predictors of over-time means and changes (i.e., slopes) in ethnic prejudice at Level 2 (Model 4). In this model, the path from each identification to the prejudice scores were constrained to equality across the five ethnic minority groups, separately for each predictor at each level (e.g., the within-person effect of Italian identification on prejudice was fixed to be equal across the five minorities). This fully constrained model with predictors at Level 1 and 2 resulted in a significant improvement in model fit and a decrease in the residual variances of ethnic prejudices at both levels.

Next, to tackle the third goal of the current study, constrained paths in Model 4 were freed one by one to examine whether the effects of national and human identifications significantly differed depending on the ethnic group examined. To this end, a stepwise procedure was employed comparing different models against each other to identify the best fitting and most parsimonious solution to represent the current data. The full procedure is detailed in the Supplemental Materials (see Tables S4 and S5). As can be inferred, a model with

only a few unconstrained paths (Model 5) provided the most parsimonious and best fitting representation of the data. Across the multiple steps procedure, the following between-person level paths were found to significantly differ from the others and were therefore freed: (a) from Italian identification to over-time means of prejudice against Moroccans; (b) from Italian identification to over-time means of prejudice against Chinese; (c) from human identification to over-time means of prejudice against Moroccans; and (d) from human identification to over-time change in prejudice against Chinese. The results of this final model are reported in Table 2.

At the within-person level, fluctuations in identification with the Italian group and fluctuations in identification with the human group were both negatively associated with fluctuations in ethnic prejudices. This means that within-person increases in identification with these two groups were associated to within-person decreases in ethnic prejudices. Further, these associations were identical across all the five ethnic minority groups.

At the between-person level, the stable means of Italian and human identifications were included as predictors of both the means and slopes of adolescents' ethnic prejudices. Higher scores on Italian and human identifications were significantly associated with, respectively, higher and lower mean levels of ethnic prejudice. Further inspection of the similarity in regression coefficients across ethnic groups revealed that the strength of the effect for Italian and human identification depended on the target group. Specifically, Italian identification was more strongly linked to higher mean levels of prejudice against the Chinese, and even more so against the Moroccan groups, compared to the other Eastern European minorities (i.e., Romanian, Albanian, and Ukrainian). This finding was partially replicated for human identification, which had a stronger effect in reducing mean levels of ethnic prejudice against Moroccans compared to the other groups.

Regarding associations between identification and slopes of prejudice, Italian identification was not significantly associated with changes in ethnic prejudice against any of the minority groups considered. Conversely, higher levels of human identification were found to contribute to significantly steeper decreases in ethnic prejudice against the Romanian, Albanians, and Ukrainian groups, and to less steep increases in prejudice against the Moroccan group. No significant association emerged between stable levels of human identification and changes in prejudice against the Chinese group.

Discussion

From its early beginnings, the psychological study of prejudice has attempted to unravel whether this social phenomenon depends on stable personal characteristics, or rather fluctuates and changes under specific situational conditions (Allport, 1954). The current longitudinal study aimed to contribute to this debate by examining how Italian adolescents' national and human identifications were related to their ethnic prejudice, both at the between- and within-person levels. Additionally, it took an outgroup-specific approach to unravel whether the identification-prejudice link would vary depending on the ethnic minority group considered. Our findings highlighted significant associations between the stable and fluctuating components of national and human identifications and prejudice against multiple ethnic groups, although the strength and direction of these links varied considerably at the between- and within-person levels.

Stable or Fluctuating National Identification: The Distinction Matters

The first goal of the current study was to examine whether and how stable differences and temporal changes in levels of national identification are associated respectively with the stable and fluctuating components of affective prejudice. According to the social identity approach, strong group identifiers are more likely to make ingroup-outgroup distinctions, which could translate to outgroup negativity depending on how the ingroup is defined (Reicher

et al., 2011). As Italian adolescents seem to endorse a cultural definition of nationhood (Reijerse et al., 2015), and because such a definition implies a limited inclusion of newcomers (Pehrson, Vignoles, et al., 2009), we anticipated a positive relation between their national identification and prejudice toward ethnic minorities at the between-person level, while within-person associations were examined from an exploratory point of view. Overall, the strength and direction of these associations differed at the between- and within-person levels.

At the between-person level, mean levels of identification with the Italian majority were indeed linked to higher mean levels of prejudice against all ethnic minorities considered. In line with the social identity approach (Brown, 2020), this finding suggests that adolescents who usually rely more on ingroup-outgroup distinctions tend to approach the social world in dichotomous terms that are conducive of more ethnic prejudice and less inclusivity. More specifically, their stable levels of identification might be indicative of their general readiness to distinguish Italians from non-Italians, resulting in less positive evaluations of the latter (Reicher et al., 2011).

Conversely, at the within-person level, fluctuations in national identification were negatively and significantly associated with ethnic prejudice and this effect was equally strong across the five ethnic minority groups. In other words, when youth displayed a momentaneous increase in the salience of and attachment to their national group, they also reported lower levels of affective prejudice against ethnic minorities. A possible explanation for this finding is that intergroup attitudes and behavior can improve when the meanings attached to one's ingroup identification are thoroughly explored and evaluated (Spiegler et al., 2022). Thus, a heightened salience of their national identity at a given moment might result from youth actively seeking information about and reflecting on their group membership. This, in turn, supports the development of a secure sense of belonging and ingroup identification that prevents individuals from developing a defensive ingroup identification, also defined as

collective narcissism (Golec de Zavala et al., 2009). Therefore, our findings on within-person associations well align with prior cross-sectional (e.g., Bagci et al., 2023; Golec de Zavala et al., 2013; Marchlewska et al., 2020) and longitudinal (e.g., Cichocka et al., 2018) studies that highlighted individuals with a secure ingroup identification are usually more resistant to identity threats and tend to display more positive attitudes toward salient outgroups. In other words, youth who display a secured and clearer sense of their social (national) identity can be better equipped to recognize and embrace the diversity of others and to adopt open and curious attitudes toward the social world (Allport, 1954). Further research is needed to understand the mechanisms through which these associations occur. However, for now, it is important to note that the negative within-person association between national identification and prejudice obtained in our study is not at odds with the social identity approach. Adolescents' national identity was still important for their intergroup relations but not in the exclusive way that was characteristic for the between-person level.

The Protective Role of Common Group Identities: The Case of Human Identification

The second goal of the current study was to investigate the associations between stable and fluctuating components in levels of identification with the common human ingroup and prejudice against multiple ethnic minorities. Given the inclusive nature of this identity, both its stable and fluctuating components were expected to lead to lower levels of and momentary decreases in prejudice against ethnic minorities. Our findings supported the protective role of human identification at both levels. Specifically, they suggest that relying on a superordinate level of categorization can contribute to overcoming differences, transcending dichotomous views of society, and endorsing more inclusive attitudes toward others (McFarland et al., 2019).

At the between-person level, stable means of identification with the group of humanity were linked to lower stable levels and slopes of ethnic prejudice, leading to a general reduction in negative attitudes toward the minority groups considered. Youth who generally adopt this

superordinate level of categorization are usually less prejudiced and display significant reductions in their negative feelings against diverse others. These findings align with prior research on the protective role of global human identification for reducing prejudice and supporting inclusiveness (e.g., McFarland et al., 2012) and fostering intergroup helping and prosocial behavior (e.g., Hamer et al., 2017; Sparkman & Hamer, 2020).

Further, not only stable levels but also temporal fluctuations in identification with the human group matter for momentaneous reductions in prejudice. Specifically, and in line with the common ingroup identity model (Gaertner et al., 1993; Gaertner & Dovidio, 2000), the situational (increased) activation of the superordinate human categorization level can contribute to significant temporal decreases in levels of affective prejudice against ethnic minorities. This evidence is in line with prior experimental works that highlighted the effectiveness of priming human identity for reducing prejudice (e.g., Albarello & Rubini, 2012; Wohl & Branscombe, 2005). That is, whenever individual identification with humanity increases in salience and importance, a reframing of ingroup-outgroup boundaries occurs and feelings, attitudes, and behaviors align with a more inclusive view of self and others, thus improving the quality of intergroup relationships.

Minority Group Matters: Common and Differential Effects Across Ethnic Targets

The current study sought to provide a nuanced understanding of the stable and situational antecedents of prejudice by examining outgroup-specific levels of prejudice against the most salient ethnic minorities (i.e., Romanians, Albanians, Moroccans, Chinese, Ukrainians) in the Italian context. Specifically, it tackled patterns of stability and fluctuations in prejudice across these groups and tested whether associations between national and human identification and affective prejudice differed depending on the target group considered. Our findings highlighted some differences in stability and change patterns, as well as differential effects of ingroup identifications depending on the target group.

Regarding patterns of stability and change, over-time changes in levels of affective ethnic prejudice emerged for two ethnic minority groups (i.e., Moroccans and Ukrainians) and showed opposite trends. Ethnic prejudice against the Moroccan group increased significantly. This might be a consequence of the concomitant increase in migration flows originated from Africa to the Italian coasts during the year of data collection, which made this topic an intensively debated issue in both the political campaign for the 2022 national elections and in the media. Specifically, this substantial growth in number of migrants arriving to Italy between January 2022 and 2023 involved mostly individuals coming from Africa (Ministero dell'Interno, 2023). The Moroccan group, although not directly involved in the migration flows, might have been regarded as representative of the African minority, thus contributing to increased negative feelings against this ethnic group. In contrast, ethnic prejudice levels against the Ukrainian group displayed a significant decrease over the course of the data collection. This finding is in line with prior research highlighting that socio-contextual events (such as the ongoing Russia-Ukrainian war; Bobba, Thijs, et al., 2023), and how they are recounted in the media, can contribute to shifting emotions and attitudes toward ethnic minorities (Finseraas & Listhaug, 2013; Mitchell, 2019).

Regarding the associations between prejudices and identifications, consistent differences emerged at the between-person level of analysis. Specifically, stable levels of both national and human identifications were more strongly associated with (respectively higher and lower) stable levels of prejudice against the Moroccan and Chinese (only for Italian identification) groups compared to the other minorities. This finding can be interpreted in light of physical, cultural, and historical differences between the five ethnic groups considered in this study that might heighten the salience of self and other group membership. Compared to the Eastern European (i.e., Romanian, Albanian, Ukrainian) groups, the Moroccan minority substantially differ from the Italian group, both in terms of appearance and cultural and

religious backgrounds. These features can contribute to enhancing perceived differences among groups (i.e., comparative fit) and therefore drive processes of marginalization of Muslim minorities (Perocco, 2018). Relatedly, compared to both the European and the Chinese minorities, the Moroccan is quite often the target of suspicion, distrust, and hostility (Kunst et al., 2012; Rizzo et al., 2020) and is perceived as culturally incompatible with the ethnic majority (Cicognani et al., 2018). Further, media depictions (Cervi et al., 2021) and political discourses (Cervi, 2020) contribute to conveying and exacerbating representations of the Moroccan minority as a highly salient and distinct (out)group compared to one's ingroup. Consequently, when youth strongly identify with the Italian group, such ingroup-outgroup demarcation can foster threat perceptions and heighten the levels of prejudice against the Moroccan group minority. On the contrary, highly marked distinctions between ingroup (i.e., Italian) and outgroup (i.e., Moroccan) members coupled with strong identification with the superordinate human group can be at the basis of social identity complexity (Roccas & Brewer, 2002). In other words, youth might still perceive themselves and others as members of two distinct groups, thus avoiding a "colorblind" approach that neglects existing differences, within the context of a strong superordinate identity (Gaertner & Dovidio, 2012). Along this line, prior experimental research found that maintaining the salience of subgroups within an equally salient superordinate group led to substantial decreases in intergroup bias (Crisp et al., 2006). Similarly, in this study, the presence of salient and clearly marked ingroup-outgroup distinctions, such as the ones between Italian and Moroccan groups, that are although comprehended within an overarching group—that of humanity—can still lead individuals to display generally lower prejudice against members of this ethnic minority.

Conversely, the relations between adolescents' fluctuations in Italian and human identifications on one side, and ethnic prejudice on the other, were consistent regardless of the target group. Thus, when their national and human identifications are temporarily important to

them, this has common positive implications for different outgroups. The finding for national identification is also in line with the aforementioned interpretation in terms of identity exploration and (re)evaluation. Presumably, the effects of fluctuations indicate a heightened focus on the meaning of the national group vis-à-vis other groups in general, rather than its specific differences with a particular outgroup.

Theoretical and Practical Implications

The current study has important theoretical and practical implications. From a theoretical perspective, it advances the person vs. situation debate by offering a comprehensive understanding of the associations between ingroup identification and ethnic prejudice. Specifically, by adopting a multilevel longitudinal methodology and separating the stable and fluctuating components of prejudice and its social identity antecedents, this research highlighted the role of national and human identifications at different levels. Regarding the former, highly identifying with the national group might lead to more negative attitudes toward ethnic minorities, while momentary changes in levels of identification can contribute to steeper decreases in prejudice. Regarding the latter, relying on the superordinate category of humanity, both as a stable tendency and as a result of situational increases in salience of this group membership, appears to favor more positive feelings and behaviors in intergroup contexts.

These findings have potentially important implications for future interventions. Specifically, it seems that strengthening people's national identity can be an effective strategy for reducing ethnic prejudice, even though high national identifiers are typically more prejudiced than low national identifiers. Clearly more research is needed to confirm this recommendation, but that results of this study suggests that stimulating people to explore and reflect upon the meanings and positive implications of this identity might decrease their prejudice against ethnic others (e.g., Spiegler et al., 2022). This intervention strategy might be especially appropriate for adolescents, who are in the process of consolidating their stable

levels of identification with relevant social groups and forming coherent views of themselves and others (Crone & Fuligni, 2020). Overall, interventions aimed at improving the quality of intergroup relationships should also strive to account for the situational conditions that can support adolescents in forming positive attitudes and endorse inclusive views of current multicultural societies (Beelmann & Lutterbach, 2021).

Limitations and Suggestions for Future Research

Findings from the current study should be read considering some limitations. First of all, the current study focused exclusively on the affective component of ethnic prejudice while less is known about negative stereotypes attributed to different ethnic minorities and how they are influenced by self- and other-categorization processes. In light of the multidimensional nature of ethnic prejudice (Brown, 2011; Crocetti et al., 2021), future research should strive to assess multiple facets of this phenomenon to understand the factors underpinning affects, cognitions, and behaviors against ethnic minorities. While affects might be more susceptible to socio-contextual changes, negative stereotypes and beliefs might be more enduring and therefore display lower fluctuations and be less affected by momentary changes in levels of identification with the ingroup. Additionally, the current study relied on the Feeling Thermometer scale, which is formulated in terms of liking (or positive attitudes) rather than disliking (or negative attitudes). Although the latter certainly implies the former and this instrument has been extensively adopted to evaluate (affective) prejudice among youth across diverse contexts (Bratt et al., 2016; Vezzali et al., 2020; Weber, 2019), future studies could examine whether the current results are replicated using other assessment methods.

Second, this study examined prejudice against the five most represented ethnic outgroups in the Italian context and their relations with national and human identification. Further, it should be noted that this research was conducted in the Emilia-Romagna region, an area characterized by the highest percentage of ethnic-minority population in the Italian school

context (Ministero della Pubblica Istruzione, 2022). This increased opportunity for intergroup contact with diverse peers at school (Karataş et al., 2023) might have influenced how youth deal with self- and other-oriented processes of categorization and ultimately their levels of prejudice. These aspects should be considered in the generalization of current findings to other contexts with different levels of ethnic diversity.

Third, it should be noted that a significant portion of variance at the within-person level and, even more so, at the between-person level still remains unexplained. This means that additional factors and conditions could contribute to stable levels and over-time changes in ethnic prejudice. Future research should strive to address this gap by assessing other stable individual characteristics (e.g., personality traits, social dominance orientation; e.g., Albarello et al., 2020; Crocetti et al., 2021) and how they contribute to the consolidation of attitudes towards diverse others. Moreover, the present findings indicate that fluctuations in group identifications can be relevant for prejudice, but it is important to examine where those fluctuations themselves stem from.

Last, this research examined between- and within-person associations between national and human identification and ethnic prejudice among a sample of adolescents. Current findings highlighted the importance to separate stability and fluctuations to gain a more nuanced understanding of these social phenomena, in line with an increasing attention to these differentiation in multiple research fields (e.g., Perinelli et al., 2023; Zuffianò et al., 2023). Future studies should apply a similar approach to adult samples in order to understand whether results are replicated across age groups or are rather dependent on the developmental phase taken into account. Although social and political attitudes progressively stabilize in adulthood (Rekker et al., 2015), momentary fluctuations in levels of prejudice can still occur as a consequence of events and changes in the macro-context (e.g., terrorist attacks; e.g., Legewie,

2013). More research is needed to unravel whether group identification also contributes to fluctuations in adults' attitudes toward diversity.

Conclusion

The associations between prejudice and group identification have been extensively examined from the social identity approach. However, prior studies have neglected to account for the stable and fluctuating components of both social phenomena. By adopting a longitudinal multilevel design, the current research aimed to understand whether and how stable levels of and fluctuations in identification with the national and superordinate human groups were associated respectively with stable levels of and temporal changes in ethnic prejudice, and whether these associations varied depending on the ethnic target group. Regarding national identification, stable levels were linked to higher average levels of affective prejudice, while fluctuations were negatively associated with fluctuations in prejudice. Conversely, both stable levels of and fluctuations in human identification were found to contribute to lower average levels of and to steeper decreases (or less steep increases) in ethnic prejudice. Associations across temporal fluctuations remained the same regardless of the ethnic minority target, whereas the link between stable levels of (national and human) identifications and prejudice was found to be stronger for the Moroccan group compared to all the others. These findings highlight the importance of examining associations between prejudice and social identity processes in more complex ways to gather a nuanced understanding of these phenomena as part of the person-context debate.

Supplemental Materials

Table S4.1

Means (M) and standard deviations (SD) of study variables

N = 883	Time 1		Time 2		Time 3		Time 4	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1.Ethnic prejudice against Romanians	44.34	33.06	41.22	32.61	39.00	31.65	43.02	33.28
2.Ethnic prejudice against Albanians	41.83	33.65	38.17	32.94	36.47	31.48	41.80	32.63
3.Ethnic prejudice against Moroccans	44.54	34.02	43.02	34.14	42.49	33.88	47.36	34.49
4.Ethnic prejudice against Chinese	41.63	34.40	38.30	33.46	37.25	33.66	42.01	34.42
5.Ethnic prejudice against Ukrainians	45.27	34.78	34.52	31.98	34.03	31.00	40.62	33.44
6.Italian identification	3.56	0.73	3.60	0.75	3.50	0.75	3.50	0.74
7.Human identification	3.80	0.75	3.73	0.75	3.57	0.79	3.57	0.74

Table S4.2

Correlations among study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. EP Romanian group T1														
2. EP Albanian group T1	.71***													
3. EP Moroccan group T1	.72***	.68***												
4. EP Chinese group T1	.61***	.58***	.60***											
5. EP Ukrainian group T1	.72***	.70***	.65***	.72***										
6. Italian Identification T1	.09**	.07*	.15***	.14***	.08*									
7. Human Identification T1	-.20***	-.24***	-.29***	-.19***	-.23***	.19***								
8. EP Romanian group T2	**.62*****	.49***	.48***	.39***	.48***	.09*	-.23***							
9. EP Albanian group T2	.49***	**.63*****	.49***	.37***	.45***	.09*	-.22***	.71***						
10. EP Moroccan group T2	.50***	.47***	**.65*****	.38***	.45***	.14***	-.25***	.70***	.69***					
11. EP Chinese group T2	.42***	.40***	.42***	**.62*****	.47***	.12***	-.17***	.61***	.55***	.55***				
12. EP Ukrainian group T2	.45***	.41***	.42***	.43***	**.47*****	.04	-.25***	.68***	.60***	.59***	.68***			
13. Italian Identification T2	.09*	.07	.17***	.11**	.09*	**.54*****	.10**	.10**	.09***	.16***	.08*	.05		
14. Human Identification T2	-.17***	-.21***	-.23***	-.14***	-.16***	.12**	**.55*****	-.24***	-.27***	-.31***	-.18***	-.26***	.10**	
15. EP Romanian group T3	.60***	.45***	.52***	.43***	.50***	.10*	-.24***	**.65*****	.53***	.54***	.48***	.52***	.11**	-.21***
16. EP Albanian group T3	.54***	.61***	.53***	.43***	.50***	.07	-.24***	.56***	**.68*****	.53***	.43***	.49***	.10*	-.27***
17. EP Moroccan group T3	.49***	.42***	.60***	.40***	.45***	.14***	-.28***	.57***	.53***	**.71*****	.46***	.50***	.16***	-.28***
18. EP Chinese group T3	.44***	.40***	.44***	.64***	.51***	.04	-.17***	.46***	.41***	.44***	**.68*****	.50***	.07	-.13***
19. EP Ukrainian group T3	.47***	.44***	.49***	.47***	.54***	.01	-.26***	.51***	.47***	.49***	.52***	**.62*****	.03	-.22***
20. Italian Identification T3	.04	.03	.11**	.12**	.05	.46***	.20***	.06	.05	.08*	.15***	.01	**.56*****	.22***
21. Human Identification T3	-.16***	-.15***	-.21***	-.14***	-.15***	.14***	.49***	-.18***	-.21***	-.22***	-.10*	-.21***	.13***	**.55*****
22. EP Romanian group T4	.52***	.42***	.47***	.36***	.44***	.08	-.23***	.59***	.51***	.52***	.47***	.52***	.11**	-.19***
23. EP Albanian group T4	.49***	.57***	.50***	.38***	.45***	.04	-.24***	.54***	.67***	.53***	.44***	.49***	.11**	-.23***
24. EP Moroccan group T4	.46***	.41***	.56***	.40***	.42***	.12**	-.29***	.51***	.51***	.64***	.46***	.49***	.15***	-.28***
25. EP Chinese group T4	.39***	.35***	.39***	.56***	.43***	.08	-.17***	.43***	.42***	.45***	.65***	.45***	.09*	-.14***
26. EP Ukrainian group T4	.45***	.43***	.44***	.45***	.52***	.01	-.23***	.48***	.49***	.51***	.50***	.57***	.06	-.24***
27. Italian Identification T4	.13**	.11**	.09*	.10*	.10*	.45***	.20***	.10*	.09*	.08	.05	.02	.48***	.19***
28. Human Identification T4	-.13***	-.15***	-.21***	-15***	-.18***	.06	.49***	-.17***	-.19***	-.20***	-.11**	-.20***	.13***	.53***

(Continues on the next page)

Table 2 (continued)

	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.
1. EP Romanian group T1	.												
2. EP Albanian group T1													
3. EP Moroccan group T1													
4. EP Chinese group T1													
5. EP Ukrainian group T1													
6. Italian Identification T1													
7. Human Identification T1													
8. EP Romanian group T2													
9. EP Albanian group T2													
10. EP Moroccan group T2													
11. EP Chinese group T2													
12. EP Ukrainian group T2													
13. Italian Identification T2													
14. Human Identification T2													
15. EP Romanian group T3													
16. EP Albanian group T3	.75***												
17. EP Moroccan group T3	.74***	.73***											
18. EP Chinese group T3	.66***	.58***	.61***										
19. EP Ukrainian group T3	.73***	.69***	.66***	.75***									
20. Italian Identification T3	.05	.03	.08*	.07	.01								
21. Human Identification T3	-.24***	-.24***	-.29***	-.18***	-.25***	.35***							
22. EP Romanian group T4	**.72*****	.60***	.66***	.53***	.63***	.05	-.27***						
23. EP Albanian group T4	.60***	**.72*****	.60***	.48***	.58***	.05	-.26***	.80***					
24. EP Moroccan group T4	.65***	.62***	**.77*****	.54***	.61***	.06	-.30***	.79***	.77***				
25. EP Chinese group T4	.54***	.49***	.53***	**.74*****	.59***	.11**	-.21***	.67***	.64***	.67***			
26. EP Ukrainian group T4	.59***	.57***	.61***	.59***	**.73*****	.03	-.29***	.79***	.77***	.75***	.76***		
27. Italian Identification T4	.06	.04	.06	.04	-.01	**.58*****	.22***	.02	.04	.02	.01	-.03	
28. Human Identification T4	-.25***	-.26***	-.29***	-.15***	-.27***	.29***	**.59*****	-.27***	-.27***	-.33***	-.20***	-.27***	.36***

Note. EP = Ethnic prejudice; T = Time. Bolded values indicate test-retest correlations (i.e., rank-order stability coefficients) for each study variable.
* $p < .05$; ** $p < .01$; *** $p < .001$.

Longitudinal Measurement Invariance of Predictors

As a preliminary step, configural, metric, and scalar levels of longitudinal measurement invariance were tested for the Italian identification and human identification scales separately. To this end, the configural models are first estimated as baseline models and their fit evaluated based on the following criteria. The Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI) with values higher than .90 and .95 indicate an acceptable and very good fit, respectively. The Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) with values below .08 and .05 are indicative of an acceptable and very good fit, respectively (Byrne, 2012). Additionally, the RMSEA's 90% confidence interval's upper bound lower than .10 indicates an acceptable fit of the model (Chen et al., 2008). In order to establish metric (i.e., constraining factor loadings to be equal across time) and scalar (i.e., constraining intercepts to be equal across time) invariances, changes in fit indices from the configural to the metric model and from the metric model to the scalar were evaluated (e.g., Cheung & Rensvold, 2002). Specifically, a significant $\Delta\chi^2_{\text{SB}}$ (Satorra & Bentler, 2001), and $\Delta\text{CFI} \geq -.010$ supplemented by $\Delta\text{RMSEA} \geq .015$ (Chen, 2007) are indicative of non-invariance. Results are displayed in Table S3. As can be inferred, partial scalar invariance was established for both Italian and human identification scales, therefore we could proceed with the main analyses of the current paper.

Table S4.3

Longitudinal measurement invariance of predictors

Models	Model fit						Models	Model comparisons		
	χ^2	df	CFI	TLI	SRMR	RMSEA [90% CI]		$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
Italian identification										
Configural (M1)	39.184	30	.997	.993	.021	.019 [.000, .033]				
Metric (M2)	47.575	36	.996	.992	.035	.019 [.000, .033]	M2-M1	8.406 (6)	-.001	.000
Scalar (M3)	199.845	45	.944	.918	.062	.062 [.054, .071]	M3-M2	173.326 (9)***	-.052	.043
Partial scalar (M3a)[1]	63.181	39	.991	.985	.037	.026 [.014, .038]	M3a-M2	18.453 (3)***	-.005	.007
Human identification										
Configural (M1)	119.100	74	.989	.982	.030	.026 [.017, .035]				
Metric (M2)	123.919	83	.990	.985	.034	.024 [.014, .032]	M2-M1	3.947 (9)	.001	-.002
Scalar (M3)	275.554	95	.955	.943	.059	.046 [.040, .053]	M3-M2	170.645 (12)***	-.035	.022
Partial scalar (M3a)[2]	149.511	86	.984	.978	.039	.029 [.021, .037]	M3a-M2	30.373 (3)***	-.007	.005

Note. M = model; χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. [1]In this model, the intercepts of items 1 and 3 were unconstrained. [2]In this model, the intercepts of items 1, 3, and 4 were unconstrained. *** $p < .001$

Multilevel Model: A Stepwise Approach to Identifying the Most Parsimonious Model

To identify the most parsimonious solution to represent our data, Model 4 (i.e., with the effects of predictors at Level 1 and Level 2 fully constrained) was used as baseline to assess whether letting the associations between each identification and prejudice to freely vary across the five ethnic groups would result in an improved model fit. To this end, the models described in the next paragraph were tested and compared against Model 4 (see Table S4). A non-significant loglikelihood ratio test indicated that the unconstrained model did not significantly improve the fit of the model compared to the baseline (Model 4), and therefore the latter could be retained as it provided a more parsimonious representation of the data. Conversely, a significant loglikelihood ratio test indicated that releasing some of the identification-prejudice associations would offer a better representation of the data. In this case, the paths between identification and ethnic prejudice against the five minority groups were further inspected by means of the Wald test statistic, to identify which association(s) significantly differed from the others. Results of the Wald tests are reported in Table S5. The following models were tested subsequently:

- Model 4a: In this model, the *within-person (Level 1) association* (1) between Italian identification and prejudice; and between (2) human identification and prejudice were respectively released so that they could vary across the five minority groups, separately for each identification. This model did not significantly differ from Model 4, and therefore the latter was retained as reference model for the following comparisons.

- Model 4b: In this model, the *Level 2 associations between Italian identification and over-time means of prejudice* were let vary across the five ethnic minority groups. This model fitted the data better, and therefore Wald test was used to identify significant differences among the five paths examined. As can be inferred

from Table S5, the link between Italian identification and prejudice was significantly different for the Moroccan minority (compared to all the others) and for the Chinese minority (compared to the Ukrainian group). Therefore, these paths were freed, while the others were kept constrained to equality. This resulted in a model (Model 4b.2) which better fitted our data and was therefore used as baseline to compare the following model against.

- Model 4c: This model is identical to Model 4b.2, with the addition that constraints on the *Level 2 associations between human identification and over-time means of prejudice* were released to vary across the five ethnic groups. This resulted in a better fitting model compared to Model 4, and therefore differences across paths were further examined with Wald test. As can be inferred (Table S5), again the effect of identification with the human group was significantly different on ethnic prejudice against the Moroccan minority compared to all the others. Therefore, Model 4c.2 (with the path from identification to prejudice against Moroccans freed) represented a bets fitting and parsimonious solution for our data, and therefore it was used as baseline to compare the following model against.

- Model 4d: Besides the freed paths of Model 4c.2, in this model the constraints on the *Level 2 associations between Italian identification and over-time change in prejudice* across the five ethnic groups were released. This model was not significantly different from Model 4c.2, suggesting that the latter would provide a more parsimonious representation of our data.

- Model 4e: This model is identical to Model 4c.2, with the addition that constraints on the *Level 2 associations between human identification and over-time change in prejudice* were freed to vary across the five ethnic groups. This model was significantly different from Model 4c.2 and therefore the constrained paths were

further inspected using the Wald test. As can be inferred, the effect of human identification on the slope of prejudice against the Chinese group was significantly different compared to the other prejudice, therefore this path was released in the following model (Model 5, final constrained model). This model was retained as the best fitting and most parsimonious representation of our data.

Table S4.4

Multilevel model: From Model 4 to Model 5

Model	Model fit			Model comparison	
	LL (df)	AIC	BIC		Δ-2LL
Model 4 Fully constrained predictors at Level 1 and 2	-64051.216 (56)	128214.432	128549.102		
Model 4a	-64048.045 (64)	128224.089	128606.569	M4 – M4a	6.342 (8)
Model 4b	-64039.282 (60)	128198.564	128557.139	M4 – M4b	23.868 (4)*
Model 4b.2	-64041.728 (58)	128199.565	128546.287	M4 – M4b.2	18.868 (2)***
Model 4c	-64017.826 (62)	128159.651	128530.179	M4b.2 – M4c	47.912 (4)***
Model 4c.2	-64022.455 (59)	128162.911	128515.510	M4b.2 – M4c.2	38.654 (3)***
Model 4d	-64018.196 (63)	128162.392	128538.896	M4c.2 – M4d	8.518 (4)
Model 4e	-64016.409 (63)	128158.819	128535.322	M4c.2 – M4e	12.092 (4)*
Model 5 Predictors at Level 1 and 2	-64017.039 (60)	128154.079	128512.654	M4c.2 – M5	10.832 (1)***

Note. LL = Log Likelihood; df = Degree of freedom; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; Δ = change in fit indices. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table S4.5

Results of the Wald tests

Regression paths compared		Wald test (df)	*p*
Model 4b (Italian Identification on L2 means)			
Id → Prejudice vs. Romanians	Id → Prejudice vs. Albanians	0.073 (1)	.7874
Id → Prejudice vs. Romanians	Id → Prejudice vs. Moroccans	**11.134 (1)**	**.0008**
Id → Prejudice vs. Romanians	Id → Prejudice vs. Chinese	1.493 (1)	.2213
Id → Prejudice vs. Romanians	Id → Prejudice vs. Ukrainians	0.412 (1)	.5210
Id → Prejudice vs. Albanians	Id → Prejudice vs. Moroccans	**12.333 (1)**	**.0005**
Id → Prejudice vs. Albanians	Id → Prejudice vs. Chinese	1.840 (1)	.1750
Id → Prejudice vs. Albanians	Id → Prejudice vs. Ukrainians	0.115 (1)	.7346
Id → Prejudice vs. Moroccans	Id → Prejudice vs. Chinese	2.751 (1)	.0972
Id → Prejudice vs. Moroccans	Id → Prejudice vs. Ukrainians	**13.490 (1)**	**.0002**
Id → Prejudice vs. Chinese	Id → Prejudice vs. Ukrainians	**4.437 (1)**	**.0352**
Model 4c (Human Identification on L2 means)			
Id → Prejudice vs. Romanians	Id → Prejudice vs. Albanians	3.440 (1)	.0636
Id → Prejudice vs. Romanians	Id → Prejudice vs. Moroccans	**21.202 (1)**	**.0000**
Id → Prejudice vs. Romanians	Id → Prejudice vs. Chinese	0.028 (1)	.8671
Id → Prejudice vs. Romanians	Id → Prejudice vs. Ukrainians	1.441 (1)	.2300
Id → Prejudice vs. Albanians	Id → Prejudice vs. Moroccans	**7.508 (1)**	**.0061**
Id → Prejudice vs. Albanians	Id → Prejudice vs. Chinese	2.643 (1)	.1040
Id → Prejudice vs. Albanians	Id → Prejudice vs. Ukrainians	0.414 (1)	.5199
Id → Prejudice vs. Moroccans	Id → Prejudice vs. Chinese	**16.309 (1)**	**.0001**
Id → Prejudice vs. Moroccans	Id → Prejudice vs. Ukrainians	**10.526 (1)**	**.0012**
Id → Prejudice vs. Chinese	Id → Prejudice vs. Ukrainians	1.896 (1)	.1685
Model 4e (Human identification on L2 slopes)			
Id → Prejudice vs. Romanians	Id → Prejudice vs. Albanians	0.619 (1)	.4313
Id → Prejudice vs. Romanians	Id → Prejudice vs. Moroccans	0.000 (1)	.9866
Id → Prejudice vs. Romanians	Id → Prejudice vs. Chinese	**7.485 (1)**	**.0062**
Id → Prejudice vs. Romanians	Id → Prejudice vs. Ukrainians	0.004 (1)	.9524
Id → Prejudice vs. Albanians	Id → Prejudice vs. Moroccans	0.360 (1)	.5482
Id → Prejudice vs. Albanians	Id → Prejudice vs. Chinese	**4.141 (1)**	**.0419**
Id → Prejudice vs. Albanians	Id → Prejudice vs. Ukrainians	0.553 (1)	.4569
Id → Prejudice vs. Moroccans	Id → Prejudice vs. Chinese	**5.027 (1)**	**.0250**
Id → Prejudice vs. Moroccans	Id → Prejudice vs. Ukrainians	0.001 (1)	.9758
Id → Prejudice vs. Chinese	Id → Prejudice vs. Ukrainians	**9.095 (1)**	**.0026**

Note. Id = Identification; L1 = Within-person level; L2 = Between-person level.

SECTION B

Proximal Contexts of Development

CHAPTER **5**

Parents' and Classmates' Influences on Adolescents' Ethnic Prejudice: A Longitudinal Multi-Informant Study

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Abstract

The family and classroom are important contexts that can contribute to the socialization of ethnic prejudice. However, less is known about their unique, relative, and synergic contributions in influencing youth's affective and cognitive prejudice. The current longitudinal study examined these processes and possible moderators among 688 Italian youth (49.13% girls; M_{age}=15.61 years), their parents ($n_{mothers}$=603, $n_{fathers}$=471; M_{age}=49.51 years), and classmates between January/February 2022 and January/February 2023. Cross-lagged panel models highlighted that parents and classmates exert unique and relative influences on different dimensions of adolescents' prejudice. Additionally, different interaction effects also emerged for affective (i.e., adverse compensatory effect) and cognitive (i.e., amplifying effect) prejudice. Thus, adolescents draw from the multiple contexts of development to orient themselves in the social world.

Keywords: ethnic prejudice; adolescence; parental influences; classroom environment; longitudinal

Introduction

Ethnic prejudice is one of the main factors threatening positive intergroup relationships, social inclusion, and the cohesion of contemporary multicultural societies (Ward et al., 2017). Adolescence might be a crucial moment during which attitudes toward diversity change and consolidate, as this period is characterized by individual advancements in cognitive, social, and moral competences that support a more nuanced and complex understanding of the social world (Crocetti et al., 2021). Moreover, the development of attitudes during this life phase might be especially susceptible to the influences at play in key socialization contexts (Allport, 1954; Raabe & Beelmann, 2011).

In line with the ecological model of development (Bronfenbrenner, 1992, 2005), both the family and classroom are important proximal contexts that can contribute to the socialization of ethnic prejudice. Social learning and socialization perspectives (Allport, 1954; Bandura, 1977) posit that parents can model and reinforce desired attitudes and behaviors both directly, by explicitly and implicitly conveying their own views and beliefs, and indirectly, by managing their offspring's intergroup experiences and social environment. Conversely, classmates become an increasingly important source of intergroup norms in adolescence and can provide youth with important descriptive and prescriptive information about the social world (Albarello et al., 2021; Thijs & Verkuyten, 2013). In turn, in line with developmental intergroup theory (Bigler & Liben, 2007; Nesdale, 2004), adolescents adjust their attitudes to be in line with the perceived shared norms in the class (e.g., Váradi et al., 2021) and with the levels of ethnic prejudice displayed by popular peers (Bohman & Kudrnáč, 2023; Paluck, 2011).

So far, most studies on the role of parents and classmates as socializing contexts for the development of ethnic prejudice in adolescence have relied on cross-sectional designs, thus limiting the understanding of the longitudinal reciprocal associations at play. Also,

research has usually examined parents and classmates separately, thus preventing a comprehensive understanding of the relative and synergic influences of both contexts. Therefore, the current research aimed to fill these gaps by studying the longitudinal interplay between parents', classmates', and adolescents' ethnic prejudice and the conditions that facilitate or hinder the unique and interactive roles of these proximal contexts of development.

Ethnic Prejudice in Context: A Multidimensional and Ecological Approach

Ethnic prejudice can be conceived as a set of negative emotions, cognitions, and behaviors about individuals and groups because of their different ethnic and cultural backgrounds (Allport, 1954; Brown, 2011). It is a multidimensional phenomenon entailing both affective facets, such as negative feelings and dislike, and cognitive facets, such as stereotypes and negative beliefs, which together can lead to negative behaviors, such as avoidance and discrimination against outgroup members (Cuddy et al., 2007). In the context of the current study (i.e., Italy), prejudice against ethnic minority individuals is closely tied to their immigrant background. Specifically, local policies in the Italian context prevent foreigners to legally acquire and to be fully considered Italian citizens, because citizenship conceptions are closely tied to individuals' ethnic and cultural descent (Reijerse et al., 2015). Additionally, physical features and phenotypes can play a role in molding intergroup categorization processes, making the minority status of some but not other ethnic individuals more salient (Cicognani et al., 2018; Song, 2020). These conditions contribute to ascribing individuals with an immigrant descent (i.e., at least one parent born outside Italy) to minority or low-status groups within the larger society.

Consistent evidence highlights differences in development and correlates of the affective and cognitive components of ethnic prejudice in adolescence. For instance, intervention programs were found to be more or less effective depending on the dimension of

prejudice examined (for a review, see Beelmann & Heinemann, 2014). Additionally, while positive intergroup contact was found to reduce both affective and cognitive prejudice levels, negative intergroup contact experiences were significantly associated only with increased negative stereotypes and beliefs about people from ethnic minority backgrounds (e.g., Aberson, 2015). Affective and cognitive prejudice also displayed different levels of rank-order stability in adolescence (for a meta-analysis, see Crocetti et al., 2021), with affective prejudice being less stable than cognitive prejudice. Overall, these findings suggest the importance of accounting for multiple dimensions of prejudice as they might be susceptible to different influences and factors.

Shifts and fluctuations in affective and cognitive dimensions of ethnic prejudice can result from the interactions and experiences that youth encounter in the multiple social contexts within which they develop (Bronfenbrenner, 2005; Crocetti et al., 2021). Proximal micro-contexts, such as the family and classroom, might be especially impactful because adolescents spend a considerable amount of time in these environments and have daily face-to-face interactions and close relationships with both their parents and classmates (Bohman & Kudrnáč, 2023). It is within these interpersonal exchanges that intergroup attitudes, norms, and behaviors are expressed, negotiated, and socialized. Therefore, understanding how these socializing agents contribute to the development of affective and cognitive ethnic prejudice is fundamental to orient interventions aimed at supporting youth in their adjustment to current multicultural societies (Miklikowska & Bohman, 2019).

The Role of Proximal Socialization Contexts: Theoretical and Empirical Evidence

Social learning and socialization perspectives suggest that attitudes are learned through the observation and imitation of significant social referents, such as parents and peers (Allport, 1954; Bandura, 1977). Specifically, parents communicate their own attitudes, set norms and expectations, and reinforce behaviors and beliefs that align well with their own.

Additionally, parents can foster specific views about diversity by managing their offspring's social world and experiences, such as their interaction with peers and opportunity for contact with diverse others (Grusec, 2011; Reich & Vandell, 2011). Together these processes contribute to parent—child similarity in ethnic prejudice (e.g., Dhont et al., 2013; Gniewosz et al., 2008; Meeusen & Dhont, 2015). As highlighted by meta-analytical (Degner & Dalege, 2013) and review (Zagrean et al., 2022) findings, significant medium-sized correlations emerged between parents' and children's intergroup attitudes. Additionally, parents' prejudice levels were found to be longitudinally associated with changes in German adolescents' (e.g, Gniewosz & Noack, 2015; Jugert et al., 2016) and Dutch young adults' (Hello et al., 2004) attitudes toward ethnic minority groups, confirming the role of parents as socializing agents in the development of ethnic prejudice.

Although most research has examined parents as main socializing actors and focused mostly on unidirectional influences, transactional models of development (Grusec, 2011; Sameroff, 2009) suggest that a bidirectional account of these processes can best capture the dynamic nature of parent-child relationships. Especially in adolescence, youth actively reflect on parental attitudes and even question their legitimacy (Smetana, 2018). These responses convey the mismatch between adolescents' and parents' views and highlight the need to renegotiate or discuss in more egalitarian ways the family rules and shared beliefs (Soenens & Vansteenkiste, 2020). As they grow older, adolescents can more independently choose whom they befriend and interact with, and they might be exposed to attitudes expressed in multiple contexts (e.g., school, media) that directly challenge those of their parents. These intergroup friendships and experiences might lead adolescents to engage in discussion with their parents and ultimately renegotiate the family's shared beliefs about diversity (Nesdale, 2004). Only a few longitudinal studies have examined the bidirectional nature of these influences, lending support to transactional models of development (Grusec, 2011; Sameroff,

2009). That is, not only parental prejudice was significantly associated with changes in adolescents' attitudes, but also youth were found to influence their parents' beliefs at a later time (Miklikowska, 2016).

Besides the role of family, the classroom environment represents another important context where interpersonal and intergroup attitudes, norms, and behaviors are socialized and negotiated (Thijs & Verkuyten, 2013). This is especially relevant in the European and Italian context, where adolescents share their physical context and spend most of their time with the same group of classmates, who are not chosen but met on a daily basis in the school environment (Albarello, Crocetti, et al., 2018). According to developmental intergroup theory (Bigler & Liben, 2007; Nesdale, 2004), classroom norms about diversity and group membership make specific group dimensions salient and guide the processes of categorization and association of specific labels or attitudes to some groups and their members. In other words, levels of affective and cognitive prejudice shared in the classroom environment convey specific views about diversity and consequently influence adolescents' feelings and thoughts about ethnic minority individuals. Compared to parents' influences on prejudice, the role of classmates has been examined less extensively. However, perceptions of classmates as supporting multiculturalism and disapproving ethnic prejudice were found to be associated with, respectively, more positive intergroup attitudes (Thijs & Verkuyten, 2013) and decreases in prejudice over time (Váradi et al., 2021). Additionally, friends' and classmates' intergroup attitudes were found to influence changes in adolescents' ethnic prejudice (e.g., Bohman & Kudrnáč, 2022; van Zalk et al., 2013; Zingora et al., 2020) and tolerance (van Zalk et al., 2013) across several countries (e.g., Sweden, the Netherlands).

Overall, prior research, which was mostly conducted in the European context, highlighted the significant role of both parents and classmates in contributing to the socialization of intergroup attitudes in adolescence. Nevertheless, it is less clear which

conditions facilitate or hinder these processes of (possibly reciprocal) influence. Building upon the assumptions of developmental intergroup theory (Bigler & Liben, 2007; Nesdale, 2004), adolescents might be more susceptible to acquiring attitudes and behaviors that are prevalent in the social groups with whom they more strongly identify. In other words, the more youth identify with their family and classmates, the more likely they are to align themselves with the levels of affective and cognitive prejudice that characterizes these proximal contexts (Allport, 1954). Along this line, research has highlighted that parents and peers are more influential when adolescents have positive and open relationships with these socializing agents. For instance, parents' influences on ethnic prejudice were found to be stronger for youth who perceived higher parental support (Miklikowska, 2016). Similarly, peer acceptance (Thijs & Verkuyten, 2013) was found to moderate peers' influences on adolescents' ethnic prejudice. One study (Sinclair et al., 2005) has examined the moderating role of ingroup identification. Specifically, parents' and their offspring's prejudice levels were found to be significantly associated only among children who highly identified with their parents, in line with the theoretical premises of developmental intergroup theory (Bigler & Liben, 2007; Nesdale, 2004). However, less is known about the process of identification with the group of classmates and how it could moderate the influences at play.

The Relative Influence of Parents and Classmates

Both the family and classroom environments represent important micro-contexts where youth learn and develop by observing and interacting with significant social agents (e.g., Pehar et al., 2020). However, these proximal systems might not be equally important at all life stages. On the one hand, parents can be conceived as primary socializing agents as they exert both direct and indirect influences on youth from a very young age, with long-lasting effects that are maintained in adolescence and adulthood (Grusec, 2011). On the other hand, adolescents tend to progressively separate themselves from parents, spending more

autonomous time with peers and friends and turning to them for support (Brown, 2004). Applied to ethnic prejudice socialization processes, this suggests that, as adolescents grow older, parental influences could be progressively outweighed by those of classmates.

The research examining these two micro-contexts simultaneously has yielded mixed and inconclusive results. For instance, some studies have highlighted that parent-child similarity in prejudice decreased linearly with age, while similarity with the best friend remained stable (Gniewosz et al., 2008). Conversely, parents' and friends' prejudice levels were found to respectively exert long- and short-term influences on adolescents' attitudes (Miklikowska, 2017), with no significant differences in the strength of these associations over time (Miklikowska, Bohman, et al., 2019). The current study aimed to examine the simultaneous influences of both parents and classmates and to identify possible age-related differences in the relative importance of these socializing agents for the development and consolidation of affective and cognitive ethnic prejudice in adolescence.

The Synergic Influence of Parents and Classmates

In line with ecological system theory (Bronfenbrenner, 1992, 2005), the two micro-contexts of parents and classmates can interact synergically and therefore create meso-systemic conditions that contribute to adolescents' development. On the one hand, consistency in the influences across the two contexts might amplify the effect of both socializing agents on youth's development and functioning. For instance, research on value socialization found that a fit between values of parents and peers (Barni et al., 2014) and parents and school (Knafo, 2003) enhanced the strength of family transmission processes. On the other hand, being exposed to opposed attitudes across the family and classroom contexts might offer adolescents a more nuanced perspective and possibly buffer negative influences from one or the other environment (for an overview, see Reich & Vandell, 2011).

Prior research on prejudice socialization highlighted that attending classrooms characterized by high ethnic diversity (e.g., Miklikowska et al., 2019) and having intergroup contact experiences and friendships (e.g., Dhont & Van Hiel, 2012; Miklikowska, 2017) buffered the negative effects of parents' prejudice. Conversely, friends' prejudice levels did not moderate the effect of parental attitudes on adolescents' views about diverse others (Miklikowska, Bohman, et al., 2019). Overall, while there is contrasting evidence on how features of the classroom and friendship contexts can interact with the family environment in the socialization of ethnic prejudice, less is known about the synergic effects of parents and classmates. Understanding the interactive effects of these proximal contexts is crucial to identify possible venues for interventions to prevent the consolidation of negative attitudes about diversity in adolescence.

The Current Study

Research examining the role of parents and classmates in influencing adolescents' attitudes has looked at these contexts mainly in isolation. However, a comprehensive understanding of unique, relative, and synergic socializing effects is needed to inform interventions aimed at reducing ethnic prejudice and its heinous consequences. Thus, the current study had four main goals.

First, it aimed to study the unique role of the family context by examining the longitudinal reciprocal associations between parents' and adolescents' affective and cognitive prejudice and the role of identification with the family in moderating parents' influences (if any). Parents' ethnic prejudice was expected to be significantly associated with changes in youth's prejudice (Hypothesis 1a), and adolescents' prejudice was expected to be significantly associated with changes in parents' (Hypothesis 1b). Also, adolescents who highly identify with their family were expected to be more strongly influenced by their parents' prejudice levels (Hypothesis 1c).

Second, this research studied the longitudinal interplay between classmates' and adolescents' prejudice levels and the moderating effect of identification with this proximal group. Specifically, classmates were expected to significantly influence changes in youth's prejudice (Hypothesis 2a). However, no bidirectional influences were expected in this specific context since it is unlikely that a single youth can influence the shared attitudes within the classroom environment. Further, ingroup identification was expected to moderate this influence, with stronger influences emerging for adolescents who highly identify with their group of classmates (Hypothesis 2b).

Third, this study aimed to examine the influence of both parents and classmates' prejudice simultaneously. Specifically, both socializing agents were expected to significantly influence adolescents' affective and cognitive prejudice (Hypothesis 3a). However, parents' influences were expected to be stronger than those of classmates for younger adolescents, while classmates' prejudice was expected to be more strongly associated to older adolescents' prejudice compared to that of their parents (Hypothesis 3b).

Last, the current research sought to examine the interactive effect of both proximal contexts. Specifically, in line with prior research on values' socialization (Barni et al., 2014; Knafo, 2003), adolescents whose parents and classmates both report high levels of affective and cognitive prejudice were expected to display steeper increases in affective and cognitive prejudice against ethnic minorities (Hypothesis 4). Research questions and hypotheses were pre-registered at: https://osf.io/uqxrn/ .

Methods

Participants

Participants in this two-wave longitudinal study were drawn from a larger sample of adolescents and their parents involved in the ongoing longitudinal study IDENTITIES "Managing identities in diverse societies: A developmental intergroup perspective with

adolescents". For the purpose of the current study, a total of 688 youth (49.13% girls; $M_{\text{age}} =$ 15.61 years, $SD = 1.10$ at T1) for whom at least one parent ($n_{\text{mothers}} = 603$, $n_{\text{fathers}} = 471$; $M_{\text{age}} = 49.51$ years, $SD = 4.62$ at T1) participated in the project were included. At the beginning of the study, adolescents attended either the 1st (48.55%) or 3rd (51.45%) year from 14 secondary high schools located in the Northern part of Italy (i.e., Emilia-Romagna region). This region is characterized by the highest percentage (i.e., 17.10%) of ethnic minority youth within the overall student population (from primary to secondary high schools) in the Italian school system (Ministero della Pubblica Istruzione, 2022). The average percentage of ethnic minority youth within the overall student population in Italy is 10.3%. Notably, most ethnic minority students in the Emilia-Romagna have either an Eastern European background (e.g., Albania and Romania represent the country of origin of 27.4% of ethnic minority students), an African background (e.g., Morocco is the country of origin of 16.4% of ethnic minority students), or an Asian background (e.g., China is the country of origin of 5.3% of ethnic minority youth; Ministero della Pubblica Istruzione, 2022), fully reflecting the distribution observed in the general population (ISTAT, 2020). Therefore, this region provides an important context for the study of intergroup attitudes and relationships. Moreover, the schools involved in the current project fully reflect such diversity of the secondary high school student population. Specifically, the percentage of ethnic minority youth in our schools, as obtained from archive data, ranges between 8.72% and 32.97%, with an average of 20.95%.

Participants attended either a university-oriented (i.e., lyceum; 54.79%), a technical (31.69%), or a vocational (13.52%) track. Since the focus was on prejudice against people from ethnic minority backgrounds, only ethnic majority adolescents (i.e., those whose parents were both born in Italy and had Italian nationality) were included in the current study. At baseline, most adolescents reported their parents were married or cohabiting (83.41%), while

14.83% reported their parents were separated or divorced, and the remaining (1.76%) reported other family conditions (e.g., single parent household). Most adolescents (79.21%) had at least one sibling, while the remaining (20.79%) were only children. Regarding parents' educational level, adolescents reported that most of their mothers (48.81%) and fathers (47.56%) had a medium educational level (i.e., high school diploma). Among mothers, most of the remaining (38.58%) had a high (i.e., university degree or higher) and only a few (12.61%) had a low (i.e., up to middle school diploma) educational level. Similarly, the remaining fathers had either a high (27.55%) or a low (24.89%) educational level.

Most adolescents (73.55%) and parents (71.78%) participated in both assessments. Within the first assessment, the completion rate at the item level was very high for both adolescents (92.59%) and parents (96.51%), while within the second assessment it decreased (66.71% for both respondents). The Little's (1988) Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df = 3022.52/2958) of 1.02, indicating that data were likely missing completely at random. Therefore, the total sample of 688 participants was included in the analyses, and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of Alma Mater Studiorum University of Bologna (Italy) as part of the ERC-Consolidator project IDENTITIES "Managing identities in diverse societies: A developmental intergroup perspective with adolescents". This ongoing longitudinal research involves adolescents from several high schools in Italy, together with their parents and teachers. Schools were selected through a stratified (by track and level of urbanization) randomized method and principals were approached to present the project. Upon their approval, the study was presented to students and their parents who also received written and detailed information. Active consent from

parents was obtained prior to their children's participation. Active consent was also obtained from adolescents of age, while their underage peers provided their assent to participate in the project. Participation was voluntary and participants were informed they could withdraw their consent at any time.

The IDENTITIES project started in 2022 and included multiple annual, monthly, and daily assessments. For the purpose of the current study, only data from the first two annual assessments (i.e., January/February 2022 and 2023) of students and their parents were used. At each wave, adolescents and their classmates completed online questionnaires on Qualtrics during school hours, with researchers and research assistants present in the classroom to answer any questions. Parents received a personalized and pseudonymized link via email to complete the annual questionnaire online. All participants completed the questionnaire in Italian which, for those involved in the current study, was their first language. Adolescents and their parents were required to create a personal code (unique to each youth) to pair their answers over time and within each family unit and to protect their anonymity.

Measures

Demographics

Adolescents completed socio-demographic questions (i.e., sex, age, family condition, parents' educational level) at T1.

Adolescents' Affective Prejudice

The affective component of prejudice was assessed at both time points using the Feeling thermometer (Haddock et al., 1993; for the Italian version, see Bobba & Crocetti, 2022), which has been previously used in research assessing ethnic prejudice (for a review, see Crocetti et al., 2021). This measure asks participants to rate how much they like different outgroups (i.e., Romanians, Albanians, Moroccans, Chinese, and Ukrainians were chosen since they are the most represented groups of foreigners in Italy according to ISTAT, 2020)

on a scale from 0° (at all) to 100° (very much). The scale was reversed to simplify the interpretation of results, with higher scores indicating higher prejudice. A total affective prejudice score was computed using the mean level of disliking expressed for these different outgroups. Reliability was high at both the first ($\alpha = .923$; $\omega = .924$) and second ($\alpha = .943$; $\omega = .944$) assessments.

Adolescents' Cognitive Prejudice

To evaluate the cognitive component of prejudice at both time points, five items were adapted from Brown et al. (2008). Adolescents rated their agreement on a 5-point Likert scale (from 1 "completely disagree" to 5 "completely agree"). A sample item is "Foreign people should be marginalized in Italian society". The scale showed good reliability across both the first ($\alpha = .859$; $\omega = .863$) and second ($\alpha = .887$; $\omega = .886$) assessment.

Adolescents' Social Identification with Family and Classmates

Identification with family and classmates were assessed at T1 with a shortened version of the Group Identification Scale for both groups (Thomas et al., 2017). The shortened version of this scale included 3 items for each reference group, which the participants had to rate on a 5-point Likert type scale (from 1 "completely false" to 5 "completely true"). A sample item is: "I identify with my family/classmates". Reliability was high for both identification with family ($\alpha = .843$; $\omega = .845$) and identification with classmates ($\alpha = .829$; $\omega = .831$).

Classmates' Affective and Cognitive Prejudice

For each adolescent participant, two scores of their classmates' prejudice were computed, one for the affective and one for the cognitive dimensions. In both cases, classmates' prejudice was computed as the average level of either affective or cognitive prejudice reported by the classmates participating in the study, excluding the targeted participant. This procedure was followed for both assessments.

Parents' Affective Prejudice

Parents' affective component of prejudice was assessed at both time points using a single item of the Feeling thermometer (Haddock et al., 1993; for the Italian version, see Bobba & Crocetti, 2022), asking participants to rate how much they like foreign people on a scale from 0° (at all) to 100° (very much). The scale was reversed to simplify the interpretation of results, with higher scores indicating higher prejudice. Additionally, the scores of mothers' and fathers' affective prejudice were standardized to control for potential mean differences between mother and father reports and then averaged.

Parents' Cognitive Prejudice

To evaluate the cognitive component of prejudice at both time points, parents completed the same five items used for adolescents (adapted from Brown et al., 2008). Parents rated their agreement on a 5-point Likert scale (from 1 "completely disagree" to 5 "completely agree"). A sample item is "Foreign people should be marginalized in Italian society". The average scores of mothers' and fathers' cognitive prejudice were standardized to control for potential mean differences between mother and father reports and then averaged. The scale showed high reliability at both the first ($\alpha = .847$; $\omega = .844$) and second ($\alpha = .836$; $\omega = .834$) assessment.

Strategy of Analyses

Descriptive and reliability analyses were conducted using IBM SPSS Version 28.0 for Windows. The remaining analyses were conducted in M*plus* 8.6 (Muthén & Muthén, 1998-2017), using Maximum Likelihood Robust (MLR) estimator (Satorra & Bentler, 2001). The plan of analysis was pre-registered at https://osf.io/uqxrn/. Differently from the preregistered analytical plan, models reported in the manuscript were run using *Type=General* instead of *Type=Complex* function (which controls for the fact that students are nested in classrooms) because the latter would result in warnings about a non-positive definite product matrix.

Nevertheless, results were replicated across the two analytical strategies, as detailed in the Supplemental Materials.

Two preliminary steps were undertaken prior to conducting the main analyses. First, we tested whether affective and cognitive prejudice scales showed longitudinal (for affective prejudice of adolescents across the two time points) and multigroup (for cognitive prejudice across time points and respondents) invariance. The full procedure is detailed in the Supplemental Materials. Second, instead of relying on mean- or median-split methods, two latent profile analyses were conducted to identify groups of adolescents based on their levels of identification (i.e., low and high), separately for the family and classmates' groups. Models with an increasing number of classes were tested for identification with family at T1 and identification with classmates at T1. The full procedure, model fit indicators, and results are reported in the Supplemental Materials. Identifying two groups of participants allowed to test the moderating role of identification with relevant proximal groups by conducting multigroup analyses. This analytical procedure is preferable when the moderation effect is to be tested on all the paths included in the model (Memon et al., 2019).

To test the main hypotheses of the current study (i.e., examine the unique, relative, and synergic role of parents and classmates in influencing changes in affective and cognitive prejudice of adolescents and whether identification with the proximal groups and age moderate these influences), seven cross-lagged panel models with observed variables were estimated. First, the unique (Model 1 and Model 2 for parents' and classmates' influences, respectively) and relative (Model 3) effects of parents and classmates were tested in three main models. These models examined cross-lagged paths between affective and cognitive prejudice of adolescents and affective and cognitive prejudice of their parents and/or classmates, controlling for: (a) stability or autoregressive paths (i.e., T1→T2), and (b) within-time correlations among all variables (i.e., correlations among variables at T1, and correlated

changes at T2). Next, each main model was replicated in a multigroup framework to examine the moderating effects of social identifications (Model 1A and Model 2A for parents and classmates, respectively) and age (Model 3A), with Wald test statistics used to identify significant differences in lagged associations, within-time correlations, and correlated changes among the groups. Last, an additional cross-lagged panel model was tested by including two interaction terms (i.e., one for affective and one for cognitive prejudice) between (the grandmean centered values of) parents' and classmates' prejudice (Model 4). Significant interaction effects were further explored by conducting simple slope analysis and by examining regions of significance with the Johnson-Neyman technique (Preacher et al., 2006). All models were fully saturated. Regarding Models 1 to 4, stability paths, within-time correlations at T1, and T2 correlated changes are reported in Table 1 and Table 2. Significant cross-lagged paths are reported in Figure 1.

Table 5.1

Standardized results of cross-lagged panel Model 1 and Model 2

| N = 688	Model 1 *B (S.E.)*		Model 2 *B (S.E.)*	
Stability paths	T1→T2		T1→T2	
Adolescents' Affective Prejudice	.472*** (.047)		.460*** (.048)	
Adolescents' Cognitive Prejudice	.491*** (.049)		.514*** (.049)	
Parents' Affective Prejudice	.414*** (.051)			
Parents' Cognitive Prejudice	.498*** (.046)			
Classmates' Affective Prejudice			.442*** (.061)	
Classmates' Cognitive Prejudice			.293*** (.058)	
Correlations	T1	T2	T1	T2
Adolescents' AP ↔ Adolescents' CP	.511*** (.029)	.229*** (.050)	.514*** (.029)	.231*** (.050)
Adolescents' AP ↔ Parents' AP	.144*** (.041)	.011 (.054)		
Adolescents' AP ↔ Parents' CP	.109** (.041)	.008 (.058)		
Adolescents' CP ↔ Parents' AP	.153*** (.043)	.018 (.058)		
Adolescents' CP ↔ Parents' CP	.159*** (.041)	.061 (.059)		
Parents' AP ↔ Parents' CP	.593*** (.029)	.347*** (.041)		
Adolescents' AP ↔ Classmates' AP			.259*** (.038)	.067 (.053)
Adolescents' AP ↔ Classmates' CP			.177*** (.038)	.001 (.050)
Adolescents' CP ↔ Classmates' AP			.182*** (.043)	.018 (.051)
Adolescents' CP ↔ Classmates' CP			.203*** (.043)	.027 (.048)
Classmates' AP ↔ Classmates' CP			.640*** (.029)	.192* (.081)

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. *p < .05, **p < .01, ***p < .001

Table 5.2

Standardized results of cross-lagged panel Model 3 and Model 4

N = 688	Model 3 B (S.E.)		Model 4 B (S.E.)	
Stability paths	T1→T2		T1→T2	
Adolescents' Affective Prejudice	.458*** (.048)		.466*** (.047)	
Adolescents' Cognitive Prejudice	.488*** (.049)		.475*** (.049)	
Parents' Affective Prejudice	.418*** (.051)		.418*** (.051)	
Parents' Cognitive Prejudice	.497*** (.046)		.497*** (.046)	
Classmates' Affective Prejudice	.443*** (.061)		.443*** (.061)	
Classmates' Cognitive Prejudice	.287*** (.059)		.287*** (.059)	
Correlations	T1	T2	T1	T2
Adolescents' AP ↔ Adolescents' CP	.513*** (.029)	.224*** (.050)	.513*** (.029)	.222*** (.052)
Adolescents' AP ↔ Parents' AP	.146*** (.041)	.019 (.055)	.145*** (.041)	.016 (.055)
Adolescents' AP ↔ Parents' CP	.109** (.041)	.001 (.057)	.109** (.041)	-.009 (.057)
Adolescents' CP ↔ Parents' AP	.155*** (.043)	.021 (.058)	.156*** (.043)	.021 (.058)
Adolescents' CP ↔ Parents' CP	.159*** (.041)	.056 (.059)	.159*** (.041)	.044 (.059)
Parents' AP ↔ Parents' CP	.593*** (.029)	.349*** (.041)	.593*** (.029)	.349*** (.041)
Adolescents' AP ↔ Classmates' AP	.258*** (.038)	.066 (.053)	.260*** (.038)	.058 (.052)
Adolescents' AP ↔ Classmates' CP	.177*** (.038)	.002 (.051)	.179*** (.038)	.008 (.048)
Adolescents' CP ↔ Classmates' AP	.182*** (.043)	.008 (.053)	.181*** (.043)	.009 (.051)
Adolescents' CP ↔ Classmates' CP	.203*** (.043)	.022 (.048)	.201*** (.043)	.021 (.047)
Classmates' AP ↔ Classmates' CP	.640*** (.029)	.190* (.081)	.640*** (.029)	.190* (.081)
Parents' AP ↔ Classmates' AP	.138*** (.039)	-.007 (.050)	.139*** (.039)	-.006 (.050)
Parents' AP ↔ Classmates' CP	.139*** (.037)	-.051 (.040)	.139*** (.037)	-.051 (.040)
Parents' CP ↔ Classmates' AP	.091* (.038)	.092 (.053)	.091* (.038)	.092 (.053)
Parents' CP ↔ Classmates' CP	.110** (.037)	.055 (.047)	.110** (.037)	.055 (.047)

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 5.1

Standardized results of the Cross-Lagged Panel Models
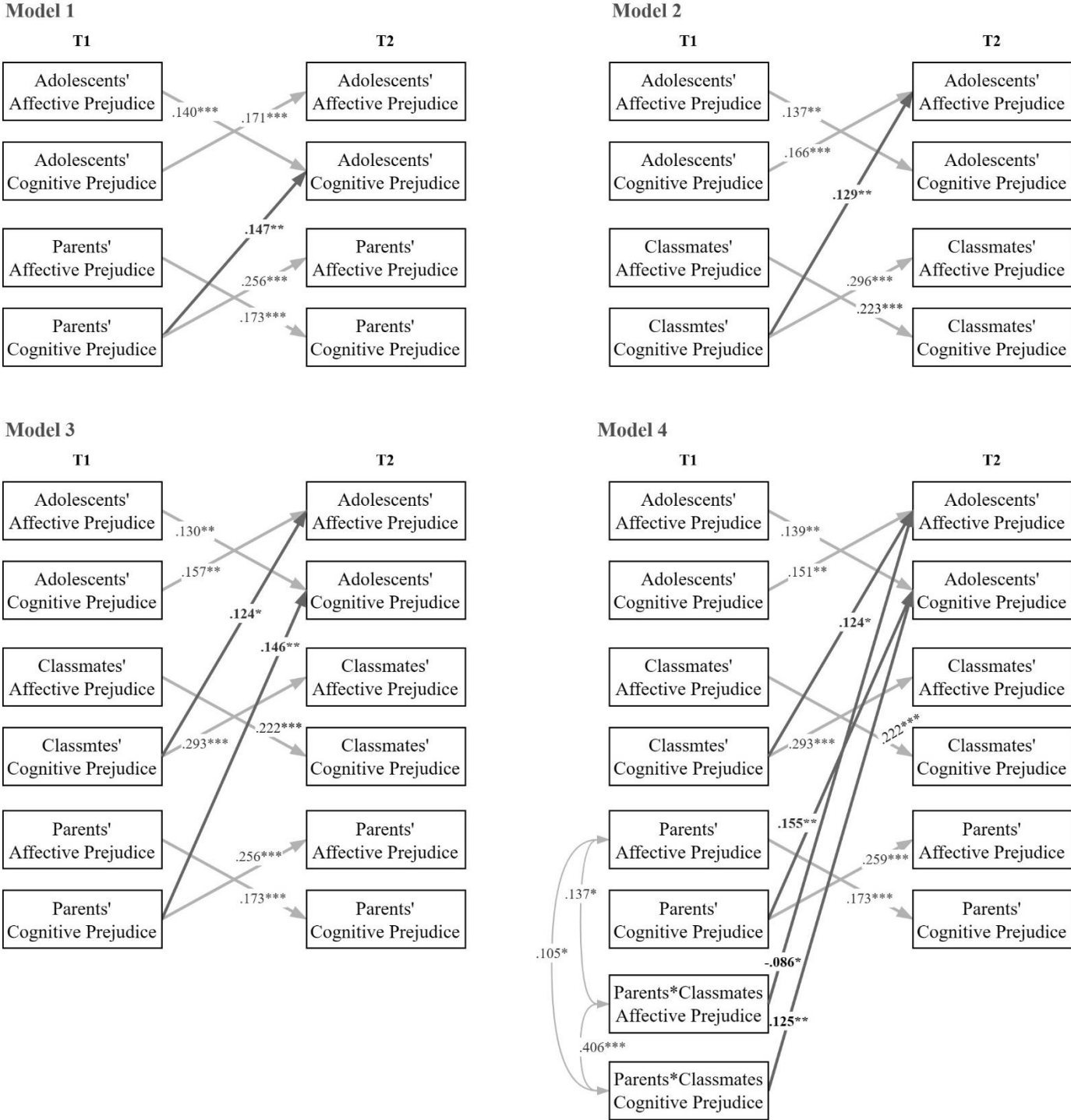
Note. T = Time. Light grey arrows indicate within-respondents effects (e.g., paths between components of adolescents' prejudice), while dark grey arrows indicate between-respondents effects (e.g., paths between parents' and adolescents' prejudice). * $p < .05,$ ** $p < .01,$ *** $p < .001$

Results

Preliminary Analyses

Means, standard deviations, and correlations among study variables are reported in Table S1 of the Supplemental Materials. Full metric invariance was established both longitudinally (for affective and cognitive prejudice of adolescents, and cognitive prejudice of parents) and across the groups of adolescents and parents (for cognitive prejudice). Results are reported in Table S2. Further, results of the latent profile analyses are reported in Table S3. Regarding the family group, youth were divided between those with low (9%; $M = 2.23$; $\sigma^2 = 0.44$) and those with high (91%; $M = 3.83$; $\sigma^2 = 0.44$) levels of identification. Regarding identification with the group of classmates, youth were divided between those with low (15%; $M = 1.88$; $\sigma^2 = 0.43$) and those with high (85%; $M = 3.31$; $\sigma^2 = 0.43$) levels.

The Role of the Family Context

Results on the longitudinal reciprocal influences between affective and cognitive prejudice of adolescents and their parents (Figure 1, Model 1) only partially supported Hypothesis 1a and did not lend support for Hypothesis 1b. Out of the eight reciprocal longitudinal associations being tested, one was significant. Specifically, parents' cognitive prejudice at the beginning of the study was significantly associated with relative increases in cognitive prejudice of adolescents over time, but the same effect was not found for affective prejudice. Contrary to expectations, adolescents' prejudice levels were not significantly associated with those of their parents at the following time point.

Regarding the moderating role of identification with the family, results did not fully support the hypothesis. No differences emerged in cross-lagged associations and correlated changes between adolescents with low and those with high levels of identification with their family. However, the correlations of adolescents' cognitive prejudice with parents' cognitive (Wald = 4.19, $p = .041$) and affective (Wald = 5.55, $p = .018$) prejudice at T1 were found to

be significant for adolescents with high levels of identification with the family ($r = .17$, $p <$ .001 for both cognitive and affective prejudice), but not for those with low levels of identification ($r = -.11$, $p = .376$ for the affective dimension; $r = -.03$, $p = .807$ for the cognitive dimension).

The Role of the Classroom Context

Results on the longitudinal associations between classmates' and adolescents' affective and cognitive prejudice (Figure 1, Model 2) only partially supported Hypothesis 2a. Out of the eight reciprocal longitudinal associations examined, only one was significant. Specifically, classmates' cognitive prejudice was positively associated with relative changes in affective prejudice of adolescents, while no other significant cross-paths emerged. Regarding Hypothesis 2b, multigroup analyses revealed no significant differences in cross-lagged associations and correlated changes, whereas one significant difference emerged for the correlation between cognitive prejudice of adolescents and classmates at Time 1 (Wald = 10.23, $p = .001$). Among adolescents who identified strongly, cognitive prejudice at Time 1 significantly and positively correlated with their classmates' cognitive prejudice ($r = .21$, $p <$ .001), while the same pattern did not emerge for youth with a low identification with classmates ($r = -.12$, $p = .268$).

The Relative Influences of the Family and Classroom Contexts

Results on the relative influences of parents and classmates (Figure 1, Model 3) replicated findings from the previous cross-lagged panel models. Two associations, out of the 16 paths being tested, were significant. Specifically, these two effects were the same that emerged in the separate models, lending support for Hypothesis 3a. Multigroup analyses did not support Hypothesis 3b as age did not significantly moderate the cross-lagged associations nor the correlated changes between parents' and classmates' prejudice levels and those of adolescents. However, one significant difference emerged in the Time 1 correlation between

affective prejudice of classmates and adolescents (Wald = 4.81, *p* = .028), which was stronger

for older adolescents (*r* = .34, *p* < .001) than for younger adolescents (*r* = .16, *p* = .008).

The Synergic Influence of Family and Classmates

Results on the interactive effect of family and classroom contexts (Figure 1, Model 4)

highlighted that parental and classmates' prejudice significantly interacted in predicting later

levels of adolescents' prejudice and such associations were dimension specific. Regarding

affective prejudice, the interaction of parents' and classmates' affective prejudice at Time 1

was significantly linked to adolescents' affective prejudice at Time 2. Follow up analyses

showed that, although the effects of classmates on adolescents' prejudice were not significant

in both instances, at higher levels of parental affective prejudice, the effect of classmates on

adolescents' prejudice was negative (slope at 1 SD above the mean: -.14, *p* = .235), while

when parents reported lower levels of prejudice, it was positive (slope at 1 SD below the

mean: .12, *p* = .136). The significant interaction was further explored using regions of

significance with the Johnson-Neyman technique (Preacher et al., 2006). Figure 2a shows

how the effect of classmates' affective prejudice at the beginning of the study (i.e., predictor)

on adolescents' prejudice at the following time point (i.e., outcome) changed as a function of

parents' affective prejudice levels (i.e., moderator). As can be inferred, the slope was not

significant within the range of standardized values of parental prejudice. However, it

highlights a trend whereby the link between classmates' and adolescents' prejudice became

progressively negative and smaller at higher values of parental prejudice.

Figure 5.2
Interaction effect of parents and classmates on adolescents' prejudice and Johnson-Neyman results

Figure 5.2a
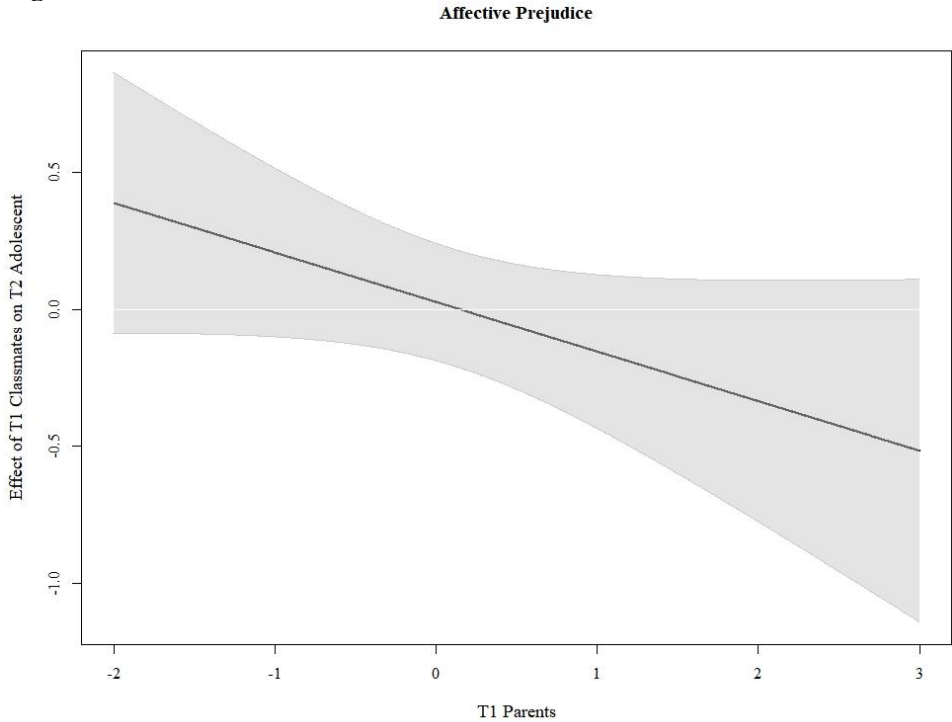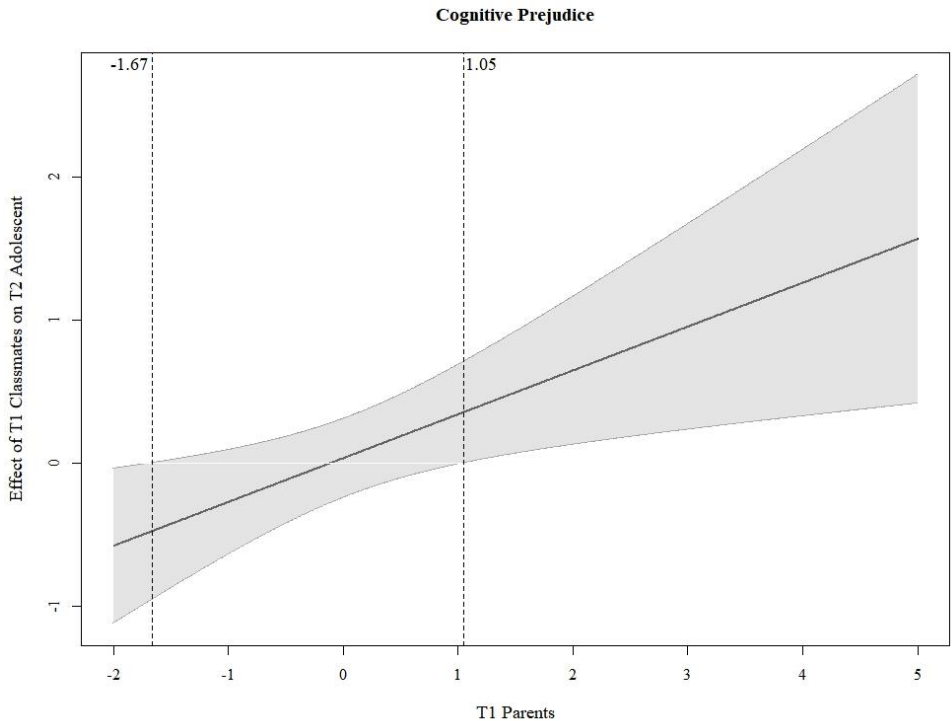

Affective Prejudice

Figure 5.2b

Cognitive Prejudice

Note. Parents' prejudice scores were standardized and grandmean centered for the purpose of interaction analyses. The dashed lines mark the range of parents' cognitive prejudice values outside which the link between classmates' prejudice at T1 and adolescents' prejudice at T2 is significant.

Regarding the cognitive dimension, the interaction of parents' and classmates' cognitive prejudice at Time 1 was significantly linked to adolescents' cognitive prejudice at Time 2. In line with Hypothesis 4, when parents reported higher prejudice levels the influence of classmates on adolescents was also positive and significant (slope at 1 SD above the mean: .30, $p = .036$), while when parents reported lower levels of cognitive prejudice it was negative but insignificant (slope at 1 SD below the mean: -.20, $p = .107$). Furthermore, this interaction was probed using the Johnson-Neyman regions of significance test, the results of which are represented in Figure 2b. The link between classmates' and adolescents' cognitive prejudice became significantly positive when parents' cognitive prejudice was higher than 1.05 and significantly negative when parents' prejudice was lower than -1.67. Both values fell within the range (i.e., between -2 and 5) of standardized scores of parents' cognitive prejudice.

Ancillary Sensitivity Analyses

The robustness of findings from the cross-lagged panel models was further checked by conducting three sets of sensitivity analyses. First, Models 1 to 4 were replicated using *Type = Complex* to account for the nested nature of the data (i.e., students embedded in classrooms). Results, which fully replicate the current findings, are reported in Tables S4a-d of the Supplemental Materials. Second, Model 1 to 4 were tested again controlling for participants' sex, and covariates of the family (i.e., parents' educational level) and classroom (i.e., school track) contexts. Results, which are reported in Tables S5a-d of the Supplemental Materials, largely replicated the current findings. The main differences emerged in Model 3, where younger and older adolescents were found to respectively contribute to significant changes in their parents' and classmates' cognitive prejudice. Last, the models reported in the current study were partially revised and estimated as Latent Change Score models, which allows to better interpret longitudinal associations in light of within-person changes

(McArdle, 2009; Newsome, 2015). Results (see Tables S6a-d) fully replicated the main models, confirming the robustness of these findings.

Discussion

Adolescence is a crucial period for the development and consolidation of personal views about self, others, and society (Meeus, 2019). Such processes do not occur in a vacuum but are rather influenced by the multiple adult and peer referents with whom youth interact on a daily basis. Among these, parents and classmates, who represent two separate but equally important contexts of adolescents' development, can contribute to the socialization of intergroup affects and cognitions (e.g., Bohman & Kudrnáč, 2022; Meeusen & Dhont, 2015; for meta-analyses, see Crocetti et al., 2021; Degner & Dalege, 2013). The current study examined, among Italian youth, the unique, relative, and synergic influences of parents' and classmates' ethnic prejudice on subsequent levels of adolescents' negative emotions and beliefs about ethnic others and the conditions that may facilitate or hinder socialization processes. Regarding unique influences, parents' and classmates' cognitive prejudice were found to respectively influence youth's cognitive and affective prejudice regardless of adolescents' level of identification with each social group. Regarding relative influences, these effects held when the two contexts were examined together and across different age groups. Last, significant synergic influences emerged, although different for affective and cognitive prejudice. Overall, these findings highlighted the importance of both socialization contexts for the development of attitudes and how such influences play out differently depending on the dimension of prejudice considered.

Family Ties and Classroom Walls: The Unique Role of Parents and Classmates in Influencing Adolescents' Prejudice

The first and second goal of the current study were to investigate the unique role played by parents and classmates separately in influencing changes in adolescents' ethnic

prejudice. Each context appeared to significantly contribute to the socialization of attitudes, although tapping different dimensions depending on the referent examined. Regarding the family context, only one significant longitudinal association emerged with parents' cognitive prejudice contributing to relative increases in the same dimension of adolescents' prejudice. This finding only moderately supports socialization theories of prejudice (Allport, 1954; Bandura, 1977) and aligns with prior research highlighting the concurrent (e.g., Jaspers et al., 2008; Meeusen & Dhont, 2015) and longitudinal (e.g., Gniewosz & Noack, 2015; Miklikowska, 2016) associations between parents and their offspring's attitudes about members of ethnic minority groups. On the contrary, no significant effect emerged for the affective dimension of prejudice. This lack of associations could be explained by the fact that children from a very young age look up to their parents as a source of information about the social world. In turn, the ideas, views, and beliefs they convey either directly or indirectly can represent the cornerstones for the development and consolidation of attitudes about others. Conversely, youth's feelings and emotions toward diversity, which have been found to display lower intrapersonal stability (for a review, see Crocetti et al., 2021), might be more susceptible to momentary factors (e.g., specific events or encounters) rather than influences that build up over time in the family context.

Additionally, and contrary to the assumptions of transactional models of development (Sameroff, 2009), adolescents appeared to be mainly recipients of their parents' beliefs rather than influencing parents themselves. This finding is in contrast with other research showing bidirectional prejudice socialization effects over a 2-year span (Miklikowska, 2016). Youth might still be active participants, and not passive recipients, in the processes at play, although their influence might require more time to emerge and lead to significant changes in adults' views and beliefs. Future research should strive to unravel the nature of prejudice

socialization processes across different time frames to examine short-, medium-, and long-term influences.

Regarding the classroom context, again only one significant cross-lagged path emerged, with classmates' cognitive prejudice at the beginning of the study contributing to increased affective prejudice of adolescents. This finding is in line with prior research highlighting that (popular) classmates' prejudice (e.g., Bohman & Kudrnáč, 2022) and perceived norms (e.g., Váradi et al., 2021) can influence intergroup attitudes. Interestingly, this effect emerged only between the cognitive and affective prejudice of classmates and adolescents, respectively. Such dimension mismatch in the socialization processes occurring in the class can be explained in relation to the opportunities that this peer context offers. Specifically, the class and school appear to be crucial milieus for intergroup encounters (Miklikowska & Bohman, 2019). However, ethnic-based stereotypes directly expressed or more subtly conveyed by classmates might set negative norms about diversity and contact with minorities in the class (e.g., Titzmann et al., 2015; Tropp et al., 2016). These negative conditions can impair the quality of intergroup interactions within the school and classroom context, as they have been found to contribute to less comfort and willingness to engage in cross-group friendship (e.g., Tropp et al., 2016), and more negative intergroup contact experiences (e.g., McKeown & Taylor, 2018). In turn, the lack of (positive) contact experiences with ethnic others might lead to higher levels of affective prejudice, in line with the stronger associations found between contact and affective aspects of intergroup attitudes (Tropp & Pettigrew, 2005).

Interestingly, across both contexts, social identification (with the family or classmates' group) did not moderate the longitudinal associations at play. This means that parents and classmates exerted a unique influence on adolescents' prejudices regardless of the extent to which youth identified with these proximal groups. This finding is in contrast with seminal

evidence (Sinclair et al., 2005) suggesting that social identification might strengthen prejudice socialization processes. However, it should be noted that prior research highlighting the moderating role of social identification with the family has relied on youth's reports of attitudes of both socializers and socialized actors, rather than examining these processes through a multi-informant approach. Therefore, identification might strengthen the socialization of attitudes but only when these processes are examined from the perspective of adolescents. Additionally, in the current study, a large majority of adolescents reported high levels of identification with both the family and classmates' groups. Such uneven distribution might have limited the opportunity to find significant moderating effects of social identification. Additional research is warranted to unravel the conditions that can facilitate or hinder transmission of values, attitudes, and behaviors across multiple contexts.

Different Referents for Different Dimensions of Prejudice: The Relative Influences of Proximal Contexts

The third goal of the current study was to examine the relative contribution of parents and classmates in the development of ethnic prejudice of adolescents and test the moderating role of age. Overall, the main influences of both socializing agents remained significant when the two contexts were examined simultaneously. This finding confirms the unique effects found in each context and highlights the relative independence of parents and classmates in contributing to different facets of prejudice. This is in line with prior research that found a mismatch in the influences of parents' and friends' perceived multicultural norms on youth's intergroup attitudes (Thijs et al., 2016). Specifically, when examined together, friends' norms were found to influence the affective evaluation of ethnic minority groups, while parents' multicultural attitudes reduced the endorsement of exclusive views of Dutch identity, a bias that strongly relies on cognitive categorization processes.

Interestingly, these effects were replicated regardless of adolescents' age group. This finding is in contrast with prior research highlighting a general decrease in parent-child similarities with age, while the influence of best friends remained stable (Gniewosz et al., 2008). However, it should be noted that the group of classmates represents a unique peer context that is not chosen, but rather ascribed. Therefore, youth might be less prone to progressively abandon their parents as referents in place of their classmates, as conforming to the latter might not be as valued as aligning oneself with the reciprocally chosen group of friends outside the school context (Brown, 2004). Additionally, other conditions, such as the extent to which youth engage in open discussions at home (Meeusen & Dhont, 2015) or in the classroom (Bohman & Kudrnáč, 2023), might facilitate or hinder the socialization of attitudes about diverse others.

Compensatory or Amplifier Effect? The Synergic Influence of Parents and Classmates

The fourth and last goal of this research was to understand whether parents' and classmates' attitudes interact in influencing subsequent levels of affective and cognitive prejudice of adolescents. Overall, this study found that these proximal contexts synergically contribute to changing youth's views about ethnic others. Specifically, significant dimension-matching effects (e.g., affective prejudice of social referents interacted to influence affective prejudice of adolescents) emerged, although these interactions differ depending on the facet of prejudice examined.

Regarding the affective dimension, the association between classmates' and adolescents' prejudice was not significant at any level of parental prejudice. Nevertheless, it displayed a trend whereby the two referents compensate each other in contributing to youth's increased negative feelings against against people from ethnic minority backgrounds (i.e., adverse compensatory effect). The heightened importance attributed to negative (i.e., high prejudice) rather than positive (i.e., low prejudice) attitudes of the proximal contexts parallels

the asymmetry found in the study of intergroup contact experiences. Specifically, prior research has highlighted that negative intergroup encounters might overturn the protective role of positive encounters and relationships, especially when they do not involve intimate interactions (e.g., Árnadóttir et al., 2022; Graf et al., 2014). Similarly to the negative intergroup experiences, being exposed to high levels of affective prejudice in one of the proximal contexts of development might increase the salience of intergroup categories (Paolini et al., 2010), heighten intergroup anxiety and threat (Cernat, 2017), and reduce the willingness to engage in cross-ethnic relationships (Edmonds & Killen, 2009). In turn, these intergroup conditions can facilitate the socialization of negative feelings against ethnic minority groups.

Conversely, regarding the cognitive dimension of prejudice, parents and classmates appeared to amplify each other's influences on youth stereotypes about ethnic minorities. Specifically, the longitudinal association between classmates' and adolescents' attitudes was increasingly positive and significant only when parents had high levels of cognitive prejudice. This finding is in line with the theoretical premises of source magnification framework (Harkins & Petty, 1981) and recent empirical findings (Lee-Won et al., 2020) highlighting that ethnic-based hate messages from multiple sources (such as in the case of online platforms) can amplify the harmful effects of such representations on the targeted outgroup. In a similar way, it appears that when the proximal contexts of influence, such as the family and classroom environments, convey consistent (negative or positive) views of the outgroup, adolescents more readily access these stereotypes and beliefs and define their own attitudes based on the information available from these important referents.

Limitations and Suggestions for Future Research

Findings from the current study should be read in light of some limitations. First, the current research relied on an aggregated measure of parental prejudice rather than focusing

on the specific influences of mothers and fathers separately. Similarly, it did not distinguish the position of different classmates (e.g., prestigious or popular) or the relationships among classmates (e.g., Stark et al., 2015) and how they might contribute to influencing youth's prejudice (e.g., Bohman & Kudrnáč, 2022). Future research should delve into the roles of each proximal referent to disentangle possible associations between their affective and cognitive prejudice and those of adolescents. Second, while this study focused on parents and classmates as primary contexts within which youth spend a considerable amount of time, additional adult (e.g., teachers, coach) and peer (e.g., best friend, friends' group) referents might be ulterior sources of information that orient adolescents' in developing intergroup attitudes and expectations (Bronfenbrenner, 1992, 2005). Third, within the school and other contexts (e.g., sport, neighborhood), adolescents nowadays have several opportunities for contact with members of ethnic minority groups (Karataş et al., 2023). The quantity and, more importantly, the quality of such intergroup encounters can influence the development and the socialization of individuals' emotions and cognitions about others (e.g., Dhont & Van Hiel, 2012; Tropp & Pettigrew, 2005). Therefore, future research could benefit from adopting an ecological approach to study the multiple proximal contexts and experiences that can contribute to changes in affective and cognitive prejudice against ethnic others. Fourth, the current study relied on the Feeling Thermometer scale to assess the affective component of ethnic prejudice (i.e., disliking of minority groups). This scale, however, is formulated in terms of liking (or positive intergroup attitudes), which is not technically identical to disliking (or negative intergroup attitudes). Nevertheless, the latter certainly implies the former, as highlighted by previous research (Bobba, Thijs, et al., 2023) and the extensive use of this scale to assess ethnic prejudice in adolescence (for a review, see Crocetti et al., 2021). Additionally, the current study was conducted in a context characterized by a unique history and patterns of migration, as well as by a high percentage of ethnic diversity in the school

contexts. Further research is needed to delve into the generalizability of current findings to different socio-historical contexts. Last, this study focused on the socialization of ethnic prejudice among ethnic majority (native Italian) adolescents. A further step might be to understand ethnic prejudice displayed by members of specific groups against ethnic majority or other ethnic minority individuals (Meeusen et al., 2019), and to delve into processes of inter-minority relationships and solidarity.

Conclusion

The family and classroom represent key contexts where adolescents learn, observe, and acquire unique skills to approach the social world and define their own attitudes about diversity. However, no prior research has focused on their unique, relative, and synergic contribution in orienting youth's feelings and thoughts about people from ethnic minority backgrounds and has investigated the conditions that might facilitate or hinder processes of socialization. The current study examined the role of parents and classmates in influencing changes in youth's affective and cognitive ethnic prejudice and whether interpersonal (i.e., social identification with the proximal groups) and individual (i.e., age group) factors could mediate the longitudinal associations at play. Regarding unique contributions, parents' cognitive prejudice led to increased cognitive prejudice of adolescents, while classmates' stereotypes were associated with increased affective prejudice, and these associations held regardless of youth's level of identification with either social group. Regarding their relative effects, when examined together, the associations found in the previous models were maintained regardless of adolescents' age, highlighting how each context contributes to non-overlapping changes in different facets of prejudice. Last, parents' and classmates' influences were found to interact in different ways for the affective (i.e., adverse compensatory effect) and cognitive (i.e., amplifying effect) dimensions of prejudice. Overall, the current research suggests how the affective and cognitive dimensions of prejudice might be sensitive to

different social clues and that adolescents draw from the multiple contexts of development to orient their feelings and thoughts about ethnic others. This implies that interventions targeting only one of the two contexts might not be enough to prevent the development of prejudice and negative intergroup outcomes in adolescence.

Supplemental Materials

Table S5.1

Descriptive statistics and correlations among study variables

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.Sex																	
2.Age			.00														
3.Adolescents' Identification with family T1	3.67	0.83	-.09*	-.05													
4.Adolescents' Identification with classmates T1	3.05	0.86	-.21***	-.14***	.33***													
5.Adolescents' Affective Prejudice T1	40.59	28.04	-.19***	-.03	-.03	.13**												
6.Adolescents' Cognitive Prejudice T1	1.70	0.68	-.23***	.04	.02	.14***	.51***											
7.Classmates' Affective Prejudice T1	40.78	14.44	-.10**	-.07	-.02	.13***	.25***	.16***										
8.Classmates' Cognitive Prejudice T1	1.70	0.34	-.13***	.03	.02	.11**	.16***	.18***	.64***									
9.Parents' Affective Prejudice T1	32.60	23.63	-.01	.03	-.01	.04	.14***	.15***	.13**	.13***								
10.Parents' Cognitive Prejudice T1	1.73	0.55	.01	.06	.04	.05	.11**	.16***	.09*	.11**	.59***							
11.Adolescents' Affective Prejudice T2	39.76	28.20	-.22***	-.04	.00	.08	.56***	.42***	.24***	.25***	.18***	.15***						
12.Adolescents' Cognitive Prejudice T2	1.92	0.74	-.20***	.05	.05	.09*	.41***	.58***	.19***	.19***	.24***	.29***	.46***					
13.Classmates' Affective Prejudice T2	40.94	14.65	-.12**	-.09*	.01	.16***	.20***	.17***	.63***	.57***	.12**	.11**	.24***	.17***				
14.Classmates' Cognitive Prejudice T2	1.96	0.42	-.10*	.09*	-.03	.09*	.13***	.11**	.41***	.43***	.11**	.13**	.17***	.17***	.44***			
15.Parents' Affective Prejudice T2	32.76	24.51	-.07	.05	.02	.04	.17***	.17***	.07	.09	.57***	.51***	.16**	.23***	.07	.06		
16.Parents' Cognitive Prejudice T2	1.92	0.74	-.01	.03	.08	.07	.17***	.19***	.13**	.12*	.47***	.60***	.18***	.28***	.16***	.16***	.56***	

Note. Sex: 0 = male, 1 = female. T = Time. *p < .05; **p < .01; ***p < .001.

Longitudinal and Multigroup Measurement Invariance of Study Variables

As a preliminary step, the measurement invariance of ethnic prejudice scales was tested over time and across respondents. First, longitudinal measurement invariance of affective and cognitive prejudices (for adolescents) and of cognitive prejudice for parents were tested. Next, multigroup measurement invariance of cognitive prejudice was tested across the adolescents' and parents' samples. The affective prejudice scale for parents was a shortened single-item scale, therefore no measurement invariance test was necessary.

For both longitudinal and multigroup invariances, only configural and metric levels of measurement invariance were tested, since metric invariance is the minimum requirement for cross-lagged panel analyses. To this end, the configural models function as baseline models and should therefore display a good fit, evaluated based on the following criteria: the Comparative Fit Index (CFI) with values higher than .90 and .95 indicative of an acceptable and very good fit; the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) with values below .08 and .05 indicative of an acceptable and very good fit (Byrne, 2012); and the RMSEA's 90% confidence interval's upper bound lower than .10 indicating an acceptable fit of the model (Chen et al., 2008). In order to establish metric invariance (i.e., constraining factor loadings to be equal across time and/or groups), changes in fit indices from the configural to the metric model were evaluated (e.g., Cheung & Rensvold, 2002). Specifically, a significant $\Delta\chi_{SB}^{2}$ (Satorra & Bentler, 2001), and ΔCFI $\geq$ -.010 supplemented by ΔRMSEA $\geq$ .015 (Chen, 2007) indicates non-invariance. Results are displayed in Table S2. As can be inferred, full metric invariance was reached for all study variables.

Table S5.2

Longitudinal and multigroup measurement invariance

Models	χ^2	df	CFI	SRMR	RMSEA [90% CI]	Models	$\Delta\chi^2_{SB}$	ΔCFI	ΔRMSEA
							Model comparisons		
Longitudinal Invariance									
Affective Prejudice (Adolescents)									
Configural (M1)	119.502	47	.976	.028	.048 [.037, .059]				
Metric (M2)	129.615	52	.974	.030	.047 [.037, .057]	M2-M1	3.084 (5)	-.002	-.001
Cognitive Prejudice (Adolescents)									
Configural (M1)	129.338	29	.943	.034	.072 [.059, .084]				
Metric (M2)	135.843	33	.942	.039	.068 [.056, .080]	M2-M1	6.318 (4)	-.001	-.004
Cognitive Prejudice (Parents)									
Configural (M1)	227.912	29	.863	.058	.101 [.089, .113]				
Metric (M2)	234.280	33	.861	.058	.095 [.084, .107]	M2-M1	0.379 (4)	-.002	-.006
Multigroup Longitudinal Invariance									
Cognitive Prejudice									
Configural (M1)	542.022	154	.906	.042	.061 [.055, .066]				
Metric (M2)	553.816	166	.906	.047	.058 [.053, .064]	M2-M1	19.804 (12)	.000	-.003

Note. M = model; χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter.

Latent Profile Analysis

Since the current study aimed to test the role of identification with the proximal groups of family and classmates in moderating the influence of parents and classmates respectively on changes in adolescents' ethnic prejudice, as a first step two Latent Profile Analyses were conducted to identify two groups of youth based on their levels of identification (i.e., low vs. high), separately for the family and classmates' groups. Models with an increasing number of classes were tested for identification with family at T1 and identification with classmates at T1. A combination of fit indices, theoretical and empirical meaningfulness, and parsimony criteria was used to determine the best solution. Regarding fit indices, adding one group should result in an improvement in model fit, as highlighted by a decrease in the Sample Size Adjusted Bayesian Information Criterium (SSA-BIC; Sclove, 1987), a significant value of the adjusted Lo–Mendell–Rubin Likelihood Ratio test (Lo et al., 2001), and an Entropy value equal to or higher than .75 (Reinecke, 2006). As regards theoretical and empirical meaningfulness, we expected adolescents to show low and high levels of identification, in order to use the newly obtained grouping variables as moderators in the main analyses. Additionally, besides considering comparison fit indices and theoretical expectations, the more parsimonious class solution should be retained. Finally, each subgroup identified by the LPA procedure should comprise at least 5% of the total sample for meaningful interpretation of findings.

Results are reported in Table S3. Regarding identification with the family, the 2-class solution provided the best fit and resulted in theoretically meaningful classes. Regarding identification with the group of classmates, the 2-class solution appeared to be the best fitting and most parsimonious one, despite a low Entropy value.

Table S5.3

Latent profile analyses

Solution	SSA-BIC	Entropy	Adj. LMR-LRT	Class prevalence (%)			
				1	2	3	4
Identification with the family							
1-class solution	1679.798	-	-	100			
2-class solution	**1647.495**	**.790**	**36.224*****	**91**	**9**		
3-class solution	1649.185	.566	4.650	63	32	5	
4-class solution	1644.847	.705	10.249	48	27	22	3
Identification with classmates							
1-class solution	1732.880	-	-	100			
2-class solution	**1711.708**	**.666**	**25.878*****	**85**	**15**		
3-class solution	1714.566	.563	3.561	58	32	10	
4-class solution	1713.016	.719	7.654*	44	43	10	3

Note. SSA-BIC = Sample Size Adjusted Bayesian Information Criterium; Adj. LMR-LRT = Adjusted Lo-Mendell-Rubin Likelihood Ratio Test. * $p < .05$; *** $p < .001$

Robustness Check: Analyses with *Type=Complex*

Participants involved in the current study came from different classrooms and schools. As a preliminary check, we examined the Intraclass Correlation Coefficients of all the study variables to understand whether clustering at the classroom and/or school levels could be warranted for the purpose of the current analyses. The table below shows higher levels of variance explained at the classroom, rather than school level.

Table S5.4
Intraclass correlation coefficients

	ICC			
	School-level clustering		**Classroom-level clustering**	
	School	Individual	Classroom	Individual
Adolescents' affective prejudice T1	0.098	0.902	0.273	0.727
Adolescents' cognitive prejudice T1	0.063	0.937	0.245	0.755
Parents' affective prejudice T1	0.041	0.959	0.049	0.951
Parents' cognitive prejudice T1	0.039	0.961	0.055	0.945
Classmates' affective prejudice T1	0.307	0.693	0.949	0.051
Classmates' cognitive prejudice T1	0.258	0.742	0.922	0.078
Adolescents' affective prejudice T2	0.107	0.893	0.390	0.610
Adolescents' cognitive prejudice T2	0.101	0.899	0.334	0.666
Parents' affective prejudice T2	0.015	0.985	0.022	0.978
Parents' cognitive prejudice T2	0.050	0.950	0.123	0.877
Classmates' affective prejudice T2	0.318	0.682	0.963	0.037
Classmates' cognitive prejudice T2	0.459	0.541	0.939	0.061

Therefore, we conducted our analyses using *Type=Complex*. Nevertheless, these analyses resulted in warning messages about a non-positive definite product matrix. We therefore included the following as robustness check and to report results of the analyses with *Type=General* in the main text.

Results of *Type=Complex* analyses are reported in Tables S4a-S4d. As can be inferred, findings were largely replicated. Only one difference was found. Specifically, the Wald test reported for Model 3 in the main text (i.e., differences in Time 1 correlation

coefficients between adolescents' and classmates' affective prejudice depending on youth's age group) lost significance in the *Type=Complex* analysis (Wald=1.672, *p* = .197). Therefore, the correlation between the affective prejudice of adolescents and that of their classmates remained equal across the younger and the older cohort of youth.

Further, we examined the synergic influences of parents' and classmates' prejudice on youth's affective and cognitive prejudice by relying on the Johnson-Neyman technique. Results are displayed in Figure S1. As can be inferred, results fully replicate the one reported in the main manuscript.

Table S5.4a

Standardized results of Model 1 (Unique influences of parents)

Stability paths	T1 → T2	
Adolescents' Affective Prejudice	.472***	
Adolescents' Cognitive Prejudice	.491***	
Parents' Affective Prejudice	.413***	
Parents' Cognitive Prejudice	.498***	

Cross-lagged paths	T1 → T2	
Adolescents' AP → Adolescents' CP	.140**	
Adolescents' AP → Parents' AP	.058	
Adolescents' AP → Parents' CP	.062	
Adolescents' CP → Adolescents' AP	.171**	
Adolescents' CP → Parents' AP	.021	
Adolescents' CP → Parents' CP	.034	
Parents' AP → Adolescents' AP	.054	
Parents' AP → Adolescents' CP	.041	
Parents' AP → Parents' CP	.173**	
Parents' CP → Adolescents' AP	.031	
Parents' CP → Adolescents' CP	.147**	
Parents' CP → Parents' AP	.256***	

Correlations	T1	T2
Adolescents' AP ↔ Adolescents' CP	.511***	.229***
Adolescents' AP ↔ Parents' AP	.144**	.011
Adolescents' AP ↔ Parents' CP	.109*	.008
Adolescents' CP ↔ Parents' AP	.153***[1]	.018
Adolescents' CP ↔ Parents' CP	.159***[2]	.061
Parents' AP ↔ Parents' CP	.593***	.347***

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between adolescents with low and those with high levels of identification with the family. [1] Wald=4.886, p = .027. Low identifiers: r = -.106, p = .390; High identifiers: r = .175, p < .001. [2] Wald=4.902, p = .027. Low identifiers: r = -.028, p = .797; High identifiers: r = .175, p < .001. * p < .05; ** p < .01; *** p < .001.

Table S5.4b

Standardized results of Model 2 (Unique influences of classmates)

Stability paths	T1 → T2	
Adolescents' Affective Prejudice	.460***	
Adolescents' Cognitive Prejudice	.514***	
Classmates' Affective Prejudice	.442***	
Classmates' Cognitive Prejudice	.293*	

Cross-lagged paths	T1 → T2	
Adolescents' AP → Adolescents' CP	.137**	
Adolescents' AP → Classmates' AP	.028	
Adolescents' AP → Classmates' CP	.039	
Adolescents' CP → Adolescents' AP	.166**	
Adolescents' CP → Classmates' AP	.039	
Adolescents' CP → Classmates' CP	.002	
Classmates' AP → Adolescents' AP	.010	
Classmates' AP → Adolescents' CP	.052	
Classmates' AP → Classmates' CP	.223**	
Classmates' CP → Adolescents' AP	.129*	
Classmates' CP → Adolescents' CP	.026	
Classmates' CP → Classmates' AP	.296**	

Correlations	T1	T2
Adolescents' AP ↔ Adolescents' CP	.514***	.231***
Adolescents' AP ↔ Classmates' AP	.259***	.067
Adolescents' AP ↔ Classmates' CP	.177**	.001
Adolescents' CP ↔ Classmates' AP	.182**	.018
Adolescents' CP ↔ Classmates' CP	.203**[1]	.027
Classmates' AP ↔ Classmates' CP	.640***	.192

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between adolescents with low and those with high levels of identification with the group of classmates. [1] Wald=6.217, $p = .013$. Low identifiers: $r = -.122$, $p = .317$; High identifiers: $r = .213$, $p < .001$. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table S5.4c

Standardized results of Model 3 (Relative influences of parents and classmates)

Stability paths	T1 → T2
Adolescents' Affective Prejudice	.458***
Adolescents' Cognitive Prejudice	.488***
Parents' Affective Prejudice	.418***
Parents' Cognitive Prejudice	.497***
Classmates' Affective Prejudice	.443***
Classmates' Cognitive Prejudice	.287*

Cross-lagged paths	T1 → T2
Adolescents' AP → Adolescents' CP	.130**
Adolescents' AP → Classmates' AP	.026
Adolescents' AP → Classmates' CP	.038
Adolescents' AP → Parents' AP	.068
Adolescents' AP → Parents' CP	.046
Adolescents' CP → Adolescents' AP	.157**
Adolescents' CP → Classmates' AP	.030
Adolescents' CP → Classmates' CP	-.007
Adolescents' CP → Parents' AP	.027
Adolescents' CP → Parents' CP	.037
Classmates' AP → Adolescents' AP	.006
Classmates' AP → Adolescents' CP	.130**
Classmates' AP → Classmates' CP	.222**
Classmates' AP → Parents' AP	-.035
Classmates' AP → Parents' CP	.061
Classmates' CP → Adolescents' AP	.124**
Classmates' CP → Adolescents' CP	.010
Classmates' CP → Classmates' AP	.293**
Classmates' CP → Parents' AP	-.014
Classmates' CP → Parents' CP	-.034
Parents' AP → Adolescents' AP	.042
Parents' AP → Adolescents' CP	.034
Parents' AP → Classmates' AP	.008
Parents' AP → Classmates' CP	-.001
Parents' AP → Parents' CP	.172**
Parents' CP → Adolescents' AP	.023
Parents' CP → Adolescents' CP	.146**
Parents' CP → Classmates' AP	.020
Parents' CP → Classmates' CP	.070
Parents' CP → Parents' AP	.259***

Correlations	T1	T2
Adolescents' AP ↔ Adolescents' CP	.513***	.227***
Adolescents' AP ↔ Parents' AP	.146**	.020
Adolescents' AP ↔ Parents' CP	.109*	-.003
Adolescents' AP ↔ Classmates' AP	.258***	.066
Adolescents' AP ↔ Classmates' CP	.177**	.003
Adolescents' CP ↔ Parents' AP	.155***	.019

Adolescents' CP ↔ Parents' CP	.159***	.061
Adolescents' CP ↔ Classmates' AP	.182**	.008
Adolescents' CP ↔ Classmates' CP	.203**	.021
Classmates' AP ↔ Parents' AP	.138**	-.007
Classmates' AP ↔ Parents' CP	.091*	.093
Classmates' CP ↔ Parents' AP	.139***	-.051
Classmates' CP ↔ Parents' CP	.110**	.057
Classmates' AP ↔ Classmates' CP	.640***	.191
Parents' AP ↔ Parents' CP	.593***	.352***

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. *p < .05; **p < .01; ***p < .001.

Table S5.4d

Standardized results of Model 4 (Synergic influences of parents and classmates)

Stability paths	T1 → T2
Adolescents' Affective Prejudice	.466***
Adolescents' Cognitive Prejudice	.475***
Parents' Affective Prejudice	.418***
Parents' Cognitive Prejudice	.497***
Classmates' Affective Prejudice	.443***
Classmates' Cognitive Prejudice	.287*

Cross-lagged paths	T1 → T2
Adolescents' AP → Adolescents' CP	.139**
Adolescents' AP → Classmates' AP	.026
Adolescents' AP → Classmates' CP	.038
Adolescents' AP → Parents' AP	.068
Adolescents' AP → Parents' CP	.046
Adolescents' CP → Adolescents' AP	.151**
Adolescents' CP → Classmates' AP	.030
Adolescents' CP → Classmates' CP	-.008
Adolescents' CP → Parents' AP	.027
Adolescents' CP → Parents' CP	.037
Classmates' AP → Adolescents' AP	.013
Classmates' AP → Adolescents' CP	.040
Classmates' AP → Classmates' CP	.222**
Classmates' AP → Parents' AP	-.036
Classmates' AP → Parents' CP	.062
Classmates' CP → Adolescents' AP	.124**
Classmates' CP → Adolescents' CP	.015
Classmates' CP → Classmates' AP	.293**
Classmates' CP → Parents' AP	-.014
Classmates' CP → Parents' CP	-.034
Parents' AP → Adolescents' AP	.050
Parents' AP → Adolescents' CP	.020
Parents' AP → Classmates' AP	.007
Parents' AP → Classmates' CP	.000
Parents' AP → Parents' CP	.173**
Parents' CP → Adolescents' AP	.026
Parents' CP → Adolescents' CP	.155**
Parents' CP → Classmates' AP	.021
Parents' CP → Classmates' CP	.070
Parents' CP → Parents' AP	.259***
Parents*Classmates AP → Adolescents' AP	-.086*
Parents*Classmates AP → Adolescents' CP	-.046
Parents*Classmates CP → Adolescents' AP	.032

Parents*Classmates CP → Adolescents' CP	.125[*]	
Correlations	T1	T2
Adolescents' AP ↔ Adolescents' CP	.513[***]	.222[***]
Adolescents' AP ↔ Parents' AP	.145[**]	.016
Adolescents' AP ↔ Parents' CP	.109[*]	-.009
Adolescents' AP ↔ Classmates' AP	.260[***]	.058
Adolescents' AP ↔ Classmates' CP	.179[**]	.008
Adolescents' CP ↔ Parents' AP	.156[***]	.021
Adolescents' CP ↔ Parents' CP	.159[***]	.044
Adolescents' CP ↔ Classmates' AP	.181[**]	.009
Adolescents' CP ↔ Classmates' CP	.201[**]	.021
Classmates' AP ↔ Parents' AP	.139[**]	-.006
Classmates' AP ↔ Parents' CP	.091[*]	.092
Classmates' CP ↔ Parents' AP	.139[***]	-.051
Classmates' CP ↔ Parents' CP	.110[**]	.055
Classmates' AP ↔ Classmates' CP	.640[***]	.190
Parents' AP ↔ Parents' CP	.593[***]	.349[***]
Adolescents' AP ↔ Parents*Classmates' AP	.075	
Adolescents' AP ↔ Parents*Classmates' CP	.037	
Adolescents' CP ↔ Parents*Classmates' AP	.022	
Adolescents' CP ↔ Parents*Classmates' CP	.083	
Parents' AP ↔ Parents*Classmates' AP	.137	
Parents' AP ↔ Parents*Classmates' CP	.105	
Parents' CP ↔ Parents*Classmates' AP	.082	
Parents' CP ↔ Parents*Classmates' CP	.042	
Classmates' AP ↔ Parents*Classmates' AP	.078	
Classmates' AP ↔ Parents*Classmates' CP	.057	
Classmates' CP ↔ Parents*Classmates' AP	.098	
Classmates' CP ↔ Parents*Classmates' CP	.017	
Parents*Classmates' AP ↔ Parents*Classmates' CP	.406[***]	

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice.
[*] $p < .05$; [**] $p < .01$; [***] $p < .001$.

Figure S5.1
Interaction plots
Figure S5.1a
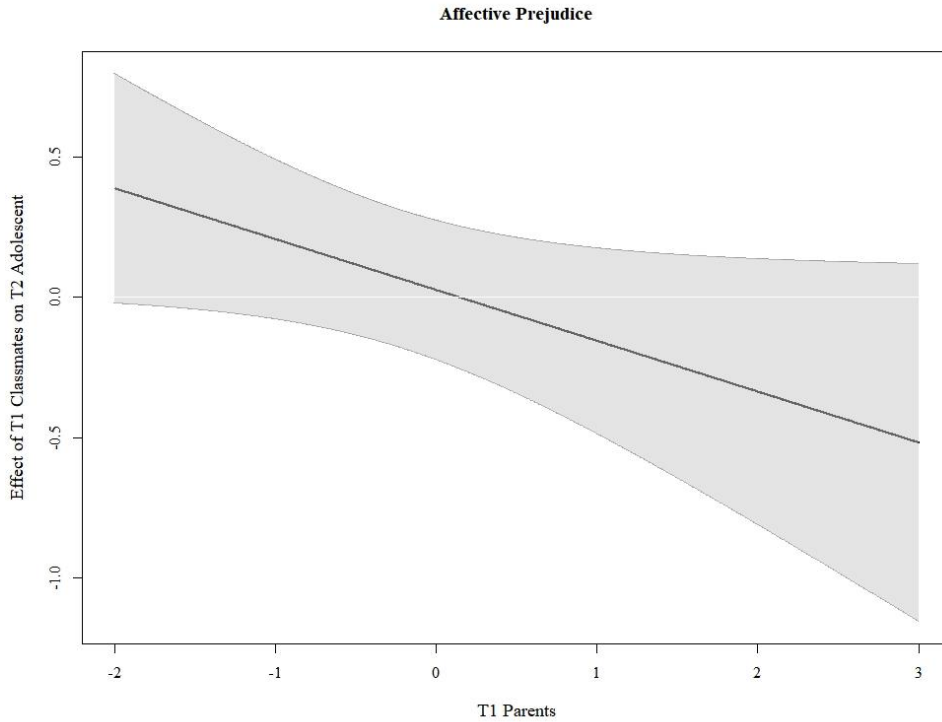
Figure S5.1b
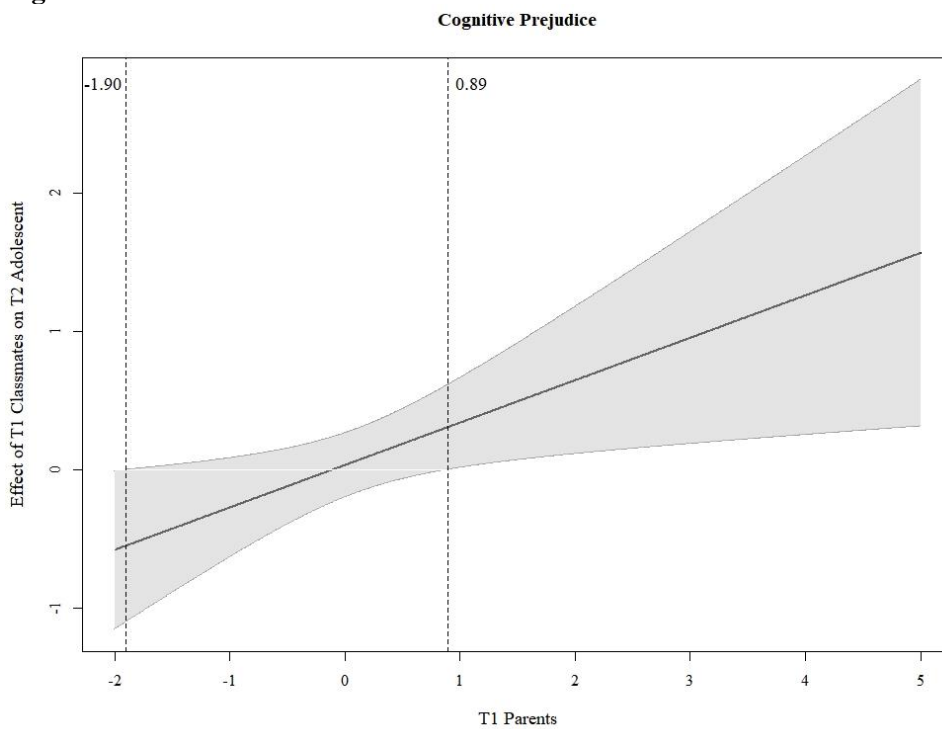
Note. Parents' prejudice scores were standardized and grandmean centered for the purpose of interaction analyses. The dashed lines mark the range of parents' cognitive prejudice values outside which the link between classmates' prejudice at T1 and adolescents' prejudice at T2 is significant.

Robustness Check: Analyses with covariates

      To further inspect the robustness of current findings, the main analyses were repeated with the inclusion of individual (i.e., adolescents' sex), family (i.e., parents' educational level), and classroom (i.e., school track) covariates. Specifically, the cross-lagged reciprocal associations between affective and cognitive ethnic prejudice of adolescents, parents, and classmates were estimated while controlling for: (a) stability or autoregressive paths (i.e., T1 →T2), (b) within-time correlations among all variables (i.e., correlations among variables at T1, and correlated changes among variables at T2), and (c) the effects of participants' sex (0 = male, 1 = female), parents' educational level (obtained by summing up mothers' and fathers' educational levels, coded as follows: 0 = up to middle school diploma, 1 = high school diploma, 2 = Bachelor degree or higher), and/or school track (0 = Academic-oriented/Lyceum, 1 = Technical, 2 = Vocational) on T1 and T2 prejudices. Results of these analyses are reported in Tables S5a-S5d.

      As can be inferred, findings were largely replicated, and only marginal differences emerged. In Model 1, the significant difference in the correlation between parents' and adolescents' cognitive prejudice between low and high identifiers lost significance (Wald = 2.684, p = .101). Next, in Model 2, classmates' affective prejudice was found to significantly contribute to increases in adolescents' cognitive prejudice only among youth who have a lower level of identification with their classmates' group. Moreover, in Model 3, two significant differences emerged between younger and older adolescents. Specifically, the cognitive prejudice of the former (i.e., younger adolescents) was found to contribute to significant increases in their parents' cognitive prejudice, highlighting possible bidirectional influences at play. Conversely, changes in the affective prejudice of the latter (i.e., older adolescents) were found to correlate significantly with changes in classmates' cognitive

prejudice. Regarding model 4, no differences emerged and the simple slope analyses were fully replicated.

Further, we examined the synergic influences of parents' and classmates' prejudice on youth's affective and cognitive prejudice by relying on the Johnson-Neyman technique. Results are displayed in Figure S2. As can be inferred, results fully replicate the one reported in the main manuscript.

Table S5.5a

Standardized results of Model 1 (Unique influences of parents)

Stability paths	T1 → T2	
Adolescents' Affective Prejudice	.460***	
Adolescents' Cognitive Prejudice	.482***	
Parents' Affective Prejudice	.413***	
Parents' Cognitive Prejudice	.481***	

Cross-lagged paths	T1 → T2	
Adolescents' AP → Adolescents' CP	.136**	
Adolescents' AP → Parents' AP	.058	
Adolescents' AP → Parents' CP	.057	
Adolescents' CP → Adolescents' AP	.154**	
Adolescents' CP → Parents' AP	.014	
Adolescents' CP → Parents' CP	.036	
Parents' AP → Adolescents' AP	.051	
Parents' AP → Adolescents' CP	.037	
Parents' AP → Parents' CP	.177***	
Parents' CP → Adolescents' AP	.025	
Parents' CP → Adolescents' CP	.144**	
Parents' CP → Parents' AP	.274***	

Correlations	T1	T2
Adolescents' AP ↔ Adolescents' CP	.484***	.218***
Adolescents' AP ↔ Parents' AP	.134**	.007
Adolescents' AP ↔ Parents' CP	.101*	.002
Adolescents' CP ↔ Parents' AP	.144***[1]	.011
Adolescents' CP ↔ Parents' CP	.148***	.072
Parents' AP ↔ Parents' CP	.571***	.358***

Covariates (T1)	T1	T2
Sex → Adolescents' AP	-.191***	-.084
Sex → Adolescents' CP	-.226***	-.042
Sex → Parents' AP	.000	-.024
Sex → Parents' CP	.020	.036
Parents' Educational Level → Adolescents' AP	-.093*	-.039
Parents' Educational Level → Adolescents' CP	-.087*	-.022
Parents' Educational Level → Parents' AP	-.192***	.056
Parents' Educational Level → Parents' CP	-.256***	-.066

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between adolescents with low and those with high levels of identification with the family. [1] Wald=4.623, $p = .031$. Low identifiers: $r = -.102$, $p = .449$; High identifiers: $r = .165$, $p < .001$. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table S5.5b
Standardized results of Model 2 (Unique influences of classmates)

Stability paths	T1 → T2	
Adolescents' Affective Prejudice	.450***	
Adolescents' Cognitive Prejudice	.508***	
Classmates' Affective Prejudice	.386***	
Classmates' Cognitive Prejudice	.298***	

Cross-lagged paths	T1 → T2	
Adolescents' AP → Adolescents' CP	.126*	
Adolescents' AP → Classmates' AP	.006	
Adolescents' AP → Classmates' CP	.004	
Adolescents' CP → Adolescents' AP	.152**	
Adolescents' CP → Classmates' AP	.034	
Adolescents' CP → Classmates' CP	.006	
Classmates' AP → Adolescents' AP	-.007	
Classmates' AP → Adolescents' CP	.034[1]	
Classmates' AP → Classmates' CP	.122*	
Classmates' CP → Adolescents' AP	.125*	
Classmates' CP → Adolescents' CP	.024	
Classmates' CP → Classmates' AP	.299***	

Correlations	T1	T2
Adolescents' AP ↔ Adolescents' CP	.481***	.226***
Adolescents' AP ↔ Classmates' AP	.167***	.057
Adolescents' AP ↔ Classmates' CP	.108**	-.009
Adolescents' CP ↔ Classmates' AP	.132**	.006
Adolescents' CP ↔ Classmates' CP	.160***[2]	.016
Classmates' AP ↔ Classmates' CP	.607***	.162*

Covariates (T1)	T1	T2
Sex → Adolescents' AP	-.190***	-.074
Sex → Adolescents' CP	-.229***	-.041
Sex → Classmates' AP	-.080*	-.017
Sex → Classmates' CP	-.117**	-.027
School track → Adolescents' AP	.232***	-.030
School track → Adolescents' CP	.111**	-.041
School track → Classmates' AP	.425***	.131**
School track → Classmates' CP	.239***	.228***

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between adolescents with low and those with high levels of identification with the group of classmates. [1] Wald=4.305, $p = .038$. Low identifiers: $\beta = .272$, $p = .033$; High identifiers: $\beta = -.007$, $p = .909$. [2] Wald=8.093, $p = .004$. Low identifiers: $r = -.143$, $p = .206$; High identifiers: $r = .176$, $p < .001$. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table S5.5c
Standardized results of Model 3 (Relative influences of parents and classmates)

Stability paths	T1 → T2	
Adolescents' Affective Prejudice	.452***	
Adolescents' Cognitive Prejudice	.480***	
Parents' Affective Prejudice	.416***	
Parents' Cognitive Prejudice	.484***	
Classmates' Affective Prejudice	.398***	
Classmates' Cognitive Prejudice	.299***	

Cross-lagged paths	T1 → T2	
Adolescents' AP → Adolescents' CP	.126**	
Adolescents' AP → Classmates' AP	.017	
Adolescents' AP → Classmates' CP	.004	
Adolescents' AP → Parents' AP	.064	
Adolescents' AP → Parents' CP	.031	
Adolescents' CP → Adolescents' AP	.113*	
Adolescents' CP → Classmates' AP	.019	
Adolescents' CP → Classmates' CP	-.007	
Adolescents' CP → Parents' AP	.021	
Adolescents' CP → Parents' CP	.022[1]	
Classmates' AP → Adolescents' AP	-.008	
Classmates' AP → Adolescents' CP	.025	
Classmates' AP → Classmates' CP	.127*	
Classmates' AP → Parents' AP	-.029	
Classmates' AP → Parents' CP	.022	
Classmates' CP → Adolescents' AP	.113*	
Classmates' CP → Adolescents' CP	.009	
Classmates' CP → Classmates' AP	.286***	
Classmates' CP → Parents' AP	-.038	
Classmates' CP → Parents' CP	-.024	
Parents' AP → Adolescents' AP	.042	
Parents' AP → Adolescents' CP	.032	
Parents' AP → Classmates' AP	-.008	
Parents' AP → Classmates' CP	-.028	
Parents' AP → Parents' CP	.172***	
Parents' CP → Adolescents' AP	.018	
Parents' CP → Adolescents' CP	.145**	
Parents' CP → Classmates' AP	.006	
Parents' CP → Classmates' CP	.056	
Parents' CP → Parents' AP	.279***	

Correlations	T1	T2
Adolescents' AP ↔ Adolescents' CP	.480***	.215***
Adolescents' AP ↔ Parents' AP	.119**	.016

	T1	T2
Adolescents' AP ↔ Parents' CP	.098*	-.005
Adolescents' AP ↔ Classmates' AP	.168***(2)	.057
Adolescents' AP ↔ Classmates' CP	.111**	-.012(3)
Adolescents' CP ↔ Parents' AP	.139**	.010
Adolescents' CP ↔ Parents' CP	.146***	.062
Adolescents' CP ↔ Classmates' AP	.137**	-.003
Adolescents' CP ↔ Classmates' CP	.157***	.006
Classmates' AP ↔ Parents' AP	.083*	-.005
Classmates' AP ↔ Parents' CP	.057	.080
Classmates' CP ↔ Parents' AP	.103**	-.054
Classmates' CP ↔ Parents' CP	.094*	.019
Classmates' AP ↔ Classmates' CP	.602***	.179*
Parents' AP ↔ Parents' CP	.571***	.362***

Covariates (T1)	T1	T2
Sex → Adolescents' AP	-.183***	-.073
Sex → Adolescents' CP	-.222***	-.039
Sex → Parents' AP	.004	-.028
Sex → Parents' CP	.021	.042
Sex → Classmates' AP	-.073*	-.015
Sex → Classmates' CP	-.112**	-.013
Parents' Educational Level → Adolescents' AP	-.012	-.034
Parents' Educational Level → Adolescents' CP	-.054	-.010
Parents' Educational Level → Parents' AP	-.160***	.057
Parents' Educational Level → Parents' CP	-.247***	-.093
Parents' Educational Level → Classmates' AP	-.008	-.054
Parents' Educational Level → Classmates' CP	-.011	-.070*
School track → Adolescents' AP	.222***	.005
School track → Adolescents' CP	.088*	.024
School track → Parents' AP	.095*	.010
School track → Parents' CP	.028	.093
School track → Classmates' AP	.415***	.118**
School track → Classmates' CP	.221***	.198***

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between younger and older adolescents.

[1] Wald=4.245, $p = .039$. Younger: $\beta = .135$, $p = .037$; Older: $\beta = -.061$, $p = .375$.

[2] Wald=7.366, $p = .007$. Younger: $r = -.050$, $p = .407$; Older: $r = .279$, $p < .001$.

[3] Wald=4.083, $p = .043$. Younger: $r = .079$, $p = .349$; Older: $r = -.122$, $p = .035$.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table S5.5d

Standardized results of Model 4 (Synergic influences of parents and classmates)

Stability paths	T1 → T2
Adolescents' Affective Prejudice	.459***
Adolescents' Cognitive Prejudice	.470***
Parents' Affective Prejudice	.416***
Parents' Cognitive Prejudice	.484***
Classmates' Affective Prejudice	.399***
Classmates' Cognitive Prejudice	.299*

Cross-lagged paths	T1 → T2
Adolescents' AP → Adolescents' CP	.135**
Adolescents' AP → Classmates' AP	.017
Adolescents' AP → Classmates' CP	.004
Adolescents' AP → Parents' AP	.064
Adolescents' AP → Parents' CP	.031
Adolescents' CP → Adolescents' AP	.137**
Adolescents' CP → Classmates' AP	.019
Adolescents' CP → Classmates' CP	-.007
Adolescents' CP → Parents' AP	.021
Adolescents' CP → Parents' CP	.039
Classmates' AP → Adolescents' AP	.000
Classmates' AP → Adolescents' CP	.020
Classmates' AP → Classmates' CP	.127*
Classmates' AP → Parents' AP	-.029
Classmates' AP → Parents' CP	.022
Classmates' CP → Adolescents' AP	.113*
Classmates' CP → Adolescents' CP	.014
Classmates' CP → Classmates' AP	.286**
Classmates' CP → Parents' AP	-.038
Classmates' CP → Parents' CP	-.025
Parents' AP → Adolescents' AP	.051
Parents' AP → Adolescents' CP	.018
Parents' AP → Classmates' AP	-.009
Parents' AP → Classmates' CP	-.027
Parents' AP → Parents' CP	.172***
Parents' CP → Adolescents' AP	.020
Parents' CP → Adolescents' CP	.151**
Parents' CP → Classmates' AP	.007
Parents' CP → Classmates' CP	.055
Parents' CP → Parents' AP	.279***
Parents*Classmates AP → Adolescents' AP	-.090*
Parents*Classmates AP → Adolescents' CP	-.043
Parents*Classmates CP → Adolescents' AP	.029

Parents*Classmates CP → Adolescents' CP	.119**	
Correlations	**T1**	**T2**
Adolescents' AP ↔ Adolescents' CP	.480***	.214***
Adolescents' AP ↔ Parents' AP	.118**	.013
Adolescents' AP ↔ Parents' CP	.097*	-.016
Adolescents' AP ↔ Classmates' AP	.169***	.049
Adolescents' AP ↔ Classmates' CP	.112**	-.005
Adolescents' CP ↔ Parents' AP	.140**	.011
Adolescents' CP ↔ Parents' CP	.146***	.049
Adolescents' CP ↔ Classmates' AP	.137**	-.003
Adolescents' CP ↔ Classmates' CP	.156***	.005
Classmates' AP ↔ Parents' AP	.083*	-.004
Classmates' AP ↔ Parents' CP	.057	.080
Classmates' CP ↔ Parents' AP	.102**	-.055
Classmates' CP ↔ Parents' CP	.093*	.019
Classmates' AP ↔ Classmates' CP	.602***	.179*
Parents' AP ↔ Parents' CP	.571***	.362***
Adolescents' AP ↔ Parents*Classmates' AP	.064	
Adolescents' AP ↔ Parents*Classmates' CP	.036	
Adolescents' CP ↔ Parents*Classmates' AP	.008	
Adolescents' CP ↔ Parents*Classmates' CP	.083	
Parents' AP ↔ Parents*Classmates' AP	.130*	
Parents' AP ↔ Parents*Classmates' CP	.115*	
Parents' CP ↔ Parents*Classmates' AP	.074	
Parents' CP ↔ Parents*Classmates' CP	.057	
Classmates' AP ↔ Parents*Classmates' AP	.050	
Classmates' AP ↔ Parents*Classmates' CP	.060	
Classmates' CP ↔ Parents*Classmates' AP	.064	
Classmates' CP ↔ Parents*Classmates' CP	.007	
Parents*Classmates' AP ↔ Parents*Classmates' CP	.403***	
Covariates (T1)	**T1**	**T2**
Sex → Adolescents' AP	-.183***	-.073
Sex → Adolescents' CP	-.220***	-.034
Sex → Parents' AP	.006	-.028
Sex → Parents' CP	.022	.042
Sex → Classmates' AP	-.071*	-.015
Sex → Classmates' CP	-.112**	-.013
Parents' Educational Level → Adolescents' AP	-.008	-.040
Parents' Educational Level → Adolescents' CP	-.057	-.016
Parents' Educational Level → Parents' AP	-.154***	.056
Parents' Educational Level → Parents' CP	-.244***	-.035
Parents' Educational Level → Classmates' AP	-.007	-.054
Parents' Educational Level → Classmates' CP	-.007	-.070*

School track → Adolescents' AP	.221***	.002
School track → Adolescents' CP	.089*	.025
School track → Parents' AP	.094*	.010
School track → Parents' CP	.026	.093
School track → Classmates' AP	.415***	.118**
School track → Classmates' CP	.218***	.198***

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice.
* *p* < .05; ** *p* < .01; *** *p* < .001.

Figure S5.2
Interaction plots
Figure S5.2a
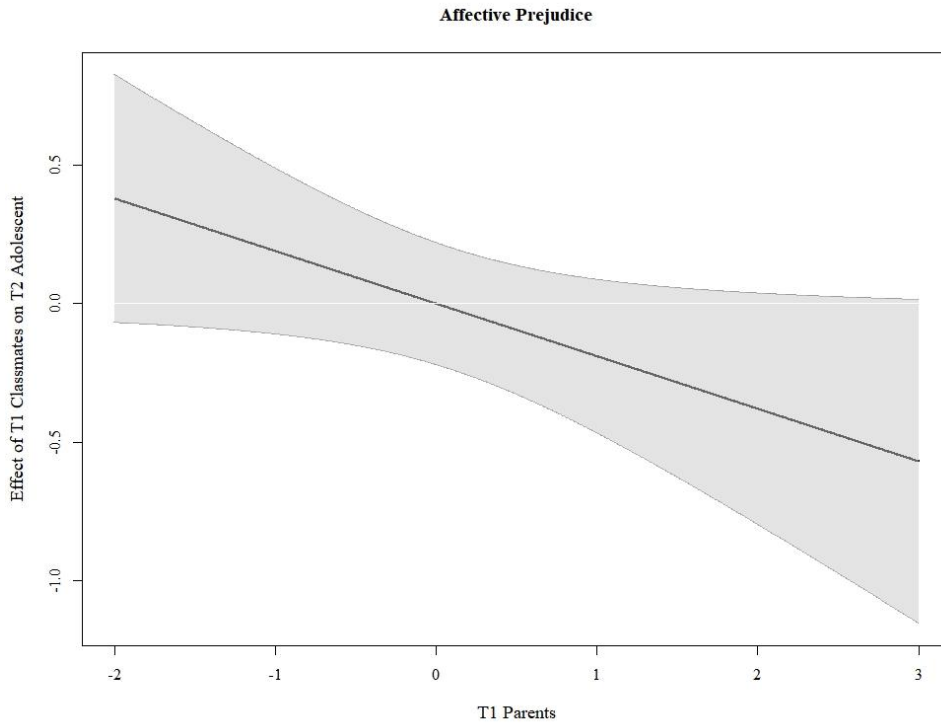
Figure S5.2b
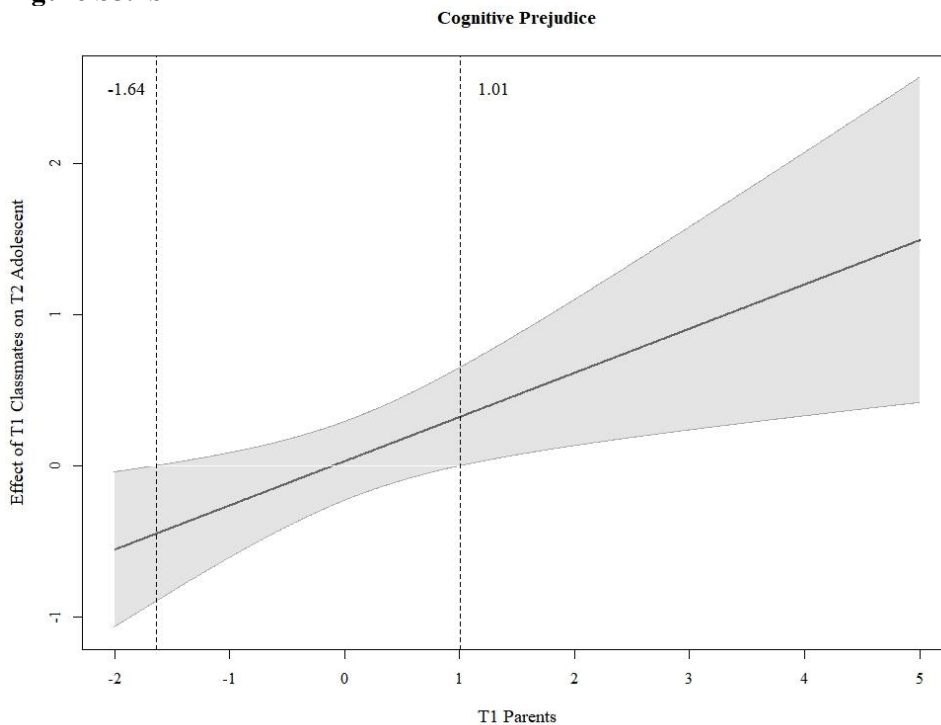
Note. Parents' prejudice scores were standardized and grandmean centered for the purpose of interaction analyses. The dashed lines mark the range of parents' cognitive prejudice values outside which the link between classmates' prejudice at T1 and adolescents' prejudice at T2 is significant.

Robustness Check: Analyses with Latent Change Score Models

The models reported in the manuscript were partially revised and estimated by means of a Latent Change Score approach. This analytical strategy is the only one available to model change across two time points while controlling for within-person changes (McArdle, 2009). To this end, each cross-lagged panel model was transformed into a latent change score model. This was achieved by including a set of latent *change score* factors to capture the change of affective and cognitive ethnic prejudice of adolescents, parents, and/or classmates that happened between T1 and T2. These latent *change score* factors were modeled by (a) fixing the means and disturbances of T2 observed scores to zero, (b) constraining all autoregressive (stability) paths between the variables to one, (c) introducing new latent *change score* variables for Time 2 defined by a single loading on the respective observed T2 variable that is fixed to one, (d) regressing this latent *change score* variable on all observed variables measured at Time 1.

A simplified example of fixed (i.e., grey shaded arrows with fixed value to 1) and estimated (i.e., black regression paths and correlations) paths for Model 1 (i.e., unique influences of parents) is reported in Figure S3. For the sake of clarity, full results of these analyses are reported in Tables S6a-S6d. As can be inferred, findings were entirely replicated, and the only differences emerged in the strength of significant paths. Regarding model 4, simple slopes analyses displayed results that were identical to the ones reported in the manuscript. Specifically, for the affective dimension of prejudice, neither the slope at 1 SD below the mean of parents' prejudice (slope = .190, p = .138) nor the one at 1 SD above the mean of parents' prejudice (slope = -.141, p = .231) were significant. Conversely, for cognitive prejudice, the slope at 1 SD below the mean of parents' prejudice was not significant (slope = -.243, p = .111), while the one at 1SD above the mean of parents' prejudice was positive and significant (slope = .309, p = .034) highlighting an amplifier effect

of parents and classmates' cognitive prejudice for increases in adolescents' cognitive

prejudice.

Further, the significant interactions were additionally probed by means of the

Johnson-Neyman technique to identify regions of significance of the regression slope

between classmates' and adolescents' prejudice at different values of the moderator (i.e.,

parents' prejudice). Results are reported in Figure S4. As can be inferred, they fully replicate

the findings from the main model reported in the manuscript.

Figure S5.3
Simplified example of LCS Model 1
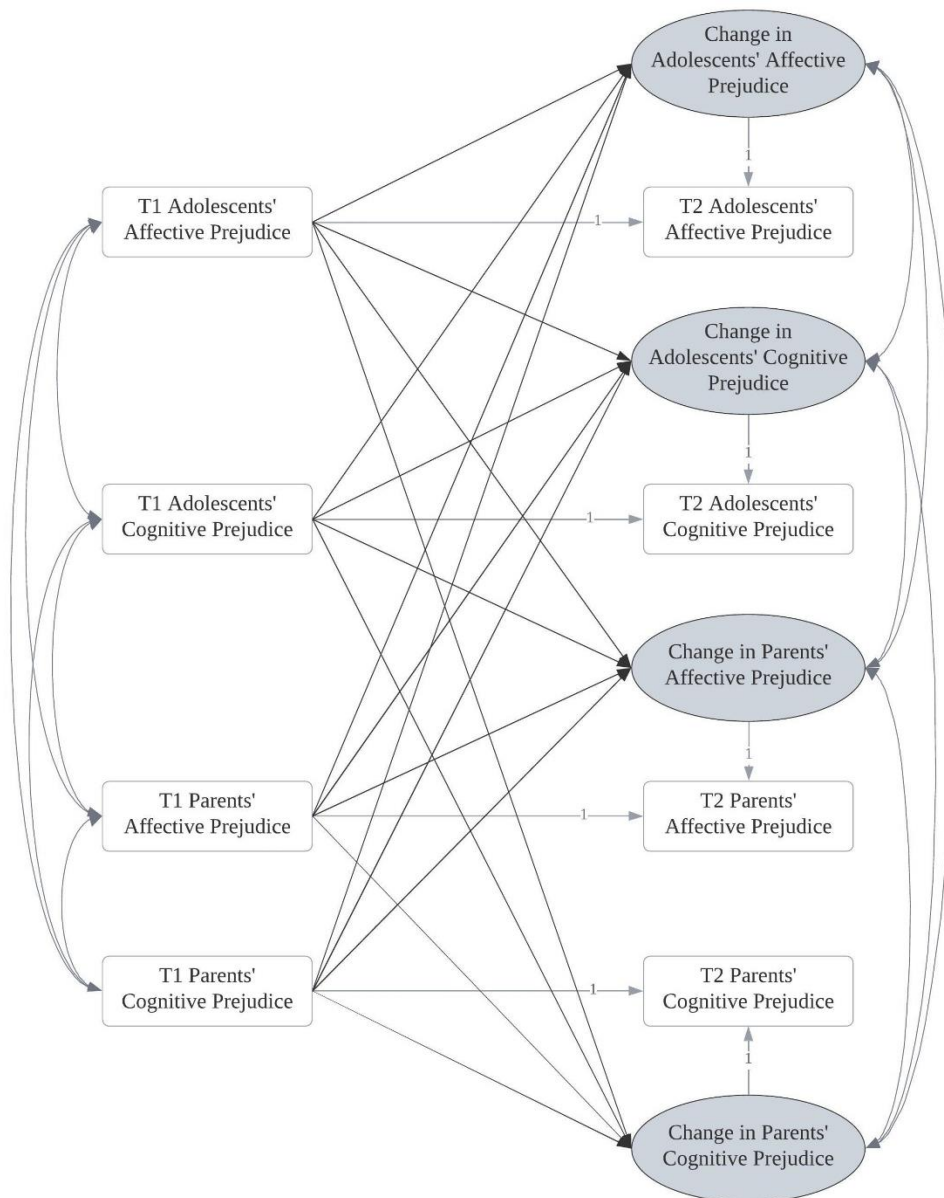
Note. T = Time.

Table S5.6a

Standardized results of Model 1 (Unique influences of parents)

Intercepts		
Δ Adolescents' AP	.343**	
Δ Adolescents' CP	1.349***	
Δ Parents' AP	-.170	
Δ Parents' CP	-.227	

Cross-lagged paths	T1 → Δ	
Adolescents' AP → Δ Adolescents' AP	-.562***	
Adolescents' CP → Δ Adolescents' AP	.186***	
Parents' AP → Δ Adolescents' AP	.058	
Parents' CP → Δ Adolescents' AP	.034	
Adolescents' AP → Δ Adolescents' CP	.161**	
Adolescents' CP → Δ Adolescents' CP	-.490***	
Parents' AP → Δ Adolescents' CP	.047	
Parents' CP → Δ Adolescents' CP	.169**	
Adolescents' AP → Δ Parents' AP	.063	
Adolescents' CP → Δ Parents' AP	.023	
Parents' AP → Δ Parents' AP	-.639***	
Parents' CP → Δ Parents' AP	.279***	
Adolescents' AP → Δ Parents' CP	.070	
Adolescents' CP → Δ Parents' CP	.038	
Parents' AP → Δ Parents' CP	.197***	
Parents' CP → Δ Parents' CP	-.571***	

Correlations	T1	Δs
Adolescents' AP ↔ Adolescents' CP	.511***	.229***
Adolescents' AP ↔ Parents' AP	.144***	.011
Adolescents' AP ↔ Parents' CP	.109**	.008
Adolescents' CP ↔ Parents' AP	.153***[1]	.018
Adolescents' CP ↔ Parents' CP	.159***[2]	.061
Parents' AP ↔ Parents' CP	.593***	.347***

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice; Δ = latent change score. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between adolescents with low and those with high levels of identification with the family. [1] Wald=5.546, *p* = .018. Low identifiers: *r* = -.106, *p* = .376; High identifiers: *r* = .175, *p* < .001. [2] Wald=4.190, *p* = .041. Low identifiers: *r* = -.028, *p* = .807; High identifiers: *r* = .175, *p* < .001.
** *p* < .01; *** *p* < .001.

Table S5.6b
Standardized results of Model 2 (Unique influences of classmates)

Intercepts		
Δ Adolescents' AP	-.342[*]	
Δ Adolescents' CP	.975[**]	
Δ Classmates' AP	-.073	
Δ Classmates' CP	2.582[***]	

Cross-lagged paths	T1 → Δ	
Adolescents' AP → Δ Adolescents' AP	-.574[***]	
Adolescents' CP → Δ Adolescents' AP	.181[***]	
Classmates' AP → Δ Adolescents' AP	.010	
Classmates' CP → Δ Adolescents' AP	.141[**]	
Adolescents' AP → Δ Adolescents' CP	.160[**]	
Adolescents' CP → Δ Adolescents' CP	-.465[***]	
Classmates' AP → Δ Adolescents' CP	.061	
Classmates' CP → Δ Adolescents' CP	.031	
Adolescents' AP → Δ Classmates' AP	.034	
Adolescents' CP → Δ Classmates' AP	.040	
Classmates' AP → Δ Classmates' AP	-.637[***]	
Classmates' CP → Δ Classmates' AP	.356[***]	
Adolescents' AP → Δ Classmates' CP	.040	
Adolescents' CP → Δ Classmates' CP	.002	
Classmates' AP → Δ Classmates' CP	.230[***]	
Classmates' CP → Δ Classmates' CP	-.535[***]	

Correlations	T1	Δs
Adolescents' AP ↔ Adolescents' CP	.514[***]	.231[***]
Adolescents' AP ↔ Classmates' AP	.259[***]	.067
Adolescents' AP ↔ Classmates' CP	.177[***]	.001
Adolescents' CP ↔ Classmates' AP	.182[***]	.018
Adolescents' CP ↔ Classmates' CP	.203[***][(1)]	.027
Classmates' AP ↔ Classmates' CP	.640[***]	.192[*]

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice; Δ = latent change score. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between adolescents with low and those with high levels of identification with the group of classmates. [(1)] Wald=10.227, $p = .001$. Low identifiers: $r = -.122, p = .268$; High identifiers: $r = .213, p < .001$.
[*] $p < .05$; [**] $p < .01$; [***] $p < .001$.

Table S5.6c

Standardized results of Model 3 (Relative influences of parents and classmates)

Intercepts	
Δ Adolescents' AP	-.277
Δ Adolescents' CP	1.177***
Δ Parents' AP	-.017
Δ Parents' CP	-.217
Δ Classmates' AP	-.044
Δ Classmates' CP	2.639***

Cross-lagged paths	T1 → Δ
Adolescents' AP → Δ Adolescents' AP	-.577***
Adolescents' CP → Δ Adolescents' AP	.170***
Parents' AP → Δ Adolescents' AP	.046
Parents' CP → Δ Adolescents' AP	.025
Classmates' AP → Δ Adolescents' AP	.007
Classmates' CP → Δ Adolescents' AP	.135*
Adolescents' AP → Δ Adolescents' CP	.149**
Adolescents' CP → Δ Adolescents' CP	-.496***
Parents' AP → Δ Adolescents' CP	.039
Parents' CP → Δ Adolescents' CP	.168**
Classmates' AP → Δ Adolescents' CP	.052
Classmates' CP → Δ Adolescents' CP	.012
Adolescents' AP → Δ Parents' AP	.074
Adolescents' CP → Δ Parents' AP	.029
Parents' AP → Δ Parents' AP	-.635***
Parents' CP → Δ Parents' AP	.282***
Classmates' AP → Δ Parents' AP	-.039
Classmates' CP → Δ Parents' AP	-.016
Adolescents' AP → Δ Parents' CP	.052
Adolescents' CP → Δ Parents' CP	.042
Parents' AP → Δ Parents' CP	.196***
Parents' CP → Δ Parents' CP	-.571***
Classmates' AP → Δ Parents' CP	.070
Classmates' CP → Δ Parents' CP	-.038
Adolescents' AP → Δ Classmates' AP	.031
Adolescents' CP → Δ Classmates' AP	.036
Parents' AP → Δ Classmates' AP	.009
Parents' CP → Δ Classmates' AP	.024
Classmates' AP → Δ Classmates' AP	-.637***
Classmates' CP → Δ Classmates' AP	.352***
Adolescents' AP → Δ Classmates' CP	.039
Adolescents' CP → Δ Classmates' CP	-.007
Parents' AP → Δ Classmates' CP	-.001

Parents' CP → Δ Classmates' CP	.072	
Classmates' AP → Δ Classmates' CP	.229***	
Classmates' CP → Δ Classmates' CP	-.541***	

Correlations	T1	Δs
Adolescents' AP ↔ Adolescents' CP	.513***	.224***
Adolescents' AP ↔ Parents' AP	.146***	.019
Adolescents' AP ↔ Parents' CP	.109**	.001
Adolescents' AP ↔ Classmates' AP	.258***[1]	.066
Adolescents' AP ↔ Classmates' CP	.177***	.002
Adolescents' CP ↔ Parents' AP	.155***	.021
Adolescents' CP ↔ Parents' CP	.159***	.056
Adolescents' CP ↔ Classmates' AP	.182***	.008
Adolescents' CP ↔ Classmates' CP	.203***	.022
Classmates' AP ↔ Parents' AP	.138***	-.007
Classmates' AP ↔ Parents' CP	.091*	.092
Classmates' CP ↔ Parents' AP	.139***	-.051
Classmates' CP ↔ Parents' CP	.110**	.055
Classmates' AP ↔ Classmates' CP	.640***	.190*
Parents' AP ↔ Parents' CP	.593***	.349***

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice; Δ = latent change score. Superscript numbers in parenthesis indicate coefficients for which Wald test statistic highlighted a significant difference between younger and older adolescents.
[1] Wald=4.811, $p = .028$. Younger: $r = .158$, $p = .008$; Older: $r = .345$, $p < .001$.
* $p < .05$; ** $p < .01$; *** $p < .001$.

Table S5.6d

Standardized results of Model 4 (Synergic influences of parents and classmates)

Intercepts	
Δ Adolescents' AP	.418***
Δ Adolescents' CP	1.384***
Δ Parents' AP	-.212
Δ Parents' CP	-.219
Δ Classmates' AP	3.196***
Δ Classmates' CP	4.745***

Cross-lagged paths	T1 → Δ
Adolescents' AP → Δ Adolescents' AP	-.569***
Adolescents' CP → Δ Adolescents' AP	.164***
Parents' AP → Δ Adolescents' AP	.054
Parents' CP → Δ Adolescents' AP	.029
Classmates' AP → Δ Adolescents' AP	.014
Classmates' CP → Δ Adolescents' AP	.135*
Adolescents' AP → Δ Adolescents' CP	.161**
Adolescents' CP → Δ Adolescents' CP	-.510***
Parents' AP → Δ Adolescents' CP	.023
Parents' CP → Δ Adolescents' CP	.178**
Classmates' AP → Δ Adolescents' CP	.047
Classmates' CP → Δ Adolescents' CP	.018
Adolescents' AP → Δ Parents' AP	.074
Adolescents' CP → Δ Parents' AP	.029
Parents' AP → Δ Parents' AP	-.634***
Parents' CP → Δ Parents' AP	.282***
Classmates' AP → Δ Parents' AP	-.039
Classmates' CP → Δ Parents' AP	-.015
Adolescents' AP → Δ Parents' CP	.052
Adolescents' CP → Δ Parents' CP	.042
Parents' AP → Δ Parents' CP	.196***
Parents' CP → Δ Parents' CP	-.571***
Classmates' AP → Δ Parents' CP	.070
Classmates' CP → Δ Parents' CP	-.039
Adolescents' AP → Δ Classmates' AP	.032
Adolescents' CP → Δ Classmates' AP	.036
Parents' AP → Δ Classmates' AP	.008
Parents' CP → Δ Classmates' AP	.025
Classmates' AP → Δ Classmates' AP	-.637***
Classmates' CP → Δ Classmates' AP	.352***
Adolescents' AP → Δ Classmates' CP	.040
Adolescents' CP → Δ Classmates' CP	-.008
Parents' AP → Δ Classmates' CP	.000

Parents' CP → Δ Classmates' CP	.072	
Classmates' AP → Δ Classmates' CP	.229***	
Classmates' CP → Δ Classmates' CP	-.541***	
Parents*Classmates AP → Δ Adolescents' AP	-.093*	
Parents*Classmates AP → Δ Adolescents' AP	.035	
Parents*Classmates CP → Δ Adolescents' CP	-.053	
Parents*Classmates CP → Δ Adolescents' CP	.144**	

Correlations	T1	Δs
Adolescents' AP ↔ Adolescents' CP	.513***	.222***
Adolescents' AP ↔ Parents' AP	.145***	.016
Adolescents' AP ↔ Parents' CP	.109**	-.009
Adolescents' AP ↔ Classmates' AP	.260***(1)	.058
Adolescents' AP ↔ Classmates' CP	.179***	.008
Adolescents' CP ↔ Parents' AP	.156***	.021
Adolescents' CP ↔ Parents' CP	.159***	.044
Adolescents' CP ↔ Classmates' AP	.181***	.009
Adolescents' CP ↔ Classmates' CP	.201***	.021
Classmates' AP ↔ Parents' AP	.139***	-.006
Classmates' AP ↔ Parents' CP	.091*	.092
Classmates' CP ↔ Parents' AP	.139***	-.051
Classmates' CP ↔ Parents' CP	.110**	.055
Classmates' AP ↔ Classmates' CP	.640***	.190*
Parents' AP ↔ Parents' CP	.593***	.349***
Adolescents' AP ↔ Parents*Classmates' AP	.075	
Adolescents' AP ↔ Parents*Classmates' CP	.037	
Adolescents' CP ↔ Parents*Classmates' AP	.022	
Adolescents' CP ↔ Parents*Classmates' CP	.083	
Parents' AP ↔ Parents*Classmates' AP	.137*	
Parents' AP ↔ Parents*Classmates' CP	.105*	
Parents' CP ↔ Parents*Classmates' AP	.082	
Parents' CP ↔ Parents*Classmates' CP	.042	
Classmates' AP ↔ Parents*Classmates' AP	.078	
Classmates' AP ↔ Parents*Classmates' CP	.057	
Classmates' CP ↔ Parents*Classmates' AP	.098	
Classmates' CP ↔ Parents*Classmates' CP	.017	
Parents*Classmates' AP ↔ Parents*Classmates' CP	.406***	

Note. T = Time; AP = Affective Prejudice; CP = Cognitive Prejudice; Δ = latent change score.
* $p < .05$; ** $p < .01$; *** $p < .001$.

Figure S5.4
Interaction plots

Figure S5.4a
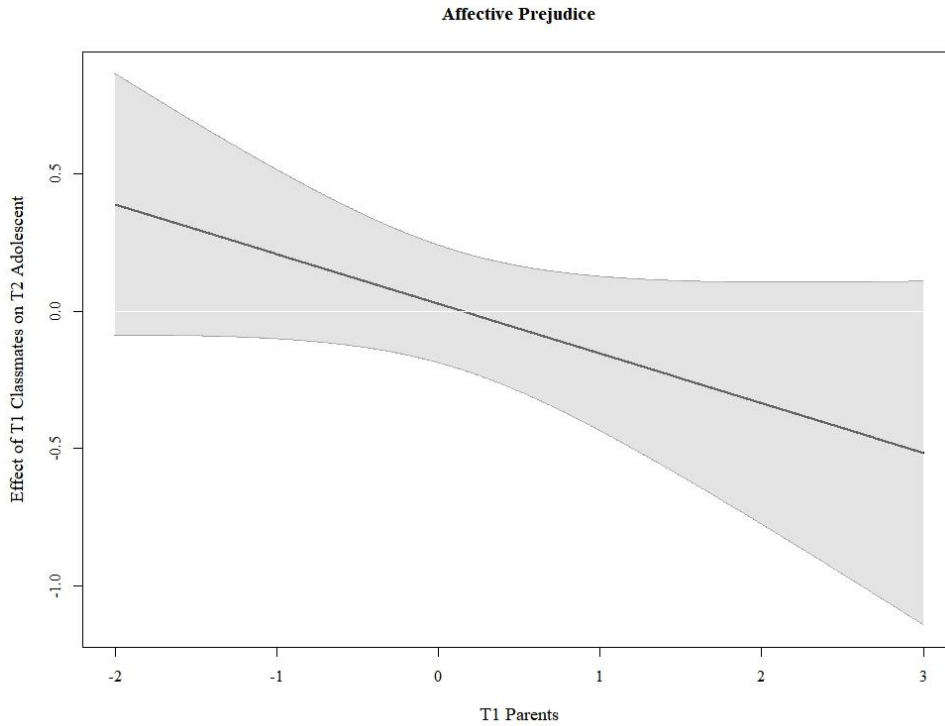
Figure S5.4b
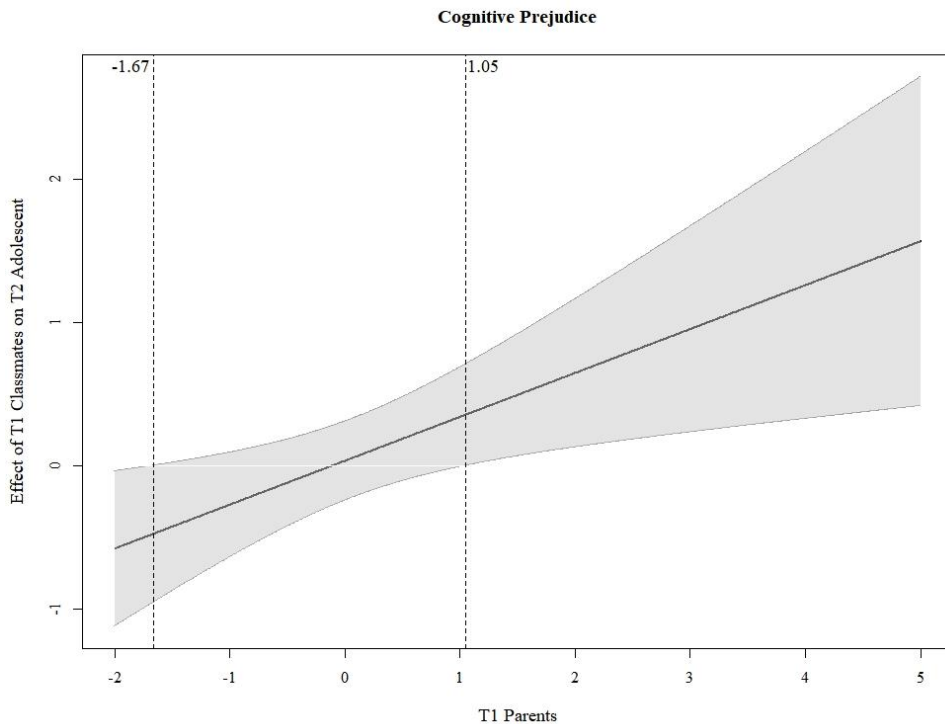
Note. Parents' prejudice scores were standardized and grandmean centered for the purpose of interaction analyses. The dashed lines mark the range of parents' cognitive prejudice values outside which the link between classmates' prejudice at T1 and adolescents' prejudice at T2 is significant.

CHAPTER **6**

Exploring the Self, Others, and the World: The Interplay Between Experiences Abroad in Adolescence, Identity Processes, and Ethnic Prejudice

Abstract

Experiences abroad are an important asset for individuals' adjustment. However, their impact on identity and attitudes is still unexplored. The current mixed-method study examined whether the ways in which youth retrospectively narrate their experience abroad were intertwined with their later national and European identity processes and ethnic prejudice. A total of 117 Italian youth (M_{age}=22.71, SD=2.50; 53.8% females) who participated in a mobility program in adolescence completed an online questionnaire followed by a retrospective interview. The quality of narratives was directly linked to identity processes in the national and European domains, and indirectly (via in-depth exploration) to lower affective prejudice. These findings highlight the importance of youth's experiences abroad for consolidating self- and other-oriented views.

Keywords: study abroad; narrative identity; national identity; European identity; ethnic prejudice; emerging adulthood

Introduction

«The more you go outside, the more you understand the whole that you are part of»

(quote from a study participant)

Forming a coherent sense of self as a member of multiple social groups and developing inclusive views of others are crucial tasks in adolescence (e.g., Bohman et al., 2019; Crocetti, 2017) and emerging adulthood (e.g., Arnett, 2004; Rekker et al., 2015). Notably, these developmental goals are strongly influenced by the contexts within which youth are embedded and the experiences they have (Bronfenbrenner & Morris, 2007). Encountering diversity and moving between cultural contexts, such as in the case of international mobility experiences (e.g., study abroad, volunteering), can shape how youth perceive themselves and others (Engle & Engle, 2003). They can reconsider the meaning of their national identity, develop a strong connection to a supranational group (i.e., European identity), and diminish their prejudice against diverse others (Schwartz, 2016; Sparkman et al., 2016). Prior research suggested that study abroad experiences during the university years significantly contribute to youth's personal and interpersonal growth (e.g., Genkova et al., 2021; McKay et al., 2021). However, their impact might be even more prominent during the formative years of adolescence (Duerden et al., 2018), with possibly long-lasting effects on the consolidation of social identity and ethnic prejudice in emerging adulthood. Building on these premises, the current study examined whether the ways in which youth retrospectively narrate their experience abroad undertaken in adolescence are linked to youth's identity processes in two social domains (i.e., national and European identity) and whether those directly and indirectly (via identity processes) predict their levels of ethnic prejudice.

Identity Processes and Ethnic Prejudice: Unique, Common, and Intertwined

Developmental Processes in Adolescence and Emerging Adulthood

Adolescents are expected to progressively grow into mature and independent emerging adults and to find their position as contributing members of the larger society (Dahl et al., 2018). These processes are supported by advances in cognitive, social, and moral competencies, as well as by increasing autonomy in navigating their social contexts (Zimmer-Gembeck & Collins, 2006). These advancements serve as building blocks for both processes of self-oriented development, such as the consolidation of personal and social identity, and other-oriented development, such as the acquisition of intergroup attitudes and behaviors (Crone & Fuligni, 2020).

The development of a coherent sense of self is a fundamental task of adolescents, but it is not restricted to this life phase (Erikson, 1950). Specifically, emerging adults have the opportunity to either consolidate or revise the pathways chosen in adolescence, to form and enact their adult commitments (Arnett, 2000; Schwartz, 2016). These dynamic processes of identity definition and re-definition from adolescence to emerging adulthood can be effectively captured by dual-cycle identity models (for a review, see Meeus, 2011). One of these models distinguishes three factors representing two cycles (Crocetti et al., 2008). The cycle of identity formation (Cycle 1) results from the interplay between *commitment* (i.e., enduring choices individuals make in different domains) and *reconsideration of commitment* (i.e., comparison between current commitments and possible alternatives, when the former are perceived as no longer appealing) processes. Individuals in this cycle weigh the identity commitments in light of possibly more interesting and satisfactory alternatives. The maintenance cycle (Cycle 2) results from the interplay between commitment and *in-depth exploration* (i.e., the active process of reflecting on present commitments, looking for additional information, and talking about them with others), whereby youth thoroughly

examine their current commitments and validate the choices that align with their goals. However, when such choices are deemed to not provide a good fit for the self, individuals move back to the first cycle of identity formation (Crocetti, 2018).

These cycles operate in multiple personal and social identity domains. Regarding social identity, a domain that is relevant for youth involvement in their cultural context is the national identity, referring to their sense of belonging and being committed to their national group (Jugert et al., 2021). Additionally, for youth in European countries their European identity becomes increasingly important in adolescence and in the following years of emerging adulthood (Barrett, 2007). By bringing together multiple countries and facilitating the movement across borders, the European Union offers unique opportunities for exchange and encounters with diverse individuals through well-established mobility programs (e.g., ERASMUS; Ieracitano, 2014; Mitchell, 2015). These programs can foster a sense of European identity, which can affect youth's civic and political participation. Also, both national and supranational (i.e., European) identities have been found to influence intergroup behaviors and levels of ethnic prejudice (e.g., Keating, 2016; Smeekes et al., 2011).

Ethnic prejudice can be defined as a set of negative emotions, beliefs, and behaviors against members of a specific group because of their different ethnic and cultural background (Allport, 1954; Brown, 2011). It is a multifaceted phenomenon comprising both *affective* (i.e., negative feelings against the outgroup) and *cognitive* (i.e., negative stereotypes about members of the outgroup) components (Brown, 2011). These facets might inform individual behavioral tendencies (e.g., avoidance, discrimination, aggression) toward people with different ethnicities (Cuddy et al., 2007).

Developing inclusive and less prejudiced views of diverse others is fundamental to successfully navigating the complexities of current multicultural societies (Bagci & Rutland, 2019). Relatedly, adolescence and the following years of emerging adulthood represent

crucial moments for the consolidation of stable social and political attitudes (Rekker et al., 2015). At the mean level, ethnic prejudice was found to remain relatively stable throughout adolescence. This possibly is a consequence of opposing trends in adolescents' cognitive development (i.e., sophisticated abilities allow youth to embrace more complex and inclusive view of self and others; Albarello, Crisp, et al., 2018) and life experiences (e.g., lower social trust and increased group threat perceptions; Flanagan & Stout, 2010) (for reviews, see Crocetti et al., 2021; Raabe & Beelmann, 2011). However, prior research has also identified different developmental trajectories of prejudice for youth depending on specific identity and contextual factors (e.g., Bobba, Albarello, et al., 2023; Mitchell, 2019).

Although forming a secure sense of ingroup belonging might represent a fundamental basis for the development of open and inclusive attitudes toward others (Allport, 1954), empirical findings have often highlighted nuanced associations between national identity and prejudice. For instance, studies have found high levels of national identification to be linked to either more negative (e.g., Luedtke, 2005; Pehrson, Vignoles, et al., 2009; Pettigrew et al., 2007) or more positive (e.g., Citrin et al., 2012; Smeekes et al., 2011) attitudes toward foreigners. One possible explanation for these mixed findings might relate to individual differences in how a national identity is formed, explored, and maintained (Spiegler et al., 2022). Relatedly, ethnic minority youth with high levels of both ethnic identity commitment and exploration were found to report more positive outgroup attitudes (Phinney et al., 2007; Whitehead et al., 2009) and more cross-ethnic friendships (Spiegler et al., 2016) compared to those with high commitment coupled with low exploration. Further, when ethnic majority youth were experimentally induced to explore and reflect on their identity, high levels of national identification were not associated with negative attitudes toward immigrants (Spiegler et al., 2022). Overall, these findings suggest that a strong national identification

without proper exploration does not provide individuals with a secure sense of self that allows them to approach diversity in an open and un-defensive way.

Regarding the supranational identity, high identification with the European group was linked to lower levels of ethnic prejudice (Curtis, 2014; Luedtke, 2005; Pettigrew et al., 2007). Similarly, anti-immigrant sentiment was less prevalent among individuals with pro-European orientations (A. Kende et al., 2019; Kessler & Freeman, 2005). However, research has also found support for the idea that European identification might facilitate inclusion of and support for rights for individuals from EU-countries (Blinder & Markaki, 2019; Keating, 2016) but not for people from outside Europe (for a review, see Licata et al., 2011). For instance, emerging adults who strongly identified with the European group (Licata & Klein, 2002) and those with high levels of European glorification (A. Kende et al., 2019) were found to report stronger anti-immigrant and anti-Muslim attitudes.

Overall, these findings highlight the need to further examine how national and European identity processes are intertwined with negative affect towards and negative cognitions about ethnic minorities. Despite building upon the cognitive and psychological advancements characterizing the adolescent years, changes in both self- and other-oriented processes might be influenced by the encounters and experiences that youth have in the multiple contexts of development (Bronfenbrenner & Morris, 2007). International mobility experiences might contribute to both processes by challenging adolescents' perceptions of their own and other social groups and offering alternative views on diversity and society.

Experiences Abroad: Benefits and Challenges

Abroad experiences come in many shapes and forms. Overall, however, they involve youth spending a certain amount of time (a couple of weeks to an entire academic year) in a foreign country to either attend school or work on a voluntary basis (Engle & Engle, 2003). Extensive research has tackled the implications of studying abroad and curricula

internationalization during the university years, while less is known about its effect in adolescence. Overall, it appears that international mobility experiences are linked to a plethora of positive outcomes (e.g., higher self-esteem, increased openness and agreeableness and lower neuroticism, awareness of societal issues) both for adolescents (Greischel et al., 2019; Hutteman et al., 2015; van Eerdewijk et al., 2009) and emerging adults (Niehoff et al., 2017; Petersdotter et al., 2017; Zimmermann & Neyer, 2013). These benefits appear to be closely tied to the processes underlying the consolidation of identity commitments (McKay et al., 2019). For instance, during their study abroad experience, adolescents were found to strengthen their home identity and to simultaneously reconsider their initial commitment to the host country, possibly as a consequence of the challenges of adapting to the new context (Greischel et al., 2019). Further, experiences abroad were found to positively promote identity development in emerging adults by increasing their commitment and exploration processes, and lowering rumination (McKay et al., 2022).

Additionally, participating in study abroad programs might support youth in developing an open and curious approach to diversity (Wortman, 2002) and in turn contribute to lower levels of ethnic prejudice. In line with this idea, youth who studied abroad during university displayed increased intercultural competence (Harris et al., 2019; Lee & Song, 2019; Watson et al., 2013), intercultural communication, and openness to diversity (Clarke et al., 2009) compared to their peers who did not go abroad. They also reported that this experience fostered their open-mindedness and flexibility (Mitchell & Maloff, 2016; Root & Ngampornchai, 2013), awareness of racial biases (Hughes & Popoola, 2023), and intercultural attitudes (Czerwionka et al., 2015; Demetry & Vaz, 2017). However, previous research has also highlighted possible negative consequences of abroad programs, such as volunteering, which might perpetuate social inequalities, reinforce power relationships, and ultimately confirm stereotypes (Pastran, 2014; Stein, 2017). These differential effects might

result from the type and quality of experiences that youth had during the abroad program. For instance, when students live these experiences more as observers rather than as actively involved and reflecting participants, they might come back home with even higher levels of prejudice (Harris et al., 2019).

To further understand the differential benefits and challenges associated with abroad programs, it is of utmost importance to consider how youth make sense of such experiences Specifically, these moments represent important turning points in the life of youth around which identity-relevant narratives can be constructed, thus influencing self- and other-oriented developmental processes. According to the narrative identity model (McAdams, 2018), through autobiographical reasoning individuals can reflect on their past and consequently make sense of their present selves and imagine who they will be in the future (McAdams & McLean, 2013). Prior research has found that individuals who recounted their experiences in highly agentic terms (i.e., described themselves as being able to influence the course of their life; Adler, 2012) also displayed higher commitment and more adaptive exploration processes in adolescence (van Doeselaar et al., 2020) and emerging adulthood (e.g., Carlsson et al., 2015). Similarly, adolescents who were able to make meaningful connections between the narrated event and relevant aspects of the self also reported concurrent increases in their commitment and in-depth exploration processes (van Doeselaar et al., 2020). In other words, the narrative process implies thoughtful and active autobiographical reasoning that supports youth in making identity-relevant choices (McLean & Pasupathi, 2012) and in dismantling simplistic dichotomous views of self and others ("Us vs. Them") that are at the core of ethnic prejudice (Bobba, Albarello, et al., 2023). Along this line, the current study sought to examine whether the ways in which youth retrospectively narrate their experiences abroad undertaken in adolescence would be directly and indirectly

linked to both identity processes in the national and European domain, and to levels of affective and cognitive prejudice in emerging adulthood.

The Current Study

Experiences abroad can contribute to youth's development and adjustment. However, little is known about how participating in international mobility programs in adolescence can impact later self- and other-oriented views and attitudes. Relatedly, the current mixed-method study examined the interplay between abroad experiences, identity, and ethnic prejudice by combining self-reported measures and narrative interviews. The purpose of this study is twofold. First, it aimed to examine the interplay between the ways in which youth retrospectively narrate their experiences abroad during adolescence, their *national identity processes*, and their levels of affective and cognitive ethnic prejudice. Second, it further tested the direct and indirect associations between agency and self-event connections on one side, and *European identity processes* and ethnic prejudice on the other. Youth who report more agentic narratives and make meaningful connections between their experience abroad and the self are expected to display higher levels of commitment and in-depth exploration of both their national and European identity, and to report lower affective and cognitive prejudice. Additionally, the ways in which youth narrate their experience abroad is expected to contribute to lower levels of ethnic prejudice, via increased in-depth exploration of their national and European identity.

Methods

Participants

Participants were drawn from a larger sample of Italian emerging adults involved in a retrospective research project about studying abroad. From this sample, youth who had an experience abroad during the years of adolescence (*n*=134) were selected and invited to participate in a narrative interview about that experience. In total, 117 (M_{age}=22.71, *SD*=2.50;

53.8% females) agreed to participate and completed the interview. Most participants (70.9%) had a high school diploma, 27.3% held at least a bachelor's degree, and 0.9% held a degree up to a middle school diploma. The remaining 0.9% did not report on their education. Among participants, 47% were students, 21.4% were workers, and 28.2% worked and studied. The remaining 3.4% were either unemployed or looking for a job. Participants who agreed to be interviewed did not significantly differ from those who did not, based on gender (χ^2 (1)=3.55, p=.060, φ = .16), education (χ^2 (4)=4.35, p=.360, φ = .18), or age (F=1.04, p=.309, η^2= .01).

All participants completed all the measures included in the questionnaire, therefore there were no missing data. Little's (1988) Missing Completely at Random (MCAR) test conducted on the narrative data yielded a non-significant result (χ^2 (6)=3.303, p=.770), indicating that from a statistical viewpoint data were missing completely at random (Bollen, 1989). Therefore, the sample of 117 participants was retained for the analyses and missing data were handled using the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater University of Bologna (Italy). Participants were recruited through snowball sampling, as every individual completing the questionnaire was asked to name at least one friend or acquaintance who would be willing to join the research. Upon receiving detailed information about the research project, participants were asked to sign an informed consent form agreeing to participate in the study. All participants completed an online questionnaire on Qualtrics. Additionally, those who stayed abroad (i.e., summer school, volunteering, semester or year abroad) during adolescence were subsequently recontacted to participate in an interview about their experience. Interviews were conducted online on Zoom or Teams platforms due to the COVID-19 pandemic and audio recorded for later transcription and analyses. Youth were

required to create a personal code to ensure confidentiality and pair their questionnaire data with the interview. The study was conducted between January and May 2021.

Measures

Demographics

Participants' socio-demographic information (i.e., age, gender, educational level) was collected at the beginning of the questionnaire.

Affective Prejudice

The affective component of prejudice was assessed using the Feeling thermometer (Haddock et al., 1993; for the Italian version, see Albarello & Rubini, 2011), asking participants to rate how much they like different outgroups (i.e., Romanians, Albanians, Moroccans, Chinese, Ukrainians, which are the largest groups of foreigners in Italy according to ISTAT, 2020) on a scale from 0° (*at all*) to 100° (*very much*). The scale was reversed to simplify the interpretation of results, with higher scores indicating higher prejudice. A total affective prejudice score was computed using the mean level of liking expressed for these different outgroups.

Cognitive Prejudice

To evaluate the cognitive component of prejudice, nine items (e.g., "I would be bothered if most of my classmates were foreign people") were adapted from Brown et al. (2008; for previous use of this scale, see Bobba & Crocetti, 2022). Participants rated their agreement on a 5-point Likert scale (from 1 "*completely disagree*" to 5 "*completely agree*").

National and European Identity Processes

Commitment, in-depth exploration, and reconsideration of national (i.e., Italian) and European identity commitment were measured with the Utrecht-Management of Identity Commitments Scale (U-MICS, Crocetti et al., 2008; Italian validation by Crocetti et al., 2010). The instrument consists of 13 items scored on a 5-point Likert-type rating scale,

ranging from 1 (*completely false*) to 5 (*completely true*). Sample items include: "Being European/Italian gives me certainty in life" (commitment; 5 items), "I think a lot about the European/Italian culture" (in-depth exploration; 5 items), and "I often think it would be better to live outside Europe/Italy" (reconsideration of commitment; 3 items).

Narrative Interview

Online interviews were conducted by trained research assistants with participants who agreed to complete this part of the study. The interviews, which were audio recorded, lasted between 30 and 60 minutes. The interview protocol, adapted from previous studies (e.g., McKay et al., 2020), is included in the Supplemental Materials. Interviews consisted of 11 questions covering four broad areas: (1) pre-departure expectations (two questions), (2) high, low, and turning points of the study abroad experience (three questions), (3) changes in identity, values, and future plans (four questions), and (4) experience coming back (two questions). Interviews were transcribed and their content was quantitatively coded and analyzed by the authors. On average, participants' interviews contained 2007 words ($SD =$ 1066), ranging from 396 to 5674 words.

Narrative Coding

Interviews were coded for agency and self-event connections using an adapted version of existing coding manuals, available in the Supplemental Materials. Each question was considered a unit of analysis and therefore assigned a score of agency and self-event connection. The authors were trained in the use of these manuals by an expert in narrative coding. To this end, a subset ($n = 10$) of interviews was translated into English and the coding manuals were applied until the authors were fully familiarized with the procedure, as evident from the good inter-rater agreement levels with the expert coder for both agency (ICC=.87) and number of self-event connections (ICC=.64). The remaining interviews were coded in Italian by the first authors in four steps. First, the researchers coded approximately 10% of

the interviews ($n = 14$) until high inter-rater agreement was reached. Next, each researcher coded approximately 20% of the interviews independently. To prevent divergence in the coding process (i.e., coder drift; Syed & Nelson, 2015), the researchers again coded another 10% of the interviews simultaneously and calculated their agreement. Since the level of agreement was high (see next sections), the remaining interviews were coded independently.

Agency

Agency was coded using an adapted version (e.g., van Doeselaar et al., 2020) of a widely used coding manual, using a 5-point scale. Questions were coded as 0 or 1 if participants were completely or somewhat at the mercy of circumstances. These codes were used only when the circumstances described had a negative impact on individuals. A score of 2 indicated that participants reported both agentic and non-agentic elements, or that there was not enough information to evaluate agency. Finally, a score of 3 or 4 was indicative of somewhat or completely agentic participants, who were able to influence their own experiences. Additionally, if a change in agency was described in participants' answers the final and current state of agency was coded. Two-way mixed intra-class correlation coefficients (ICC) indicated that agency was reliably coded at both the beginning (ICC = .87) and halfway through (ICC = .91) the study. The final score for agency, which was used in subsequent analyses, consisted of the average score of agency across the 11 questions. The Alpha coefficient for this composite was .71.

Self-Event Connections

For each question, the number of explicit connections between an event (i.e., the study abroad experience) and the self was coded following a previously developed coding manual (Lilgendahl & McLean, 2020; Pasupathi et al., 2007). Self-event connections could either provide an example of who one is (i.e., explain/illustrate code) or is not (i.e., dismiss code), or report an event that changed the self (i.e., cause code) or revealed an aspect of the

self (i.e., reveal code). The final score for self-event connections used in the current study was the sum of connections made by respondents throughout the 11 questions. The two-way mixed intra-class correlation coefficient (ICC) indicated that the number of connections was reliably coded at both the beginning (ICC = .92) and halfway through (ICC = .88) the study. Because the self-event connection composite represents a count score, we did not calculate internal consistency.

Results

Preliminary Analyses

Means, standard deviations, and correlations among study variables were computed using IBM SPSS Version 28.0 and are reported in Table 1. All the remaining analyses were conducted in M*plus 8.6* (Muthén & Muthén, 1998-2017) using Maximum Likelihood Robust (MLR) estimator (Satorra & Bentler, 2001). More details concerning the type, duration, and destination country of youth's study abroad experiences are available in Supplemental Materials S4.

Table 6.1

Means, standard deviations, and correlations among study variables

	α	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Age														
2. Sex				.04										
3. Agency		2.85	0.47	.04	.03									
4. Self-event Connections		6.84	3.43	.08	-.01	.50***								
5. Affective Prejudice	.91	40.97	24.46	.00	.15	-.00	-.12							
6. Cognitive Prejudice	.89	1.41	0.43	.05	-.04	.03	.04	.36***						
7. European Identity Commitment	.96	3.36	0.90	.14	.03	.33***	.35***	-.09	-.17					
8. European Identity In-depth Exploration	.91	3.34	0.87	-.19*	-.07	.25**	.33***	-.27**	-.13	.29***				
9. European Identity Reconsideration	.89	2.48	0.95	.05	-.22*	.04	-.04	.18	.07	-.21*	.13			
10. National Identity Commitment	.89	2.74	0.78	-.03	.18	.16	.22*	.06	.17	.39***	.15	-.17		
11. National Identity In-depth Exploration	.88	3.62	0.80	.17	.05	.08	.23*	-.25**	-.03	.19*	.62***	.05	.23*	
12. National Identity Reconsideration	.84	3.05	0.98	.07	-.08	.23*	.10	.02	-.14	.09	.14	.64***	-.20*	-.03

Note. Sex: 0 = male, 1 = female. * $p < .05$; ** $p < .01$; *** $p < .001$.

Main Analyses

The goal of the current study was to examine whether the ways in which youth retrospectively narrate their experience abroad were linked to their national (i.e., Italian) and European identity processes and affective and cognitive prejudice in emerging adulthood. To this end, two regression models (i.e., for national and European identity, separately) with observed variables were conducted to identify the direct and indirect associations between agency and self-event connections in the interview, and identity processes and prejudice as assessed by surveys. Results are displayed in Figure 1.

Figure 6.1
Significant standardized results of the regression models
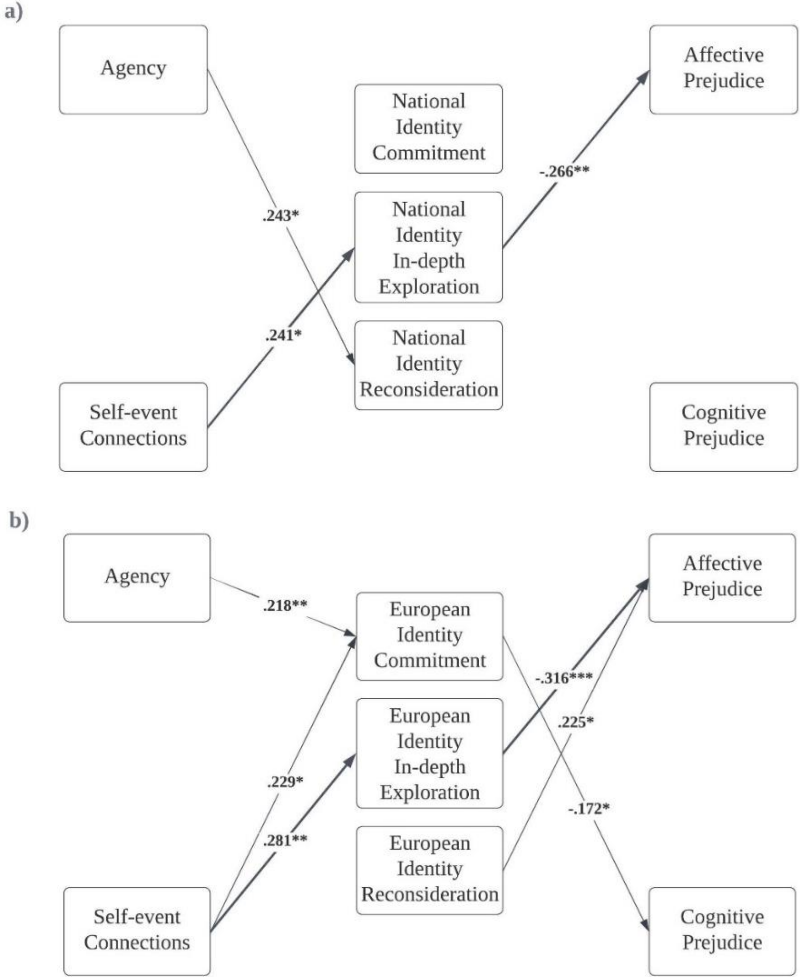
Note. For the sake of clarity, only significant regression effects are displayed. Both models controlled for correlations between narrative codings, between identity processes, and between dimensions of prejudice. Bold arrows indicate significant indirect effects.
* $p < .05$; ** $p < .01$; *** $p < .001$

Agency was linked to higher levels of reconsideration of Italian identity commitment and the number of self-event connections was positively associated with higher Italian-depth exploration. Italian identity in-depth exploration was also linked to lower levels of affective prejudice. No direct associations were found between narrative codes and prejudice levels. However, the number of self-event connections was associated with lower levels of affective prejudice via higher in-depth exploration of the national identity (standardized indirect effect = -.064 [-.123, -.015], p = .027; see Figure 1a, bold arrow).

The results for European identity partially replicated and extended findings reported above. Both agency and self-event connections were linked to higher levels of European identity commitment. Moreover, the number of self-event connections reported in the interview was positively associated with levels of in-depth exploration. In turn, identity processes were significantly linked to affective and cognitive prejudice. In-depth exploration and reconsideration of commitment were associated with lower and higher affective prejudice, respectively. Commitment was negatively associated with cognitive prejudice. Agency and self-event connections were not directly associated with prejudice, but a significant indirect path (see Figure 1b, bold arrow) suggests that the number of self-event connections was associated with lower levels of affective prejudice via higher in-depth exploration of the European identity (standardized indirect effect = -.089 [-.158, -.019], p = .008).

Sensitivity Analyses

As ancillary sensitivity analyses, the same path analysis models were tested including participants' sex and the total time spent abroad during adolescence as covariates. Findings on the direct associations were largely replicated with the exceptions of a few paths across the two models. Additionally, while the indirect effect in the European identity model was replicated, the one in the national identity model lost significance when covariates were

accounted for. Details on the procedure and full results of these sensitivity analyses are reported in Supplemental Materials S5.

Discussion

The development of identity in relevant personal and social domains as well as the acquisition of inclusive attitudes toward diversity are fundamental tasks of adolescents and emerging adults (Crocetti et al., 2023; Crone & Fuligni, 2020). Understanding the factors that contribute to these processes is crucial for supporting individual adjustment and positive intergroup experiences in multicultural societies (Titzmann & Jugert, 2019). The current study examined the direct and indirect associations between the ways in which youth retrospectively narrate their abroad experiences undertaken in adolescence, their national and European identity processes, and their affective and cognitive ethnic prejudice in emerging adulthood. These findings highlighted significant associations between agency and self-event connections in the narratives and youth's identity processes in the European and, to a lesser extent, the national domains, and indirect associations with affective prejudice via in-depth exploration. Overall, common and unique direct and indirect effects across the national and European identity domains and their interplay with ethnic prejudice emerged, highlighting the nuanced role of identity processes in influencing feelings and thoughts about diverse others.

«*Independence, Awareness, and Openness*»: Common Findings Across Social Identities

The current study examined the interplay between retrospective narratives of the abroad experiences, identity processes, and ethnic prejudice, separately for the national and European domains. Two common findings emerged across the two domains, highlighting important pathways through which studying abroad can support youth in their self- and attitude-related developmental tasks. First, the retrospective narratives about the experience abroad were not directly associated with levels of affective or cognitive ethnic prejudice in emerging adulthood. This finding is in contrast with prior research highlighting that youth

developed increased multicultural competence (e.g., Harris et al., 2019; Mitchell & Maloff, 2016) and inclusive attitudes (Czerwionka et al., 2015; Demetry & Vaz, 2017) after their experiences abroad. However, it should be noted that previous studies either compared attitudes among those who studied abroad and those who did not or examined these outcomes right after the completion of the experience. Conversely, participants in this study reported their levels of affective and cognitive prejudice some years after their international experience. Therefore, other socio-contextual factors (e.g., family influences, political changes, media) and experiences (e.g., intergroup contact, other abroad experiences) might have more prominently influenced the consolidation of attitudes towards ethnic diversity in the period between their return and their participation in our study.

Despite that, across both models, in-depth exploration significantly mediated the association between number of self-event connections in the narratives and affective prejudice. That is, youth who consistently identified connections between their experiences abroad and aspects of the self also reported increased in-depth exploration of their national and European identity, which in turn predicted lower levels of affective prejudice. As precisely described by one of the participants in the quote referenced in the title of this section («*Independence, Awareness, and Openness*»), the independence that characterizes study abroad experiences can lead to increased self-awareness and openness to others. International mobility experiences involve not only a physical, but also a cultural and interpersonal transition from one country to another, from the familiar to the unknown. By moving to their destination country, adolescents move away from possible influences within the family context (e.g., parental control and pressures) and can independently explore and commit to different options (Brown & Graham, 2009). Such life transitions represent critical moments for identity development and might increase the salience of specific identity processes (Bosma & Kunnen, 2001; Branje, 2022). Therefore, study abroad experiences

might increase individuals' awareness of similarities and differences among cultures and consequently heighten the salience of one's national and supranational identity exploration (McKay et al., 2019).

Relatedly, youth who retrospectively identify significant connections between such experience and aspects of the self, demonstrate the ability to evaluate their past and gain important self-insights, which are at the core of adaptive exploration processes (McLean et al., 2020; van Doeselaar et al., 2020). In the current study, such in-depth exploration of both national and European identity predicted lower levels of ethnic prejudice. This finding is in line with prior research highlighting the crucial role played by in-depth exploration in influencing individuals' attitudes and behaviors (e.g., openness to experience, social responsibility, civic engagement; Crocetti et al., 2012; Hatano et al., 2016) related to social inclusion.

Additionally, while prior literature focused on the process of exploration in personal domains (e.g., educational identity), this study for the first time highlights the interplay between prejudice and in-depth exploration in the social domain, across the national and the supranational European identity. In-depth exploration requires individuals to be cognitively flexible, engage in active and thorough reflection, and challenge predetermined beliefs and views (Crocetti, 2018). Consequently, such a mindset might support youth in gaining a deeper understanding of the meanings and value attached to their own and others' social identity, adopting counter-stereotypical thinking, and ultimately developing more positive feelings about others (Bobba, Albarello, et al., 2023). By experiencing and subsequently narrating an important transition-related experience, such as a stay abroad, youth can gain a deeper insight into themselves as individuals and members of relevant social and cultural groups and subsequently develop more nuanced and inclusive views about diversity. These findings highlight the importance of supporting adolescents in the process of actively reflecting on

their experience abroad upon their return, to make sense of the challenges encountered and the goals achieved, and to make use of this fruitful moment for the development and consolidation of self- and other-oriented views and attitudes.

Unique Pathways from Retrospective Narratives to Identity and Ethnic Prejudice

Beside the similarities outlined above, we also found some differences in the interplay between narrative, identity processes, and ethnic prejudice depending on the social identity (i.e., national or European) domain accounted for. Specifically, although significant associations emerged in both models, it appears that the quality of narratives about abroad experiences is more consistently linked to processes in the supranational European domain compared to the national one.

«Not Only Italian, but Something More»: Narratives, National Identity, and Prejudice

As highlighted by one of the participants in the current study (see quote above), the quality of youth's experiences abroad in adolescence appeared to be intertwined with their identity processes in the national domain. Specifically, the more youth retrospectively narrated their international mobility in agentic terms by reporting feeling in control of their experience, the higher their reconsideration of national identity commitment. This finding is in contrast with prior research highlighting a general pattern of strengthened home identity commitment among adolescents participating in a study abroad experience (Greischel et al., 2019). However, it should be noted that Greischel et al.'s (2019) study examined how identity commitment changes from approximately one month after moving to the destination country to 7 months after the beginning of the abroad experience, thus capturing these processes in the moment of cultural transition. Therefore, increased commitment and reduced reconsideration of identity might be a consequence of acculturation challenges and feelings of homesickness emerging from the comparison between life at home and experiences in the foreign country (Geeraert & Demoulin, 2013). Along the same lines, other studies highlighted

significant differences among adolescents who studied abroad and those who did not. However, while during the transition to the destination country youth in international mobility programs reported a pattern of progressive (i.e., increases in commitment coupled with decreases in reconsideration) home identity development, around the time that they returned home these adolescents displayed steeper increases in home identity reconsideration compared to those who never left (Greischel et al., 2018).

The challenges of re-adjustment upon return were further documented by Kranz and Goedderz (2020), who found these to be associated with lower commitment and higher reconsideration of youth home cultural identity. This can be a consequence of the so-called reverse culture shock that international students might experience in their transition back to the home country, which is known to have negative effects on individual psychological adjustment and sociocultural adaptation (Presbitero, 2016). Although changes in context might trigger a certainty-uncertainty dynamic in identity development (Becht et al., 2017; Greischel et al., 2018), they might also support youth in re-evaluating their previous choices and considering more adaptive ones. Specifically, experiencing a strong sense of agency and control over the outcomes of international mobility might have strengthened youth's security and mastery over their own identity development, supporting the reconsideration of commitments that were no longer satisfactory. Such momentaneous reevaluation of identity commitments might pave the way to new identity pathways that effectively align with novel views and needs of emerging adulthood.

«A First-Hand Experience of the European Community»: Narratives, European Identity, and Prejudice

Findings of the current study additionally highlight the significant interplay between narrative features, European identity, and ethnic prejudice. First, both reporting highly agentic narratives and identifying several connections between the international mobility and

the self were linked to heightened European identity commitment and in-depth exploration (the latter for self-event connections only), supporting youth in the maintenance cycle (Crocetti et al., 2008). This finding is in line with prior research among university students which highlighted the positive effects of Erasmus mobility for increasing European citizenship and identity (e.g., Jacobone & Moro, 2015; Mitchell, 2015; Van Mol, 2018). The current study extends the literature by pointing out the positive associations between narratives of abroad experiences in adolescence and European identity processes in emerging adulthood. These experiences might have exposed them to an international social environment and the direct encounter of peers from all over Europe (and the world), which in turn contributed to increase the salience and strengthen the commitment to their European identity (Stoeckel, 2016).

Additionally, all processes pertaining to European identity were strongly associated with both dimensions of ethnic prejudice. While processes conducive of identity maintenance (i.e., commitment and in-depth exploration) were associated with lower levels of affective and cognitive prejudice, reconsideration of European identity commitment was linked to significant increases in affective prejudice. In line with social categorization theory (Turner et al., 1987), the extent to which individuals self-categorize as members of restrictive (e.g., national identity) or supraordinate (e.g., European identity) groups can influence their emotions, attitudes, and behaviors in the social world. On the one hand, increased commitment and in-depth exploration represent key processes through which youth strengthen their attachment to and awareness of the supranational European identity, which may lead them to approach their social world in more inclusive ways (e.g., Kende et al., 2019). On the other hand, when individuals reconsider their commitment to such a supranational identity they can regress to a more simplistic and dichotomous view of society ("Us vs. Them") which is at the core of prejudicial thinking (Crocetti et al., 2021). Overall,

these findings highlight the importance of examining identity processes in relevant social domains to gain a more nuanced understanding of how transitions and contextual factors can shape identity development (Jugert et al., 2021) and its interplay with ethnic prejudice in emerging adulthood.

Limitations of the Present Study and Suggestions for Future Research

Findings from the current study should be read in light of several limitations. First, despite combining quantitative and qualitative data, this study relied on a retrospective examination through narratives about abroad experiences in adolescence and youth's identity processes and ethnic prejudice. Consequently, it was not possible to examine changes before and after the experience itself. This did not allow to distinguish between selection (i.e., pre-existing differences that explain why some people participate in experiences abroad and others do not) and socialization (i.e., changes occurring as a consequence of studying abroad) effects (Nissen et al., 2022).

Second, due to the retrospective nature of the current study, participants provided narratives a few years after they completed their experience abroad in adolescence. This might have affected the recollection of memories and their integration into a coherent life story. Furthermore, the narratives of past international mobility provided by participants might be influenced not only by prior recollection and sharing of these events, but also of other abroad experiences that youth had in the following years of emerging adulthood (McAdams & McLean, 2013). Additional longitudinal research is needed to gain a comprehensive insight into changes and stability of adolescents' narratives of past events, and identity processes and prejudice levels before and after the experience abroad. Moreover, future studies could benefit from a direct comparison between adolescents who did and did not participate in an abroad experience.

Third, this study included only youth from the ethnic majority (i.e., Italian) because of its focus on prejudice against ethnic minorities. However, abroad experiences might differently impact adolescents and emerging adults depending on their ethnic and cultural background (Schwartz et al., 2010). On the one hand, youth with an immigrant background might experience the transition from one culture (i.e., the country where they currently live) to the other (i.e., the destination country) as less challenging and more familiar compared to their ethnic majority peers because of its similarities with the transition that they already made from their home (i.e., country of origin) to the host country. On the other hand, adjusting to yet another cultural context and facing identity-related changes might be particularly challenging for ethnic minority adolescents who are already struggling to integrate their home and host cultures. Additionally, the ethnic background of youth might also differentially intersect with the culture of the destination country (e.g., studying abroad in a country that is linked to one's cultural or ethnic background), thus shaping the experiences they have during their time abroad. Future studies should strive to examine the interplay between experiences abroad and identity development among ethnic majority and minority youth to identify common and unique challenges faced by adolescents in their encounter with and adjustment to different cultural contexts.

Conclusions

The development of one's identity and attitudes are fundamental to becoming engaged citizens of multicultural societies and are intertwined with the experiences youth undergo, such as international mobility programs. The current study provided novel evidence highlighting that how youth narrate the experience abroad they had in adolescence was associated with their identity processes in the national and European domains later in life. These processes, in turn, were related to reduced levels of affective and cognitive ethnic prejudice. Overall, our findings provided a broad perspective on the potential importance of

enriching and widening individuals' context during adolescence for establishing identities

that can be associated with reduced prejudice and inclusiveness later in life.

Supplemental Materials

S1. INTERVIEW PROTOCOL

N	Question	Content
1	Quali motivazioni l'hanno spinta a partecipare a un programma di studio all'estero? Cosa le ha fatto scegliere il suo paese di destinazione? Cosa sperava di ricavare dall'esperienza? Why did you decide to participate in a study abroad experience? What made you choose your Country of destination? What did you expect to achieve from this experience?	Pre-departure expectations
2	Prima di partire per la sua esperienza all'estero, aveva già avuto modo di conoscere la cultura del Paese dove è stato? Era curioso verso culture di altri Paesi? Se sì, questo è stato un fattore che l'ha spinta a intraprendere il percorso all'estero? In quale misura rispetto ad altri fattori? Before leaving for this travel, did you have prior experience with the culture of your Country of destination? Were you curious about other cultures and countries? If so, do you think this was one of the reasons that made you choose to study abroad? How much so, compared to other factors?	Pre-departure expectations
3	Quanto la sua esperienza di studio all'estero ha soddisfatto le sue aspettative? How satisfied were you with the study abroad experience?	Coming back
4	Può raccontarmi di uno dei momenti migliori della sua esperienza di studio all'estero? (Cosa è accaduto? Questo episodio l'ha cambiata? In che modo?) Can you please tell me about the best moment of your abroad experience? (What happened? Has this changed you? How?)	Experience – High point
5	Può raccontarmi un'esperienza impegnativa o difficile vissuta durante il suo periodo di studio all'estero? (Cosa è accaduto? Come l'ha superata? Questo episodio l'ha cambiata? In che modo?) Can you please tell me about a challenging or difficult moment during your experiences abroad? (What happened? How did you overcome it? Has this changed you? How?)	Experience – Low point
6	Ripensando al suo periodo di studio all'estero, sarebbe possibile identificare alcuni momenti chiave che si distinguono come punti di svolta – episodi che hanno segnato un importante cambiamento in lei o nella sua vita?	Experience – Turning points

Thinking back to your period abroad, would it be possible to identify some key moments that act as turning points in your experience?

7	Qual è stata la sua esperienza di ritorno a casa? How was your experience coming back?	Coming back
8	Nel complesso, pensa di essere maturato come persona a seguito della sua esperienza di studio all'estero? Se sì, in che modo? Overall, do you feel that you grew up during this experience abroad? If yes, how so?	Changes – Personal Growth
9	Pensa che la sua esperienza di studio all'estero abbia influenzato i suoi valori e le sue credenze? Do you think that this experience has influenced your values and beliefs (political, religious, personal, interpersonal)?	Changes – Values
10	Pensa che la sua esperienza di studio all'estero abbia influenzato i suoi progetti o i suoi obiettivi per il futuro? Do you think your experience abroad has somehow changed or influenced your goals and projects for the future?	Changes – Future goals
11	In generale, come pensa che questa esperienza abbia influito sulla sua identità? Overall, how do you think this experience has influenced your identity (personal and cultural)?	Changes – Identity

S2. CODING MANUAL FOR AGENCY

Original version by: Adler, J. M., Skalina, L. M., & McAdams, D. P. (2008). The narrative reconstruction of psychotherapy and psychological health. *Psychotherapy Research*, 18, 719-734. https://doi.org/10.1080/10503300802326020

Previously used by: van Doeselaar, L., McLean, K. C., Meeus, W., Denissen, J. A., & Klimstra T. A. (2020). Adolescents' identity formation: Linking the narrative and the dual-cycle approach. *Journal of Youth and Adolescence*, 49, 818-835. https://doi.org/10.1007/s10964-019-01096-x

The presence of agentic elements in narratives expresses the autonomy of the protagonist. Individuals who recounted their experiences in highly agentic terms describe themselves as being able to influence the course of their life (Adler), have control of their actions (McAdams), and initiate changes on their own (Adler, Skalina, & McAdams). Agentic elements concern the degree to which people internalize their actions, reflect on them, and engage in them with a full sense of choice (Deci & Ryan's Self-Determination Theory). This achievement may come through self-insight, gaining a sense of control, or a feeling of increased power (McAdams' self-mastery).

CODES 0 – 4, where 4 = highest agency

- 0 = Protagonist is completely powerless, at the mercy of circumstances; all action is motivated by external powers; or the narrative is not written in first person (rare).

- 1 = Protagonist is somewhat at the mercy of circumstances, with primary control of the plot at the hands of external powers.

  Examples from narratives of the current study

  (Q7) "Direi traumatico, in realtà, il ritorno da New York… uno perché appunto gli orari erano tutti un po' sballati o comunque compromessi, due anche la fame tantissimo… è una cosa che ho notato parecchio, in realtà avevo fame a qualsiasi

ora del giorno e della notte. E poi appunto per questa cosa dei vari rapporti che avevo stretto, è stato difficile non vedere più le persone che vedevo lì ogni giorno… anzi, avercele dall'altra parte dell'Italia molto spesso. Sì, queste qui sono state le cose più complicate del ritorno diciamo." (I would say that it was actually traumatic, the return from New York… for one because, well, the timetables were all a bit messed up or otherwise fractured, then there was also so much hunger… it's a thing that I noticed a lot, I was actually hungry at random times of the day and at night. And then precisely because of the relationships that I had established, it was difficult not to see the people that I used to see there every day… or rather, very often having them be on the other side of Italy.)

- 2 = Recorded where there is no code-able language pertaining to the theme of agency (quite rare) or when the narrative displays both agentic and non-agentic elements.

  Examples from narratives of the current study

    (Q3) "Si, anzi direi che le ha anche sorpassate, oltrepassate assolutamente. Mi son trovata davvero bene." (Yes, I would rather say that it even exceeded them, it absolutely exceeded them. I found myself feeling very well there.)

- 3 = Protagonist is minimally at the mercy of circumstances, with the majority of the control of the plot in the hands of the protagonist.

  Examples from narratives of the current study

    (Q10) "Mh… dipende da quale punto di vista. Nel senso che, onestamente mi piacerebbe sicuramente in futuro fare ritorno lì, visitare altre zone dell'America o anche comunque altre zone del mondo proprio in generale… mi ha messo comunque molta più voglia di viaggiare, sicuramente." (Mh… it depends on the point of view. In the sense that, honestly I would like to return there in the future,

visit other areas of America or even other areas of the world in general… it gave

me more desire to travel, for sure.)

- 4 = Protagonist is agentic, able to affect their own lives, initiate changes on their own,

  and achieve some degree of control over the course of their experiences; may or may

  not include a description of some struggle to achieve agentic status.

Examples from narratives of the current study

(Q1) "Allora, prima di tutto, diciamo che è un modo più coinvolgente per

imparare la lingua e per prenderci più confidenza. E poi anche è stato un ottimo

modo in realtà per socializzare e conoscere gente, dato che in realtà sono una

persona molto introversa quindi mi viene difficile, però in quelle situazioni è

diverso quindi riesco a socializzare e conoscere gente nuova… e poi ovviamente

per la città." (Now, first of all, let's say that it's a more interactive way to learn

the language and to gain more confidence. And then it was actually also a great

way to socialize and meet people, given that I'm actually a very introverted

person so that's difficult for me, but in these situations it's different so I manage

to socialize and meet new people… and then obviously for the city.)

Additions to the original coding manual

1. Each question of the interview will receive one agency score based on the coding

   reported above.

2. Scores of 0 and 1 are given when there is no or a very low level of agency, namely

   when the protagonist's behavior or emotions are completely dictated and negatively

   influenced by external factors.

3. If the narrative describes a change in the level of agency, the code corresponding to

   the level of agency reached at the end is assigned (e.g., from low to high).

4. If the protagonist asserts that he will behave agentically in the future, this indicates agency. However, code 3 is assigned to the intention to be agentic; conversely, if the protagonist reports an example of actual agentic behavior realized later, code 4 can be assigned.

S3. CODING MANUAL FOR SELF-EVENT CONNECTIONS

Original coding manual by: Pasupathi, M., Mansour, E., & Brubaker, J. R. (2007). Developing a life story: Constructing relations between self and experience in autobiographical narratives. *Human Development*, 50, 85-110.

https://doi.org/10.1159/000100939

Adaptation by: Lilgendahl, J. P., & McLean, K. C. (2019). Narrative identity processes and patterns of adjustment across the transition to college: A developmentally contextualized approach. *Journal of Personality and Social Psychology*, 119(4), 960–977.

https://doi.org/10.1037/pspp0000277

Previously used by: van Doeselaar, L., McLean, K. C., Meeus, W., Denissen, J. A., & Klimstra T. A. (2020). Adolescents' identity formation: Linking the narrative and the dual-cycle approach. *Journal of Youth and Adolescence*, 49, 818-835.

https://doi.org/10.1007/s10964-019-01096-x

A self-event connection is defined as any point in the narrative when the participant links some aspect of the event to some enduring aspect of the self that transcends the specifics of the experience (i.e., temporary feeling states). The connection must be explicit and clearly recognizable by the coder. The coding of self-event connections will involve two steps:

Step 1: Identify each causal connection within the narrative (there may be zero or several). Each connection should refer to a specific aspect of the self.

Step 2: Indicate for each self-event connection you identified which one of the following four types it is.

1) EXPLAIN/ILLUSTRATE: The event is explained by or illustrates some trait or quality possessed by the participant. That is, this experience happened the way it did because I (am this type of person, have this type of goal, have this type of skill). Or,

this experience demonstrates or shows that I am this kind of person, possess this type of goal, etc.

Examples from narratives of the current study

"Sono sempre stato abbastanza autonomo" (I have always been quite autonomous)

"Mi piace viaggiare, esplorare nuove culture" (I like to travel, explore new cultures)

2) DISMISS: The participant gives an element about the self to make sure that the audience doesn't develop a particular opinion about them.

Example from narratives of the current study

The participant states "Non ho mai avuto problemi a parlare con le persone perchè sono molto socievole" (I have never had any problems talking with people because I am very friendly) and then refers to having a difficult time making friends during the experience abroad.

3) CAUSE: Reflect a change or an aspect of the self that was induced by the event. That is, the experience made me a certain type of person, provided me with a certain skill, and lead to a certain goal. The event causes the self-conception.

Examples from narratives of the current study

"Questo tipo di esperienza mi ha aiutato a prendere una scelta sul mio futuro" (This kind of experience helped me make a choice on my future)

"Adesso sono molto più aperta mentalmente" (Now I am much more open-minded)

4) REVEAL: Reflect a self-conception that is a revelation from the experience. That is, the experience didn't induce a self-conception but showed individuals something that previously they had not realized.

Examples from narratives of the current study

"Mi ha fatto prendere consapevolezza di certi lati del mio carattere" (It made me aware of certain sides of my personality)

NO CONNECTION: There is no connection to the self in the narrative. This is the case if:

- There is no mention of an aspect of the self, or it is too vague (e.g., "I learned more about myself" or "I became more myself").

- There is no event.

- There is no connection between an event and an aspect of the self.

<u>Additional notes</u>

- For the current narratives, the reference event is the study abroad experience. Very often, the event itself is not made explicit by the participant precisely because of the nature of the questions and the specific focus of the interview. Thus, it is very rare that there is no self-event connection due to the absence of mention of the event.

- Impersonal sentences (e.g., "If you travel, you discover yourself") can be coded as a self-event connection only if there is an explicit reference to the participant's self. For example, if the impersonal sentence is followed by a specification such as "This happened to me too..." or a concrete example referring to the person's experience ("For example, I discovered that...").

- Because the coding unit is the single section of the interview, it is possible for participants to repeat the same self-event connection (the same aspect of the self being explained/denied/caused/revealed by the experience abroad) in multiple sections. In the interest of conservatism, it is a good idea to always mark all self-event connections but note that the same connection had already been reported elsewhere.

- As a general rule, when a person repeats self-event connections that are synonymous with each other (e.g., "I have grown up" and "I have matured"), only one self-event connection will be counted. Conversely, if they are related items but not perfect synonyms (e.g., "I am more confident" and "I realized that I am doing well outside Italy as well") they will be counted as two separate self-events.

S4. YOUTH'S STUDY ABROAD EXPERIENCES

The study abroad experiences that participants had in adolescence were quite heterogeneous in terms of type, duration, and destination country. Regarding the type of experience, most youth completed at least one summer school (71.7%), followed by those who did an exchange program (16.2%), and those who had both (12.1%). Youth who completed one or more summer schools spent an average of 28 days abroad (*SD*=19, range 7-90), while those who participated in an exchange program spent an average of 318 days abroad (*SD*=92, range 90-365). Regarding the destination, summer school experiences mostly took place in European countries (84.6%) and only a few in other continents (15.4%). Conversely, most adolescents spent their exchange period in a non-European country (75%), while only a few (25%) stayed in Europe. More details on participants' destination countries are reported in Table S4. On average, the interview took place 5.3 years (*SD*=2.8) after the last abroad experience participants had during the high school period. Furthermore, the majority (66.7%) of participants did not complete an international mobility experience later during the university years, while the remaining (33.3%) did.

Table S6.4
Participants' host countries by type of experience

Summer school's destinations	%	Exchange program destination	%
European continent		European continent	
Croatia	1.3	France	7.1
Czech Republic	1.3	Germany	3.6
France	6.3	Ireland	3.6
Germany	3.8	Spain	3.6
Ireland	10.0	Sweden	7.1
Malta	2.0	Other continent	
Portugal	1.3	Australia	3.6
Spain	3.8	Canada	10.7
United Kingdom	61.3	Dominican Republic	3.6
Other continent		Ethiopia	3.6
Dominican Republic	1.3	Japan	3.6
Ethiopia	1.3	Malesia	7.1
United States of America	6.3	New Zealand	3.6
		Paraguay	3.6
		Thailand	3.6
		United States of America	32.0

S5. SUPPLEMENTAL SENSITIVITY ANALYSES

As ancillary sensitivity analyses, we checked whether the direct and indirect associations between narratives, identity processes, and prejudice significantly changed when accounting for individual (i.e., sex; 0 = Male, 1 = Female) and experience-related features (i.e., time spent abroad during adolescence). To this end, these control variables were included as predictors of all the other variables included in each model. Results are reported in Table S5.

Regarding the first model (National identity), findings on the direct associations between narratives, identity processes, and prejudices were largely replicated with only one exception. Contrary to the main results, the number of self-event connections was linked to heightened commitment to youth's national identity. Notably, the indirect association between self-event connection and affective prejudice via identity in-depth exploration did not reach significance (standardized indirect effect = -.059 [-.122, .004], p = .065) when accounting for the role of covariates.

Regarding the second model (European identity), findings largely replicated the direct and indirect associations highlighted in the main results, with only one exception. The significant association between European identity commitment and youth's cognitive prejudice, which was marginally significant in the main results, lost significance when accounting for the role of covariates. On the other hand, the indirect path from self-event connections to lower affective prejudice via increased in-depth exploration remained statistically significant (standardized indirect effect = -.089 [-.167, -.012], p = .024).

Last, the covariates included in this sensitivity analyses were directly associated with only a few variables in the national (but not European) identity model. Specifically, females reported higher levels of national identity commitment, while youth who spent more time abroad displayed significantly higher levels of reconsideration of national identity commitment.

Table S6.5

Standardized results of sensitivity analyses

	Model (a) National identity	Model (b) European identity
Direct effects		
Agency → Identity commitment	.056 (.109)	.195 (.088)*
Agency → Identity in-depth exploration	-.114 (.122)	.087 (.109)
Agency → Identity reconsideration of commitment	.303 (.113)**	.153 (.098)
Agency → Affective prejudice	.001 (.113)	.037 (.103)
Agency → Cognitive prejudice	.144 (.148)	.157 (.138)
Self-event connections → Identity commitment	.276 (.118)*	.237 (.100)*
Self-event connections → Identity in-depth exploration	.295 (.114)*	.311 (.086)***
Self-event connections → Identity reconsideration of commitment	-.155 (.109)	-.138 (.099)
Self-event connections → Affective prejudice	-.110 (.109)	-.030 (.105)
Self-event connections → Cognitive prejudice	-.041 (.128)	.107 (.124)
Identity commitment → Affective prejudice	.156 (.114)	.071 (.109)
Identity commitment → Cognitive prejudice	.153 (.117)	-.172 (.098)
Identity in-depth exploration → Affective prejudice	-.201 (.088)*	-.286 (.095)**
Identity in-depth exploration → Cognitive prejudice	.014 (.097)	-.119 (.105)
Identity reconsideration of commitment → Affective prejudice	.127 (.116)	.317 (.104)**
Identity reconsideration of commitment → Cognitive prejudice	-.079 (.148)	.077 (.080)
Covariates effects		
Sex → Identity commitment	.204 (.099)*	.114 (.089)
Sex → Identity in-depth exploration	.100 (.100)	-.010 (.099)
Sex → Identity reconsideration of commitment	.028 (.098)	-.148 (.101)
Sex → Affective prejudice	.062 (.108)	.113 (.099)
Sex → Cognitive prejudice	-.090 (.105)	-.029 (.106)
Sex → Agency	.006 (.110)	.002 (.110)
Sex → Self-event connections	-.001 (.114)	-.003 (.114)
Time abroad → Identity commitment	-.160 (.106)	.113 (.102)
Time abroad → Identity in-depth exploration	.097 (.094)	.041 (.098)
Time abroad → Identity reconsideration of commitment	.275 (.099)**	.110 (.101)
Time abroad → Affective prejudice	-.033 (.095)	-.075 (.087)
Time abroad → Cognitive prejudice	-.101 (.099)	-.129 (.099)
Time abroad → Agency	.212 (.112)	.211 (.112)
Time abroad → Self-event connections	.243 (.124)	.242 (.124)

Note. Sex: 0 = Male, 1 = Female. Grey-shaded and blue-shaded rows indicate effects that respectively became significant and lost significance when accounting for covariates.
* $p < .05$; ** $p < .01$.

SECTION C

Distal Contexts of Development

When Ethnic Minorities Hit the Headlines: The Influence of News Valence and Target on Prejudice in Adolescence

Abstract

Ethnic prejudice poses great challenges to adolescents' adjustment to multicultural societies. However, little is known about the role of the media in influencing attitudes in adolescence. Combining information environment and ecological development theories, the current study examined the longitudinal associations between the quantity, valence (i.e., neutral, positive, negative), and target (i.e., migrant, refugee, foreigner) of the news about ethnic minority groups and youth's affective and cognitive prejudice. In total, 962 adolescents (M_{age}=15.67, 48.1% females) completed questionnaires at two time points and news data were gathered from a national newspaper. While news quantity did not matter, positive and negative news were respectively associated with reduced and increased levels of both prejudice dimensions. Nuanced associations emerged when accounting for the news target. Results were replicated regardless of adolescents' direct consumption of newspapers. These findings highlight the role of the information environment and suggest the need to account for it in planning interventions.

Keywords: newspaper; media; ethnic prejudice; longitudinal; adolescence

Introduction

Over the past decades, immigration-related issues have been at the core of social and political discussions as a consequence of increasing in-flows in both Europe and the US (Grande et al., 2019; van der Brug et al., 2015). Along this line, electoral campaigns in several countries have revolved around issues of immigration and border control, and political stances have been taken against ethnic minority groups within a given context. The media contribute to these debates by leaning on specific representations of immigrants and conveying threatening depictions of diversity (Schaub & Morisi, 2020). For instance, the more media report negative portrayals (e.g., as criminals, or economic threats) of ethnic minority individuals, the higher the prejudice against and the concerns about these groups get (e.g., Boomgaarden & Vliegenthart, 2009; Conzo et al., 2021; Fuochi et al., 2020). However, most theoretical and empirical research has focused on how being *directly* exposed to media depictions of ethnic minority groups might influence individual attitudes about diverse others. Moreover, these associations have been mostly examined among adults, while less is known about the role of media in influencing the development and consolidation of ethnic prejudice of adolescents.

Building upon these premises, this study sought to test whether, in line with the information environment theoretical approach (Boomgaarden & Vliegenthart, 2009; Weimann & Brosius, 1994), the news about ethnic minorities can indirectly contribute to individual's feelings and thoughts about others, by creating a general ecological macro-context where salient issues influence how diversity is approached. This might be especially relevant during adolescence, when advancements in social (e.g., empathic competences; Van der Graaff et al., 2014) and cognitive (e.g., more sophisticated reasoning; Kuhn, 2009) abilities, coupled with the influences of the multiple contexts (e.g., family, school, society) within which youth are embedded (Bronfenbrenner, 1992, 2005) contribute to the consolidation of personal beliefs,

attitudes, and orientations toward the self (Crocetti et al., 2023) and diverse others (Knifsend & Juvonen, 2014; Meeus, 2019). Therefore, the current study aims to examine whether (and how) the quantity, valence (i.e., neutral, positive, negative), and target (i.e., migrant, refugee, foreigner) of the news about ethnic minority groups can influence changes in adolescents' ethnic prejudice regardless and whether these effects are maintained regardless of youth's actual consumption of newspaper.

Ethnic Prejudice: A Multidimensional and Complex Phenomenon

Ethnic prejudice can be defined as a form of antipathy toward a group of individuals (i.e., minority or outgroup) because of their different ethnic and cultural background (Allport, 1954). It is a multifaceted and complex phenomenon, encompassing affective, cognitive, and behavioral dimensions (Brown, 2011). The affective component refers to the domain of emotions, such as liking or disliking immigrants and people belonging to an ethnic minority. Conversely, the cognitive component of prejudice refers to negative beliefs, attitudes, and stereotypes attributed to immigrants or members of the outgroup. Together, the affective and cognitive dimensions form the basis for the behavioral expression of ethnic prejudice (Cuddy et al., 2007), which includes, among others, avoidance, discrimination, or marginalization of ethnic minority individuals. Despite displaying an overall stability over the course of adolescence (for meta-analyses, see Crocetti et al., 2021; Raabe & Beelmann, 2011), affective and cognitive dimensions of prejudice might be differently influenced by individual and socio-contextual factors (e.g., Beelmann & Heinemann, 2014).

Along this line, prior research has extensively examined the interplay between the proximal contexts of development (e.g., family, school) and adolescents' ethnic prejudice levels (e.g., Miklikowska et al., 2019). However, these contexts are themselves embedded in and influenced by distal macro-contextual factors (e.g., culture, media) and conditions (e.g., historical events) that can ultimately shape how youth think and feel about diverse others

(Bronfenbrenner, 1992, 2005). Specifically, the public discourses and the news conveyed by the media might define a general macro-context within which intergroup conflicts, threat perceptions, and social inequalities are maintained and even reinforced (Dovidio, Hewstone, et al., 2010a). Therefore, it is crucial to understand how specific aspects of the news environment can shift adolescents' thoughts and feelings about ethnic minority groups in current multicultural societies (Bagci & Rutland, 2019).

Media News and Ethnic Prejudice

Media can play an important role in shifting individual opinions about a wide range of societal issues, among which migration, ethnic diversity, and intergroup experiences (for a review, see Mastro, 2009). The role of media influences has been mostly examined within social (i.e., intergroup contact; Allport, 1954) and communication (i.e., media priming and valence framing theories; Boomgaarden, 2007) approaches. From a social perspective, media representations of ethnic minority individuals (e.g., in the news, movies) act as vicarious intergroup contact opportunities that provide the viewers with a set of information about members of the represented group, which can be used to form personal views and evaluations of others (Allport, 1954; Joyce & Harwood, 2014). Similarly, from a communication perspective, the representations that media offer about ethnic minorities prime the viewers' attention to specific characteristics of a given group and therefore influence later information processing and intergroup evaluations (Boomgaarden, 2007; Dixon & Azocar, 2007). While these theoretical approaches have examined the effect of direct exposure to the media content, the information environment theoretical approach (Boomgaarden & Vliegenthart, 2009; Weimann & Brosius, 1994) contends that the news can influence individual perceptions and beliefs also indirectly, by defining an ecological macro-context within which certain aspects of ethnic minorities are emphasized and others neglected. In turn, these macro-contextual representations can contribute to shifts in the public's opinion and in individual prejudice levels

(Jerit et al., 2006). Building upon these premises, the current study examines whether the news about ethnic minorities reported in a national newspaper can contribute to changes in adolescents' affective and cognitive prejudice regardless of youth actual direct consumption of this media outlet. Specifically, it delves into different features of the news that might differently shape individuals' attitudes and beliefs about diverse others.

How News Features Influence Ethnic Prejudice

Although relying on different theoretical assumptions, both social, communication, and information environment approaches emphasize that media can influence (either directly or indirectly) individuals' attitudes and beliefs through two features of the news, mainly the quantity and valence of information provided about a given group (Eberl & Galyga, 2021). On the one hand, the *quantity* of news about immigration to which individuals were directly exposed has been linked to heightened intergroup anxiety (Visintin et al., 2017, Study 1), negative attitudes toward immigrants (Fuochi et al., 2020, Study 1), and stereotypical representations of African American in the US context (e.g., Dixon, 2008). Similarly, concerns about migration in the general population were found to increase when the information environment provided by the media focused more on immigration-related issues (Czymara & Dochow, 2018). On the other hand, the *valence* (i.e., neutral, positive, negative) of media representations of ethnic minorities can skew individual attitudes and beliefs about them in one direction or the other. For instance, positive messages (e.g., support for the reduction of intergroup conflict, positive portrayals of minority; e.g., Mastro & Tukachinsky, 2011; Paluck, 2009; Schemer, 2012) and negative stereotypes (e.g., minority members as criminals, violent, or threatening; Conzo et al., 2021; Fuochi et al., 2020; Schemer, 2012) were found to foster better and worse attitudes toward diversity, respectively. Previous research has also highlighted the unique effect of news valence on the affective component, while other features of the news report (i.e., using noun or adjectives to identify group membership) have been found to more

directly influence the behavioral expression of ethnic prejudice (Graf et al., 2020), suggesting the need to account for the multifaceted nature of this social phenomenon.

Beyond the effect of news quantity and valence, the *target* of the news also matters. That is, how minority individuals are represented and typified in the media can uniquely shape how the public assigns specific group memberships and evaluates them. Group membership might be defined in terms of the country (e.g., Albanian versus Moroccan minorities) or continent (e.g., European versus African minorities) of origin, or the status (e.g., refugee versus undocumented migrant) assigned to the individual. Prior research has highlighted that media salience of specific historical events (e.g., terrorist attacks, immigration waves) influence group-specific attitudes, rather than the general perceptions of ethnic diversity. For instance, after the media recount of the Islamist terrorism hitting on several European (e.g., the 2015/2016 New Year's attacks in Germany; Czymara & Schmidt-Catran, 2017) and non-European countries (e.g., Bali in 2002; Legewie, 2013) negative attitudes toward immigrants from the Middle East and Africa significantly increased among the German population. Similarly, the media portrayals of Black British as the main actors in the riots that occurred in England in 2011 led to higher threats perceptions and more negative attitudes toward this ethnic minority group (de Rooij et al., 2015). While prior research has focused on ethnic minority groups typified in terms of their native country or religious background, less is known about the effect of media framing minorities based on their status (i.e., migrants, refugees, foreigners) in the host country. For instance, while the term *migrants* generally denotes people who change their country of usual residence, the term *refugees* refers to those who have to leave their country to escape persecution, conflict, or other circumstances and that require international protection (UNHCR, 2023). Conversely, the term *foreigners* indicates more broadly individuals who are born in a country different from the one they live in. These terms have various connotations as they remind to specific statuses and rights. For instance, refugees and

asylum seekers usually enjoy greater privileges and higher status than unauthorized migrants (Murray & Marx, 2013) and attitudes toward them were found to remain positive even when the openness towards migrants in general declined (Czymara & Schmidt-Catran, 2017). However, to the best of our knowledge, no previous study has examined how news related to different target groups (i.e., migrants, refugees, foreigners) influence prejudice.

The Present Study

The purpose of this study is to unravel how different features of the information environment influence adolescents' ethnic prejudice over time. First, it aims to examine the associations between quantity of the news about ethnic minorities and changes in prejudice in adolescence. In line with valence framing theories (Boomgaarden, 2007), the amount of news about ethnic minority individuals is not expected to influence how adolescents think and feel about ethnic others (H1). Relatedly, as a second goal, it further studies the interplay between valence (i.e., neutral, positive, negative) of the information environment and changes in ethnic prejudice. In line with previous findings (e.g., Fuochi et al., 2020; Schemer, 2012), neutral news are expected to have no significant effect on prejudice (H2a), while positive and negative representations of ethnic minorities in the newspaper are expected to respectively reduce (H2b) and increase (H2c) prejudice levels of adolescents. Third, this study aims to investigate whether the target of the news (i.e., migrants, refugees, foreigners) has an impact on changes in the levels of ethnic prejudice. Considering the higher status usually assigned to refugees compared to other groups of minorities (e.g., Czymara & Schmidt-Catran, 2017; Murray & Marx, 2013), negative news concerning this target outgroup are expected to not exert an impact on prejudice levels, whereas negative news about migrants and foreigners are expected to be linked to heightened prejudice (H3a). Similarly, positive news about refugees are expected to be associated with greater reductions in prejudice, compared to positive news about migrants and foreigners in general (H3b). All these hypotheses will be tested examining both the affective

and cognitive dimensions of prejudice. The fourth and last goal of the current study was to examine the moderating role of adolescents' news consumption in influencing the associations between news quantity, valence, and target and ethnic prejudice. In line with the information environment theory (Boomgaarden & Vliegenthart, 2009; Weimann & Brosius, 1994), quality and target of the news are expected to influence affective and cognitive ethnic prejudice regardless of youth's degree of direct consumption of these media outlets (H4).

Methods

Participants

Data for this study are drawn from the ongoing longitudinal IDENTITIES project "Managing identities in diverse societies: A developmental intergroup perspective with adolescents", a cohort sequential research conducted in the Northern part of Italy (i.e., Emilia-Romagna region). Specifically, 962 adolescents (at baseline: $M_{age} = 15.67$, $SD_{age} = 1.17$, 48.1% females) attending the 1st (49.1%) and 3rd (50.9%) year of several high schools located in the Northern part of Italy (i.e., Emilia-Romagna region) were included in the current study. Students were enrolled either in academic-oriented (i.e., lyceum; 47.1%), technical (32.9%), or vocational (20%) tracks. Participants completed questionnaires at the end of one school year (i.e., April/May 2022, T1) and at the beginning of the following school year (i.e., September/October 2022, T2).

Since the focus was on prejudice against ethnic minorities, only adolescents with Italian descent (i.e., whose parents were both born in Italy) were included in the current study. Most students reported their mothers (49.3%) and fathers (47.7%) had a medium educational level (i.e., high school diploma). Of the remaining mothers, some (34.5%) had a high (i.e., university degree or higher) and a few (16.2%) a low (i.e., up to middle school diploma) educational level; whereas for fathers, some had a low (27%) followed by those with a high (25.3%) educational level.

Most adolescents participated in the first (88.6%) and second (80.6%) assessments. Additionally, the questionnaire completion rate was high within each assessment (95.5% at T1 and 94.6% at T2). Therefore, missingness was mostly due to participants not filling out the questionnaire, mainly because they were not in school on the day of data collection. The Little's (1988) Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df = 1204.863/820) of 1.469, indicating that data were likely missing completely at random. Therefore, the total sample of 962 participants was included in the analyses and missing data were handled with the Full Information Maximum Likelihood (FIML) option available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater Studiorum University of Bologna (Italy) as part of the IDENTITIES project. This research involves a target group of adolescents from several high schools. Schools were selected through a stratified (by track and level of urbanization) randomized method and principals were approached to present the project. Upon their approval, the study was presented to students and their parents who also received oral and written detailed information. Active consent from parents was obtained prior to their children's participation. Active consent was also obtained from adolescents of age, while their underage peers provided their assent to participate in the project. Participation in the study was voluntary, and students were informed that they could withdraw their consent at any time. The IDENTITIES project started in 2022 and includes multiple annual, monthly, and daily assessments. At each wave, adolescents completed an online questionnaire during class hours. They were required to create a personal code to ensure confidentiality and pair their answers over time.

Measures

Demographics

Participants' socio-demographic information (e.g., age, gender, parents' educational level) was collected at the beginning of the study.

Affective Prejudice

Feelings toward the most represented ethnic minority groups in the Italian context (i.e., Albanian, Romanian, Moroccan, Chinese; ISTAT, 2020) were measured at each time point using the feeling thermometer scale (Haddock et al., 1993; for use of the Italian version, see Bobba & Crocetti, 2022). This measure asks participants to rate how much they like members of different ethnic groups on a scale from 0° (not at all) to 100° (very much). To simplify the presentation of results, items were reversed so that the higher the score the higher the level of affective prejudice. A total affective prejudice score was computed using the mean level of liking expressed for these different outgroups. Cronbach's Alphas were .91 and .93 at T1 and T2, respectively.

Cognitive Prejudice

To evaluate the cognitive component of prejudice, five items were adapted from Brown et al. (2008). Adolescents rated their agreement on a 5-point Likert scale (from 1 "completely disagree" to 5 "completely agree"). A sample item is the following "Foreign people should be marginalized in Italian society". Cronbach's Alphas were .88 and .89 at T1 and T2, respectively.

Newspaper Consumption

The extent to which adolescents relied on newspapers as a source of information was assessed at T1 with two items asking how often they used this media outlet to keep themselves updated on daily news. Ratings were expressed on a 7-point Likert type scale from 1 (never) to 7 (many times a day). Participants were assigned to either the low or the

high newspaper consumption groups, based on whether their score was lower or higher than the sample mean score.

Newspaper Data

The current study focused on the Italian national newspaper La Repubblica to examine the quantity, valence, and target of the news about ethnic minorities. This media outlet represents the second most widespread daily newspaper in the country and the first in the area of the study (i.e., the Emilia-Romagna region; ASD, 2022). As a preliminary step, the digital daily newspapers of the seven days prior to the T2 assessment were downloaded and screened using three keywords: migr* (to identify articles about "migrant*" and "migration"), stranier* (i.e., Italian for "foreign*"), and rifugiat* (i.e., Italian for "refugee*"). News articles including any of the selected keywords were read and three different types of scores (i.e., quantity alone, valence alone, valence and target combined) were extracted by the authors. First, regarding quantity, for each participant, a *quantity of news score* was computed as the average amount of news about migrants, refugees, and foreigners over the week preceding the T2 questionnaire completion. Second, regarding valence alone, for each newspaper the content of the sentence(s) containing the target terms migrant*, foreign*, and refugee* was evaluated as either neutral (i.e., reporting general statements or objective information), positive (i.e., reporting positive or sympathetic views about the outgroup), or negative (i.e., reporting statements against immigration or stereotypical representations of ethnic minorities). For each participant, three *news valence scores* were computed as the weekly average amount of neutral, positive, and negative news, separately. Last, regarding valence and target combined, the valence assessment was applied separately for each target (i.e., migrants, foreigners, refugees). This allowed to compute nine *news target scores* for each participant obtained as the weekly average amount of neutral, positive, and negative news about migrants, refugees, and foreigners separately. Further details on the newspaper data extraction procedure and examples of the coded articles

are provided in the Supplemental Materials. Initially, 20% of the articles were screened and coded independently by the first and the second author. Disagreements were solved upon discussion among the coders. Intraclass correlation coefficients (ICCs) were high across all data extracted, ranging from .73 (for negative news about foreigners) to .98 (for neutral news about migrants).[1] Therefore, the remaining news articles were screened and coded by the second author alone.

Results

Preliminary Analyses

Descriptive statistics and correlations were computed using IBM SPSS Version 29.0 for Windows. Means, standard deviations, and correlations among the main study variables are reported in Table S2 of the Supplemental Materials. As a preliminary step, longitudinal measurement invariance was tested separately for the affective and cognitive ethnic prejudice scales. For both scales, metric invariance was reached (Table S3 of the Supplemental Materials) and therefore we could proceed with the main analyses. Measurement invariance and the main analyses of the current study were performed in M*plus* 8.6 (Muthén & Muthén, 2017) using Robust Maximum Likelihood (MLR) estimator.

The Role of News Quantity, Valence, and Target on Adolescents' Prejudice

The current study sought to examine the interplay between the quantity (first goal), valence (second goal), and target (third goal) of the news about ethnic minority groups and changes in ethnic prejudice in adolescence. To this end, different linear regression models with observed variables were tested in M*plus*. In each model, newspaper data were entered as predictors of affective and cognitive prejudice at T2, while controlling for prior levels of ethnic prejudice (i.e., affective and cognitive prejudice at T1). Two models were estimated to address

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[1] The agreement was also estimated by means of the Krippendorff's alpha (De Swert, 2012) which consistently indicated an agreement rate ranging from .57 (for negative news about foreigners) to .90 (for neutral news about migrants).

the first and second goal of this study, with news quantity (Model 1) and the three news valence scores (Model 2) as predictors of changes in prejudice. Further, regarding the third goal, three models for neutral (Model 3), positive (Model 4), and negative news (Model 5) were performed with news about migrants, foreigners, and refugees as predictors of prejudice. Model fit was assessed relying on multiple criteria, such as the Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI) with values higher than .90 and .95 indicative of an acceptable and excellent fit, respectively; the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR), with values below .08 and .05 indicative of an acceptable and very good fit, respectively (Byrne, 2012). Additionally, the RMSEA's 90% confidence interval's upper bound lower than .10 indicates an acceptable fit of the model (Chen et al., 2008).

Table 7.1

Model fit indices of the regression models

Models	χ_{SB}^2	df	CFI	TLI	SRMR	RMSEA [90% CI]
			Model fit			
M1: News quantity model	40.469	4	.946	.906	.055	.098 [.072, .127]
M2: News valence model	63.834	8	.929	.902	.055	.086 [.067, .106]
News target model						
M3: Neutral news model	62.064	8	.931	.906	.063	.084 [.066, .105]
M4: Positive news model	64.813	8	.927	.900	.056	.087 [.068, .107]
M5: Negative news model	58.742	8	.935	.910	.067	.082 [.063, .102]

Note. χ_{SB}^2 = Satorra-Bentler scaled chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval.

Model fit indices are reported in Table 1. Model 1 displayed a reasonable fit, while the remaining models for news valence and target displayed a good fit. All models explained a great portion of variance in affective (ranging from 53.6% to 54.2%) and cognitive (around 46%) ethnic prejudice.

Results regarding the role of news *quantity* are reported in Table 2. As hypothesized, the amount of news about ethnic minorities was not significantly linked to changes in affective and cognitive prejudice. Regarding news *valence* (Table 2), neutral news did not play a role in changes of prejudice levels over time. Conversely, positive news were associated with reduced while negative news were linked to increased ethnic prejudice, for both the affective and cognitive dimensions.

Table 7.2
News quantity and valence models

	Affective Prejudice T2 β (*SE*)	Cognitive Prejudice T2 β (*SE*)
M1: News quantity model		
Prejudice T1[1]	.732 (.023)***	.678 (.032)***
News Quantity	-.015 (.026)	-.012 (.028)
R^2	.536 (.034)***	.460 (.043)***
M2: News valence model		
Prejudice T1[1]	.730 (.023)***	.669 (.032)***
Neutral News	.013 (.107)	.045 (.110)
Positive News	-.277 (.088)**	-.405 (.092)***
Negative News	.247 (.103)*	.346 (.114)**
R^2	.540 (.033)***	.461 (.043)***

Note. [1]Affective prejudice at T1 and cognitive prejudice at T1 were entered as predictors of affective prejudice at T2 and cognitive prejudice at T2, respectively. T=Time. β = Standardized regression coefficient. *SE* = Standard error.
* $p < .05$; ** $p < .01$; *** $p < .001$

Last, regarding news *target* (Table 3), neutral news concerning the outgroup of foreigner, but not those about migrants and refugees, were linked to heightened levels of both affective and cognitive prejudice. Regarding positive news, they displayed different effects on ethnic prejudice levels depending on the target. Specifically, while positive news about the migrants and foreigners were linked to lower affective (only for migrant target) and cognitive prejudice (for both targets), positive news about refugees were associated with increased levels of both dimensions of prejudice. Regarding negatively-valenced news, they were found to be associated with higher levels of cognitive prejudice only when they concerned the refugee outgroup.

Table 7.3

Standardized regression coefficients: News targets by valence models

	Affective Prejudice T2 β (*SE*)	Cognitive Prejudice T2 β (*SE*)
M3: Neutral news model		
Prejudice T1[1]	.731 (.023)***	.672 (.032)***
News about migrants	-.064 (.044)	-.057 (.048)
News about refugees	.018 (.039)	.029 (.040)
News about foreigners	.098 (.030)**	.106 (.031)**
R^2	.542 (.033)***	.461 (.043)***
M4: Positive news model		
Prejudice T1[1]	.730 (.023)***	.669 (.032)***
News about migrants	-.171 (.055)**	-.244 (.059)***
News about refugees	.122 (.038)**	.168 (.039)***
News about foreigners	-.047 (.045)	-.101 (.048)*
R^2	.542 (.033)***	.461 (.043)***
M5: Negative news model		
Prejudice T1[1]	.730 (.023)***	.670 (.032)***
News about migrants	-.040 (.053)	-.059 (.054)
News about refugees	.048 (.033)	.073 (.036)*
News about foreigners	-.046 (.057)	-.079 (.057)
R^2	.538 (.033)***	.461 (.043)***

Note. [1]Affective prejudice at T1 and cognitive prejudice T1 were entered as predictors of affective prejudice at T2 and cognitive prejudice at T2, respectively. T=Time. β = Standardized regression coefficient. *SE* = Standard error.

* $p < .05$; ** $p < .01$; *** $p < .001$

Moderation analyses

The last goal of the current study was to test whether youth's direct consumption of the media outlet would moderate the associations between news and prejudice. To this end, multigroup analyses were conducted separately for each of the model presented, and the Wald test was applied to identify possible differences in the association between news data and ethnic prejudice depending on youth's low or high consumption of newspaper. Results (Table 4) highlighted that the extent to which adolescents relied on newspaper to keep themselves informed did not significantly moderate the associations between news quantity, valence, and target and changes in affective and cognitive prejudice.

Table 7.4

Moderation analyses: Standardized regression coefficients across groups

	Low newspaper consumption β (SE)	High newspaper consumption β (SE)	Wald test (df)
News quantity model			
Quantity → Affective prejudice	-.030 (.033)	.007 (.033)	0.417 (1)
Quantity → Cognitive prejudice	-.010 (.037)	-.029 (.057)	0.066 (1)
News valence model			
Neutral → Affective prejudice	.076 (.143)	.101 (.175)	0.014 (1)
Neutral → Cognitive prejudice	.005 (.147)	.143 (.216)	0.264 (1)
Positive → Affective prejudice	-.333 (.123)**	-.254 (.140)	0.176 (1)
Positive → Cognitive prejudice	-.221 (.117)*	-.596 (.187)***	2.478 (1)
Negative → Affective prejudice	.233 (.138)	.156 (.173)	0.082 (1)
Negative → Cognitive prejudice	.205 (.149)	.420 (.219)	0.547 (1)
Neutral news model			
Migrants → Affective prejudice	-.055 (.057)	-.038 (.079)	0.030 (1)
Migrants → Cognitive prejudice	-.051 (.061)	-.066 (.099)	0.008 (1)
Refugees → Affective prejudice	.054 (.053)	.033 (.065)	0.062 (1)
Refugees → Cognitive prejudice	.018 (.053)	.062 (.079)	0.180 (1)
Foreigners → Affective prejudice	.106 (.039)**	.108 (.053)*	0.002 (1)
Foreigners → Cognitive prejudice	.086 (.038)*	.130 (.066)*	0.165 (1)
Positive news model			
Migrants → Affective prejudice	-.220 (.077)**	-.140 (.058)	0.440 (1)
Migrants → Cognitive prejudice	-.141 (.075)	-.365 (.118)**	2.243 (1)
Refugees → Affective prejudice	.137 (.052)**	.124 (.063)*	0.025 (1)
Refugees → Cognitive prejudice	.105 (.049)*	.222 (.083)**	1.160 (1)
Foreigners → Affective prejudice	-.078 (.061)	-.031 (.077)	0.186 (1)
Foreigners → Cognitive prejudice	-.033 (.063)	-.190 (.093)*	1.875 (1)
Negative news model			
Migrants → Affective prejudice	-.083 (.070)	-.050 (.086)	0.083 (1)
Migrants → Cognitive prejudice	-.026 (.074)	-.130 (.102)	0.622 (1)
Refugees → Affective prejudice	.035 (.043)	.009 (.061)	0.153 (1)
Refugees → Cognitive prejudice	.037 (.046)	.096 (.078)	0.261 (1)
Foreigners → Affective prejudice	-.078 (.076)	-.087 (.092)	0.004 (1)
Foreigners → Cognitive prejudice	-.029 (.076)	-.170 (.114)	0.948 (1)

Note. B = standardized regression coefficient, *SE* = Standard error. All Wald tests were not significant.

* *p* < .05; ** *p* < .01; *** *p* < .001

Discussion

News coverage of immigration-related issues has the potential to influence the public's

views, beliefs, and attitudes (Bryant & Oliver, 2009; Mutz & Goldman, 2010). However,

theoretical models (Allport, 1954; Boomgaarden, 2007) and prior research (e.g., Conzo et al., 2021; Fuochi et al., 2020; Schemer, 2012) have mostly focused on the effect of direct exposure to media narratives on adults' prejudice levels. By bridging theories from communication (i.e., information environment framework; Boomgaarden & Vliegenthart, 2009; Weimann & Brosius, 1994) and psychology (i.e., ecological systems theory; Bronfenbrenner, 1992, 2005), this study provides novel evidence on the broader factors that contribute to the development of ethnic prejudice in adolescence.

The current study extends the literature on the role of the media by examining the associations between quantity, valence, and target of the news about ethnic minorities that define the information environment and affective and cognitive prejudice of adolescents. Overall, these findings provide novel insight on the way media content and framing of ethnic minorities can influence prejudice at this developmental stage. Such knowledge is crucial not only to advance our theoretical understanding of prejudice determinants, but also to build evidence-based interventions that are sensitive to the cultural, mediatic, and historical influences at play in a given context (Beelmann & Lutterbach, 2021).

Quality Over Quantity: The Associations Between News Quantity and Valence and Ethnic Prejudice

The first and second goals of the current study were to examine whether the quantity and valence of news about ethnic minorities would influence changes in affective and cognitive prejudice among adolescents. Regarding news quantity, this study found that higher exposure to news about ethnic minorities in the previous week does not translate into a change in adolescents' levels of ethnic prejudice. Conversely, the effects of media were found to depend on the valence of the news reported. Specifically, positive and negative news were associated with reduced and increased ethnic prejudice, respectively. Interestingly, these effects were consistent across both the affective and cognitive dimensions of prejudice.

In line with the valence framing theory (Boomgaarden, 2007) and prior experimental findings (e.g., Fuochi et al., 2020; Schemer, 2012), the current study highlights how differently-valenced narratives about ethnic minorities can push individuals' feelings and thoughts in one direction or the other. However, the current study highlights that the influence of valenced news is strong regardless of individuals' direct exposure to the media content. That is, an information environment characterized by positive framing and supportive discourses about migration might elicit empathetic feelings toward the outgroup, which in turn have been previously linked to lower levels of both affective and cognitive prejudice (Bobba & Crocetti, 2022; Miklikowska, 2018). Similarly, positively framing ethnic minorities might contribute to reductions in threat perceptions (e.g., Lissitsa et al., 2023) and increased trust (e.g., Visintin et al., 2017), which consequently lead to more positive feelings and beliefs about members of the outgroup.

In contrast, negative news about minorities increase threat perceptions (Esses et al., 2013; Lissitsa et al., 2023; Schlueter & Davidov, 2013) and intergroup anxiety (Visintin et al., 2017) and offer stereotypical negative representations of migrants. These in turn prime youth's perceptions of and later judgments about diverse others, thus exerting an effect of ethnic prejudice levels (Intravia & Pickett, 2019). Moreover, the current findings align with prior experimental research (Lissitsa et al., 2023) in highlighting that neutrally-valenced news reports do not influence changes in adolescents' perceptions about ethnic minorities. That is, the information environment created by news reports plays a role in shifting youth's prejudice only when positively or negatively valenced, as these depictions can elicit congruent emotional reactions that contribute to forming and consolidating specific feelings and thoughts about ethnic others (Lambert et al., 2010). Overall, these findings build upon and extend prior literature on the effect of direct media exposure on ethnic prejudice by highlighting that the news quantity and valence define an overarching information environment that can ultimately

shape the development of intergroup attitudes and relations in adolescence. However, neutrally-, positively-, and negatively-valenced media reports might have more nuanced effects on changes in ethnic prejudice when examined in combination with the subject of such news. This suggests the importance of taking into account the target of the news to get a comprehensive understanding of this distal correlate of prejudice.

The Target Matters: The Interplay Between Valence and Target Status on Prejudice

The current study extends prior literature by examining whether neutral, positive, and negative news would be differently linked to affective and cognitive prejudice levels depending also on the status (i.e., migrant, refugee, foreigner) assigned to the news target. The findings highlighted a nuanced pattern of associations between news representations and changes in prejudice in adolescence. Regarding neutral news, interestingly, these were linked to heightened levels of both affective and cognitive prejudice but only when they concerned the group of foreigners. This might be related to the fact that the term foreigner represents a broad and de-personalizing category (Asbrock et al., 2014), which in turn makes intergroup differences salient even when factual reports are presented in the news. That is, the use of such a de-individuating category might lead the information environment to create and enhance a dichotomous perception of society as "Us vs. Them", which is at the core of ethnic prejudice and discrimination (Brown, 2011). On the contrary, relying on individuating representations of ethnic minorities supports the process of decategorization and the reduction of intergroup biases (Albarello et al., 2023; Prati et al., 2021). Prior research has documented how prejudice can be either reinforced or reduced through the use of language. For instance, experimental studies have found that using noun rather than adjectives to define ethnic categories support greater category-congruent inferences and consequently lead to more pronounced intergroup bias (Graf et al., 2013, 2020).

Regarding positively-valenced news, this study found that they were linked to different effects on prejudice based on the target. Specifically, positive news about migrants were found to be significantly linked with reduced affective and cognitive prejudice, while positive news about foreigners were associated with reduced levels of cognitive prejudice only. Conversely, positive news about refugees had the opposite effect as they were associated with increased affective and cognitive ethnic prejudice. These findings might be read considering the different status and privileges assigned to migrants and foreigners on the one side, and refugees on the other. Prior research has found that refugees and asylum seekers usually enjoy a higher status and are perceived as less threatening compared to the group of unauthorized migrants (Murray & Marx, 2013). However, positive representations of refugees might reinforce the perception of these individuals as a collective group of victims of wars and politics but lacking any form of personal agency and active participation to society (Chouliaraki & Zaborowski, 2017). Therefore, these depictions, although positively valenced and sympathetic in their tone, might increase, rather than undermine, ethnic prejudice by heightening the salience of stereotypical and de-personalized views of the outgroup (Kyriakidou, 2021). This kind of representations highlight a paternalistic or benevolent form of prejudice, whereby groups characterized by high warmth and low competence are often pitied but also actively ignored and not respected (Cuddy et al., 2007; Fiske et al., 2002). Therefore, an information environment that conveys benevolent attitudes toward the group of refugees might contribute to heightening group boundaries and increasing adolescents' prejudice.

Interestingly, also negatively-valenced news concerning the group of refugees were significantly associated to heightened cognitive prejudice levels (albeit the effect was small), while no effect was found for the groups of migrants and foreigners. Overall, the group of refugees appears to be invested of unique features and to foster increases in prejudice, despite being often considered a high-status group and benefiting of unique advantages in terms of

mobility. This occurs regardless of the valence of the discussion characterizing the information environment at a given moment. The macro-contextual salience of issues related to the group of refugees might elicit realistic (e.g., economic, political) and symbolic (e.g., threats to culture, norms, and values) threat perceptions (Stephan et al., 2016), raise the public's concerns about migration flows (McLaren et al., 2017), and ultimately set the conditions for heightened negative intergroup relations and attitudes.

From the Macro-Context to the Individual: The Role of the Information Environment

Last, the current study aimed to advance the theoretical understanding of media influences by examining whether the effect of quantity, valence, and target of the news about ethnic minorities on changes in prejudice would hold regardless of adolescents' actual consumption of and exposure to the newspaper. In line with expectations and confirming the assumption of the information environment theory (Boomgaarden & Vliegenthart, 2009; Weimann & Brosius, 1994), the associations between news data and changes in affective and cognitive prejudice were equal across adolescents who rarely and those who usually read newspaper. These findings highlight the important role played by the information environment in contributing to the understanding of prejudice. Despite being positioned in the most distal layer of the ecological developmental context, media can set the conditions under which ethnic prejudice changes and youth form and consolidate their feelings and beliefs about others (Lecheler et al., 2019). Moreover, the information environment often appears to be nuanced both in terms of valence and framing of ethnic minorities and these subtleties of language can shift youth's prejudice levels in opposite, and sometimes unexpected, directions. Overall, these findings suggest that the labels used to define ethnic minorities can reinforce dichotomous views of ingroup and outgroups, setting borders (Chouliaraki & Zaborowski, 2017) and hierarchies of deservingness (Kyriakidou, 2021) rather than providing humanizing representations able to create a sense of common identity. A possible solution around this issue

might be the inclusion of personal stories that humanize individuals, rather than focusing on anonymized groups, which can help the audience empathize with the experiences of others (Birks, 2017; Pantti & Ojala, 2019).

Findings from this study have also important practical implications. Specifically, they suggest the need for interventions that account for the complex contextual, mediatic, and historical influences at play in a given moment (Beelmann & Lutterbach, 2021), and that exploit the full potential of these macro-contextual factors. For instance, media literacy education curricula (e.g., Paluck, 2009; Ramasubramanian, 2007; for a review, see Scharrer & Ramasubramanian, 2015) might be effective in challenging stereotypical and negative representations of ethnic minority groups in the media. In turn, these interventions can prevent the negative consequences of being exposed to an information environment that heighten differences rather than similarities, ultimately supporting youth's positive adjustment and the stability and cohesion of current multicultural societies (Koopmans & Schaeffer, 2016).

Limitations and Future Research Suggestions

Findings from the current study should be read in the light of some limitations. First of all, this research relied on a single media source, mainly a national newspaper, to identify the quantity, valence, and target of news about ethnic minorities. However, the information environment of current society is shaped by both traditional (i.e., newspaper, television) and modern (i.e., social media, online news) media sources, which together might change the macro-contextual conditions to which youth are exposed. Second, this study examined the quantity, valence, and target of the news over a relatively short period of time (i.e., one week) and how it might shape changes in levels of ethnic prejudice. Future research could benefit from examining multiple media sources over a longer time span to unravel short- and long-term effects of the information environment surrounding adolescents. Last, this study did not examine the processes through which the media narratives shape the development of affective

and cognitive prejudice. Specifically, the information environment might also influence the characteristics of the proximal contexts (e.g., parents' ethnic prejudice, school, neighborhood) within which youth are embedded. For instance, it might be that the media influence adults' prejudice levels, which in turn are transmitted to their children via processes of unidirectional or reciprocal influences. Future studies are needed to unravel the unique and combined (i.e., meso-system) effects of the multiple ecological factors at play.

Conclusion

There is consistent evidence that media and the news can shape adults' attitudes toward ethnic minority groups (e.g., Conzo et al., 2021; Dixon, 2008; Schemer, 2012). This study significantly advances current knowledge by examining their role in the crucial developmental phase of adolescence, in which youth form and change their personal and social views and attitudes. Therefore, combining the theories of information environment and ecological development, the current study examined whether quantity, valence (i.e., neutral, positive, negative), and target (i.e., migrant, refugee, foreigner) of the news in the national newspaper would be linked to significant changes in affective and cognitive ethnic prejudice levels. While the total amount of news about ethnic minorities was not significantly associated with prejudice, positively- and negatively-valenced news were linked respectively to decreased and increased levels of both prejudice dimensions. Further, neutral, positive, and negative news had unique effects depending on the status of the news target. These associations were not moderated by youth's levels of direct consumption of to the media source examined (i.e., newspaper) supporting the contents of the information environment theoretical approach. Overall, this study suggests that narratives provided in the media have the potential to generate an information environment that influences both the public's and the individual's opinions and perceptions.

Supplemental Materials

Newspaper Data Coding and Extraction

The current study examined the quantity, valence, and target of the news about ethnic minorities in the Italian national newspaper La Repubblica. Data were extracted manually from the digital versions of the newspaper published daily during the week preceding students' assessment at T2. The newspapers were screened using the keywords: MIGR*, STRANIER*, and RIFUGIAT* and subsequently total and average scores were extracted for each participant and imputed into the main dataset.

Regarding the screening process, it included multiple steps, each conducted separately for every daily newspaper during the period of data collection. First, the number of occurrences of the three keywords was summed and this daily value was stored in an Excel spreadsheet. Second, each sentence containing one of the three keywords was assessed by the authors and coded as either neutral (i.e., reporting general statements or objective information), positive (i.e., reporting positive or sympathetic views about the outgroup), or negative (i.e., reporting statements against immigration or stereotypical representations of ethnic minorities) in valence. The coding process allowed the computation of three daily values (i.e., neutral news, positive news, negative news) obtained as the sum of neutral, positive, and negative sentences about minorities. Third, each sentence was again screened for a combination of valence and target and a total of nine daily scores (i.e., neutral news about migrants, neutral news about foreigners, neutral news about refugees, positive news about migrants, positive news about foreigners, positive news about refugees, negative news about migrants, negative news about foreigners, negative news about refugees) were computed as the sum of occurrences of each combination (e.g., the neutral news migrant score is the sum of all the occurrences of neutral sentences containing the keyword "migrant" in each daily newspaper). Examples of coded news (for valence and target) are available in Table S1.

Total scores for news quantity, valence, and target were subsequently computed for each participant as averages across the seven days prior to T2 questionnaire completion. Since participants completed the T2 assessment over different days depending on when researchers visited their schools and classrooms, this allowed variability in news scores. For instance, for participants who completed the T2 questionnaire on October 3rd, the composite scores were calculated as the total amount (sum) of news about ethnic minorities reported in the newspaper over the previous week (e.g., from September 26th to October 2nd) divided by seven. Last, these scores were subsequently imputed into the main dataset using participants' code, classroom, and school information to combine the newspaper and questionnaire data.

Table S7.1

Examples of coded news

Valence by Target Code	News Extracted
Neutral News - Migrant	Today about one million of *immigrants* are living undocumented in the United Kingdom**.**
Positive News - Migrant	The truth is that not only is there no *immigration* emergency, but there are too few immigrants in Italy.
Negative News - Migrant	For Guetta, 'sovereignism' is the result of the confluence of populism and nationalism, fueling the re-legitimization of borders through protest in order to curb *migrants*, cultures, and products.
Neutral News - Refugee	To these children were added the children of *refugees* from Ukraine.
Positive News - Refugee	Biden offered 100 million dollars for hospitals, 200 million dollars for the UNRWA agency in charge of helping *refugees*, and other aid.
Negative News - Refugee	Or the question of Sweden and Finland joining NATO, with Turkey's objections due to the Kurdish *refugees* in the two Scandinavian countries, whose surrender Ankara, which considers them terrorists, demands.
Neutral News - Foreigner	Robert fights, with other *foreign* volunteers, alongside the regular Ukrainian army.
Positive News - Foreigner	In these conditions it is absurd to be afraid of *foreigners*.
Negative News - Foreigner	Often the feeling of spite for the problem being solved according to international rules, turns into offence at the fact that *foreigners* interfere.

Table S7.2

Means, standard deviations, and correlations among study variables.

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Sex																				
2. Age	15.67	1.17	-.02																	
3. Affective Prejudice T1	37.71	27.06	-.13**	-.02																
4. Cognitive Prejudice T1	1.78	0.73	-.16**	.02	.49***															
5. News Quantity	2.73	1.42	-.02	.06	.07	.04														
6. Neutral News	1.58	0.96	-.03	.06	.06	.04	.99***													
7. Positive News	0.56	0.20	.01	.05	.06	.02	.97***	.95***												
8. Negative News	0.59	0.27	-.02	.05	.08*	.06	.98***	.96***	.95***											
9. Neutral News – Migrants	3.66	2.92	-.02	.06	.06	.03	.99***	.99***	.97***	.96***										
10. Neutral News – Refugees	0.27	0.24	-.03	-.03	-.06	-.02	-.77***	-.71***	-.86***	-.84***	-.76***									
11. Neutral News - Foreigners	0.83	0.26	-.05	.03	.11**	.14***	.61***	.60***	.50***	.67***	.54***	-.39***								
12. Positive News – Migrants	1.28	0.66	-.00	.06	.02	-.02	.91***	.91***	.92***	.84***	.94***	-.70***	.23***							
13. Positive News – Refugees	0.09	0.12	-.05	.05	.10**	.10**	.93***	.92***	.85***	.96***	.90***	-.69***	.84***	.70***						
14. Positive News – Foreigners	0.31	0.27	-.05	-.05	.02	.04	-.53***	-.59***	-.47***	-.41***	-.60***	.14***	.14***	-.76***	-.32***					
15. Negative News – Migrants	1.62	0.90	-.03	.05	.08*	.07	.99***	.97***	.94***	.99***	.97***	-.80***	.68***	.84***	.97***	-.45***				
16. Negative News – Refugees	0.02	0.05	-.09**	-.03	.05	.12***	-.11***	-.13***	-.25***	.04	-.15***	.03	.24***	-.31***	.14***	.17***	.04			
17. Negative News - Foreigners	0.14	0.13	-.10**	-.04	-.08*	-.11**	-.76***	-.78***	-.59***	-.77***	-.74***	.35***	-.67***	-.58***	-.85***	.55***	-.80***	-.41***		
18. Affective Prejudice T2	36.57	27.14	-.18**	.03	.73***	.48***	.04	.03	.01	.05	.02	-.01	.12**	-.02	.09**	.03	.06	.12**	-.10**	
19. Cognitive Prejudice T2	1.93	.75	-.24**	.05	.40***	.67***	.01	.01	-.03	.03	-.00	.04	.13***	-.06	.08*	.03	.04	.17***	-.13***	.52***

Note. Sex: 0 = male, 1 = female. T = Time. * $p < .05$; ** $p < .01$; *** $p < .001$

Longitudinal Measurement Invariance

As a preliminary step, the longitudinal measurement invariance of both the affective prejudice and cognitive prejudice scales were tested separately. The configural models (for affective and cognitive prejudice) function as baseline models to attest measurement invariance and should therefore display a good fit, evaluated based on the following criteria. The Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI) with values higher than .90 and .95 are indicative of an acceptable and excellent fit, respectively. The Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) with values below .08 and .05 are indicative of an acceptable and very good fit, respectively (Byrne, 2012). Additionally, the RMSEA's 90% confidence interval's upper bound lower than .10 indicates an acceptable fit of the model (Chen et al., 2008). In order to establish metric invariance, changes in fit indices from the configural to the metric (i.e., a model where factor loadings are constrained to be equal across time) model were evaluated (e.g., Cheung & Rensvold, 2002). Specifically, a significant $\Delta\chi^2_{SB}$ (Satorra & Bentler, 2001), and $\Delta CFI \geq -.010$ supplemented by $\Delta RMSEA \geq .015$ (Chen, 2007) are indicative of non-invariance. Metric invariance (which is the minimum requirement for regression analyses with observed variables) was established for both scales. Results are displayed in Table S2.

Table S7.3

Longitudinal measurement invariance of prejudice scales

Models	Model fit						Models	Model comparisons		
	χ^2	df	CFI	TLI	SRMR	RMSEA [90% CI]		$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
Affective Prejudice										
Configural (M1)	180.818	47	.965	.951	.033	.055 [.047, .064]				
Metric (M2)	191.762	52	.964	.954	.033	.053 [.045, .062]	M2-M1	3.514 (5)	-.001	-.002
Cognitive Prejudice										
Configural (M1)	164.033	29	.952	.925	.036	.070 [.060, .081]				
Metric (M2)	165.746	33	.953	.935	.039	.065 [.055, .075]	M2-M1	4.934 (4)	.001	-.005

Note. M = model; χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter.

CHAPTER **8**

A War on Prejudice: The Role of Media Salience in Reducing Ethnic Prejudice

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Abstract

Introduction. Ethnic prejudice poses a great challenge to the cohesion of current multicultural societies. Prior research has found that media portrayals of immigration-related issues might skew individual attitudes and feelings toward ethnic minorities. While these studies have focused on negative representations of ethnic minorities, less is known about the effects of media reports of unfortunate events affecting the victims of war, as in the case of the Ukrainian group in the Russia-Ukraine war. Therefore, the current research aims to examine whether media salience of this situation might change adolescents' ethnic prejudice against the Ukrainian minority. **Methods**. A total of 1,016 ethnic-majority Italian adolescents (M_{age} = 15.66, SD_{age} = 1.17, 49.61% females) completed online questionnaires during school hours before (T1: January/February 2022) and after (T2: April/May 2022) the Russia-Ukraine war onset. Additionally, the media salience of the war was quantified separately for the national newspaper and Twitter. **Results**. Levels of prejudice significantly decreased from T1 to T2 for multiple ethnic minority groups but especially so for the Ukrainian group. The results of bivariate latent change score models highlighted that increased salience of the war in the national newspaper was significantly associated with decreased prejudice against Ukrainians, regardless of adolescents' levels of self-reported newspaper consumption. Conversely, changes in the salience of the war on Twitter were not associated with changes in prejudice. **Conclusions**. These findings highlight the importance of media attention for the war's victims in skewing individuals' outgroup perceptions and feelings.

Keywords: media; ethnic prejudice; war; Ukrainian minority; longitudinal

Introduction

Nowadays adolescents are constantly online, and their digital experiences play a major role in influencing the development of identity, group attitudes, and well-being (e.g., Odgers & Jensen, 2020). Media represent a "window" through which youth can not only access a wide range of information about far-away places but also come into contact with the experiences of others. Can the mediatic recount of current events influence adolescents' thoughts and feelings about outgroup others? Since February 2022, the unprecedented event of the Russia-Ukraine war has been striking the European continent and intruding on the life of youth. Additionally, this war is being continuously documented and commented upon not only by traditional media (e.g., newspapers, television) but also through social media sources (e.g., Twitter), which allow a detailed and timely recount of what is happening in Ukraine. While prior research (e.g., Czymara & Dochow, 2018) has highlighted the crucial role of media in shifting adults' thoughts and feelings about ethnic outgroups, less is known about the effect of these influences on adolescents.

Adolescence is a crucial phase for the development of social (e.g., empathic competences; see Smetana, 2011) and cognitive competences (e.g., more complex representation of reality; see Kuhn, 2009). In turn, these might contribute to short- and long-term changes in youth's beliefs and attitudes towards diverse others (Rekker et al., 2015). Additionally, these changes are situated in and influenced by the specific physical, interpersonal, cultural, and temporal contexts within which adolescents are embedded (Bronfenbrenner, 1992, 2005). In line with this, the current longitudinal study aimed to examine whether and how the media salience of the Russia-Ukraine war influenced changes in adolescents' ethnic prejudice against Ukrainians as compared to other ethnic minority groups in the Italian society. The study included native Italian participants only, because all of these groups can be considered outgroups from a majority perspective. Moreover, majority-

minority relations are different from inter-minority relations, partly because other ethnic

groups could experience solidarity for each other due to a shared minority group identity

(e.g., Cortland et al., 2017; Meeusen et al., 2019).

Ethnic Prejudice in Adolescence: Development and Correlates

Ethnic prejudice entails a set of negative feelings, beliefs, and behaviors against

members of a specific group (i.e., the outgroup) because of their different cultural or ethnic

background (Allport, 1954; Brown, 2011). As can be inferred from this definition, ethnic

prejudice has a multidimensional nature that encompasses an affective (i.e., negative

emotions) and a cognitive (i.e., negative beliefs and stereotypes) facet, which in turn orient

individuals' behaviors (e.g., avoidance, discrimination) in intergroup contexts. This social

phenomenon poses great challenges to the cohesion of current and future societies, where

diversity is becoming as much the rule as the exception (Miklikowska & Bohman, 2019).

Therefore, it is crucial to deepen our understanding of developmental changes and correlates

of ethnic prejudice, especially among the younger generations.

Prior research has found that ethnic prejudice remains relatively stable in adolescence.

Specifically, meta-analyses (Crocetti et al., 2021; Raabe & Beelmann, 2011) have highlighted

no significant mean-level changes, which might be the result of competing processes. For

example, adolescents may display lower levels of prejudice thanks to progressive

advancements in their cognitive and moral competences (e.g., multiple categorization;

Albarello et al., 2020) but also become more negative about immigrants due to a decrease in

social trust and an increase in threat perceptions (Flanagan & Stout, 2010). Additionally,

youth's prejudice is characterized by high levels of rank-order stability. This means that

adolescents tend to maintain their standing relative to their peers based on their levels of

ethnic prejudice (Bornstein et al., 2017). Overall, these general patterns characterized by no

mean level changes and high rank-order stability do not preclude that individuals display different developmental trajectories in ethnic prejudice (Bobba, Albarello, et al., 2023).

Interestingly, rank-order stability levels were lower for the affective (i.e., negative emotions and disliking) rather than the cognitive (i.e., negative beliefs and stereotypes) dimension of prejudice (Crocetti et al., 2021). Therefore, the affective component might be more susceptible to modifications due to external conditions. That is, shifts and fluctuations in prejudice may occur as a consequence of the interactions, experiences, and opportunities youth have (Miklikowska & Bohman, 2019). The current study aimed to examine whether and how such changes occur and to unravel their interplay with changes in socio-contextual conditions.

The ecological model of development (Bronfenbrenner, 1992, 2005) provides a useful framework for studying the multiple micro-, meso-, exo-, and macro-contextual influences on adolescents' prejudice against ethnic minority groups. According to this theoretical approach, individual development is shaped by multiple proximal (e.g., family, peers, school) and distal (e.g., culture, norms, historical events) factors that, independently and combined, can mold the conditions to which youth are exposed. For instance, extensive research has examined the role of the micro-contexts of development (e.g., family, school) in shaping adolescents' attitudes (e.g., Miklikowska et al., 2019; van Zalk et al., 2013) because of their proximity and relevance in adolescents' life. Less is known, however, about distal factors such as the media, culture, and historical events that might influence not only individual development directly but also the configurations of the micro-contexts within which adolescents are embedded.

Macro-and Chrono-Systemic Influences: The Role of Media

Media play an important role in influencing the development and consolidation of ethnic emotions, cognitions, and behaviors by representing groups in stereotypical ways (for reviews, see Mastro, 2009). Several theories (e.g., media priming effect; Bissell & Parrott,

2013) have outlined the processes through which media can shape intergroup perceptions and attitudes. Great attention has been paid to the actual exposure to media content, which influences viewers' memory and shapes the lenses through which individuals evaluate and approach the world and others (Bissell & Parrott, 2013). In brief, when media offer stereotypical representations of particular groups (e.g., Black as perpetrators of crimes), these are acquired by the audience and become immediately available for later judgments and decisions (i.e., a priming effect).

Several studies have provided empirical evidence for these assumptions. For instance, prior research has found that ethnic minority groups are usually overrepresented in the reporting of crime news (Kakavand & Trilling, 2022) and are depicted in more threatening terms compared to ethnic majority crime perpetrators (Jacobs, 2017). Moreover, experimental research has found that adults and college students exposed to negative portrayals of outgroup members reported higher levels of intergroup anxiety and outgroup threat perceptions (Conzo et al., 2021) and higher dehumanization of immigrants (Esses et al., 2013). Similarly, higher levels of exposure to news (Dixon, 2008b; Intravia & Pickett, 2019), as well as to immigration-related issues (Fuochi et al., 2020) and to representations of Blacks as criminals on US local news (Dixon, 2008a) were linked to negative stereotypical representations of the target outgroup (i.e., immigrants and African Americans). However, prior research has highlighted more nuanced associations between news consumption and attitudes. For instance, mass media news about immigration was not significantly associated with intergroup attitudes among participants who had prior intimate direct contact with the outgroup (Fuochi et al., 2020, Study 1). Additionally, social media news consumption was linked to more, while Internet news consumption was associated with less stereotypical representations of African Americans (Intravia & Pickett, 2019). Moreover, news representations appear to exert an influence on ingroup favoritism among ethnic minority

groups as well. Specifically, the higher the negative representations of Blacks and Latinos on US prime-time television programs, the lower ingroup favoritism these ethnic minority participants displayed (Tukachinsky et al., 2017).

Media are also powerful sources of information about historical events and changes, including those in faraway countries. In this vein, specific chrono-historical events (e.g., terrorist attacks, migration waves, unemployment rates) might shape feelings, attitudes, and worries of the general adult population. For instance, the public acceptance of immigrants was found to significantly decrease over periods of time characterized by negative events involving ethnic minority groups, such as terrorist attacks (Czymara & Schmidt-Catran, 2017; Legewie, 2013) or ethnic riots (de Rooij et al., 2015). The news recount of these events contributed to perceptions of threat (de Rooij et al., 2015), which in turn translated into higher prejudice against the ethnic minority groups involved. Additionally, in periods of higher salience of immigration-related issues, concerns about migration were found to be high, especially among those living in highly ethnic homogeneous areas (Czymara & Dochow, 2018).

Overall, these findings point toward the crucial role of media in providing an information environment where specific issues are salient and might cause shifts at the macro-contextual level (Boomgaarden & Vliegenthart, 2009; Weimann & Brosius, 1994), which in turn can influence the micro- and individual contexts of development. While prior studies have supported this notion among adult and young adult populations, less is known about the effects of media salience on adolescents' group prejudice. Additionally, research has paid great attention to events that involve ethnic minority members as either perpetrators of crimes and violence or threats. Can salient negative events happening *to* an ethnic minority group affect levels of prejudice against members of this group?

Ethnic Prejudice in Current Times: The Case of the Russian-Ukrainian War

Since February 2022, offline and online news agencies have broadcasted the first Russian attacks on and the invasion of Ukraine and the violence perpetrated against the Ukrainian population. The Russian-Ukrainian war has become a salient issue and has been at the core of social and political discourses and actions. Through newspaper, online videos, and tweets, adults and adolescents have been constantly updated about the progression of the conflict and the sufferings of the Ukrainian population. Can these depictions create an information environment that influences adolescents' feelings and thoughts about the Ukrainian ethnic minority group? For instance, the public might be moved by the negative events occurring in Ukraine and display increased concern and sympathy toward the victims of the war. Feelings for the Ukrainian population might in turn extend to the members of the Ukrainian ethnic minority group in the host country. Higher levels of empathic concern in adolescence have been previously linked to reduced ethnic prejudice (Bobba & Crocetti, 2022). In line with this, the media salience of the war might contribute to decreased levels of ethnic prejudice against the Ukrainian minority before and after the war onset. Additionally, this effect might be stronger for youth who keep themselves updated about current events through traditional and modern media sources.

The Present Study

The purpose of the current study is threefold. First, it aims to examine whether (and how) adolescents' affective ethnic prejudice against the Ukrainian group compared to the other most represented ethnic minorities in the Italian society (ISTAT, 2020) changes before and after the Russia-Ukraine war onset. In light of prior meta-analysis (Crocetti et al., 2021), ethnic prejudice against all the ethnic groups is expected to remain stable and to display a significant decrease for the Ukrainian minority. Consequently, as a second aim, the current study examines whether changes in the salience of the Ukrainian situation in traditional (i.e.,

national newspaper) and modern (i.e., Twitter) media outlets would be linked to changes in prejudice against the Ukrainian group. Specifically, we expect to identify a significant association between reduced prejudice against this ethnic minority and increased salience of the war in both media outlets. Third, the current study would test the moderating role of direct media consumption on these associations. That is, in line with prior research (Dixon, 2008b; Intravia & Pickett, 2019), the links between the salience of the war and ethnic prejudice would be stronger and significant among adolescents who more often rely on these media outlets as a source of information.

Method

Participants

Participants in this two-wave longitudinal study were 1,016 adolescents (M_{age} = 15.66, SD_{age} = 1.17, 49.61% females) attending the 1st (49.01%) and 3rd (50.99%) year (at the beginning of the study) from several high schools located in the Northern part of Italy (i.e., Emilia-Romagna region). Since the focus was on prejudice against ethnic minorities, only Italian adolescents were included in the current study (i.e., youth of immigrant descent were excluded). At baseline, most students reported their parents were married (82.50%), while 15.50% reported their parents were separated or divorced. Most of the adolescents' mothers (48.93%) and fathers (48.13%) had a medium educational level (i.e., high school diploma). Among mothers, some of the remaining (34.33%) had a high (i.e., university degree or higher) and a few (16.74%) a low (i.e., up to middle school diploma) educational level. As for fathers, the remaining had a low (27%), followed by those with a high (24.87%) educational level.

Most adolescents (74.80%) participated in both assessments. Within each assessment, the completion rate was high (79.23% at T1 and 80.41% at T2), and missingness was mostly due to participants not filling out the questionnaire because they were not in school on the

day of data collection. Little's (1988) Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df = 778.68/490) of 1.59, indicating that data were likely missing completely at random. Therefore, the total sample of 1,016 participants was included in the analyses, and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater Studiorum University of Bologna (Italy) as part of the ERC-Consolidator project IDENTITIES "Managing identities in diverse societies: A developmental intergroup perspective with adolescents". This ongoing longitudinal research involves adolescents from several high schools in the North-East part of Italy, together with their parents and teachers. Schools were selected through a stratified (by track and level of urbanization) randomized method, and principals were approached to present the project. Upon their approval, the study was presented to students and their parents who also received written and detailed information. Active consent from parents was obtained prior to their children's participation. Active consent was also obtained from adolescents of age, while their underage peers provided their assent to participate in the project. Participation in the study was voluntary, and students were informed that they could withdraw their consent at any time.

The IDENTITIES project started in 2022 and includes multiple annual, monthly, and daily assessments. For the present study, only adolescents' data from the first (T1: January/February 2022; before the war onset) and second (T2: April/May 2022; during the war) assessments were used. At each wave, adolescents completed an online questionnaire during class hours. They were required to create a personal code to ensure confidentiality and pair their answers over time.

Measures

Demographics

Participants' socio-demographic information (e.g., age, gender) was collected at the first assessment.

Affective Prejudice

Feelings toward the Ukrainian and the other most represented ethnic minority groups in the Italian context (i.e., Albanian, Romanian, Moroccan, Chinese; ISTAT, 2020) were measured at each time point using the feeling thermometer scale (Haddock et al., 1993; for use of the Italian version, see Bobba & Crocetti, 2022). This measure asks participants to rate how much they like members of different ethnic groups on a scale from 0° (not at all) to 100° (very much). Item scores were reversed so that the higher the score, the higher the level of affective prejudice against each minority group. This single-item scale is one of the most used assessment methods for evaluating the affective component of attitudes (Dovidio et al., 2001). This measure has been previously adopted by researchers studying ethnic prejudice among adolescents (e.g., Bratt et al., 2016; ten Berge et al., 2017; Weber, 2019; Wölfer et al., 2016; for a review, see Crocetti et al., 2021), also in the Italian context (Vezzali et al., 2020).

Media Salience of the Ukrainian Situation

The salience of the war topic was assessed in two different media sources: the national newspaper La Repubblica and Twitter. In both media outlets, the number of occurrences/tweets containing the Italian terms "Ucrain*" or "ucrain*" (Italian for "Ukrain*" and "ukrain*", respectively) were counted for each day separately from early January to early June 2022. The search string exclusively focused on the Ukrainian group because of the main goal of the current study (i.e., examining the interplay between media salience and ethnic prejudice against the Ukrainian minority) and, thus, other terms related to the war (e.g., Putin) were not included. For the national newspaper, the researcher screened the newspaper

and manually counted keywords' occurrences. For Twitter, data were retrieved using the API portal, which enables access to tweet counts and other features for research purposes. To capture an individual value for newspaper salience of war-related issues, two mean scores of the newspaper occurrences on the seven days prior to each questionnaire completion day were computed separately for T1 and T2 assessments. A similar procedure was adopted for the number of tweets. This resulted in two scores of newspaper salience and two scores of Twitter salience. Twitter salience scores were additionally rescaled by dividing them by 1000 to avoid any convergence problems when estimating the models. Newspaper salience and Twitter salience were strongly correlated at both the first ($r = .82$) and the second ($r = .97$) time points.

Newspaper Consumption

The extent to which adolescents relied on newspapers as a source of information was assessed at T1, with two items asking how often they used this media outlet to keep themselves updated on daily news. Ratings were expressed on a 7-point Likert type scale from 1 (*never*) to 7 (*many times a day*).

Social Media Consumption

The extent to which adolescents relied on social media (e.g., Twitter, WhatsApp) as a source of information was assessed at T1 with two items asking how often they used these online resources to keep themselves updated on the daily news. Ratings were expressed on a 7-point Likert type scale from 1 (*never*) to 7 (*many times a day*).

Results

Preliminary Analyses

Descriptive analyses, rank-order stability, and repeated measures analyses were conducted using IBM SPSS Version 28.0 for Windows. Means, standard deviations, and correlations among study variables are reported in Table S1 of the Supplemental Materials.

Latent change score models were conducted in M*plus* 8.6 (Muthén & Muthén, 1998-2017), using Maximum Likelihood Robust (MLR) estimator (Satorra & Bentler, 2001). Data, analyses codes, and outputs can be retrieved from https://osf.io/njehw/ .

Changes in Prejudice Against Ethnic Minority Groups

The first goal of the present study was to examine whether affective prejudice against different ethnic minority groups changed in the transitions from the months right before the Russia-Ukraine war onset (T1) to the following months (T2). To this end, we study both mean-level changes and intra-individual patterns of stability of adolescents' ethnic prejudice levels.

Mean-Level Changes

Mean-level changes in prejudice against different ethnic minority groups were examined by conducting five repeated measures analyses of variance (ANOVAs), separately for each target outgroup. The means were then used to compute Cohen's *d* as an estimate of the dimension of change from T1 to T2. Cohen's *d* values around |.20|, |.50|, and |.80| can be interpreted as indicative of small, medium, and large effect sizes, respectively (Cohen, 1988). Results are reported in Table 1. Overall, adolescents' prejudice levels against the five ethnic minority groups were lower than the scale mid-point. Additionally, they also displayed a significant decrease over time across all ethnic groups. However, these decreases were marginal for the Romanian, Albanian, Moroccan, and Chinese groups but small to medium for the Ukrainian minority.

Rank-Order Stability

Pearson's test-retest correlations were computed to assess the rank-order stability of prejudice against the five ethnic minority groups examined. Coefficients equal to or higher than .60 can be interpreted as indicative of high stability (Mroczek, 2007). Results are reported in Table 1. Rank-order coefficients were indicative of high stability for prejudice

against all ethnic minority groups except for the Ukrainian group. Additionally, the significance of differences in rank-order stability across the five target outgroups was tested using the Fisher *r*-to-*z* transformation to convert correlation coefficients into *z*-scores and compare them for statistical significance ($p < .05$). The only significant difference was found in levels of rank-order stability of prejudice against the Ukrainian group. This value was significantly lower than the values of all the other ethnic groups. Specifically, ethnic prejudice levels against this ethnic minority were found to be significantly less stable than levels of prejudice against other ethnic groups.

Table 8.1
Mean-level changes and rank-order stability of prejudice

| Prejudice against | Mean-level changes | | | | Rank-order stability |
	M_{T1} (*SD*)	M_{T2} (*SD*)	F-test (η^2)	Cohen's *d* [95% CI]	T1 → T2
Romanians	44.48 (33.23)	40.50 (32.66)	13.89*** (.02)	-.12 [-.18, -.06]	.62***
Albanians	42.05 (33.99)	37.50 (33.00)	18.09*** (.03)	-.14 [-.20, -.07]	.63***
Moroccans	44.39 (34.00)	41.91 (33.97)	5.45* (.01)	-.07 [-.13, -.01]	.65***
Chinese	40.93 (34.28)	36.85 (32.92)	13.76*** (.02)	-.12 [-.19, -.06]	.62***
Ukrainians	45.15 (34.89)	33.28 (31.86)	83.04*** (.11)	-.35 [-.43, -.28]	**.47*****

Note. *M* = Mean, T = Time, *SD* = Standard Deviation. The bolded rank-order coefficient is significantly different from all others. *$p < .05$, ***$p < .001$

Multivariate Latent Change Score Models

The second goal of the present study was to examine whether changes in ethnic prejudice against the Ukrainian group could be traced back to changes in the salience of the war in the national newspaper and on Twitter. To this end, two multivariate Latent Change Score (LCS) models were performed (e.g., McArdle, 2009; McArdle & Nesselroade, 1994). This procedure estimates a latent change factor characterized by two parameters that account for the average change (i.e., mean parameter) and the interindividual variation in change (i.e., variance parameter), respectively. The multivariate version of LCS allows to estimate one latent change factor for each variable included in the model and to examine the correlations among them. Two multivariate models were estimated separately for changes in media salience in the newspaper (model (a)) and on Twitter (model (b))[2]. All the analyses were performed using the *Type = Complex* feature available in M*plus* (Muthén & Muthén, 2017), which allows to estimate robust standard errors accounting for the nested structure of the data (i.e., participants nested within classes). Unstandardized estimates of the mean and variance of the latent change scores are reported in Table 2. The models are represented in Figure 1.

Means and variances of the estimated latent change scores were all significant. While prejudice against the Ukrainian ethnic group significantly decreased over time, the salience of the war in both national newspaper and Twitter increased. The change in prejudice levels was significantly and negatively associated with a change in newspaper salience but not with a change in Twitter salience. That is, as the media salience of the war increased in the newspapers (but not on Twitter), adolescents' prejudice levels against the Ukrainian group significantly decreased.

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[2] Sensitivity analyses were conducted to check whether expanding or reducing the search string used to quantify the salience of the war on Twitter could influence the results, but it did not (see Table S2 of the Supplemental Materials).

Table 8.2

Unstandardized estimates of the two multivariate Latent Change Score models

	M (SE)	Variance (SE)
Model (a): Prejudice and Newspaper		
Latent Change in prejudice against Ukrainian group	-11.75*** (1.49)	1192.11*** (81.91)
Latent Change in newspaper salience	55.50*** (2.60)	493.12*** (46.52)
Model (b): Prejudice and Twitter		
Latent Change in prejudice against Ukrainian group	-11.89*** (1.49)	1192.42*** (81.75)
Latent Change in Twitter salience	31.30*** (2.00)	387.56*** (73.98)

Note. M = Mean, *SE* = Standard Error. *** $p < .001$

Multigroup Analyses

The third goal of the present study was to examine possible differences in the associations between changes in prejudice against the Ukrainian group and changes in salience of war-related news on the two media outlets considered between adolescents with low and those with high levels of media consumption. To this end, adolescents were first assigned to either a low or a high consumption group (mean-split) separately for newspaper and social media consumption. Next, following suggestions by McArdle (2009), multigroup analyses were conducted separately for each model, and the Wald test statistic was applied to identify significant differences in the associations examined[3]. Results highlighted that the extent to which adolescents consumed newspapers (Wald = 0.01, $p = .936$) or social media (Wald = 0.89, $p = .344$) did not moderate the link between changes in media salience of the war in these two outlets and changes in ethnic prejudice.

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[3] Following indications from an anonymous reviewer, we conducted additional analyses to examine the moderating role of media consumption by means of a latent/manifest interaction test. To this end, the baseline models were tested again, separately, by regressing the latent change score of affective prejudice on (a) the latent change score of the salience of the war (in the newspaper and Twitter, separately); (b) the observed score of media consumption (for newspaper and social media separately), which was previously rescaled using a natural log transformation to control for skewness; and (c) their interaction. These analyses were conducted using *Algorithm=Integration* and *Type=Random*. However, these models did not converge.

Figure 8.1

Standardized results of the two multivariate Latent Change Score models
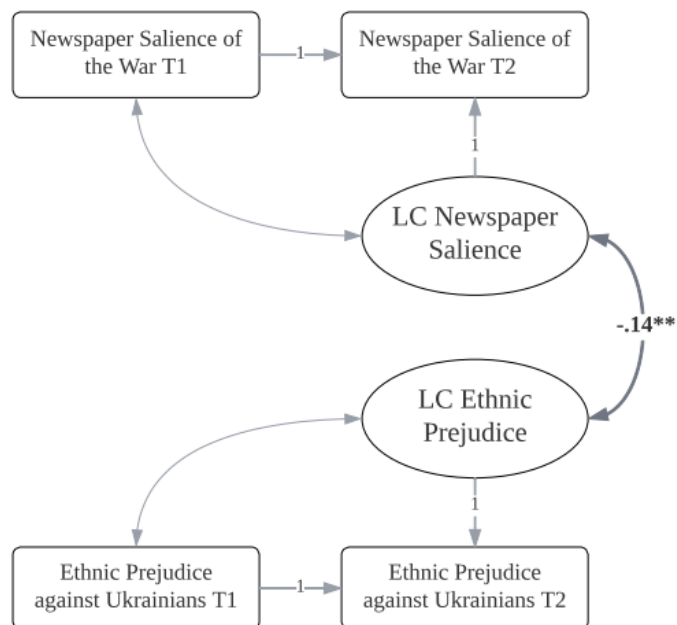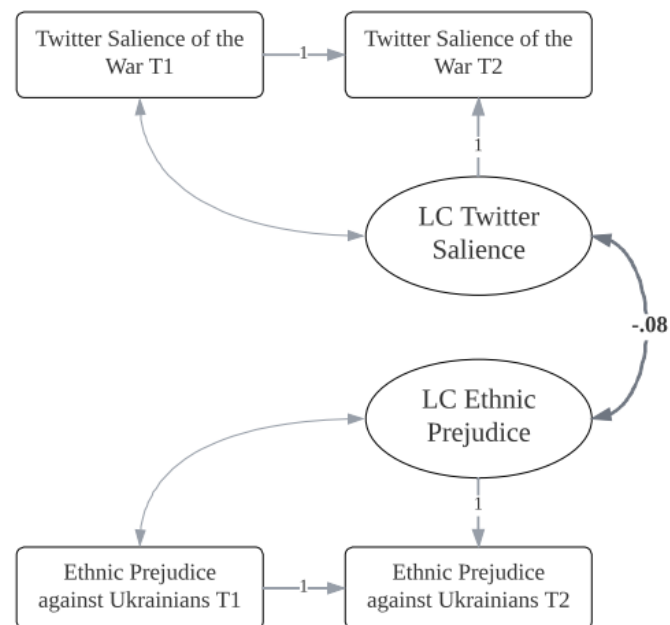
Note. LC = Latent Change, T = Time. ** $p < .01$

Discussion

Adolescence is a crucial period for the development and consolidation of views about the self, others, and society (Meeus, 2019). Changes and stability in these individual characteristics result from multiple contextual influences (Bronfenbrenner, 2005). While great attention has been paid to proximal factors (e.g., family), less is known about the role of macro- and chrono-contextual influences (e.g., historical events) on youth's ethnic prejudice. By taking an ecological and historical perspective (Bronfenbrenner & Morris, 2007) and building upon prior research with adults (e.g., Czymara & Dochow, 2018; Fuochi et al., 2020), the current study advanced our understanding of how the recount of current events, such as the Russia-Ukraine conflict, by traditional (i.e., newspaper) and modern (i.e., Twitter) media can influence adolescents' ethnic prejudice in current digitalized and multicultural societies. Overall, ethnic prejudice against the Ukrainian group significantly decreased after the war onset together with an increased salience of the war topic in the newspapers, but not on Twitter. These findings highlight for the first time the role of the macro- and chrono-contexts in shaping adolescents' attitudes, suggesting the need to account for timely historical events when studying the development of ethnic prejudice as embedded in context.

The Twists and Turns of Ethnic Prejudice in Times of War

The first goal of the present study was to examine whether (and how) prejudice against Ukrainians versus other ethnic minority groups changed after the Russia-Ukraine war onset. Medium-sized reductions in mean levels and low inter-individual stability were detected in ethnic prejudice against the Ukrainian minority. Although significant decreases also emerged in levels of ethnic prejudice against the other outgroups, the changes observed for the Ukrainian group were stronger. These shifts and fluctuations might be a consequence of the macro- and chrono-contexts youth are embedded in (Bronfenbrenner & Morris, 2007). That is, historical events and the zeitgeist of current times might influence adolescents' life in

ways that skew their beliefs and attitudes and ultimately shape their development. More research is needed to examine the generalizability of current findings across several contexts (e.g., varying in their proximity to and views on specific historical events) since these characteristics might modulate the effects observed in the current study.

Additionally, the low rank-order stability coupled with a high and significant variance in the latent change score of ethnic prejudice against the Ukrainian population suggest that adolescents might display different trajectories of change. In other words, it might be that ethnic prejudice against this outgroup decreased for some, remained stable, or even increased for other youth. Future research should strive to adopt person-oriented approaches (Bergman et al., 2003; Von Eye & Bogat, 2006) to deepen our understanding of the patterns of change and stability and possibly identify different developmental trajectories within the general groups of adolescents (Bobba, Albarello, et al., 2023).

A Window onto the World: How the Media Frame Adolescents' Ethnic Prejudice

The second and third goals of this research were to understand whether the anticipated reduction in ethnic prejudice against the Ukrainian group might be traced back to the attention given to the Russia-Ukraine situation by both traditional and modern media outlets and whether these associations would be moderated by how much adolescents rely on these media sources for information. Regarding the national newspaper, increased media salience of the situation in Ukraine was significantly associated with decreased levels of ethnic prejudice against Ukrainians. This finding is in line with prior research with adults highlighting the role of media (e.g., Conzo et al., 2021; McLaren et al., 2017) and recounts of historical events (e.g., Czymara & Schmidt-Catran, 2017; de Rooij et al., 2015) in framing perceptions of and prejudice against specific outgroups. However, while previous studies have mostly focused on negative portrayals of ethnic minority groups, the current research extends available findings by highlighting similar effects of presumably positive and

empathy-enhancing representations of the outgroup. Although in the current study we examined the media salience without specifically tackling the valence of media content, it should be noted that the main narrative of the Italian national newspaper offered a clear-cut distinction between the victim of war sufferings (i.e., the Ukrainian population) and the unlawful invader (i.e., the Russian army). Consequently, the mediatic recount of the sufferings of the Ukrainian population might have increased empathetic feelings toward them, which in turn are known antecedents of prejudice reductions in adolescence (e.g., Miklikowska, 2018). Interestingly, the significant association between newspaper salience of the news on the Russia-Ukraine situation and ethnic prejudice against the Ukrainian minority held regardless of adolescents' actual consumption of newspapers. This finding supports the notion that the media provide an information environment able to affect the public at large rather than reaching only those who are directly exposed to specific news. When certain issues are highly salient and dominant in the news, as in the case of the Russia-Ukraine war in the Italian newspapers, they can shift public opinion through both direct (i.e., actual exposure to the news) and indirect (i.e., via interpersonal communication) encounters with the topic being discussed and the representations being conveyed (Boomgaarden & Vliegenthart, 2009).

Conversely, despite the strong correlation between newspaper and media salience, increased attention to the situation in Ukraine on Twitter was not linked to changes in ethnic prejudice against the Ukrainian group. This finding is in contrast with previous research highlighting the role of social media news consumption in increasing stereotypical representations of minorities (Intravia & Pickett, 2019). However, it might be explained in relation to two main features of the social media examined. First, Italian adolescents have been found to rarely resort to Twitter as their preferred social media platform (Marengo et al., 2022), which might mitigate the ability of this outlet to contribute to the information

environment to which youth are exposed. Second, while the national newspapers can be assumed to provide a relatively consistent recount of the war (i.e., Ukrainians being described as victims of the Russian invasion), Twitter is a wide platform where opposing views and perceptions coexist (i.e., Ukrainians as victims of the war or Russians rightfully claiming a certain territory). Therefore, tweet counts might not be enough to capture the dominant opinion or sentiment in a given period of time (Rodrigues & Chiplunkar, 2022). Future research might benefit from combining quantitative assessment (i.e., tweet count) with an analysis of emerging opinions (i.e., sentiment analysis) of important historical events on social media.

Theoretical and Practical Implications

Overall, the current findings have important theoretical and practical implications. From a theoretical perspective, they highlight for the first time the role of media salience in skewing adolescents' perceptions of and prejudice against ethnic minority groups. Extant research has highlighted the implication of media and the news for youth's well-being (for a systematic review, see Keles et al., 2020) and interpersonal adjustment (for review, see Uhls et al., 2017). Additionally, the media have been found to increase youth's interest in political and social issues (Moeller et al., 2018). Along this line, the current study provides evidence of how media salience of current historical events can shape adolescents' views of others, which are fundamental for the stability of current and future diverse society (Titzmann & Jugert, 2019).

From a practical standpoint, incorporating macro- and chrono-systemic influences might improve the quality and effectiveness of interventions aimed at reducing ethnic prejudice levels (McKeown et al., 2019). That is, the information environment and public discourses youth are exposed to might undermine the positive effects of prejudice reduction interventions by broadly influencing the multiple contexts of adolescents' development.

Consequently, these programs should expand their focus by tackling ethnic prejudice as an individual characteristic embedded in and shaped by several ecological contexts (Beelmann & Lutterbach, 2021; Bronfenbrenner, 2005).

Limitations and Suggestions for Future Research

The current findings should be read in light of some limitations. First of all, this study examined longitudinal changes in ethnic prejudice over a relatively short period of time (i.e., 4 months) and included only two assessment points. This design limited the understanding of the short- and long-term effects of media as well as the possible mechanisms of associations. Future research should include additional assessments over a longer period and examine other intergroup factors (e.g., direct contact with the outgroup, ingroup identification) that could mediate or moderate the processes at play. This would make it possible to examine whether and how the effects of media salience would generalize to other ethnic groups not directly involved in the events reported in the news and whether direct experiences with the outgroup can contribute to steeper decreases in prejudice. Second, the current study focused on two media outlets, mainly national newspaper and Twitter. Future research could benefit from examining other social media platforms (e.g., TikTok, Instagram) as well as incorporating a qualitative evaluation of the general sentiment toward specific issues. However, at the present moment, Twitter is the only platform providing data mining opportunity for research. Third, the measure for ethnic prejudice used in the current study tackles its affective dimension, whereas there is a need to account for its multifaceted nature (Bobba & Crocetti, 2022; Brown, 2011). Moreover, the scale was formulated in terms of liking, and technically, the absence of liking is not the same as disliking. Still, the latter certainly implies the former. Moreover, the lower anchor point (0°) suggests cold rather than neutral feelings. Lastly, this study focused on majority adolescents (native Italians) only. It is also important to study how

ethnic minority groups evaluate other ethnic minority groups to tackle both the positive and negative sides of inter-minority relationships, such as solidarity and threat dynamics.

Conclusion

Media have the potential to influence adolescents' well-being and interpersonal adjustment and to shape adults' and young adults' attitudes. However, no prior research has examined how the media salience of current historical events, such as the Russia-Ukraine war, can mold youth's ethnic prejudice levels. By taking an ecological developmental perspective, the current two-wave longitudinal study examined changes in adolescents' ethnic prejudice before and after the war onset and whether media salience of this event in the newspaper and Twitter would be associated with changes in prejudice against the Ukrainian minority. Prejudice levels significantly decreased over time for all ethnic groups, but especially so for the Ukrainians. Additionally, increased salience of the war in the national newspaper, but not on Twitter, was significantly associated with decreased prejudice against Ukrainians, regardless of adolescents' levels of self-reported media consumption. These findings expand our understanding of the distal determinants of ethnic prejudice and suggest the importance of accounting for timely historical events when building interventions for improving intergroup relations.

Supplemental Materials

Table S8.1

Means, standard deviations, and correlations among study variables

	M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1.Age																			
2.Sex			-.02																
3.Prejudice vs. Romanians T1	44.47	33.46	.03	-.13***															
4.Prejudice vs. Albanians T1	42.01	33.93	.01	-.11**	.72***														
5.Prejudice vs. Moroccans T1	44.42	34.18	.06	-.24***	.72***	.69***													
6.Prejudice vs. Chinese T1	41.40	34.46	-.05	-.11***	.62***	.58***	.60***												
7.Prejudice vs. Ukrainians T1	45.72	35.03	.00	-.13***	.72***	.70***	.66***	.71***											
8.Newspaper salience T1	14.33	8.94	.06	.05	-.05	.00	-.05	-.05	-.09**										
9.Twitter salience T1	10.85	12.77	.06	.03	-.03	.01	-.03	.02	-.03	.82***									
10.Newspaper consumption T1	2.47	2.01	-.01	-.03	-.04	-.04	-.05	-.01	.00	.08*	.08*								
11.Social consumption T1	4.85	1.89	.01	.06	-.01	.00	.00	.05	.00	.00	.02	.10**							
12.Prejudice vs. Romanians T2	41.53	32.67	-.05	-.10**	.62***	.49***	.48***	.40***	.48***	.04	.03	-.01	.02						
13.Prejudice vs. Albanians T2	38.58	33.04	-.03	-.09**	.49***	.63***	.50***	.38***	.45***	.05	.04	-.05	.06	.71***					
14.Prejudice vs. Moroccans T2	43.45	34.21	.03	-.21***	.50***	.48***	.65***	.38***	.45***	.04	.03	-.04	.08*	.69***	.69***				
15.Prejudice vs. Chinese T2	38.95	33.71	-.04	-.06	.43***	.40***	.42***	.62***	.47***	.05	.12***	.04	.07	.61***	.54***	.54***			
16.Prejudice vs. Ukrainians T2	34.76	32.20	-.02	-.07*	.45***	.41***	.42***	.43***	.47***	.02	.01	.02	.08*	.67***	.59***	.58***	.68***		
17.Newspaper salience T2	69.84	14.50	.06*	-.04	.07*	.07*	.07*	.11**	.14***	-.78***	-.57***	-.10**	.02	.01	.00	.00	.00	.01	
18.Twitter salience T2	42.16	9.24	.04	-.06*	.08*	.08*	.09*	.13***	.16***	-.77***	-.59***	-.12***	.04	.02	.01	.01	.03	.03	.97***

Note. Sex: 0 = male, 1 = female. T = Time. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Sensitivity Analyses

To quantify the salience of news regarding the Ukrainian ethnic group consistently across the newspaper La Repubblica and Twitter, the same search string was used (i.e., the Italian keyword UCRAIN*). However, Twitter is an international social media where much content is written in English. Therefore, we used two additional search strings to run sensitivity checks.

First, the original Italian search string was extended by also adding the English version of the keywords. This resulted in the following search string: UKRAIN* OR UCRAIN*. This resulted in a wide number of tweets selected through the API platform. We run the multivariate LCS model again using this measure of Twitter salience. Results (Table S2, Model (1)) did not significantly differ from the main analyses. As in the main model, the latent change in prejudice did not significantly correlate with the latent change in Twitter salience ($r = -.02$, $p = .713$).

Considering the increases observed in the number of tweets retained through the search string mentioned above, a restriction was applied to the keywords to only identify tweets concerning the war. The following search string was imputed in the API portal: (UKRAIN* AND WAR) OR (UCRAIN* AND GUERRA). This resulted in a number of tweets comprised between those obtained through the Italian-only and the extended search strings. We run the LCS model again using this measure of Twitter salience. Results (Table S2, Model (2)) did not significantly differ from the analyses reported in the manuscript. As in the main model, the latent change in prejudice did not significantly correlate with the latent change in Twitter salience ($r = -.02$, $p = .601$).

Table S8.2

Unstandardized estimates of the sensitivity models

	M (SE)	Variance (SE)
Model (1): Extended search string		
Latent Change in prejudice against Ukrainian group	-11.87*** (1.49)	1192.05*** (81.82)
Latent Change in Twitter salience	50.79*** (4.31)	3162.80** (1154.62)
Model (2): Restricted search string		
Latent Change in prejudice against Ukrainian group	-11.82*** (1.50)	1192.52*** (81.66)
Latent Change in Twitter salience	11.72*** (0.57)	50.22** (17.17)

Note. M = Mean, SE = Standard Error.
** $p < .01$; *** $p < .001$.

SECTION D

Implications of Ethnic Prejudice

Em*bed*ded in Contexts: A Systematic Review of the Longitudinal Associations Between Contextual Factors and Sleep

Abstract

Dramatic changes in sleep duration, schedules, and quality put adolescents at higher risk of negative outcomes, such as poorer physical and psychosocial adjustment. While significant attention has been paid to the role of proximal contexts (e.g., family), less is known about the longitudinal interplay between exo- (e.g., neighborhood characteristics) and macro-contextual (e.g., ethnic/racial discrimination) influences and adolescents' sleep quality. Therefore, this review aimed to summarize findings from available longitudinal research to understand the role of structural factors and experiences in the distal contexts of development in influencing sleep quality in adolescence. A total of 10 studies were included in this systematic review. The results highlighted the detrimental consequences of structural factors and experiences at the exo- and macro-systems for adolescents' sleep duration, quality, and disturbances. Specifically, neighborhood economic deprivation, ethnic/racial minority status, community violence and victimization, and ethnic/racial discrimination were all linked to significantly lower sleep quality. Overall, this review highlighted the need for more longitudinal and multi-method studies addressing sleep quality as embedded in contexts and the reciprocal influences among the multiple layers of adolescents' development.

Keywords: Adolescents; sleep quality; ecological contexts; distal influences; systematic review; longitudinal

Introduction

Sleep is considered a gateway to well-being, positive adjustment, and functioning at every life stage (for a review, see Chaput et al., 2016), especially in adolescence (McGlinchey, 2015). Healthy and good quality sleep can be theorized as a multidimensional construct, composed of satisfaction with sleep, alertness during waking hours, regular sleep schedule, a proper amount of sleep duration, and ease of falling asleep and returning to sleep (Buysse, 2014). However, dramatic changes in sleep duration, schedule, and quality occur in adolescence, possibly leading to depression (for a meta-analysis, see O'Callaghan et al., 2021) and poor psychosocial adjustment (e.g., Shimizu et al., 2020) and academic performance (e.g., Liu et al., 2021). Sleep changes and patterns can be conceived as embedded in and resulting from a wide range of factors positioned in the multiple concentric ecological systems of youth's development (El-Sheikh & Sadeh, 2015; Grandner, 2019). While significant attention has been paid to the influence of individual characteristics (e.g., pubertal changes; Foley et al., 2018) and micro-contexts (e.g., parent-child relationship; for a review, see Varma et al., 2021), how sleep is intertwined with exo- (e.g., neighborhood) and macro-contextual (e.g., culture) factors is still poorly known. This study addressed this gap by adopting an ecological (Bronfenbrenner, 1979, 2005) and transactional (Sameroff, 2009) perspective to systematically review available findings on the longitudinal interplay between sleep changes in adolescence and exo- and macro-contextual factors.

The Outer Systems of Development: The Exo- and Macro-Contexts

The ecological (Bronfenbrenner, 1979, 2005) and transactional (Sameroff, 2009) models conceive development as a result of continuous bidirectional influences between the person and the multiple concentric systems that surround individuals and compose their ecological environment. Therefore, development unfolds within different micro-systems that closely interact with one another (i.e., the meso-system) and are nested in and influenced by

broader exo- and macro-systemic factors. Micro- and meso-systems can strongly influence youth's development and functioning since the individual is directly in contact with social agents and experiences happening in these proximal layers. However, these contexts are themselves embedded in and influenced by broader factors positioned at the exo- and macro-systems (Bronfenbrenner & Morris, 2007).

The exo-system is the ecological milieu of proximal contexts because it comprises the interactions and processes that might affect (or be affected by) the micro- and meso-contexts, and in turn, the developing individual. For instance, an exo-systemic feature, such as the neighborhood characteristics, might shape the conditions under which the core family micro-system forms and functions and in turn, influence the developing child (Bronfenbrenner & Morris, 2007). Taking a step further, the macro-system refers to the outermost layer that includes the culture or subcultures, belief systems, and ideologies in a given time and place (Bronfenbrenner, 1979). For instance, specific cultural norms and expectations in a given place (e.g., country) can influence individual development by framing the conditions, opportunities, and challenges faced in their micro-, meso-, and exo-contexts. Elements of the exo- and macro-systems could be differentiated into two categories: the structural features (e.g., neighborhood SES, ethnic/racial minority status) and the experiences (e.g., community violence exposure, ethnic/racial discrimination) occurring at these levels. Both might highlight a nuanced interplay between adolescents' development and sleep quality (El-Sheikh & Sadeh, 2015).

The Role of Structural Factors

Structural factors at multiple levels reflect specific features of exo- and macro-contexts that might affect youth's outcomes and well-being. These are usually stable and enduring features that set the specific opportunities and constraints for adolescents' development and adjustment. At the exo-system level, neighborhood structural features are

particularly relevant in the study of development as they contribute to defining the ambient (e.g., noise), built (e.g., stores, street connectivity), and social (e.g., safety, crime) environments individuals inhabit (Billings et al., 2020). On this line, a core structural feature is neighborhood socioeconomic deprivation. It encompasses the physical (e.g., vacant houses), economic (e.g., average income, number of individuals receiving public assistance), and social (e.g., unemployment rate, residential instability) hazards that might contribute to creating poor and disrupted environments (Galobardes, 2006). Previous research has highlighted that neighborhood determinants might explain a significant portion of the variance in youth's health outcomes (Sellström & Bremberg, 2006) and have been linked to poorer academic performance, drug use, higher levels of internalizing and externalizing problems, and delinquency (for reviews, see Leventhal & Brooks-Gunn, 2000; van Vuuren et al., 2014).

Another key factor linked to poorer adjustment outcomes is adolescents' ethnic/racial minority status. While race and ethnicity are inherently individual features, the status of ethnic majority or minority changes depending on the specific contexts (e.g., school, neighborhood, country) in which an individual is situated. For instance, an individual can be an ethnic majority member in one setting (e.g., in the classrooms) and an ethnic minority member in other(s) (e.g., in the neighborhood or society at large). Additionally, the majority/minority status becomes salient and relevant within the macro-system's shifting norms, attitudes, values, and expectations (Galliher et al., 2017). That is, the macro-context includes a set of cultural stereotypes and expectations that influence how ethnic/racial minority members are perceived, the challenges they face, and the opportunities they have in a given place and moment (Juang et al., 2021; Moffitt & Syed, 2021). In turn, these factors can shape the individual and social experiences of both majority and minority youth, as well as their levels of adjustment and well-being. Extant research has highlighted that ethnic/racial

minority individuals tend to display poorer physical health (e.g., Schnittker & McLeod, 2005) and psychological outcomes (e.g., Alegría et al., 2015) compared to their ethnic majority peers, as a consequence of systematic social inequalities faced in their proximal and distal contexts of development.

The Role of Subjective Experiences

Adolescents' development is influenced not only by structural characteristics but also by the subjective experiences they face and the strategies they adopt to adjust to their ecological environments. Core experiences encountered in the exo-system mostly revolve around issues of exposure to violence in the community, which includes both physical victimizations (i.e., being subjected to acts of force) and witnessing violence (i.e., seeing violent acts perpetrated against others) in the neighborhood context. These experiences have been associated with externalizing problems and aggression (e.g., Pinchevsky et al., 2014; Zimmerman & Posick, 2016), emotion dysregulation, and internalizing symptoms (Gaylord-Harden et al., 2011; Heleniak et al., 2018).

Moving toward the macro-context, beliefs, values, and ideologies positioned at this level also shape adolescents' experiences, developmental tasks, and adjustment mechanisms. It is the case for ethnic/racial discrimination, which can be conceived as a sustained adverse experience. In line with models of stress proliferation (Pearlin et al., 2005), discrimination not only increases individuals' stress levels directly but might also set in motion additional adverse conditions (e.g., poor social relationships, low academic functioning) or increase the salience of daily hassles. These mechanisms help understand the associations found between ethnic/racial discrimination and poorer adjustment and well-being (e.g., Bayram Özdemir & Stattin, 2014; Benner, 2017), which are especially impactful in adolescence. Specifically, as cognitive, emotional, and social development unfolds from early to late adolescence and into young adulthood, youth acquire more sophisticated abilities to successfully cope with

experiences of ethnic/racial discrimination (e.g., Brittian et al., 2013). Therefore, younger adolescents might not be yet equipped to face instances of ethnic/racial discrimination or negative experiences in their exo- and macro-contexts. In turn, these might have more detrimental short- and long-term consequences for their adjustment and functioning (for a meta-analysis, see Benner et al., 2018).

Associations Between Sleep and Exo- and Macro-Contextual Factors

The literature reviewed so far points to the importance of structural and experiential factors in the outer contexts (exo- and macro-systems) for adolescents' development. Taking a step further, it is worth examining the interplay between these distal ecological contexts and youth's sleep. Sleep is conceived as a multidimensional construct consisting of quantitative and qualitative aspects, which can be evaluated through either subjective (e.g., self-report, sleep diaries) or objective (e.g., actigraphy) assessment methods. Quantitative aspects refer to *sleep duration* (i.e., the number of hours slept at night). In contrast, qualitative elements refer to the configuration of different sleep parameters, such as *sleep efficiency* (i.e., the amount of time a person is asleep during the time spent trying to sleep) and individuals' *satisfaction with their sleep*. The interplay of these aspects contributes to configuring good (e.g., proper sleep duration and high sleep efficiency) or poor sleep quality (e.g., sleep deprivation and low sleep efficiency) (Meltzer et al., 2021). Poor sleep quality could also lead to insomnia symptoms, mainly difficulties initiating and maintaining sleep at night (Blake et al., 2011). Reporting poor sleep quality represents a common problem in adolescence (Gradisar et al., 2011), with short and long-term adverse health outcomes, including obesity (Fatima et al., 2016), cognitive impairment (Short et al., 2018), and mental health problems (Hestetun et al., 2018).

Addressing the interplay between structural factors of exo- and macro-systems and sleep quality, previous cross-sectional studies highlighted how living in neighborhoods characterized by high disruption, social fragmentation, and low socioeconomic status was

associated with poorer sleep duration and quality among adolescents (Pabayo et al., 2014; Umlauf et al., 2011) and adults (for a review, see Hale et al., 2015). Moreover, sleep disparities were also found among children and adolescents depending on their status as ethnic/racial minorities (for a review, see Guglielmo et al., 2018). In most studies, White majority youth reported longer total sleep time and better sleep quality than their ethnic minority peers (e.g., Marczyk Organek et al., 2015; Moore et al., 2011).

Together with the increased attention paid to structural factors at distal levels, research has also highlighted the associations between negative experiences (e.g., exposure to violence and victimization in the community, ethnic/racial discrimination) and sleep problems (i.e., repeated difficulty with sleep initiation, duration, and consolidation), quality, and duration. For instance, early adolescents who witnessed higher levels of community violence and those who were victimized by peers at school also reported poorer sleep quality (Lepore & Kliewer, 2013). Similarly, perceived ethnic/racial discrimination was associated with decreased sleep quality among college students (Gordon et al., 2020) and was found to explain ethnic disparities in sleep outcomes (Fuller-Rowell et al., 2017). That is, African American young adults reported higher levels of perceived discrimination, which in turn accounted for shorter sleep duration and poorer efficiency over time compared to their European American peers. These results have been explained in relation to the sleep and stress disparities model (Levy et al., 2016), according to which witnessing violence, being victimized or discriminated against are detrimental events that initiate physiological stress responses in the individual, lead to intrusive thoughts, and increase reactivity to other stressors disrupting the sleep-wake cycle and hindering sleep quality (e.g., Lepore & Kliewer, 2013).

Overall, the literature examining the associations between exo- and macro-contexts and sleep during adolescence is advancing rapidly (Mayne et al., 2021), recognizing the

importance of distal influences combined with proximal factors. However, most of the research has adopted cross-sectional designs and has investigated each factor or ecological context separately, thus providing a scattered picture of the influences at play. Conversely, longitudinal studies allow examining the interplay between distal factors and changes (if any) in individual functioning over time, possibly providing a more nuanced understanding of the continuous dynamic transactions of the person in contexts. Thus, longitudinal designs might provide novel insights into the bidirectional influences between exo- and macro-contextual determinants and sleep during adolescence. Meta-analyses and systematic reviews of longitudinal studies (Crocetti et al., 2021; Schulz et al., 2023) are becoming increasingly common as they can provide evidence on the development and interplay of the variables of interest over time. In this vein, the current study systematically reviewed longitudinal research to provide a comprehensive understanding of the transactions between adolescents' sleep and their distal contexts of development.

The Current Study

Considering the importance of proper sleep for adolescents' adjustment and well-being, it is crucial to tackle the environmental conditions that might contribute to its developmental changes. To this end, the current study systematizes previous findings on the longitudinal associations between exo- and macro-contextual features and adolescents' sleep. An overview of the factors examined is presented in Figure 1. Specifically, the purpose of this systematic review is twofold. First, it aims to understand the role of structural features of the exo- (e.g., neighborhood deprivation) and macro-contextual systems (e.g., ethnic/racial minority status) in influencing youth's sleep. Second, it examines the longitudinal interplay between the experiences in both distal contexts (e.g., community violence, ethnic/racial discrimination) and sleep. In line with the multidimensional approach to sleep, in addressing both aims, several indicators of sleep quality are considered (i.e., duration, quality, and

problems). Examining sleep changes from an ecological and transactional perspective is crucial to inform evidence-based interventions aimed at supporting proper sleep during adolescence.

Method

This study was conducted following the PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses; Page et al., 2021). The PRISMA checklist is available in the Supplemental Materials (S1). This systematic review was preregistered in the PROSPERO database, registration ID: CRD42021281002. The current study is part of a larger project aiming to review longitudinal research studying the interplay between sleep quality and several socio-contextual factors (e.g., family, peers, school, and media use) in adolescence.

Eligibility Criteria

Following the PRISMA guidelines (Page et al., 2021), specific eligibility criteria were defined. Studies were eligible for the systematic review if they had the following characteristics: (a) participants had to be adolescents from the general population aged between 10/11 to 18/19 years old; (b) the study design had to be longitudinal (with at least two assessments, such as two-wave longitudinal studies or daily diaries); (c) studies examined at least one aspect of sleep and one of the exo- and macro- context (for an overview of the main dimensions see Figure 1); (d) sleep could be measured with either objective (e.g., actigraphy, polysomnography) or subjective standardized measures (e.g., sleep diaries, questionnaires). Regarding the characteristics of the publication, both peer-reviewed journal articles and grey literature that can be retrieved through database searches (e.g., doctoral dissertations) were included to avoid selection biases and strengthen the methodological rigor of the systematic review (Ferguson & Brannick, 2012). Finally, no restrictions were applied based on the year and the language of publication.

Figure 9.1

Sleep and exo- and macro-contextual variables examined in the current review
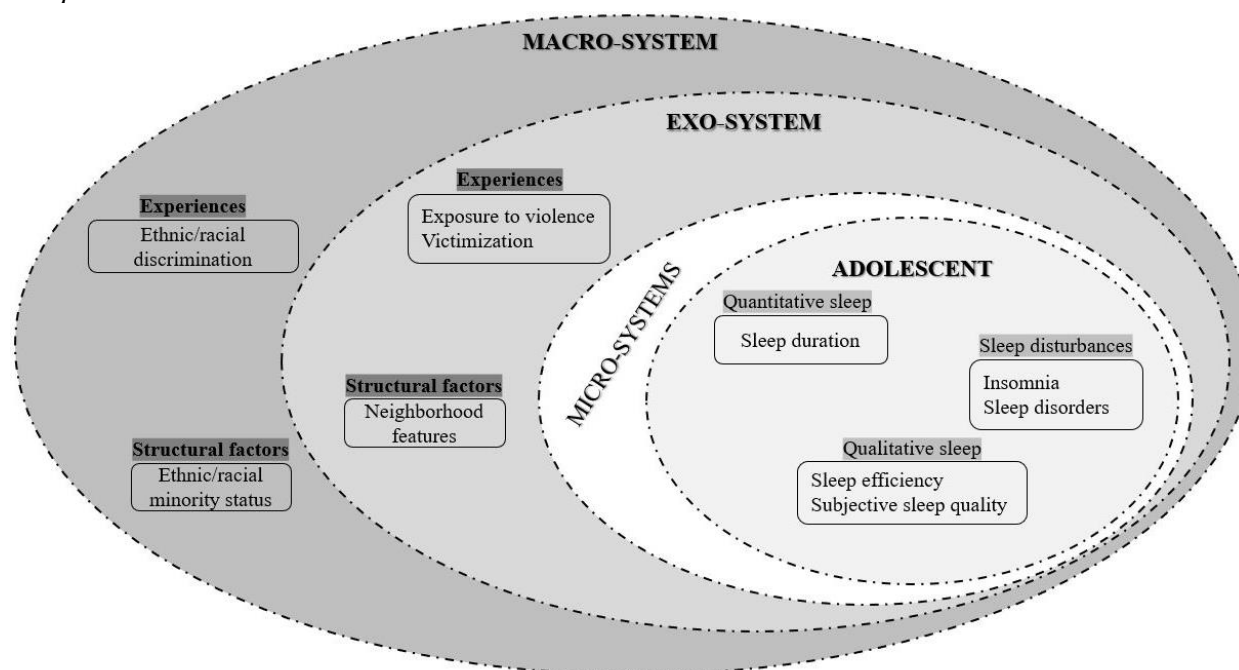
Literature Search

To systematically identify eligible relevant research published in peer-reviewed journal articles or available as grey literature, different search strategies were applied. First, several bibliographic databases were systematically searched: Web of Science, Scopus, PsycINFO, PsycArticles, PubMed, MEDLINE, ERIC, ProQuest Dissertations and Theses, and GreyNet. In each database, the following combination of keywords was searched: (Sleep* OR insomnia* OR polysomnogram* OR REM OR actigraph* OR EEG* OR motor activity* OR circadian* OR chronotype*) AND (pediatr* OR paediatr* OR teen* OR school* OR adolescen* OR youth* OR young* OR child*) AND (longitudinal* OR prospective* OR follow up* OR daily* OR day-to-day OR wave*). Since this work was part of a larger project, the search did not include keywords specific to the exo- and macro-contexts. However, during the selection of studies, full texts were selected based on the variables examined and assigned to either this or the other systematic reviews that are part of

the project. Full query strings used in each database are reported in the Supplemental Material (S2).

This main bibliographic search was complemented with additional search strategies. The websites of the journals deemed most likely to publish studies on the topic were searched. These journals were identified based on the statistics of the search previously conducted on Web of Science, selecting the fifteen journals in which most articles matching our search strategy had been published (the full list of journals is reported in the Supplemental Materials S3). This search was performed to identify in-press articles (e.g., online first) which matched the eligibility criteria. Furthermore, conference proceedings from recent sleep-related journals were screened (*Journal of Sleep Research,* in which *European Sleep Research Society Congress* proceedings were published and *Sleep Medicine*, in which the *World Sleep Congress* proceedings were published). Reference lists of the most relevant published systematic reviews and meta-analyses were also checked (e.g., Scherrer & Preckel, 2021; the complete list is reported in the supplemental materials S4). Finally, the reference lists of included studies were checked to further identify relevant studies not initially found through the other search strategies. The first three search strategies were all performed on September 23rd, 2021, while the last one was conducted at the end of the selection process (i.e., June 2022). The searches and the screening were run and managed on Citavi 6 software.

Selection of Studies

The results of the search strategies are reported in the PRISMA diagram (Figure 2). A total of 36,748 abstracts were identified, and from these 16,327 duplicates were removed. Two raters screened the remaining records ($N = 20,421$) independently and simultaneously. The percentage of agreement was substantial (Cohen's Kappa = .81). Discrepancies were discussed with a third rater, and the final decisions were taken reaching a consensus among the three evaluators.

Figure 9.2
PRISMA 2020 flow diagram
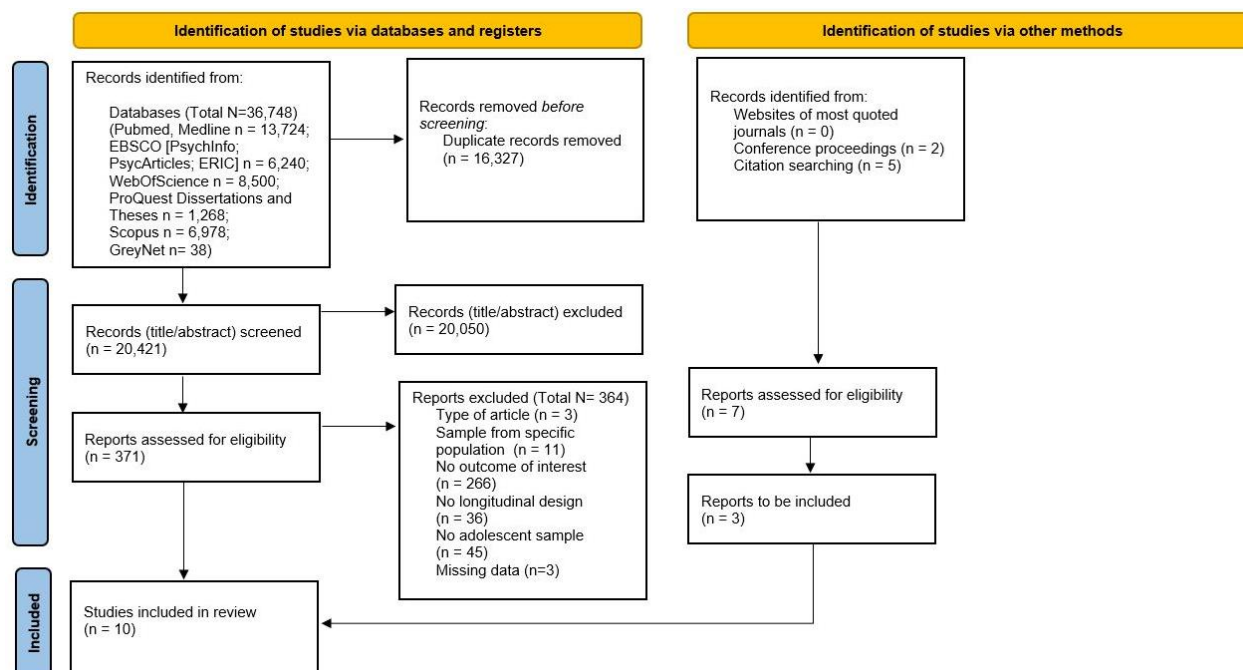
A total of 371 records were selected at this step. Next, the full texts were screened following the same procedure used for abstract screening (the agreement was high; Cohen's Kappa = .75). At this stage, full texts were screened and coded depending on the variable(s) examined in association with sleep. For the purpose of the current review, only studies including at least one facet of sleep and one exo- or macro-systemic outcome variable were included. In total, 10 studies were included in this systematic review (for reasons of exclusions, see Figure 2).

Coding of Primary Studies

To extract relevant information from the selected primary studies, an excel spreadsheet was prepared. All the included studies were coded independently and simultaneously by two raters (the percentage of agreement was 91%). Discrepancies were discussed with a third rater and solved among the three evaluators.

First, the characteristics of the publication were coded: type of publication (i.e., journal article or grey literature), year of publication, and language of publication. Second,

the characteristics of the studies were coded: funding sources (i.e., international funding, national funding, local funding, multiple funding sources), number of waves of the longitudinal design, interval between waves, dimensions of each study (coded according to the variables presented in Figure 1), and source of information used to evaluate them (i.e., self-reports, objective assessment). Third, the characteristics of the participants were coded: sample size, gender composition of the sample (% females), mean age, geographical location, and ethnic composition of the sample.

Finally, data necessary for effect size computations were extracted. Due to the high heterogeneity of the studies included, different effect sizes were coded to address the first (i.e., investigating how structural factors at the exo- and macro-contexts affect sleep quality in adolescence) and the second (i.e., evaluating the interplay between exo- and macro-contextual experiences and sleep quality) aims (see Strategy of analysis section). When data for effect size computations were not reported in primary studies, study authors were contacted by email to request missing data. In total, eight authors were contacted to obtain all (or part of) the necessary data for effect size computations. If authors did not answer the first request, three reminders (one every two weeks) were scheduled. Two authors replied by providing the requested data; two replied specifying that they could not provide the required data (e.g., they could not access the dataset anymore); and four did not respond to the request. The total number of 10 studies included in the review accounts for three studies that were excluded because of insufficient data, as indicated in the PRISMA diagram (Figure 2).

Methodological Quality Assessment and Risk of Bias

The quality assessment of studies was performed independently by the first two authors by using an adapted version of the Newcastle-Ottawa Scale (NOS) for cohort studies (Wells et al., 2022). Since the current systematic review included only longitudinal studies, the assessment areas of the scale were adapted to the relevant characteristics of the specific

study design as done in previous research (e.g., Buizza et al., 2022). Specifically, the adapted version of the NOS included six items, categorized in the three dimensions of Selection, Comparability, and Outcome. For each item, a series of response options is provided, and a star system is used, assigning a maximum of one star for each Selection and Outcome items and a maximum of two stars for the Comparability item to high quality studies. The full list of items is available in Document S5 of the Supplemental Material.

Strategy of Analysis

To address the first research question (i.e., studying the role of structural factors on sleep quality), two types of effect sizes were coded. Specifically, (a) correlations were used to examine the effect of neighborhood features, and (b) sleep variables means and standard deviations of different ethnic/racial groups at each wave were extracted to estimate the mean-level differences over time based on the ethnic/racial minority status. Addressing the second research question, cross-lagged correlations were extracted to evaluate the interplay between adolescents' sleep quality and their experiences at both the exo- (i.e., community violence exposure, victimization) and the macro- (i.e., perceived ethnic/racial discrimination) contexts. In these analyses, the sleep variables could be either dependent or independent variables, depending on how they were examined in the included studies. That is, the extracted cross-lagged correlations were based on either a specific factor measured at one time point (e.g., perceived ethnic/racial discrimination at T1) and sleep quality variables at a later time point (at T2; i.e., sleep quality as the dependent variable), or sleep quality variables at one time point (at T1; i.e., sleep quality as the independent variable) and the outcome variable measured at the following time point (e.g., perceived ethnic/racial discrimination at T2).

Due to the limited number of studies examining the variables of interest, most research questions were addressed through a qualitative review of the findings. For each study, effect sizes were estimated as Pearson's correlations, converted into Fisher's Z-scores

for computational purposes, and converted back into correlations for presentation (Lipsey & Wilson, 2000). For ease of interpretation, correlations of |0.10|, |0.30|, and |0.50| are considered small, medium, and large effect sizes, respectively (Cohen, 1988; Ellis, 2010). Variance, standard error, confidence interval at 95%, and statistical significance for each effect size were computed.

When at least three studies (Cheung & Vijayakumar, 2016; Crocetti, 2016) were available, a meta-analysis was conducted using the software ProMeta3 to obtain an overall estimate. The random-effects model was used as a conservative approach to account for different sources of variation among studies (i.e., within-study variance and between-studies variance; Borenstein et al., 2010). Moreover, heterogeneity across studies was assessed with the Q statistic, to test if it was statistically significant, and the I^2 index to estimate it (with values of 25%, 50%, and 75%, respectively denoting a low, a moderate, and a high proportion of dispersion in the observed effects that would remain should sampling error be removed; Higgins et al., 2003). The age of participants was tested as possible moderator using meta-regression (Viechtbauer, 2007) to unravel whether the interplay between sleep and distal contexts changes at different phases of adolescence. Finally, publication bias was examined through the Egger's regression method (Egger et al., 1997), which statistically tests the asymmetry of the funnel plot, with non-significant results indicative of the absence of publication bias.

Results

Study Characteristics

Ten studies were included in the systematic review. A summary of the characteristics of the included studies is reported in Table 1. Regarding the characteristics of the publication, most of the studies were articles published in peer-reviewed journals (90%), and only one was a dissertation. All the included studies were published in the English language. In terms

of year of publication, three studies (30%) were published very recently (i.e., between 2018 and 2021) and the remaining (70%) were published before 2017. With regards to the study design, most (70%) were daily studies, and the remaining included two-time points (10%) or three or more (20%). The average time lag between adjacent waves, excluding daily studies, was almost two years and a half (M =29.6 months, SD=36.8 months), ranging from 5 months to 6 years. Half of the studies assessed sleep variables using self-report measures (50%), the remaining (40%) used objective measures (i.e., actigraphy), and one used both methods of assessment (10%). Most studies (70%) reported one or multiple funding sources. The total number of participants was 16,889 (M = 3,377.8, SD = 6,361.3). Most samples were gender-balanced (the average percentage of females across samples was 58.9%; range 45.7–73), and the average age of sample participants at baseline was 14.3 years (SD = 1.5, range: 11.3–15.8 years). With regards to the geographic context of the studies, all the included studies were conducted in the USA.

Methodological Quality and Risk of Bias of the Studies

Results of the methodological quality and risk of bias assessment are reported in Appendix A. Two of the authors independently evaluated the quality of the studies included with a high percentage of agreement (i.e., 90%). Specifically, nine out of the ten included studies displayed high quality and only one medium quality. Thus, the overall quality of the studies was high with a consequent low risk of bias.

Table 9.1

Characteristics of the studies included in the systematic review

Study	Characteristics of the publication				Characteristics of the studies						Characteristics of the participants					
Authors and year	Type	Year	Funding	N waves	Time lag	Sleep dimension	Sleep assessment	Exo/Macro context dimension	Exo/Macro context assessment	N participant baseline	N participant follow-up	% girls	Mean age T1	Country	% ethnicity
Bagley et al., 2018	Journal Article	2018	National	Daily	Daily	Sleep duration; Sleep quality	Objective	Neighborhood economic deprivation; Neighborhood social fragmentation; Ethnic/racial minority status	Census data; Subjective	210	210	45.71	11.30	USA	White 66.7%; African American 33.3%
Bellatorre et al., 2017	Journal Article	2017	National	3	1 year	Sleep duration; Sleep problems	Subjective	Ethnic/racial minority status	Subjective	1,394	1,394	56.40	na	USA	White 71.4%; Black 28.6%
Dunbar et al., 2017	Journal Article	2017	No	Daily	Daily	Sleep duration; Sleep quality	Subjective	Ethnic/racial discrimination	Subjective	310	310	64.1	14.47	USA	Asian 38%; Hispanic 24%; White 22.7%; African American 10.7%; Other 2.9%; American Indian 1.6%
El Sheikh et al., 2016	Journal Article	2016	National	Daily	Daily	Sleep duration	Objective	Ethnic/racial minority status; Ethnic/racial discrimination	Subjective	252		53.17	15.79	USA	White 66%; African American 34%

Fairborn, 2010	Dissertation	2010	National	2	6 years	Sleep duration; Sleep quality	Subjective	Community violence exposure	Subjective	14,723	14,723	51.00	na	USA	White 51.1%; African American 21.5%; Hispanic 16.5%; Asian 6.8%; American Indian 1.5%; Not reported 1.5%
Kliewer & Lepore, 2015	Journal Article	2014	na	4	~5 months	Sleep duration; Sleep quality	Subjective	Community violence exposure; Victimization	Subjective					USA	
Wang & Yip, 2020	Journal article	2020	na	Daily	Daily	Sleep duration	Objective	Ethnic/racial discrimination	Subjective		256	73.00	14.72	USA	Asian 40%; Latinx 38%; Black 22%
Yip, 2015	Journal article	2015	National	Daily	Daily	Seep duration; Sleep quality	Subjective	Ethnic/racial minority status; Ethnic/racial discrimination	Subjective		146	70.00	14.17	USA	Asian 42%; White 25%; Hispanic 25%; African American 9%
Yip et al., 2020	Journal article	2020	Multiple	Daily	Daily	Sleep quality	Objective + Subjective	Ethnic/racial discrimination	Subjective		350	67.00	14.29	USA	Asian 41%; Black 22%; Latinx 37%
Zeiders, 2017	Journal article	2017	Multiple	Daily	Daily	Seep duration; Sleep quality	Subjective	Ethnic/racial discrimination	Subjective		113	50.00	15.73	USA	Mexican 100%; US-born 85.8%

Table 9.2

The effect of structural factors on sleep quality over time

	Study	Sleep variable	Sleep assessment	Structural factor variable	Main effect reported	Effect size expressed as Pearson's correlations	Main findings
Neighborhood Features	Bagley et al., 2018	Sleep duration	Objective (Actigraphy)	Neighborhood economic deprivation	$B = -13.47 (5.04)^{**}$		Higher levels of economic deprivation were associated with fewer total sleep minutes and poorer sleep efficiency. When accounting for social fragmentation, these results remained significant.
		Sleep efficiency	Objective (Actigraphy)		$B = -1.79 (0.66)^{**}$		
		Sleep duration	Objective (Actigraphy)	Neighborhood social fragmentation	$B = -6.85 (5.43)$		Higher levels of social fragmentation were associated with fewer total sleep minutes. When accounting for economic deprivation this result was not significant anymore.
		Sleep efficiency	Objective (Actigraphy)		$B = -1.00 (0.30)^{**}$		
Ethnic/racial minority status	Bagley et al., 2018	Sleep duration	Objective (Actigraphy)	Ethnic/racial minority status (0=European American, 1=African American)	$r = -.17^*$	$-.17^*$	African Americans had shorter sleep periods and fewer sleep minutes than European Americans.
		Sleep efficiency	Objective (Actigraphy)		$r = -.09$	$-.09$	
	Bellatorre et al., 2017	Sleep duration during weekdays	Self-reported	Ethnic/racial minority status (non-Hispanic White vs. non-Hispanic Black)	T1: M_{NHW}=7.61(0.94) M_{NHB}=7.31(1.21) ** T3: M_{NHW}=7.58(1.02) M_{NHB}=7.15(1.04) **	$-.06^*$	Non-Hispanic White participants reported significantly more troubles falling asleep, more difficulty getting to sleep, and longer sleep duration during weekdays than Non-Hispanic Black.
		Sleep duration during weekends	Self-reported		T1: M_{NHW}=9.37(1.46) M_{NHB}=9.23(1.79) T3: M_{NHW}=9.06(1.41) M_{NHB}=8.96(1.74)	$-.01$	
		Insomnia symptoms (Troubles falling asleep)	Self-reported		T1: M_{NHW}=2.50(1.21) M_{NHB}=2.16(1.19) ** T3: M_{NHW}=2.33(1.17) M_{NHB}=2.10(1.14) **	$.04$	
		Insomnia Symptoms	Self-reported		T1: M_{NHW}=2.32(1.25) M_{NHB}=2.21(1.24)	$.03$	

	(Troubles staying asleep)			T3: M_{NHW}=2.21(1.18) M_{NHB}=2.18(1.20)		
	Insomnia Symptoms (Difficulty getting to sleep)	Self-reported		T1: M_{NHW}=2.21(1.39) M_{NHB}=1.91(1.33)** T3: M_{NHW}=2.03(1.28) M_{NHB}=1.82(1.15)**	.03	
El-Sheikh et al., 2016	Sleep duration	Objective (Actigraphy)	Ethnic/racial minority status (0=European American, 1=African American)	M_{EA} = 413.52 min (50.27) M_{AA} = 387.97 min (61.93)**	-.22***	European Americans reported longer sleep duration compared to African Americans.

Note. B = Unstandardized regression coefficient and standard error estimate in parenthesis; r = Pearson's correlation coefficient; T = Time; M_{NHB} = Mean and standard deviation in parenthesis for the Non-Hispanic Black; M_{NHW} = Mean and standard deviation in parenthesis for the Non-Hispanic White; M_{EA} = Mean and standard deviation in parenthesis for the European American; M_{AA} = Mean and standard deviation in parenthesis for the African American.
$^{*}p < .05, ^{**}p < .01, ^{***}p < .001$

Table 9.3

The effect of experiences in the exo-context on sleep quality

	Study	Sleep variable	Sleep assessment	Structural factor variable	Main effect reported[1]	Main findings
Community violence exposure	Fairborn, 2010	Sleep duration	Subjective	Community violence exposure	-.05**	Exposure to community violence was significantly associated with lower sleep quality and quantity.
		Sleep quality	Subjective		-.03*	
	Kliewer & Lepore, 2015[2]	Sleep problems	Subjective	Violence witnessing	.38***	Witnessing violence was associated with sleep problems.
Victimization	Kliewer & Lepore, 2015[2]	Sleep problems	Subjective	Victimization	.24***	Victimization was associated with sleep problems.

Note. [1]Cross-lagged correlations between exo-contextual experiences measured at one time (T) point and sleep measured at the following time (T) point; [2]Data for Kliewer & Lepore, 2015 were requested only for the control group.
*p < .05, **p < .01, ***p < .001

Table 9.4

The interplay between experiences in the macro-context and sleep quality over time

	Study	Sleep variable	Sleep assessment	Structural factor variable	Sleep variables T1 → Discrimination T2[1]	Discrimination T1 → Sleep variables T2[2]	Main findings
Ethnic/racial discrimination	Dunbar et al., 2017	Sleep duration	Subjective	Ethnic/racial discrimination		-.01	There was a significant correlation between discrimination and sleep quality but not with sleep duration.
		Sleep quality	Subjective			-.20**	
	El-Sheikh et al., 2016	Sleep duration	Objective (Actigraphy)	Perceived everyday discrimination	-.05		There was no significant correlation between discrimination and sleep duration.
	Wang & Yip, 2020	Sleep duration	Objective (Actigraphy)	Daily ethnic/racial discrimination	.02		Previous night sleep duration and quality were not significantly associated with same-day discrimination experiences.
		Sleep quality (Wake after sleep onset)	Objective (Actigraphy)		.03		
	Yip, 2015	Sleep duration	Subjective	Ethnic/racial discrimination		-.03	There was a significant correlation between discrimination and sleep quality but not with sleep duration.
		Sleep quality	Subjective			-.17**	
	Yip et al., 2020	Sleep duration	Objective (Actigraphy)	Daily ethnic/racial discrimination		-.01	Daily discrimination was not significantly associated with same-night sleep objective parameters. Daily discrimination was significantly associated with self-reported sleep disturbances.
		Sleep quality (Sleep onset latency)	Objective (Actigraphy)			-.01	
		Sleep quality (Wake after sleep onset)	Objective (Actigraphy)			.01	
		Sleep disturbances	Subjective			.14**	
	Zeiders et al., 2017	Sleep duration	Subjective	Ethnic/racial discrimination		-.17	Discrimination was not associated with subsequent daily self-reported sleep quality and duration.
		Sleep quality	Subjective			.11	

Note. [1]Cross-lagged correlations between sleep measured at one time point and discrimination measured at the following time point. [2]Cross-lagged correlations between discrimination measured at one time point and sleep measured at the following time point. T = Time.
**$p < .01$

The Effect of Structural Features of Exo- and Macro-Context on Sleep Variables Over Time

The first aim of the current systematic review was to examine the role of structural factors in influencing adolescents' sleep. Specifically, three studies evaluated the influence of structural elements at the exo- (i.e., neighborhood features) and macro-contexts (i.e., ethnic/racial minority status) on later levels of sleep (i.e., sleep duration, objective sleep quality, sleep disturbances). The main findings are summarized in Table 2.

One study (Bagley et al., 2018) evaluated the effect of neighborhood SES and social fragmentation on sleep duration and efficiency. It found a significant association between neighborhood features and objective measures of sleep. That is, participants living in a fragmented and indigent environment displayed shorter total sleep time, while neighborhood economic deprivation was also linked to lower levels of sleep efficiency.

Regarding the role of belonging to a minority ethnic/racial group (i.e., African American, Hispanic, biracial), three studies (Bagley et al., 2018; Bellatorre et al., 2017; El-Sheikh et al., 2016) evaluated its effect on sleep duration. Ethnic/racial minority adolescents displayed shorter sleep duration compared to their majority peers, based on both objective (i.e., actigraphy; Bagley et al., 2018; El-Sheikh et al., 2016) and subjective (i.e., self-report; Bellatorre et al., 2017) assessments. As shown in Table 5, the overall effect obtained through the meta-analytical calculation was small but significant ($r = -.13$, $p < .05$). Egger's test was not significant, highlighting the lack of publication bias ($p = .16$).

Finally, only one study (Bellatorre et al., 2017) examined the association between ethnic/racial minority status and sleep disturbances. This study found a significant difference in the mean levels of insomnia symptoms between majority and minority youth, with White adolescents reporting more troubles falling asleep and more difficulties getting to sleep than Black youth, but no difference in troubles staying asleep. However, when looking at the effect

size reported as Pearson's correlation in Table 2, no significant effect of ethnic/racial minority status was found on any self-reported insomnia symptoms.

The Interplay Between Exo- and Macro-contextual Experiences and Sleep

The second aim of this review was to examine the interplay between experiences in the exo- and macro-contexts and sleep in adolescence. The selected primary studies examined a heterogeneous array of experiences, which were grouped into three main theoretical categories: community violence exposure, victimization, and ethnic/racial discrimination. The main findings are summarized in Tables 3 and 4 for experiences at the exo- and macro-contexts, respectively.

Regarding experiences at the exo-contextual level, two studies (Fairborn, 2010; Kliewer & Lepore, 2015) evaluated the longitudinal effect of community violence exposure on sleep quality in adolescence. Results showed that exposure to community violence was longitudinally associated with less subjective sleep quality and duration. Furthermore, one study (Kliewer & Lepore, 2015) found that victimization in the community was predictive of more severe sleep problems over time.

Regarding the interplay between ethnic/racial discrimination and sleep, six studies examined this link (Dunbar et al., 2017; El-Sheikh et al., 2016; Wang & Yip, 2020; Yip, 2015; Yip et al., 2020; Zeiders, 2017). Of these, four focused on the association between ethnic discrimination at one time point (T1) and sleep quality variables at a later time (at T2), which allowed for a meta-analytical calculation. As shown in Table 5, the overall effect size was significant, albeit small ($r = -.07$, $p < .05$). This result was not moderated by participants' age at T1 ($B = -.45$, $p = .66$) and was not affected by publication bias, as evident from the non-significant Egger's test ($p = .87$). Conversely, only two studies examined the link between sleep quality at one time point (T1) and ethnic/racial discrimination at the following time

(T2). No significant effect of sleep on subsequent perceptions of ethnic/racial discrimination emerged from these studies.

Table 9.5
Overall meta-analytical effects

Overall effect	k	ES [95% CI]	Q	I^2
Ethnic/racial minority status[1] T1 → Sleep duration T2	3	-.13* [-.26, -.00]	10.29**	80.57
Ethnic/racial discrimination T1 → Sleep variables[2] T2	4	-.07* [-.12, -.01]	1.52	0.00

Note. [1]Ethnic/racial minority status was coded as 0 for ethnic/racial majority and 1 for ethnic/racial minority groups. [2]To compute the overall meta-analytic effect, the effect sizes of studies were recoded so that lower ethnic/racial discrimination at T1 was related to higher sleep quality parameters at T2. k = number of studies; ES = Effect Size; CI = Confidence Interval; Q = heterogeneity test; I^2 = heterogeneity test.
*$p < .05$, **$p < .01$

Discussion

Sleep quality is embedded in and influenced by the multiple ecological contexts within which adolescents develop, from the more proximal (e.g., family, peers) to the more distal (e.g., neighborhood, culture) ones. While the former has been extensively studied, the literature has in part neglected the latter, leading to a lack of understanding of the mechanisms through which they might contribute to changes in sleep quality in adolescence. Adopting an ecological perspective (Bronfenbrenner & Morris, 2007), the current study addressed this gap by systematically reviewing longitudinal research focusing on the interplay between adolescents' sleep quality and structural factors (i.e., neighborhood features, ethnic/racial minority status) and experiences (i.e., community violence exposure, victimization, and ethnic/racial discrimination) in the exo- and macro-systems of development. Overall, findings from this review highlight a nuanced pattern of associations between distal contexts and individuals' sleep quality in adolescence. Such knowledge not only supports the notion of sleep as embedded in multiple contexts, but also highlights new

directions for future research examining supportive (e.g., living in safe communities) and hindering (e.g., ethnic/racial discrimination) factors of sleep in adolescence.

Living and Being: The Role of Structural Factors on Sleep Quality

The first goal of this systematic review was to examine the associations between structural factors of the exo- (i.e., neighborhood social-economic deprivation and fragmentation) and macro-contexts (i.e., ethnic/racial minority status) and the sleep quality of adolescents. Structural factors include inherent features of the multiple contexts of development that might influence youth's experiences and adjustment. Due to the limited number of studies examining exo-systemic structural factors, it was not possible to conduct a meta-analytical test of these links. While neighborhood social fragmentation was not associated with sleep quality, the review found a significant association between living in economically deprived neighborhoods and shorter sleep duration and poor sleep efficiency (Bagley et al., 2018). Economically disadvantaged neighborhoods might be characterized by ambient (e.g., noise, pollution) and built characteristics (e.g., connectivity, facilities) less conducive of sleep. This is in line with prior research highlighting that adolescents (e.g., Pabayo et al., 2014) and adults (e.g., Hale et al., 2010; Hill et al., 2009) living in economically disadvantaged and socially fragmented neighborhoods report more difficulties initiating and maintaining sleep. Additionally, these neighborhoods might expose individuals to pernicious social environments characterized by crime and violence. These social and environmental conditions might trigger stress responses and increased arousal, thus hindering youth's sleep quality (Bagley et al., 2016).

Regarding the macro-systemic influences, a few more studies examined longitudinal differences in sleep quality among ethnic/racial minority and majority youth, providing a diverse pattern of results depending on the sleep measure examined. Specifically, based on results of the current meta-analysis, ethnic/racial minority status was linked to significantly

shorter total sleep time. This finding highlights that minority youth are more at risk of adverse sleep and physical adjustment, in line with prior research with adolescents (for a review, see Guglielmo et al., 2018). Specifically, these differences suggest that the cultural macro-context youth are embedded in influences the experiences each individual faces depending on their status as ethnic/racial minority or majority. For instance, ethnic/racial minority members might face interpersonal (e.g., discrimination) and structural (e.g., inequality) challenges that increase the amount of stress and might in turn disrupt sleep quality. This aligns with previous studies highlighting that perceived ethnic/racial discrimination accounts for most of the ethnic/racial disparities in sleep quality (Fuller-Rowell et al., 2017). Conversely, self-reported insomnia symptoms did not significantly differ between ethnic majority and minority youth. It should be noted that none of the studies examining sleep disturbances relied on an objective assessment of these sleep variables. Future research could benefit from using a combination of subjective and objective measures to identify possible methodological (e.g., assessment used, reporting bias) and/or psychological (e.g., appraisal, coping strategies) factors explaining the ethnic/racial disparities observed and the differential effects on sleep duration and disturbances.

Overall, exo- and macro-systemic structural factors appear to exert an influence on sleep duration and efficiency of adolescents. Despite their position in distal layers, these factors are crucial determinants of the environmental conditions and experiences under which youth develop and function and consequently play a major role in skewing the quality of their sleep and general adjustment. On this line, they might activate specific physiological (e.g., arousal, heighten cortisol levels) and psychological (e.g., stress processes, worries) responses in adolescents, which reverberate on their ability to attain a high-quality sleep (Bagley et al., 2016; Watson et al., 2016). Highlighting the role of these structural factors is crucial to identify adolescents at risk and inform evidence-based interventions aimed at preventing the

downward shifts in sleep quality and the negative consequences for functioning and adjustment.

Witnessing and Encountering Violence: How Experiences Influence Sleep Quality

The second aim of the current review was to tackle the longitudinal interplay between experiences at the exo- (i.e., exposure to community violence, victimization) and macro-contexts (i.e., ethnic discrimination) and the sleep quality of adolescents. Only a few studies have examined exo-systemic experiences, therefore a qualitative review of findings was conducted. Results suggest that both witnessing violence in the community and being victimized exert a negative influence on adolescents' sleep duration, efficiency, and disturbances. This is in line with prior research (for a review, see Mayne et al., 2021) highlighting the detrimental consequences of community violence exposure on youth's adjustment (e.g., Elsaesser et al., 2020; Heleniak et al., 2018). These experiences can be conceived as interpersonal stressors that heighten adolescents' emotional reactivity and traumatic reactions (Heleniak et al., 2018; McLaughlin & Hatzenbuehler, 2009). These, in turn, could lead to sleep disruptions and hinder youth's general adjustment and functioning (for a review, see Babson & Feldner, 2010). Considering the scant literature on the associations between experiences of victimization and violence in the community and sleep quality, there is a need to deepen the knowledge on this interplay in adolescence. This is especially relevant because sleep might act as protective factor in preventing the detrimental effects of victimization on youth's general adjustment, as highlighted by previous research (Hale et al., 2010; Kelly & El-Sheikh, 2014). Good sleep quality is known to strengthen individual's cognitive and emotional abilities (Baum et al., 2014), which are fundamental resources to successfully cope with these negative experiences.

Most studies included in the current review focused on the longitudinal interplay between ethnic/racial discrimination experiences and the sleep quality of adolescents. The

majority of these examined to what extent experiencing discrimination might affect subsequent sleep quality, allowing for a meta-analytical estimation of these associations. The overall effect size was significant and indicative of the detrimental consequences of ethnic/racial discrimination for sleep quality. In line with prior research with adults (Slopen et al., 2016) and young adults (Gordon et al., 2020), it could be argued that experiences of ethnic/racial discrimination heighten individual's arousal state and activate psycho-physiological stress responses able to impair sleep functioning (Brondolo et al., 2018). Although small in size, the effect found also adds to the literature on the negative consequences of perceived discrimination for psychological well-being (for meta-analyses, see Benner et al., 2018; Schmitt et al., 2014) and general adjustment (Benner, 2017). However, prior research has also highlighted that additional individual (e.g., acculturation strategies; Zeiders et al., 2017) and interpersonal (e.g., type of discrimination; Huynh & Gillen-O'Neel, 2016) characteristics might mitigate the negative consequences of discrimination on sleep and therefore explain the small effect found in the current review.

In contrast, only few studies focused on the other direction of effects, mainly between sleep quality and subsequent ethnic/racial discrimination. The findings reviewed highlight the absence of a significant association between these factors, as poor sleep quality was not associated with increased subjective experiences of ethnic/racial discrimination. Despite that, it is worth noting that sleep patterns might play an important moderating role in the links between discrimination and adjustment. On the one hand, proper sleep might mitigate the detrimental effects of discrimination on adjustment by supporting adolescents' adoption of effective problem solving skills (e.g., Wang & Yip, 2020) and protecting youth who are discriminated from developing depressive symptoms and lower self-esteem (e.g., Yip, 2015). On the other hand, poor sleep quality might reduce adolescents' ability to regulate their emotions (Baum et al., 2014) and in turn intensify the perception and consequences of

instances of discrimination. Considering the detrimental effects of this vicious cycle of reciprocal associations (Levy et al., 2016), more research is needed to examine the longitudinal interplay between sleep and ethnic/racial discrimination. Future studies could benefit from including multiple evaluations of sleep, perceived discrimination, and adjustment over time to unravel cross-lagged associations between the factors at play and examine mediation and moderation paths. Such studies would not only extend the knowledge on the intertwined changes in experiences, sleep quality, and functioning, but also highlight the mechanisms through which these associations develop over time.

Limitations of the Literature and Future Research Directions

The current review highlighted several limitations of the literature on the distal determinants of sleep quality in adolescence. First of all, scant research has addressed the longitudinal interplay between exo- and macro-contextual factors and experiences and sleep. More research is needed to unravel the longitudinal reciprocal associations between sleep quality and several proximal and distal factors at multiple levels. On this line, adopting a longitudinal design would be fundamental to gain a developmentally-relevant understanding of the factors contributing to changes in sleep quality at various stages of adolescence (Sadeh & El-Sheikh, 2015). Additionally, studies included in this review mostly had a specific focus, which they addressed by considering single antecedents of sleep quality. This offers a scattered picture of sleep development, while an ecological and broader perspective is needed (El-Sheikh & Sadeh, 2015). Accounting for multiple factors and experiences in the proximal (e.g., family, peer group, school) and distal (e.g., neighborhood, culture, media, policies) contexts of development would deepen the understanding of the unique and combined influences at play. Future research should also attempt to systematize these dynamics using multilevel meta-analytical strategies accounting for multiple interrelated outcomes (Moeyaert et al., 2017; Van Den Noortgate & Onghena, 2003).

A second main limitation that emerged from the current review is the lack of research adopting a combination of sleep measures. Almost all studies included used either subjective or objective methods to assess sleep duration, quality, and disturbances. Although subjective and objective sleep measures were found to be moderately to highly correlated (Meltzer et al., 2012; Werner et al., 2008), previous research with adolescents has also suggested that self-reports might overestimate sleep duration compared to actigraphic assessments (e.g., Arora et al., 2013). Therefore, future studies should strive to combine both methods, providing a reliable and more nuanced picture of antecedents and consequences of sleep quality (Sadeh, 2011).

Additionally, except for two studies (El-Sheikh et al., 2016; Wang & Yip, 2020), research included in this review has examined the unidirectional link from experiences in the distal contexts of development to subsequent sleep quality. Consequently, less is known about how sleep quality can influence perceptions of and coping with exposure to violence and victimization. Poor sleep quality can also impair adolescents' ability to regulate their emotional reactions to the environmental and social stressors they face (e.g., Baum et al., 2014) and in turn lead to more negative consequences in terms of adjustment (Tu et al., 2015). Further research is needed to tackle these mechanisms and unravel the reciprocal longitudinal associations between sleep and experiences of violence exposure and victimization. This knowledge is crucial to identify risk and protective factors at play and inform interventions aimed at supporting adolescents' development and adjustment.

Further, while research has examined how experiencing ethnic/racial discrimination influences sleep outcomes of ethnic minority youth, less is known about the adjustment level of members of the majority group who hold prejudicial attitudes against diverse others. On the one hand, prejudice is a known antecedent of discriminatory behaviors (Bagci & Rutland, 2019), which in turn impair ethnic minority youth's well-being. On the other hand, endorsing

ethnic prejudice has been previously linked to a set of negative outcomes (e.g., higher depression and lower self-esteem; Dinh et al., 2014; Garriott et al., 2008). Therefore, future research could also examine the interplay between ethnic prejudice levels and the sleep quality of ethnic majority adolescents. This knowledge would be fundamental to support adolescents from both the ethnic majority and minority groups in recognizing, understanding, and adjusting to the multitude of diverse cultures that characterize their worlds.

Finally, it should be noted that all studies included in the current systematic review were conducted in the USA, which is unique in terms of economic conditions (OECD, 2022), ethnic diversity (OECD, 2020), and integration policies (Solano & Huddleston, 2020). Therefore, findings from this systematic review should be generalized with caution. Cultural, political, and societal features represent additional structural factors that might influence adolescents' functioning by directly and indirectly affecting their opportunities, experiences, and adjustment. Future studies should be conducted in other cultural contexts and with diverse populations to examine the effects of culture, society, and current and past migration patterns on youth's development in context (Bronfenbrenner & Morris, 2007).

Conclusion

Adopting an ecological perspective to the study of sleep and sleep changes in adolescence is crucial to gain a detailed understanding of its antecedents and consequences. However, while much attention has been paid to the proximal contexts of development, less is known about distal influences. The current study systematically reviewed longitudinal research examining the interplay between exo- and macro-contextual influences and adolescents' sleep quality. These findings highlight the detrimental consequences of both structural factors (i.e., neighborhood economic deprivation, ethnic/racial minority status) and experiences (i.e., community violence exposure, victimization, and ethnic/racial discrimination) at the exo- and macro-system for sleep duration, quality, and problems of

youth. Overall, this systematic review highlighted several gaps in the literature that future studies should fill to provide a broader understanding of sleep development in context and inform evidence-based interventions aimed at supporting this fundamental gateway for well-being and adjustment.

APPENDIX A9: Quality of Risk of Bias Assessment

Study	Selection		Comparability	Outcome			Total	Quality
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6		
Bagley et al., 2018	*	*	**	*		*	6	High
Bellatorre et al., 2017	*	*	**		*	*	6	High
Dunbar et al., 2017	*	*	*	*	*	*	6	High
El Sheikh et al., 2016	*	*	*	*	*		5	High
Fairborn, 2010	*	*	*	*	*		5	High
Kliewer & Lepore, 2015	*	*	**	*	*		6	High
Wang & Yip, 2020	*	*	*	*	*	*	6	High
Yip, 2015	*		*	*		*	4	Medium
Yip et al., 2020	*	*	**	*	*	*	7	High
Zeiders, 2017	*	*	**	*		*	6	High

Note. The adapted NOS includes 6 items: representativeness (item 1); missing data patterns (item 2); control of stability and covariates (item 3); assessment of the outcomes (item 4); appropriateness of follow-up (item 5); attrition rate (item 6).

Supplemental Materials

Document S9.1

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Title Page
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Pages 2-8
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 8
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 9
Information sources	6	Specify all databases, registers, websites, organizations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Pages 9-10
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Pages 9-10
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Pages 10-11
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Pages 11-12

Section and Topic	Item #	Checklist item	Location where item is reported
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Pages 10-11
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Pages 11-12
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 12
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Pages 12-14
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Pages 12-14
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Pages 12-14
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Pages 12-14
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Pages 12-14
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Pages 12-14
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Pages 12-14

Section and Topic	Item #	Checklist item	Location where item is reported
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Pages 12-14
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	n/a
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 14
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Figure 2
Study characteristics	17	Cite each included study and present its characteristics.	Page 14
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Pages 14-15 Appendix A
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Page 14
Results of syntheses	20a	For each synthesis, briefly summarize the characteristics and risk of bias among contributing studies.	Pages 15-17
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Pages 15-17
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Pages 15-17
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the results.	Pages 15-17

Section and Topic	Item #	Checklist item	Location where item is reported
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Pages 14-15
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	n/a
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 17-21
	23b	Discuss any limitations of the evidence included in the review.	Pages 21-23
	23c	Discuss any limitations of the review processes used.	Pages 21-23
	23d	Discuss implications of the results for practice, policy, and future research.	Pages 21-23
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 8
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 8
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	n/a
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Acknowledgments file
Competing interests	26	Declare any competing interests of review authors.	Acknowledgments file
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	n/a

Document S9.2

<u>PubMed and MEDLINE</u>

((((Sleep*[Title/Abstract] OR insomnia[Title/Abstract] OR polysomnogra*[Title/Abstract] OR REM[Title/Abstract] OR actigraph*[Title/Abstract] OR EEG [Title/Abstract] OR motor activity [Title/Abstract] OR circadian*[Title/Abstract] OR chronotype[Title/Abstract]) AND (pediatr*[Title/Abstract] OR paediatr*[Title/Abstract] OR teen*[Title/Abstract] OR school*[Title/Abstract] OR adolescen*[Title/Abstract] OR youth*[Title/Abstract] OR young*[Title/Abstract] OR child*[Title/Abstract])) AND (longitudinal*[Title/Abstract] OR prospective*[Title/Abstract] OR follow-up[Title/Abstract] OR daily[Title/Abstract] OR day-to-day[Title/Abstract] OR wave[Title/Abstract])))

<u>EBSCO</u> [PsycINFO, PsycArticles, ERIC]

AB (Sleep* OR insomnia OR polysomnogra* OR REM OR actigraph* OR EEG OR motor activity OR circadian* OR chronotype*) AND AB (pediatr* OR paediatr* OR teen* OR school* OR adolescen* OR youth* OR young* OR child*) AND AB (longitudinal* OR prospective* OR follow-up OR daily OR day-to-day OR wave)

<u>Web of Science</u>

AB=(Sleep* OR insomnia OR polysomnogra* OR REM OR actigraph* OR EEG OR motor activity OR circadian* OR chronotype*) AND AB=(pediatr* OR paediatr* OR teen* OR school* OR adolescen* OR youth* OR young* OR child*) AND AB=(longitudinal* OR prospective* OR follow-up OR daily OR day-to-day OR wave)

<u>ProQuest Dissertations and Theses</u>

ab(Sleep* OR insomnia OR polysomnogra* OR REM OR actigraph* OR EEG OR motor activity OR circadian* OR chronotype*) AND ab(pediatr* OR paediatr* OR teen* OR

school* OR adolescen* OR youth* OR young* OR child*) AND ab(longitudinal* OR prospective* OR follow-up OR daily OR day-to-day OR wave)

Scopus

(ABS (sleep* OR insomnia OR polysomnogra* OR rem OR actigraph* OR eeg OR motor AND activity OR circadian* OR chronotype*) AND ABS (pediatr* OR paediatr * OR teen* OR school* OR adolescen* OR youth* OR young* OR child*) AND A BS (longitudinal* OR prospective* OR follow-up OR daily OR day-to-day OR wave))

GreyNet

(Sleep* OR insomnia OR polysomnogra* OR REM OR actigraph* OR EEG OR motor activity OR circadian* OR chronotype*) AND (pediatr* OR paediatr* OR teen* OR school* OR adolescen* OR youth* OR young* OR child*) AND (longitudinal* OR prospective* OR follow-up OR daily OR day-to-day OR wave)

Document S9.3

The screened journals were (in alphabetical order):

BMC Public Health; Brain Development; Developmental Medicine and Child Neurology; Epilepsia; Epilepsy Behavior; International Journal of Environmental Research and Public Health; International Journal of Pediatrics Otorhinolaryntology; Journal of Child Neurology; Journal of Clinical Sleep Medicine; Journal of Sleep Research; Pediatrics; Plos One; Seizure European Journal of Epilepsy; Sleep; Sleep Medicine.

Document S9.4

The full list of most relevant published systematic reviews and meta-analyses of which the reference lists were screened.

Beisbier, S., & Laverdure, P. (2020). Occupation-and activity-based interventions to improve performance of instrumental activities of daily living and rest and sleep for children and youth ages 5–21: A systematic review. *The American Journal of Occupational Therapy*, *74*(2), 7402180040p1-7402180040p32. https://doi.org/10.5014/ajot.2020.039636

Belmon, L. S., van Stralen, M. M., Busch, V., Harmsen, I. A., & Chinapaw, M. J. (2019). What are the determinants of children's sleep behavior? A systematic review of longitudinal studies. *Sleep medicine reviews*, *43*, 60-70. https://doi.org/10.1016/j.smrv.2018.09.007

Costa, S., Benjamin-Neelon, S. E., Winpenny, E., Phillips, V., & Adams, J. (2019). Relationship between early childhood non-parental childcare and diet, physical activity, sedentary behaviour, and sleep: A systematic review of longitudinal studies. *International journal of environmental research and public health*, *16*(23), 4652. https://doi.org/10.3390/ijerph16234652

Ehsan, Z., Ishman, S. L., Kimball, T. R., Zhang, N., Zou, Y., & Amin, R. S. (2017). Longitudinal cardiovascular outcomes of sleep disordered breathing in children: A meta-analysis and systematic review. *Sleep*, *40*(3), zsx015. https://doi.org/10.1093/sleep/zsx015

Fatima, Y., Doi, S. A. R., & Mamun, A. A. (2015). Longitudinal impact of sleep on overweight and obesity in children and adolescents: A systematic review and bias-

adjusted meta-analysis. *Obesity reviews*, *16*(2), 137-149.

https://doi.org/10.1111/obr.12245

Gronski, M., & Doherty, M. (2020). Interventions within the scope of occupational therapy

practice to improve activities of daily living, rest, and sleep for children ages 0–5

years and their families: A systematic review. *The American Journal of Occupational*

Therapy, *74*(2), 7402180010p1-7402180010p33.

https://doi.org/10.5014/ajot.2020.039545

Guo, Y., Miller, M. A., & Cappuccio, F. P. (2021). Short duration of sleep and incidence of

overweight or obesity in Chinese children and adolescents: A systematic review and

meta-analysis of prospective studies. *Nutrition, Metabolism and Cardiovascular*

Diseases, *31*(2), 363-371. https://doi.org/10.1016/j.numecd.2020.11.001

Li, L., Zhang, S., Huang, Y., & Chen, K. (2017). Sleep duration and obesity in children: a

systematic review and meta-analysis of prospective cohort studies. *Journal of*

paediatrics and child health, *53*(4), 378-385. https://doi.org/10.1111/jpc.13434

Miller, M. A., Kruisbrink, M., Wallace, J., Ji, C., & Cappuccio, F. P. (2018). Sleep duration

and incidence of obesity in infants, children, and adolescents: a systematic review and

meta-analysis of prospective studies. *Sleep*, *41*(4), zsy018.

https://doi.org/10.1093/sleep/zsy018

Miller, M. A., Kruisbrink, M., Wallace, J., O'Keeffe, A., Valint, S., Ji, C., & Cappuccio, F. P.

(2017). Abstract MP090: Sleep duration predict incident obesity in childhood and

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**Document S9.5: Quality and Risk of Bias Assessment Method (Adapted from the
[Newcastle-Ottawa Scale](#) for Cohort Studies)**

Note: A study can be awarded a maximum of one star for each numbered item within the
Selection and Outcome categories. A maximum of two stars can be given for Comparability

Selection

1) Representativeness of the sample

    a) truly representative of the average adolescents in the community *
    b) somewhat representative of the average adolescents in the community *
    c) selected group of participants
    d) no description of the derivation of the sample

2) Description of missing data patterns

    a) clear description of missing data patterns and evaluation of missing completely at
random (MCAR)*
    b) partial description of missing data patterns*
    c) no description of missing data patterns

Comparability

3) control of stability and covariates

    a) study controls for stability of outcome *
    b) study controls for any additional covariate *

Outcome

4) Assessment of outcome

    a) objective measures *
    b) Census data *
    c) self-report (standardized measures) *
    d) ad hoc questions
    e) no description

5) Was follow-up long enough for outcomes to occur?

    a) yes (provide clear rationale for the selected time lag) *
    b) no

6) Attrition rate

    a) complete follow up - all subjects accounted for *
    b) subjects lost to follow up unlikely to introduce bias - small number lost ≥ 75 % follow
up, or description provided of those lost *
    c) follow up rate < 75% (select an adequate %) and no description of those lost
    d) no statement

The Toll of Prejudice: The Longitudinal Interplay Between Ethnic Prejudice and Well-Being

Abstract

Ethnic prejudice has negative effects on the well-being of ethnic minorities. However, less is known about the consequences of holding negative attitudes toward diversity for ethnic majority youth in current multicultural societies. Across two studies, the current research examined the medium-term (Study I) and day-to-day (Study II) reciprocal associations between affective and cognitive prejudice and several adjustment outcomes (i.e., subjective, psychological, and social well-being, physical health, and sleep) among ethnic majority adolescents. Study I (N = 1,103; M_{age} = 15.66, 48.59% females) found that ethnic prejudice was mostly linked longitudinally and concurrently to decreases in well-being indicators, although with a few exceptions, at both the within- and between-person levels. Conversely, Study II (N = 458; M_{age} = 15.59, 54.77% females) found that poorer subjective well-being and physical health were associated with increases in prejudice on the next day. Together, these findings suggest a spiraling effect whereby poor adjustment leads to short-term increases in prejudice, which in turn contributes to medium-term decreases in well-being. Overall, this research highlights for the first time the intertwined nature of prejudice and well-being among ethnic majority youth and suggests the need to support adolescents in navigating diversity of current societies.

Keywords: ethnic prejudice; well-being; sleep quality; longitudinal; adolescents

Introduction

Learning to approach diversity is a crucial competence for youth's to navigate current multicultural societies (McKeown et al., 2019), whereas ethnic prejudice can prevent the development of harmonious intergroup relationships (Vezzali et al., 2023) and disrupt individuals' adjustment to increasingly diverse contexts. Ethnic prejudice is a multifaceted and complex social phenomenon that entails negative emotions (i.e., the affective dimension) and stereotypes and beliefs (i.e., the cognitive dimension) against groups and individuals because of their different ethnic background (Allport, 1954; Brown, 2011). Together, affective and cognitive tendencies can influence individuals' intergroup behaviors, ranging from avoidance to discrimination and victimization of diverse others.

Extensive research has documented the negative consequences of ethnic-based discrimination on the victim's psychological and social well-being (e.g., Bayram Özdemir & Stattin, 2014; Huynh & Fuligni, 2010; for a review, see Benner, 2017), physical health (for a review, see Cave et al., 2020), and sleep outcomes (e.g., Goosby et al., 2018; Yip et al., 2020; for reviews, see Bobba, Bacaro, et al., 2023; Slopen et al., 2016). These effects were found to be especially detrimental for ethnic minority adolescents compared to adults (Schmitt et al., 2014). On the contrary, only a few studies (e.g., Dinh et al., 2014; Gordon, 2018) have examined the associations between ethnic prejudice and well-being among ethnic majority adults and findings appeared to be inconclusive. The current research sought to contribute to extant literature by unraveling the interplay between multiple dimensions of ethnic prejudice (i.e., affective and cognitive) and several adjustment outcomes during the crucial developmental phase of adolescence. Additionally, it aimed to uncover whether these associations (if any) play out differently in the medium- (i.e., monthly; Study I) and short-term (i.e., on a day-to-day basis; Study II). This knowledge is crucial to shed light on the detrimental effects of holding prejudicial attitudes in current multicultural societies and

informed interventions to promote the well-being and adjustment of both ethnic majority and minority youth.

A Multi-Dimensional Perspective on Adolescents' Adjustment

Youth's well-being and adjustment can be conceived as a key to sustainable development of current and future societies (Lehtimaki et al., 2019). Adolescents' well-being refers to a condition under which youth can thrive and realize their full potential in the multiple contexts of development (Ross et al., 2020). Such definition calls for a multidimensional account of adjustment, encompassing subjective, psychological, and social well-being, as well as indicators of general health and functioning (Petrillo et al., 2015).

In line with an hedonic perspective, *subjective well-being* refers to individuals' judgment on their life satisfaction and the positive emotions (e.g., happiness) associated with their daily experiences (Diener et al., 1999). Conversely, the eudaimonic approach focuses on the optimal psycho-social functioning of individuals in their life contexts (Ryff, 2017). Within this framework, *psychological well-being* evaluates the extent to which individuals accept themselves, feel in control of their own life (i.e., mastery and autonomy), have a sense of purpose, and engage in satisfying relationships with others (Ryff, 1989, 2014), while *social well-being* refers to the individuals' functioning within society and the extent to which they feel accepted and able to actively contribute to their social contexts (Keyes, 1998)

Beyond the role of subjective, psychological, and social well-being, *physical health*, which refers to the subjective perceptions of one's physical condition as compared to that of others, represents an important indicator of adjustment. General health conditions are intertwined with individuals' sleep functioning, which encompasses multiple indicators. On the one hand, *perceived sleep quality* refers to individuals' satisfaction with their sleep and alertness during wake hours. On the other hand, *sleep duration* refers to the number of hours slept at night, while *sleep efficiency* represents the amount of time a person is asleep during

the time spent trying to sleep. Overall, well-being, physical health, and sleep functioning are important gateways for the adjustment and full development of adolescents in current societies. Understanding their interplay with attitudes and beliefs can shed light on the processes through which both ethnic majority and minority youth can navigate diverse contexts and form positive relationships with others.

Are Prejudice and Well-Being Intertwined?

Most research examining the consequences of ethnic prejudice has highlighted its detrimental effects on the ethnic minority targets of such negative emotions, beliefs, and behaviors (for meta-analyses, see Benner et al., 2018; Schmitt et al., 2014). However, less attention has been paid to the consequences in terms of well-being and physical health for those who hold prejudicial attitudes. Are prejudice and adjustment intertwined also among the ethnic majority group? Recently, a few studies have tried to answer this question by examining whether holding prejudicial attitudes might have detrimental consequences for one's adjustment (e.g., Dinh et al., 2014), or whether life satisfaction can influence individuals' tendency to devaluing diversity (e.g., Yoxon et al., 2019).

Does Prejudice Hurt those who Endorse it?

A first line of research examining the interplay between prejudice and well-being among ethnic majority individuals has focused on the consequences of holding negative emotions and cognitions about diverse others. Endorsing prejudicial attitudes can have detrimental effects because it prevents individuals from successfully adapt to the daily experiences in current multicultural societies. For instance, prior experimental research has highlighted that less prejudiced individuals report lower anxiety and more adaptive stress responses in intergroup interactions (Berry Mendes et al., 2007; Page-Gould et al., 2008). These biological mechanisms might explain the negative consequences of prejudice on adults' and young adults' adjustment outcomes both concurrently and longitudinally.

Specifically, cross-sectional studies have highlighted that individuals with high levels of blatant prejudice (Hightower, 1997) and intergroup anxiety (Dinh et al., 2014; Holmberg, 2010) tend to report poorer psychological (i.e., depressive symptoms) and social (i.e., social support) well-being. Similarly, White college students characterized by seemingly contradictory attitudes towards Blacks (i.e., White superiority coupled with racial dissonance) reported lower levels of self-esteem, which in turn undermined their social adjustment (Garriott et al., 2008). Further, intergroup anxiety was found to be associated with concurrently poorer levels of physical health (but not with physical symptoms; Dinh et al., 2014).

Longitudinal and panel research has highlighted similar implications of holding ethnic prejudice among ethnic majority individuals. For instance, negative attitudes toward immigrants were linked to reductions in subjective well-being over a two years period (Korol et al., 2023) and these effects were found to be stronger for younger than older generations (Bazán-Monasterio et al., 2021). Additionally, individual- and community-level prejudice were found to significantly increase the mortality risk of both Black and White adults alike (Lee et al., 2015). Interestingly, individuals with high levels of prejudice who live in low-prejudiced communities appeared to be the ones with the lower survival rates 10 years later, possibly as a consequence of the disruption of social capital and isolation that might characterize these individuals (Lee et al., 2015).

Overall, these findings offer preliminary insight into the negative consequences of ethnic prejudice, which can compromise well-being and adjustment of both ethnic minority and majority individuals. Nevertheless, they highlight important gaps in the literature. First, prior research has exclusively focused on the consequences of prejudice among college students and adults, while neglecting to examine these processes in adolescence. This is a crucial period for individuals' development, which also lays the foundation for long-term and

intergenerational well-being (Baltag & Servili, 2016; Ross et al., 2020). Second, available research provides a scattered picture of the implications of holding ethnic prejudice for well-being as it mostly focused on subjective perceptions of adjustment. Conversely, less is known about other facets of well-being (e.g., social) and health (e.g., physical). For instance, there is a dearth of research examining the implication of holding prejudicial attitudes for sleep functioning, which represents an important resource for adolescents' adjustment (Bobba, Bacaro, et al., 2023; McGlinchey, 2015). Last, the few available longitudinal studies have examined long-term effects, addressing how holding prejudicial attitudes at a certain time point can affect individuals' well-being in the subsequent years (considering a time lag from two to 10 years; Korol et al., 2022; Lee et al., 2015). There is thus a lack of knowledge on how the interplay between prejudice and adjustment outcomes unfold at different time scales, also considering implications in the medium- and short-term. Medium-term processes, resulting from cumulative experiences occurring over multiple months, and short-term dynamics, capturing the day-to-day interactions, experiences, and consequences thereof, can provide a nuanced understanding of the impact of prejudice for ethnic majority youth (Klimstra & Schwab, 2021).

Can Well-Being Influence Ethnic Prejudice?

Another line of research has examined whether individual well-being, or lack of thereof, can influence social and political attitudes. These assumptions follow the theoretical premises of the uncertainty-identity theory (Hogg, 2007) and the scapegoat theory (Allport, 1954). Specifically, ill-being or dissatisfaction with personal life conditions can contribute to feelings of uncertainty about one's social position, which in turn make individuals more prone to indulge in simplistic and ethnocentric views (Aydin et al., 2014). Similarly, individuals experiencing negative life conditions can be more prone to blaming others, such as immigrants, for their misfortunes (Allport, 1954) and perceiving them as a threat to their

adjustment and thriving. These processes can be fueled by public narratives and discourses widespread across several countries that tend to represent immigrants as economic and cultural threats (e.g., Albarello et al., 2023).

Research has provided only partial support for these assumptions. On the one hand, some studies have highlighted that poorer well-being was linked to higher prejudice against and perception of threat from the Muslim minority (Sirgy et al., 2019) and that perceived deprivation was associated with more negative immigrant sentiment (Yoxon et al., 2019). Moreover, panel research highlighted significant association between adjustment and attitudes, whereby individuals with poorer physical health and subjective well-being reported higher levels of negative attitudes toward immigrants, while within-person increases in social and political distrust were linked to heightened anti-immigrant sentiment (Kudrnáč et al., 2023). On the other hand, life satisfaction was not significantly associated with intergroup attitudes (Gordon, 2018; Korol et al., 2023). Overall, these findings appear to be somewhat inconclusive and leave the question of whether well-being could influence the affective and cognitive manifestations of ethnic prejudice unanswered.

These inconclusive findings might be a consequence of confounding associations that neglect to account for stable individual differences in both attitudes and well-being (Hamaker et al., 2015). Additionally, prior research has assessed prejudice as a single-dimension construct, despite the fact that its affective and cognitive facets have shown distinct developmental trajectories and associations with other individual characteristics (e.g., empathic concern and perspective-taking; Bobba & Crocetti, 2022; Crocetti et al., 2021). Furthermore, as discussed above, there is a dearth of research accounting for multiple time scales, which can clarify if and when well-being can influence later levels of adolescents' prejudice.

Overview of the Current Research

Building upon previous findings and benefiting from recent methodological advances, the current research examined the longitudinal reciprocal medium- and short-term associations between ethnic prejudice and adjustment in adolescence. Specifically, the purpose of this research is two-fold. First, with a four-wave longitudinal study (Study I), it aimed to unravel how the interplay between ethnic prejudice and well-being unfolds over the course of one year and whether associations occur at both the between- and within-person levels. Second, relying on a daily diary methodology (Study II), it further examined whether ethnic prejudice and well-being are intertwined on a day-to-day basis. Across both studies, this research took a multidimensional account of both prejudice (i.e., affective and cognitive facets) and well-being (i.e., subjective, psychological, and social well-being, physical health, and sleep functioning) to shed light on the interplay between youth's attitudes and adjustment levels.

<div align="center">

Study I

</div>

Methods

Participants

Data for this research are drawn from the ongoing longitudinal project IDENTITIES "Managing identities in diverse societies: A developmental intergroup perspective with adolescents", a cohort sequential study conducted in the North-East part of Italy (i.e., Emilia-Romagna region). For the purpose of the current study, only adolescents with Italian descent (i.e., whose parents were both born in Italy) were included. Specifically, participants for this study were 1,103 adolescents (M_{age} = 15.66, SD = 1.17 at T1, 48.59% females) attending, at the beginning of the study (i.e., 2022), the 1st (50.27%) and 3rd (49.73%) year of high school. Students participated in four assessments, in January/February 2022 (T1), April/May 2022 (T2), September/October 2022 (T3), and January/February 2023 (T4), respectively. At each

time point, participants wore an actigraph for eight consecutive days (i.e., seven nights) and, on the last day, completed a questionnaire during school hours.

At baseline, adolescents reported that most of their fathers (47.69%) and mothers (48.09%) had a medium educational level (i.e., high school diploma). Among fathers, some of the remaining (27.61%) had a low (i.e., up to middle school diploma) followed by those (24.70%) with a high (i.e., university degree or higher) educational level. Conversely, most of the remaining (33.94%) mothers had a high and only a few (17.97%) had a low educational level.

Regarding questionnaire completion, all adolescents included in the present study completed at least one out of the four assessments, a few only completed two (15.87%) and three (18.22%) assessments, while half of the sample (47.87%) participated at all time points. Within each assessment, the completion rate was high (ranging from 60.38% of items at T4 to 79.15% of items at T1) and missingness was mostly due to participants not filling out the questionnaire because they were not in school on the day of data collection. Regarding the actigraphic assessments, a large portion of adolescents had complete data on their sleep quality across the four assessments (ranging from 43.06% at T4 to 60.83% at T2). Little's (1988) Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df = 14435.04/39538) of 0.36, indicating that data were likely missing completely at random. Therefore, the total sample of 1,103 participants was included in the analyses, and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater Studiorum University of Bologna (Italy) as part of the IDENTITIES project. Schools were selected through a stratified (by track and level of urbanization) randomized method and principals were approached to present the project. Upon their approval, the study was presented to students and

their parents who also received written and detailed information. Active consent from parents was obtained prior to their children's participation. Active consent was also obtained from adolescents of age, while their underage peers provided their assent to participate in the project. Participation in the study was voluntary, and students were informed that they could withdraw their consent at any time. At each wave, adolescents first received an actigraph, which they were invited to wear for eight consecutive days. On the eighth day, they completed an online questionnaire during school hours. Research assistants were present in the class to answer possible questions from students. Adolescents were required to create a personal code to ensure confidentiality and pair their answers over time and across assessment methods.

Measures

Affective Prejudice. The affective component of prejudice was assessed using the Feeling thermometer (Haddock et al., 1993; for the Italian version, see Bobba & Crocetti, 2022), asking participants to rate how much they like different outgroups (i.e., Romanians, Albanians, Moroccans, Chinese, Ukrainians, which are the largest groups of foreigners in Italy according to ISTAT, 2020) on a scale from 0° (*at all*) to 100° (*very much*). A total affective prejudice score was computed using the mean level of liking expressed for these different outgroups. The scale was reversed to simplify the interpretation of results, with higher scores indicating higher affective prejudice. Cronbach's Alphas were .92, .91, .93, and .94 at T1, T2, T3, and T4, respectively.

Cognitive Prejudice. To evaluate the cognitive component of prejudice, five items (e.g., "I would be bothered if most of my classmates were foreign people") were adapted from Brown et al. (2008). Participants rated their agreement on a 5-point Likert scale, ranging from 1 (*completely disagree*) to 5 (*completely agree*). Cronbach's Alphas were .86, .88, .89, and .89 at T1, T2, T3, and T4, respectively.

Subjective, Psychological, and Social Well-Being. Subjective, psychological, and social well-being were assessed with the three subscales of the Mental Health Continuum – Short Form (MHC-SF; Keyes, 2005; Italian validation by Petrillo et al., 2015). This scale consists of 14 items referred to the last month. Ratings were expressed on 6-point Likert type scale from 1 (*never*) to 6 (*every day*). Sample items are the following: "How often did you feel happy?" (Subjective well-being; 3 items); "How often did you feel good at managing the responsibilities of your daily life?" (Psychological well-being; 6 items); and "How often did you feel that you had something important to contribute to society?" (Social well-being; 5 items). The Cronbach's Alphas across the four assessments ranged between .80 and .85, between .74 and .87, and between .80 and .88, for subjective, social, and psychological subscales, respectively.

Physical Health Perception. Adolescents' physical health perception was assessed using the "General Health (GH)" subscale from the Short Form-36 Health Survey (SF-36; Ware & Gandek, 1994; for the Italian version, see Apolone & Mosconi, 1998). The instrument consists of five items of which one (i.e., "In general, would you say your health is") scored on a 5-point Likert-type rating scale, ranging from 1 (*poor*) to 5 (*excellent*) and the remaining four items (e.g., "My health is excellent") scored on a 5-point Likert-type rating scale, ranging from 1 (*completely false*) to 5 (*completely true*). Cronbach's Alphas were .72, .72, .78, and .78 at T1, T2, T3, and T4, respectively.

Sleep Functioning. Sleep quality was assessed by relying on both subjective and objective indicators.

Subjective Sleep Quality. Problems of the sleep/wake cycle were assessed with the Mini Sleep Questionnaire (MSQ; Zomer, 1985; for the Italian validation, see Fabbri et al., 2006). MSQ comprises two main factors (sleep and wake) and consists of nine items rated on 7-point Likert type scales from 1 (*never*) to 7 (*always*) referred to past week. Sample items

are the following: "Did you have troubles in falling asleep?" (sleep, 6 items) and "Did you feel tired at the morning awakening?" (wake, 4 items). Two total scores were obtained by summing up the items pertaining to problems during the sleep period and those pertaining to problems during the wake period.

Objective Sleep Quality. Sleep was objectively assessed with the Micro Motionlogger Watch (Ambulatory Monitoring, Inc., Ardsley, NY, USA), which uses an accelerometer to assess sleep and wake states in 1-minute epochs. Data were analyzed through the software Action W2 (Ambulatory Monitoring, Inc., Ardsley, NY, USA) using previously validated algorithms (Cole et al., 1992; Cole & Kripke, 1988). To capture the multifaceted nature of sleep, the current study relied on multiple indicators. Sleep duration was assessed by the number of minutes adolescents actually slept (i.e., the sum of all sleep epochs between sleep start), while sleep quality was evaluated in terms of both sleep efficiency (i.e., the ratio between the total sleep time and time in bed multiplied by 100) and sleep onset latency (i.e., the number of minutes between bedtime and actual sleep onset). These parameters were extracted for each day and then averaged across the seven nights of sleep assessment.

Strategy of Analyses

Three Random-Intercept Cross-Lagged Panel Models (RI-CLPM; Hamaker et al., 2015) were estimated to disentangle the within- and between-person associations between multiple facets of ethnic prejudice and (a) multiple dimensions of well-being (i.e., subjective, psychological, and social; Model 1A), (b) subjective perception of general health (i.e., physical health and subjective sleep functioning; Model 1B), and (c) objective sleep functioning (i.e., sleep duration, efficiency, and onset latency; Model 1C). This analytical strategy allows to decompose the variance of longitudinal observations into stable between-person differences (i.e., random intercepts) and within-person changes over time. For each model, first an unconstrained model (M1) was estimated to identify the within-person cross-

lagged associations among the variables included, while controlling for monthly stability

paths (T1 → T2, T2 → T3, T3 → T4) and within-time correlations (at T1) and correlated

changes (at T2, T3, and T4). To establish the model as parsimonious as possible, alternative

models (M2) with cross-lagged paths constrained to be equal across time were estimated and

compared to the baseline model (M1). Next, models (M3) with both cross-lagged and

correlated changes were fixed to be equal across time points were compared against the

previous ones (M2). The quality of each model was evaluated relying on multiple criteria:

The Comparative Fit Index (CFI) with values higher than .90 representing an acceptable fit

and values higher than .95 displaying an excellent fit; the Standardized Root Mean Square

Residual (SRMR) and the Root Mean Square Error of Approximation (RMSEA), with values

less than .08 indicative of an acceptable fit and values less than .05 indicating excellent fit

(Byrne, 2012); and 90% Confidence Interval for the RMSEA, with the upper bound lower

than .10 representing an acceptable model fit (Chen et al., 2008). Additionally, nested models

were compared against each other and they were considered different if at least two of the

following criteria were met: a scaled chi-square difference test significant at $p < .05$ (Satorra

& Bentler, 2001), $\Delta CFI \geq -.010$, and $\Delta RMSEA \geq .015$ (Chen, 2007). If full invariance of

cross-lagged and/or correlated changes could not be established, a model with each path

constrained to be equal across time was compared against the baseline (freely estimated)

model. When the constrained path across time resulted in a model that was significantly

different from the baseline, equality of paths across time points was further inspected by

comparing couples of paths with the Wald test statistics. Paths that emerged to be

significantly different from one time point to another were then released to reach partial

invariance of cross-lagged associations and correlated changes. Model fit indices and model

comparison results are reported in Table 1.

Table 10.1

Random-Intercept Cross-Lagged Panel Models of Study I: Model fit indices and model comparison

Models	χ_{SB}^2	df	CFI	TLI	SRMR	RMSEA [90% CI]	Models	$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
						Model fit			Model comparisons	
Model 1A: Prejudice and Well-Being										
Unconstrained (M1)	87.122	60	.997	.989	.022	.020 [.010, .029]				
Cross-lagged paths fixed (M2)	130.270	100	.996	.993	.028	.017 [.007, .024]	M2-M1	45.218 (40)	-.001	-.003
Cross-lagged paths and within time correlations fixed (M3)	164.317	120	.994	.991	.038	.019 [.011, .025]	M3-M2	35.804 (20)[*]	-.002	.002
Model 1B: Prejudice and Perceived Physical Adjustment										
Unconstrained (M1)	74.063	60	.998	.993	.022	.015 [.000, .025]				
Cross-lagged paths fixed (M2)	123.434	100	.997	.993	.027	.015 [.000, .023]	M2-M1	25.221 (40)	-.001	.000
Cross-lagged paths and within time correlations fixed (M3)	150.495	120	.996	.993	.030	.015 [.005, .023]	M3-M2	32.037 (20)[*]	-.001	.000
Model 1C: Prejudice and Objective Adjustment										
Unconstrained (M1)	75.804	60	.997	.990	.078	.016 [.000, .026]				
Cross-lagged paths fixed (M2)	124.479	100	.995	.991	.078	.015 [.001, .023]	M2-M1	48.685 (40)	-.002	-.001
Cross-lagged paths and within time correlations fixed (M3)	184.662	120	.987	.980	.176	.023 [.016, .029]	M3-M2	64.126 (20)[***]	-.008	.008

Note. χ_{SB}^2 = Satorra-Bentler scaled chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. [*] $p < .05$; [***] $p < .001$

Results and Discussion

Preliminary Analyses

Descriptive statistics and correlations among study variables were computed using IBM SPSS Version 28.0 and are reported in Table S1 and S2 of the Supplemental Materials. All the remaining analyses were conducted in M*plus 8.6* (Muthén & Muthén, 1998-2017) using Maximum Likelihood Robust (MLR) estimator (Satorra & Bentler, 2001). As a preliminary step, longitudinal measurement invariance was tested separately for each questionnaire measure. Results are reported in Table S3 of the Supplemental Materials. Partial or full scalar measurement invariance could be established for all study measures, and therefore we could proceed with the main analyses.

Prejudice and Subjective, Psychological, and Social Well-Being

The first goal of this study was to examine the interplay between affective and cognitive prejudice and multiple indicators of well-being (i.e., subjective, psychological, and social). Results of this model are reported in Figure 1 and in Table 2. As can be inferred, significant cross-lagged associations and correlations emerged across prejudice and well-being domains but only at the within-person level. Increases in affective and cognitive prejudice were linked to respectively decreased and increased social well-being at the following time. Moreover, adolescents who displayed increases in their subjective well-being also reported lower levels of cognitive prejudice over time. Additionally, affective prejudice displayed significant negative correlated changes with all three dimensions of well-being indicating that as prejudice increases over time, well-being tends to decrease. At the between-person levels, significant associations emerged across constructs within each domain but not across domains.

Overall, it appears that while the affective dimension of prejudice is linked (longitudinally and concurrently) to lower well-being, youth who hold high levels of

cognitive prejudice tend to display increases in their social well-being. This puzzling finding might be explained in light of the fact that cognitive prejudice heavily relies on stereotypical and simplistic views of others and society (Albarello et al., 2020). Therefore, adolescents might report skewed perceptions of their adjustment to the social context as a result of oversimplified individual and intergroup conceptions. On the other hand, youth who displayed lower subjective well-being also reported increases in their cognitive prejudice at a later time, highlighting the reciprocal nature of these associations. In line with the uncertainty-identity theory (Hogg, 2007) and scapegoat theory (Allport, 1954), as well as prior research (e.g., Sirgy et al., 2019), individuals who feel unsatisfied with their life might blame others for their own misfortunes and therefore endorse more negative conceptions of diversity.

Prejudice and Perceived Physical Adjustment

The second goal of this study was to understand whether prejudice, physical health, and perceived sleep quality were associated over time. Results (Figure 2 and Table 2) of the RI-CLPM highlighted a significant interplay between prejudice and subjective adjustment measures at both the within- and between-person levels. At the within-person level, increases in cognitive prejudice led to increased problems during the wake period, despite the T1 correlation indicating that youth higher in cognitive prejudice also reported lower sleep problems. Additionally, correlated changes revealed that increases in affective and cognitive prejudice go together with decreases in physical health and increases in problems with the sleep and wake (only for cognitive prejudice) states. However, at the between-person level different patterns of associations emerged. Specifically, both affective and cognitive prejudice displayed significant positive correlations with sleep problems indicating that individuals with higher levels of prejudice also reported less problems during sleep.

Overall, when youth increase in their levels of prejudice against ethnic minorities this has negative consequences on their physical and sleep adjustment, in line with prior findings among young adults (e.g., Dinh et al., 2014; Holmberg, 2010). Interestingly, for the cognitive component, such detrimental effects emerge progressively over time highlighting the cumulative cost of endorsing negative stereotypes and beliefs about diverse others. However, associations at the between-person level displayed an opposite trend whereby youth who report higher affective and cognitive prejudice over one year also tend to display less problems in the sleep-wake cycle during the same period of time. These contrasting results, which highlight a Simpson's paradox (Kievit et al., 2013), suggest the importance of separating within- and between-person effects to draw ecologically valid conclusions about individual level processes and build interventions that support youth's adjustment to current multicultural societies.

Prejudice and Objective Sleep Assessment

The third and last goal of this study was to unravel the interplay between affective and cognitive prejudice on the one hand and objective measures of sleep quantity and quality (i.e., sleep efficiency and sleep onset latency). Results are displayed in Figure 3 and Table 3. As can be inferred, no significant cross-lagged paths emerged across prejudice and sleep measures. However, affective prejudice displayed significant negative correlations with sleep duration and sleep efficiency at the within- and between-person levels. On the one hand, within each individual, increases in prejudice were found to occur together with decreases in sleep duration. On the other hand, adolescents with high stable levels of affective prejudice also displayed low stable levels of sleep efficiency. Despite the lack of cross-lagged associations, these findings suggest the need to further investigate possible processes at play to understand the concurrent changes occurring in both prejudice and sleep functioning. For instance, negative intergroup experiences in multiple contexts were found to contribute to

increases in prejudice (e.g., Aberson, 2015; Kotzur & Wagner, 2021). Additionally, research among ethnic minority youth has highlighted that discrimination and negative intergroup encounters can lead to decreases in sleep quantity and quality (e.g., Fuller-Rowell et al., 2021; Levy et al., 2016). More research is needed to understand the consequences of negative intergroup contact for prejudice and (objective) sleep functioning among ethnic majority adolescents.

Table 10.2
Standardized results of Model 1A and 1B

Model 1A: Prejudice and well-being			
Within-person: Stability paths	T1→T2	T2→T3	T3→T4
Affective prejudice	.023	.197[*]	.440[***]
Cognitive prejudice	.149	.293[***]	.340[***]
Subjective well-being	.174[**]	.184[*]	.128
Psychological well-being	.179[*]	.154[*]	.156[*]
Social well-being	.102	.232[***]	.145[*]

Within-person: Correlations	T1	T2	T3	T4
Affective prejudice ↔ Cognitive prejudice	.145[*]	.203[***]	.196[***]	.166[***]
Affective prejudice ↔ Subjective well-being	-.034	-.093[*]	-.099[**]	-.090[**]
Affective prejudice ↔ Psychological well-being	-.025	-.094[*]	-.099[*]	-.088[*]
Affective prejudice ↔ Social well-being	-.028	-.088[*]	-.096[*]	-.093[*]
Cognitive prejudice ↔ Subjective well-being	-.151[*]	.002	.002	.002
Cognitive prejudice ↔ Psychological well-being	-.105	-.043	-.038	-.037
Cognitive prejudice ↔ Social well-being	-.039	.048	.044	.046
Subjective well-being ↔ Psychological well-being	.471[***]	.549[***]	.536[***]	.558[***]
Subjective well-being ↔ Social well-being	.377[***]	.472[***]	.475[***]	.538[***]
Psychology well-being ↔ Social well-being	.431[***]	.531[***]	.531[***]	.589[***]

Model 1B: Prejudice and perceived physical adjustment			
Within-person: Stability paths	T1→T2	T2→T3	T3→T4
Affective prejudice	.067	.262[**]	.463[***]
Cognitive prejudice	.140	.237[**]	327[***]
Physical health	.000	.238[***]	.333[***]
Sleep problems	.158[*]	.076	.128[*]
Wake problems	.248[***]	.266[***]	.185[**]

Within-person: Correlations	T1	T2	T3	T4
Affective prejudice ↔ Cognitive prejudice	.122[*]	.196[***]	.191[***]	.165[***]
Affective prejudice ↔ Physical health	-.012	-.082[*]	-.085[*]	-.079[*]
Affective prejudice ↔ Sleep problems	-.046	.077[*]	.080[*]	.079[*]
Affective prejudice ↔ Wake problems	-.072	.024	.028	.026
Cognitive prejudice ↔ Physical health	-.021	-.148[***]	-.124[***]	-.123[***]
Cognitive prejudice ↔ Sleep problems	-.051	.087[*]	.073[*]	.076[*]
Cognitive prejudice ↔ Wake problems	-.215[**]	.126[**]	.119[**]	.121[**]
Physical health ↔ Sleep problems	-.192[**]	-.195[***]	-.173[***]	-.196[***]
Physical health ↔ Wake problems	-.188[**]	-.203[***]	-.201[***]	-.222[***]
Sleep problems ↔ Wake problems	.284[***]	.442[***]	.441[***]	.511[***]

Note. T = Time. [*] $p < .05$; [**] $p < .01$; [***] $p < .001$

Table 10.3

Standardized results of Model 1C

Model 1C: Prejudice and objective adjustment [1]			
Within-person: Stability paths	T1→T2	T2→T3	T3→T4
Affective prejudice	.029	.217*	.464***
Cognitive prejudice	.163	.275***	.331***
Sleep duration	.107	.002	.244**
Sleep efficiency	.110	.209*	.159
Sleep onset latency	.142	-.222*	-.427***
Within-person: Correlations	T1	T2	T3	T4
Affective prejudice ↔ Cognitive prejudice	.148*	.193***	.188***	.161***
Affective prejudice ↔ Sleep duration	.057	-.103**	-.112**	-.103*
Affective prejudice ↔ Sleep efficiency	.072	-.028	-.028	-.028
Affective prejudice ↔ Sleep onset latency	-.006	-.041	-.077	-.058
Cognitive prejudice ↔ Sleep duration	.038	.031	.029	.028
Cognitive prejudice ↔ Sleep efficiency	-.006	-.019	-.016	-.017
Cognitive prejudice ↔ Sleep onset latency	-.013	.044	.071	.057
Sleep duration ↔ Sleep efficiency	.166	.248***	.231***	.267***
Sleep duration ↔ Sleep onset latency	-.086	-.027	-.048	-.041
Sleep efficiency ↔ Sleep onset latency	-.658***	-.351***	-.569***	-.537***

Note. [1] In this model, sleep duration was rescaled and ultimately expressed in hours by dividing the parameter (in minutes) by 60. T = Time. * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 10.1

Study I: Standardized results of Model 1A
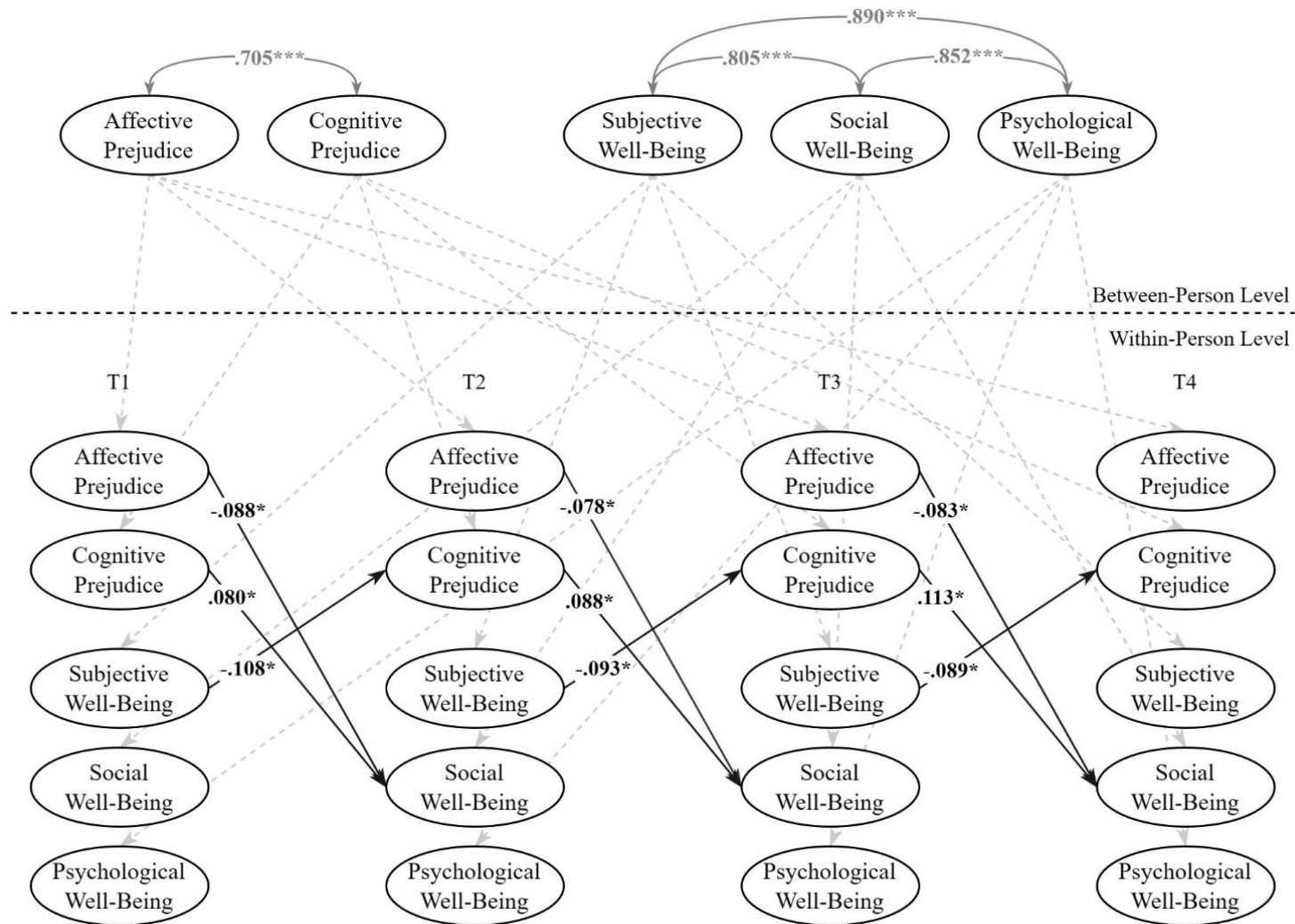
Note. For sake of clarity, only significant within- and between-person level associations are displayed. Grey continuous arrows indicate within-construct effects. $^*p < .05$; $^{***}p < .001$

Figure 10.2

Study I: Standardized results of Model 1B
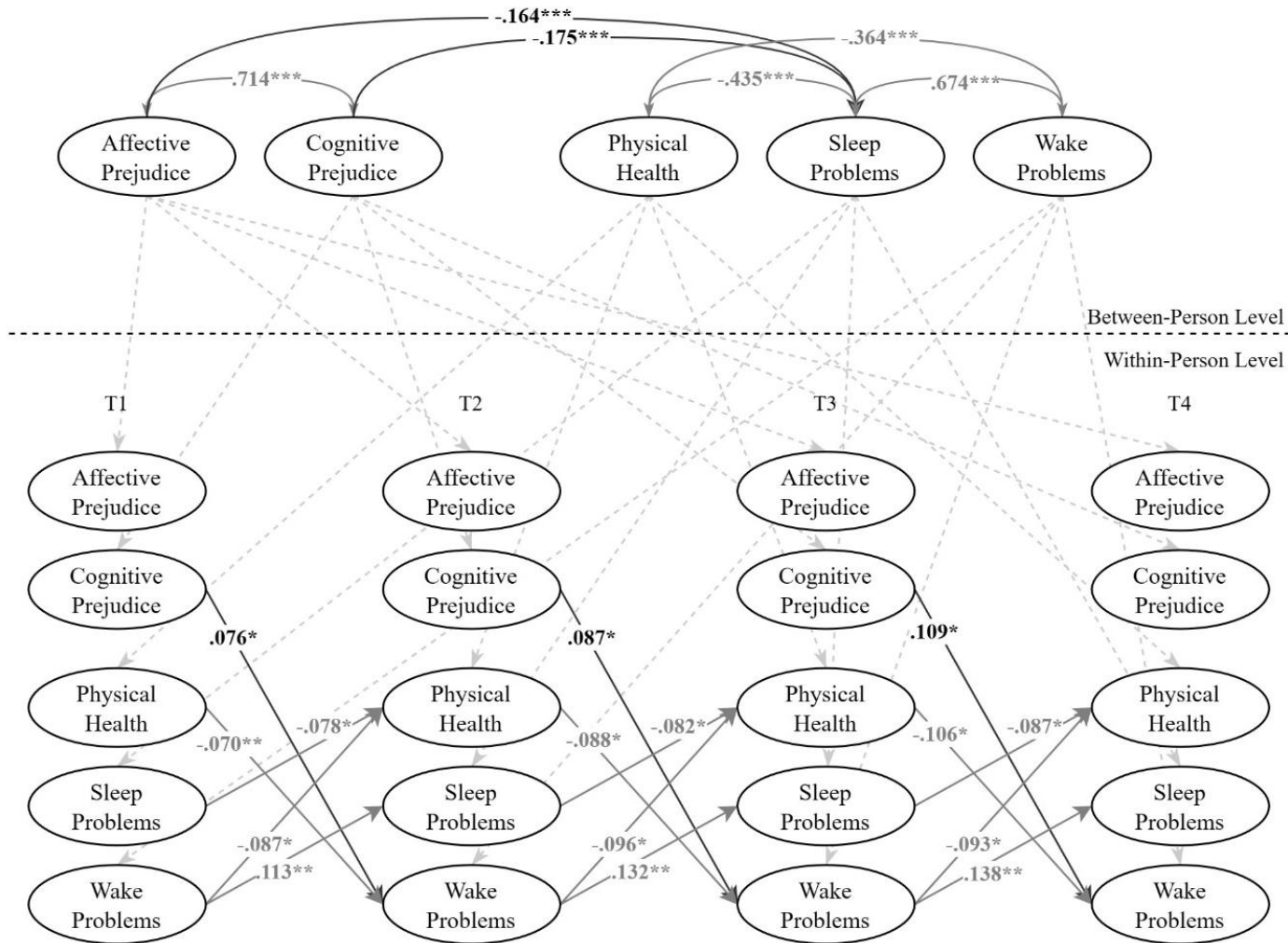
Note. For sake of clarity, only significant within- and between-person level associations are displayed. Grey continuous arrows indicate within-construct effects. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Figure 10.3
Study I: Standardized results of Model 1C
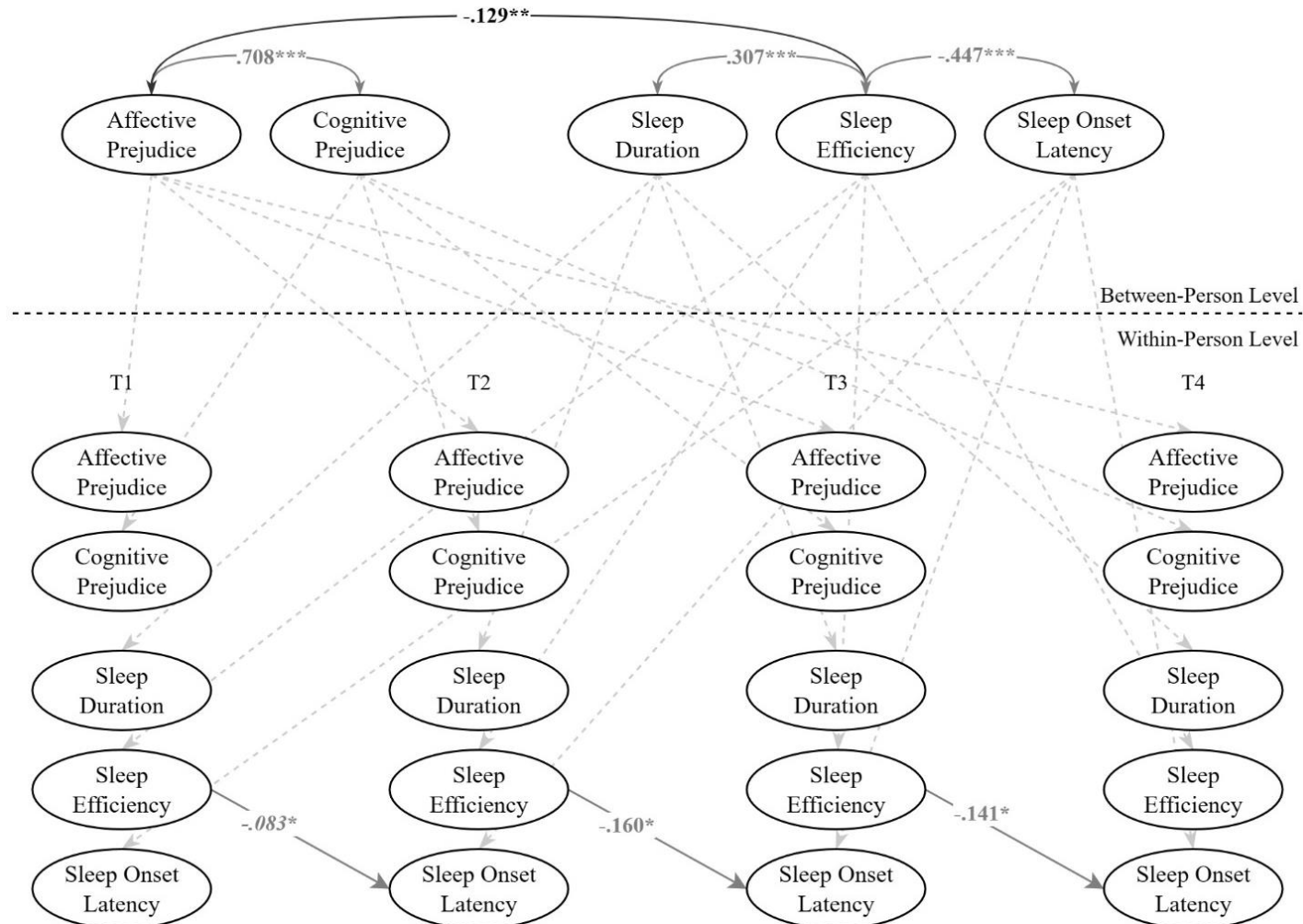
Note. For sake of clarity, only significant within- and between-person level associations are displayed. Grey continuous arrows indicate within-construct effects. Coefficients in italic indicate paths that, despite being fixed across time, are significant in the unstandardized model ($p = .038$), but not significant ($p = .060$) in the standardized model. $^{*} p < .05$; $^{**} p < .01$; $^{***} p < .001$

Study II

Methods

Participants

A subsample of the IDENTITIES project was involved in the current study. Specifically, participants were 458 adolescents (M_{age} = 15.59, SD = 1.11 at T1, 54.77% females) who completed the daily diary section of the project (i.e., daily online questionnaires for 7 consecutive days) with the actigraphic assessment over one week in January/February 2023. The current sample was evenly divided among those attending the second (54.59%) and those attending the fourth (45.41%) year of high school at the time of daily study. Similar to the general sample of the IDENTITIES project, adolescents included in this study reported that half of their fathers (49.50%) and mothers (49.50%) had a medium educational level (i.e., up to high school diploma). Among fathers, most of the remaining (25.75%) had a low (i.e., up to elementary school diploma) followed by those (24.75%) with a high (i.e., bachelor's degree or higher) educational level. Conversely, among mothers, most of the remaining (38.06%) attained a high and a few (12.44%) a low level of education.

Retention throughout the daily diary and actigraphic study varied considerably. Half of the participants (52.40%) completed four or more daily questionnaires, some (26.86%) completed between two and three, and the remaining (20.74%) completed only one assessment throughout the week. Additionally, the majority of the sample (77.73%) also wore the actigraph during the same week and therefore provided valid objective sleep data. Little's (1988) Missing Completely at Random (MCAR) test yielded a normed χ^2 (χ^2/df = 10069.70/9688) of 1.04, indicating that data were likely missing completely at random. Therefore, the total sample of 458 participants was included in the analyses, and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in M*plus* (Kelloway, 2015).

Procedure

The present study was approved by the Ethics Committee of the Alma Mater Studiorum University of Bologna (Italy) as part of the IDENTITIES project (see Study I for more details). This ongoing longitudinal study included multiple assessments across different time scales (i.e., daily, monthly, annual). For the purpose of the current study, daily diary and actigraphic data collected over one week in January/February 2023 were used. Specifically, participants who agreed to participate first were invited to wear an actigraph Micro Motionlogger watch (Ambulatory Monitoring, Inc., Ardsley, NY, USA) for one week. Over the same period, students received via e-mail a brief online questionnaire to complete. The first e-mail was sent during the late afternoon (i.e., 5:00pm) and automatic reminders were scheduled throughout the evening hours for those who have not yet completed the daily assessment. Adolescents were informed that participation in the study was voluntary and that they could withdraw at any time. They were also required to create a personal code to ensure confidentiality and pair their answers across multiple assessments.

Measures

Daily Affective Prejudice. The affective component of prejudice was assessed using a single-item of the Feeling thermometer (Haddock et al., 1993; for the Italian version, see Bobba & Crocetti, 2022), asking participants to rate how much they like foreign people on a scale from 0° (*at all*) to 100° (*very much*). The item was reversed to simplify the interpretation of results, with higher scores indicating higher daily prejudice.

Daily Cognitive Prejudice. To evaluate the cognitive component of prejudice, a single item (e.g., "Today, I felt that Italy would be better off without foreign people") was selected from the scale used in the other assessments (Brown et al., 2008). Participants rated their agreement on a 5-point Likert scale, ranging from 1 (*completely disagree*) to 5 (*completely agree*).

Daily Subjective, Psychological, and Social Well-Being. Subjective, social, and psychological well-being were assessed by relying on the same scale (MHC-SF; Keyes, 2005; Italian validation by Petrillo et al., 2015) adopted in Study I. Cronbach's Alphas across the seven daily assessments ranged between .83 and .91, between .88 and .92, and between .89 and .91, for subjective, social, and psychological subscales, respectively.

Daily Physical Health Perception. Adolescents' physical health perception was assessed using a single item (i.e., "In general, today would you say your health was") from the "General Health (GH)" subscale from the Short Form-36 Health Survey (SF-36; Ware & Gandek, 1994; for the Italian version, see Apolone & Mosconi, 1998), rated on a 5-point Likert-type rating scale, ranging from 1 (*poor*) to 5 (*excellent*).

Daily Sleep Functioning. Daily sleep functioning was assessed by relying on both self-report and objective measures of its quality and quantity.

Daily Subjective Sleep Quality. Problems of the sleep/wake cycle were assessed using two items for problems in the sleep (i.e., "Tonight, did you have an unrestful sleep?") and in the wake (i.e., "Today, did you feel sleepy especially during non-active moments?"). These items were selected from the Mini Sleep Questionnaire (MSQ; Zomer, 1985; for the Italian validation, see Fabbri et al., 2006). Participants rated their answer on 7-point Likert type scales from 1 (*never*) to 7 (*always*).

Daily Objective Sleep Quality. Daily sleep duration and efficiency (i.e., sleep efficiency and sleep onset latency) were assessed following the same procedure presented in Study I. However, in the current study, sleep data were not aggregated across multiple days. Conversely, daily sleep parameters were paired with participants' answers to that day's questionnaire.

Table 10.4

Random-Intercept Cross-Lagged Panel Models of Study II: Model fit indices and model comparison

Models	χ_{SB}^2	df	CFI	TLI	SRMR	RMSEA [90% CI]	Models	$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
Model 2A: Prejudice and Well-Being										
Unconstrained (M1)	627.388	360	.963	.938	.048	.040 [.035, .046]				
Cross-lagged paths fixed (M2)	803.621	460	.952	.938	.045	.041 [.036, .045]	M2-M1	175.854 (100)***	-.011	.001
Partial cross-lagged paths fixed (M2a)[A]	770.382	458	.956	.943	.046	.039 [.034, .043]	M2a-M1	148.713 (98)**	-.007	-.001
Cross-lagged paths and within time correlations fixed (M3)	855.606	508	.951	.943	.046	.039 [.034, .043]	M3-M2a	84.966 (50)**	-.005	.000
Model 2B: Prejudice and Perceived Physical Adjustment										
Unconstrained (M1)	559.470	360	.950	.917	.051	.035 [.029, .040]				
Cross-lagged paths fixed (M2)	704.616	460	.939	.920	.058	.034 [.029, .039]	M2-M1	146.685 (100)**	-.011	-.001
Partial cross-lagged paths fixed (M2a)[B]	684.301	456	.943	.925	.057	.033 [.028, .038]	M2a-M1	128.939 (96)*	-.007	-.001
Cross-lagged paths and within time correlations fixed (M3)	751.386	506	.938	.927	.059	.033 [.028, .037]	M3-M2a	68.534 (50)*	-.005	.000
Model 2C: Prejudice and Objective Adjustment[1]										
Unconstrained (M1)	563.979	360	.952	.921	.093	.035 [.030, .041]				
Cross-lagged paths fixed (M2)	676.545	460	.950	.935	.097	.032 [.027, .037]	M2-M1	118.772 (100)	-.002	-.003
Cross-lagged paths and within time correlations fixed (M3)	729.059	510	.949	.940	.116	.031 [.026, .036]	M3-M2	57.799 (50)	-.001	-.001

Note. χ_{SB}^2 = Satorra-Bentler scaled chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. [A] In this model, the cross-lagged paths from psychological well-being (at T4 and T5) to social well-being (at T5 and T6, respectively) were unconstrained. [B] In this model, the cross-lagged paths from sleep problems (at T3, T5, and T6) to affective prejudice (at T4, T6, and T7, respectively) and from wake problems at T6 to affective prejudice at T7 were unconstrained. * $p < .05$; ** $p < .01$; *** $p < .001$

Strategy of Analyses

Three Random-Intercept Cross-Lagged Panel Models (RI-CLPM) were estimated to examine the within- and between-person daily associations between multiple facets of ethnic prejudice and (a) well-being (i.e., subjective, psychological, and social; Model 2A), (b) subjective perception of general health (i.e., physical health and subjective sleep functioning; Model 2B), and (c) objective sleep functioning (i.e., sleep duration, efficiency, and onset latency; Model 2C), using the same procedure detailed in Study I. Model fit indices and results of the comparison between increasingly parsimonious models are reported in Table 4.

Results and Discussion

Preliminary Analyses

Averaged descriptive statistics and correlations among daily variables were computed using IBM SPSS Version 28.0 and are reported in Table S4 of the Supplemental Materials. All the remaining analyses were conducted in M*plus 8.6* (Muthén & Muthén, 1998-2017) using Maximum Likelihood Robust (MLR) estimator (Satorra & Bentler, 2001). As a preliminary step, longitudinal measurement invariance was tested for the subjective, social, and psychological well-being scales. Results are reported in Table S5 of the Supplemental Materials. As can be inferred, full scalar invariance was reached for all three scales and therefore we could proceed with the main analyses.

Daily Prejudice and Subjective, Psychological, and Social Well-Being

This study sought to examine the day-to-day associations between affective and cognitive prejudice and subjective, psychological, and social well-being. Results (see Figure 4 and Table 5) of the RI-CLPM highlighted that adolescents who reported higher subjective well-being displayed significant decreases in affective prejudice on the next day. Further, at the within-person level, increases in psychological well-being co-occurred with increases in affective and decreases in cognitive prejudice, respectively. Conversely, at the between-

person level, affective prejudice displayed significant negative associations with all three dimensions of well-being, suggesting that youth with higher prejudice are also the ones who feel worse in terms of subjective, social, and psychological adjustment.

Overall, these findings support the scapegoat approach (Allport, 1954) and extend prior longitudinal (Sirgy et al., 2019) research by highlighting that on a day-to-day basis individual well-being influence feelings against ethnic others, rather than the other way around. However, it also appears that increases in cognitive prejudice go together with increases in psychological well-being. This might possibly be the result of cognitive distortion and stereotypical views that lead youth to endorse more negative beliefs about diverse others, as well as to misperceive their own interpersonal adjustment in multicultural contexts.

Daily Prejudice and Perceived Physical Adjustment

Concerning the second goal of the current study, the RI-CLPM (see Figure 5 and Table 6) showed that when adolescents reported worse physical health perceptions, they also displayed higher levels of both affective and cognitive prejudice on the following day. On the contrary, a negative association emerged between affective prejudice and wake problems in that youth with more negative feelings toward ethnic minorities reported lower problems during the wake on the following day. It should be noted that the significance of these effects was marginal and inconsistent across days, therefore caution is warranted in drawing empirical conclusions. Additionally, increases in affective prejudice were found to co-occur with decreases in physical adjustment at both the within- and between-person levels and with higher problems during the wake state at the between-person level only.

Overall, these findings highlight the negative interplay between prejudice and physical health and problems of the sleep-wake cycle both within each individual and between participants. On the one hand, adolescents who perceive themselves as healthy

appear to be more prone to developing negative feelings and endorsing stereotypes against ethnic minorities. On the other hand, youth who report stable high levels of prejudice also display poorer general adjustment outcomes in the physical and sleep domains.

Daily Prejudice and Objective Sleep Assessment

Last, this study examined the daily interplay between ethnic prejudice and sleep duration and quality based on objective parameters. Results are reported in Figure 6 and Table 7. They highlight the lack of significant associations across the two domains and levels of analysis. In other words, on a daily level, it appears that individual changes in ethnic prejudice are not intertwined with sleep outcomes and that youth who report higher levels of prejudice do not necessarily display impaired sleep functioning as assessed by objective parameters.

Table 10.5

Standardized results of Model 2A

Model 2A: Prejudice and well-being						
Within-person: Stability paths	T1→T2	T2→T3	T3→T4	T4→T5	T5→T6	T6→T7
Affective prejudice	.161	-.500	.298	.282	.631***	.472*
Cognitive prejudice	.096	.025	-.177	-.179	.753***	.420**
Subjective well-being	.088	.013	.171	.063	-.064	-.088
Psychological well-being	.444***	.311**	.311*	.062	.055	.404***
Social well-being	.226*	.072	.002	.167	.198	.122
Within-person: Correlations	T1	T2	T3	T4	T5	T6	T7
Affective prejudice ↔ Cognitive prejudice	-.038	.161**	.139*	.191*	.126**	.275**	.142*
Affective prejudice ↔ Subjective well-being	.021	.011	.009	.011	.007	.012	.009
Affective prejudice ↔ Psychological well-being	-.048	-.102*	-.101	-.110*	-.070*	-.114*	-.099
Affective prejudice ↔ Social well-being	.049	-.041	-.039	-.043	-.026	-.041	-.037
Cognitive prejudice ↔ Subjective well-being	-.120	.039	.036	.046	.046	.075	.037
Cognitive prejudice ↔ Psychological well-being	-.167*	.087*	.093*	.110*	.106*	.166*	.100*
Cognitive prejudice ↔ Social well-being	-.145	.067	.069	.081	.075	.113	.071
Subjective well-being ↔ Psychological well-being	.614***	.514***	.556***	.552***	.533***	.658***	.549***
Subjective well-being ↔ Social well-being	.602***	.461***	.483***	.480***	.439***	.522***	.453***
Psychological well-being ↔ Social well-being	.639***	.518***	.616***	.575***	.509***	.576***	.609***

Note. T = Time. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 10.6

Standardized results of Model 2B

Model 2B: Prejudice and perceived physical adjustment						
Within-person: Stability paths	T1→T2	T2→T3	T3→T4	T4→T5	T5→T6	T6→T7
Affective prejudice	.173	-.237	.322	.339	.647***	.448*
Cognitive prejudice	.113	.127	-.143	-.215	.746***	.386*
Physical health	.272*	.245*	.245*	.358*	.017	.103
Sleep problems	.206*	-.095	.030	.263*	.084	-.002
Wake problems	.024	-.133	.045	.178	.081	.257*
Within-person: Correlations	T1	T2	T3	T4	T5	T6	T7
Affective prejudice ↔ Cognitive prejudice	-.036	.158*	.122*	.200*	.148**	.299**	.165*
Affective prejudice ↔ Physical health	-.076	-.082*	-.062*	-.094*	-.072*	-.121	-.095*
Affective prejudice ↔ Sleep problems	-.083	-.010	-.008	-.010	-.008	-.011	-.011
Affective prejudice ↔ Wake problems	.010	-.001	-.001	-.001	-.001	-.001	-.001
Cognitive prejudice ↔ Physical health	-.047	-.036	-.034	-.048	-.055	-.091	-.047
Cognitive prejudice ↔ Sleep problems	-.097	.031	.030	.039	.045	.062	.039
Cognitive prejudice ↔ Wake problems	.061	.023	.020	.025	.026	.040	.025
Physical health ↔ Sleep problems	-.154	.000	.000	-.001	-.001	-.001	-.001
Physical health ↔ Wake problems	-.211**	-.102**	-.086**	-.102**	-.110**	-.137**	-.122**
Sleep problems ↔ Wake problems	.279***	.121**	.107**	.115**	.126**	.132**	.145**

Note. T = Time. *$p < .05$; **$p < .01$; ***$p < .001$

Table 10.7

Standardized results of Model 2C

Model 2C: Prejudice and objective adjustment [1]						
Within-person: Stability paths	T1→T2	T2→T3	T3→T4	T4→T5	T5→T6	T6→T7
Affective prejudice	.237	-.228	.305	.256	.618***	.405
Cognitive prejudice	.087	.088	-.160	-.184	.765***	.421**
Sleep duration	.223**	.026	-.064	-.130*	-.179*	-.075
Sleep efficiency	.225*	.321**	.013	.038	.336***	.335**
Sleep onset latency	.004	-.058	-.094	-.107	.032	-.172
Within-person: Correlations	T1	T2	T3	T4	T5	T6	T7
Affective prejudice ↔ Cognitive prejudice	-.017	.158**	.127**	.208*	.144**	.297**	.159**
Affective prejudice ↔ Sleep duration	.101	-.011	-.010	-.013	-.009	-.013	-.016
Affective prejudice ↔ Sleep efficiency	-.028	-.005	-.004	-.006	-.004	-.005	-.004
Affective prejudice ↔ Sleep onset latency	-.009	-.020	-.013	-.015	-.016	-.023	-.019
Cognitive prejudice ↔ Sleep duration	.044	.022	.023	.028	.027	.045	.035
Cognitive prejudice ↔ Sleep efficiency	-.100	.007	.008	.010	.009	.013	.006
Cognitive prejudice ↔ Sleep onset latency	.047	.002	.002	.002	.003	.005	.003
Sleep duration ↔ Sleep efficiency	.396***	.122***	.145***	.152***	.130***	.150***	.147***
Sleep duration ↔ Sleep onset latency	-.181	-.082**	-.073**	-.062**	-.090	-.106**	-.126**
Sleep efficiency ↔ Sleep onset latency	-.545***	-.434***	-.392***	-.362***	-.472***	-.495***	-.338***

Note. [1] In this model, sleep duration was rescaled and ultimately expressed in hours by dividing the parameter (in minutes) by 60.
T = Time. * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 10.4
Study II: Standardized results of Model 2A
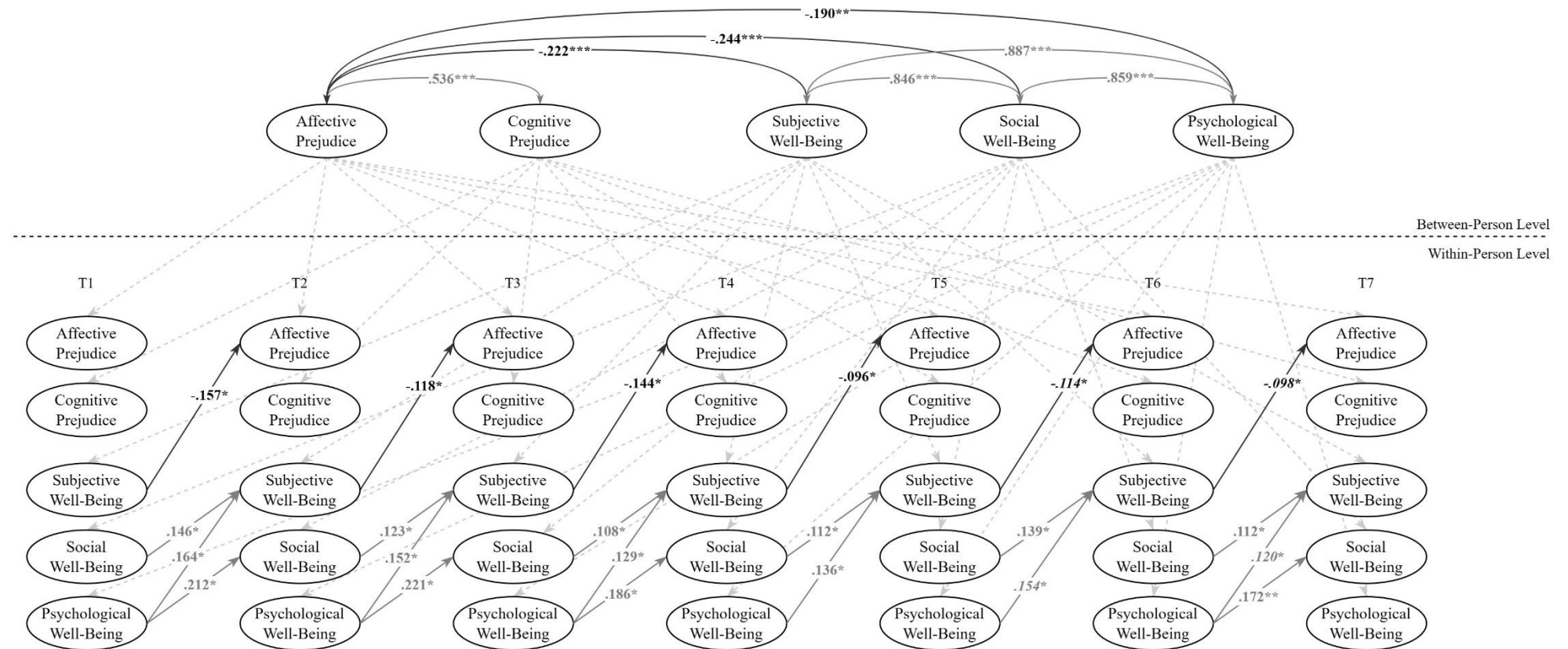
Note. For sake of clarity, only significant within- and between-person level associations are displayed. Grey continuous arrows indicate within-construct effects. Coefficients in italic indicate paths that, despite being fixed across time, are significant in the unstandardized model (.024 < *p* < .048), but not significant (.052 < *p* < .057) in the standardized model. * *p* < .05; ** *p* < .01; *** *p* < .001

Figure 10.5

Study II: Standardized results of Model 2B
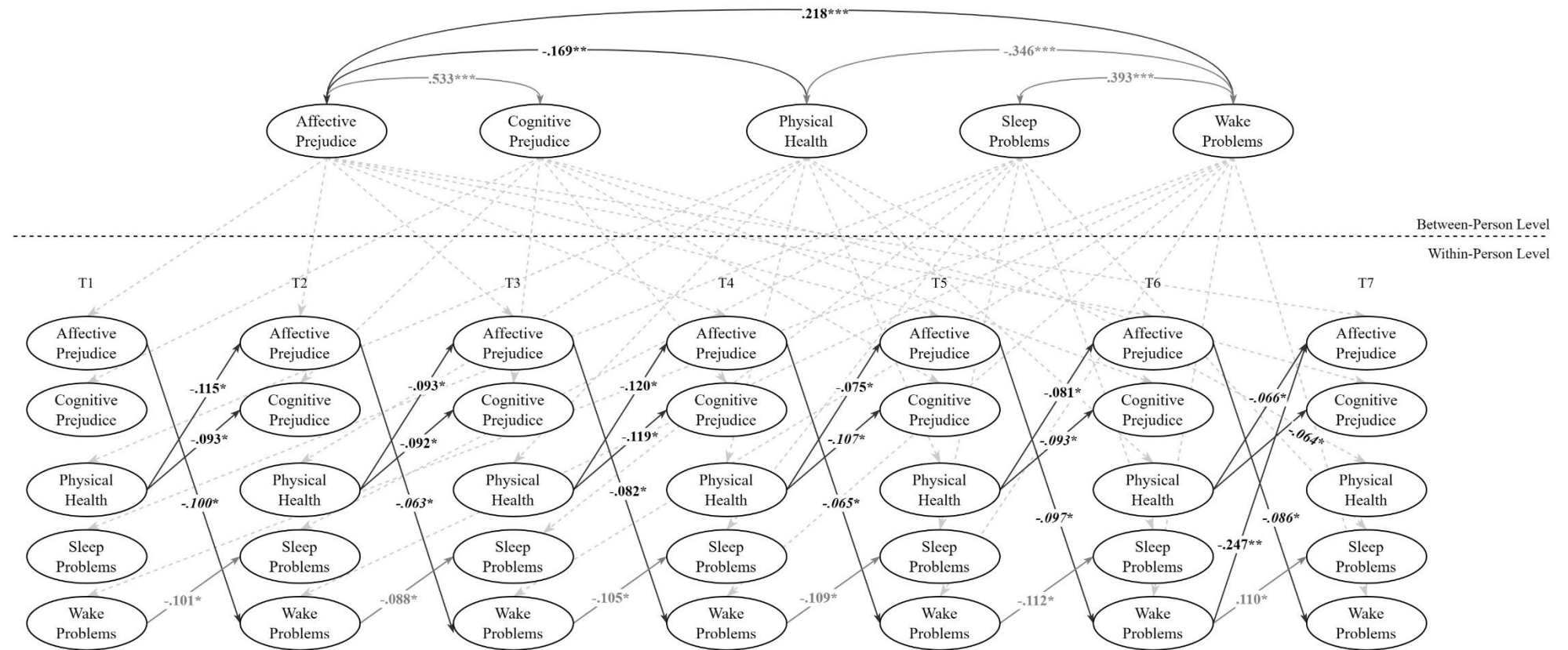
Note. For sake of clarity, only significant within- and between-person level associations are displayed. Grey continuous arrows indicate within-construct effects. Coefficients in italic indicate paths that, despite being fixed across time, are significant in the unstandardized model (.021 < *p* < .049), but not significant (.053 < *p* < .086) in the standardized model. * *p* < .05; ** *p* < .01; *** *p* < .001

Figure 10.6

Study II: Standardized results of Model 2C
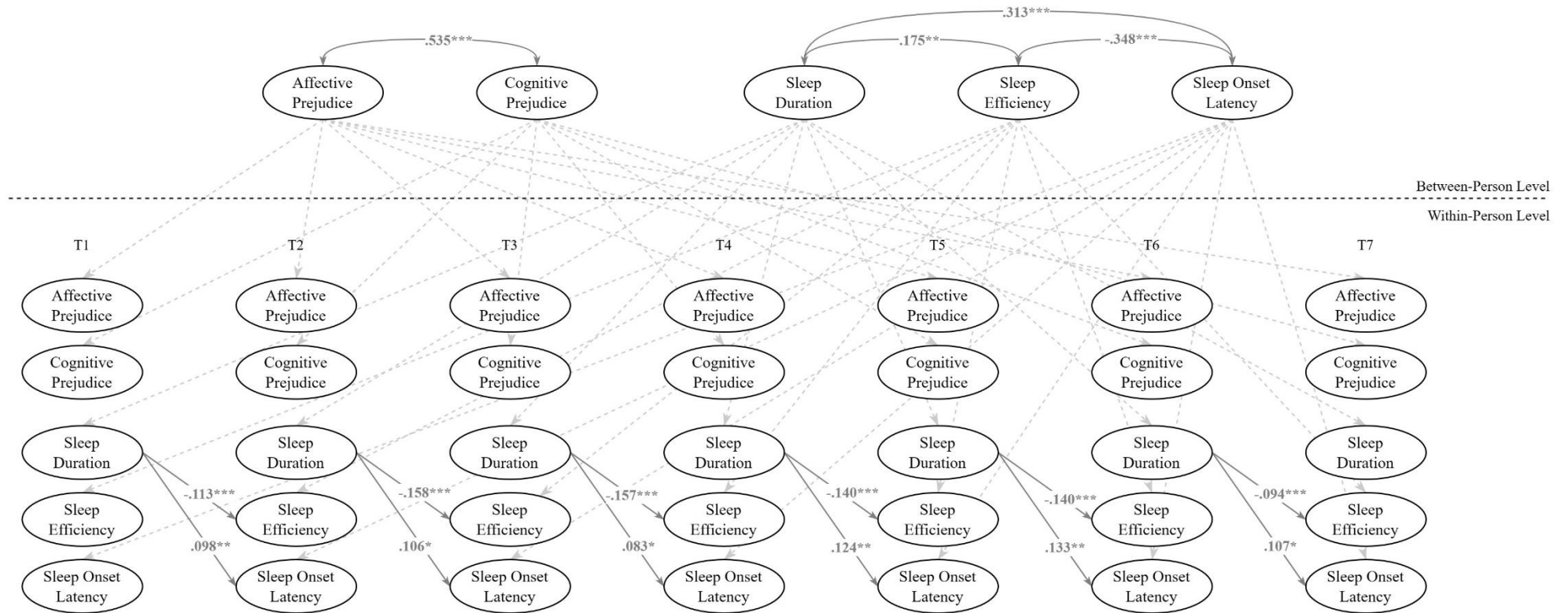
Note. For sake of clarity, only significant within and between-person level associations are displayed. Grey continuous arrows indicate within-construct effects. $^*p < .05$; $^{**}p < .01$; $^{***}p < .001$

General Discussion

Developing negative emotions and attitudes toward diverse others might prevent both ethnic minority and majority youth from successfully adjusting to and navigating current multicultural societies (McKeown et al., 2019). The literature on the consequences of discrimination for its victims (i.e., ethnic minority individuals) has consistently highlighted the detrimental effects of negative intergroup relations on adolescents' well-being (for reviews, see e.g., Benner et al., 2018; Cave et al., 2020; Schmitt et al., 2014). Conversely, less attention (for exceptions, see e.g., Dinh et al., 2014; Korol et al., 2022; Sirgy et al., 2019) has been paid to those who hold negative emotions and endorse stereotypes (i.e., ethnic majority individuals) against diverse others and to how prejudice might affect their adjustment to the complexity of current societies. The few available studies have examined these associations among adult or young adult samples and have provided a scattered picture of the interplay between prejudice and well-being. The current research aimed to significantly advance the understanding of this longitudinal interplay in several directions, by focusing on adolescents; relying on multidimensional assessments of both constructs; and examining their associations across multiple time scales. Thus, this contribution tackled the reciprocal longitudinal interplay between multiple dimensions of ethnic prejudice (i.e., affective and cognitive) and several adjustment outcomes (i.e., subjective, psychological, social well-being, physical health, and sleep functioning) in the medium- (Study I) and short-term (Study II) among adolescents, who are going through a crucial formative period for developing inclusive attitudes in increasingly diverse societies.

The Interplay Between Prejudice and Well-Being: Unfolding Medium- and Short-Term Effects

Findings from the current study highlighted a nuanced and reciprocal pattern of associations between ethnic prejudice and well-being depending on the facet of prejudice, the

time scale, and the level of analysis under consideration. For instance, when examining medium-term associations, while within-person increases in affective prejudice contributed to significant decreases in social well-being and between-person increases in negative feelings toward ethnic minorities were intertwined with decreased sleep efficiency, within-person increases in cognitive prejudice were linked to both increases in social well-being and decreases in perceived sleep functioning. Further, monthly increases in subjective well-being were associated to a decreased tendency to endorse stereotypes and negative beliefs about ethnic minorities. Conversely, on a day-to-day basis, increases in well-being and physical health were found to contribute to within-person decreases in prejudice and to be intertwined at the between-person levels with intergroup affects and cognitions.

Regarding medium-term associations, in Study I affective and cognitive ethnic prejudice were significantly linked to either longitudinal or concurrent decreases in subjective, psychological, and social well-being, physical health perception, and sleep duration and efficiency. These findings align with prior research highlighting the detrimental consequences of holding prejudicial attitudes for ethnic majority individuals (e.g., Dinh et al., 2014; Holmberg, 2010; Korol et al., 2022). Conversely, at the within-person level, youth who reported higher cognitive prejudice were found to display better social adjustment at the following time. This unexpected finding can be linked to adolescents relying on dichotomous and oversimplified views of reality that lead to misperceptions about one's personal adjustment (i.e., positive perceptions of social well-being and integration) and others' characteristics (i.e., attribution of stereotypes). Additionally, adolescents with strongly negative intergroup attitudes (e.g., xenophobia) were found to befriend peers who endorse similar views (van Zalk et al., 2013). These selection processes contribute to the creation of isolated niches characterized by shared perceptions of others and reality and therefore confirming the subjective feeling of being well integrated into one's social context. Last, our

findings highlighted that adolescents with poorer subjective well-being reported significant medium-term increases in cognitive prejudice. This means that, in line with the uncertainty-identity theory (Hogg, 2007) and scapegoat theory of prejudice (Allport, 1954), youth might endorse ethnocentric views of society as a means to displace their unsatisfaction with their daily life (e.g., Sirgy et al., 2019).

This latter medium-term direction of association was especially evident when delving into the day-to-day interplay between prejudice and well-being. Specifically, in Study II, poorer subjective well-being and physical health perceptions led to increases in negative emotions and attitudes about ethnic others on the following day. In other words, the negative feelings resulting from unsatisfactory life conditions might lead youth to seek certainty and reaffirmation by adopting dichotomous views of society (Yoxon et al., 2019) and therefore endorse higher prejudice against ethnic minorities, who can be conceived as convenience targets for displacing unpleasant self-perceptions (Allport, 1954). Interestingly, no significant association emerged between multiple facets of ethnic prejudice and objective sleep indicators, suggesting that these links (if any) might occur over different time periods rather than on a day-to-day basis.

Theoretical and Practical Implications

Overall, the current studies have important theoretical and practical implications. From a theoretical point of view, they advance prior research with adults (e.g., Dinh et al., 2014; Kudrnáč et al., 2023; Yoxon et al., 2019) and provide initial evidence on the interplay between ethnic prejudice and well-being among ethnic majority adolescents. Additionally, they highlight the importance of considering multiple time scales for gathering a comprehensive understanding of the processes at play. Tackling short- and medium-term dynamics not only provides a more comprehensive understanding of these phenomena but helps shed light on the far-reaching consequences of day-to-day experiences and interactions

(e.g., Klimstra & Schwab, 2021). For instance, perceptions of ill-being can contribute to increases in negative emotions and stereotypes about ethnic others on the following day, and these in turn can cumulatively spiral into worsening youth's adjustment in the medium-term.

From a practical point of view, the findings from the current research can be used to inform evidence-based interventions aimed at improving individual and societal adjustment. On the one hand, interventions supporting youth's adjustment not only have a "triple dividend" of improving their present and future lives and those of the next generation (WHO, 2021), but also have the added value of reinforcing the fabric of current societies by supporting positive intergroup attitudes and relationships. On the other hand, preventing the development and consolidation of ethnic prejudice in adolescence can prove effective not only to enhance collective outcomes, such as promoting the development of inclusive norms and harmonious intergroup relationships (Beelmann & Heinemann, 2014), but also to contribute to individual outcomes pertaining to multiple dimensions of well-being. All in all, it appears that tackling both prejudice development and well-being can simultaneously be of service to the thriving of adolescents and the societies they are part of.

Strengths and Limitations of the Present Research and Suggestions for Future Studies

The current findings should be read in the light of some strengths, as well as limitations. First, this research adopted a multidimensional account of prejudice by tackling both its affective and cognitive facets. However, behavioral expressions of prejudice (e.g., avoidance, victimization) might ulteriorly compromise youth's adjustment and well-being in multicultural contexts. Therefore, future research should strive to understand the collective and individual implications of different behavioral forms of prejudice. Second, this study included both subjective and objective indicators of sleep functioning, among the several adjustment outcomes examined. Future research could extend current findings by examining

well-being from a multi-informant perspective by including parental or teachers' evaluations of youth's adjustment across multiple contexts.

Further, across two studies, this research tackled the medium- and short-term reciprocal associations between ethnic prejudice and adjustment. Nevertheless, it is less clear how these findings can be integrated with the long-term effects highlighted by previous research. Examining the interplay of these constructs across multiple years and integrating different timeframes might shed light on important windows of opportunity and micro-processes that can support positive adjustment to multicultural contexts.

Last, the current studies have targeted adolescents living and studying in an area (i.e., Emilia-Romagna region) characterized by higher levels of ethnic diversity (Regione Emilia-Romagna, 2022), especially in the school context (Ministero della Pubblica Istruzione, 2022). Therefore, this research contributes to the understanding of intergroup processes that are salient not only for the individual but for the larger social context. However, it should be noted that these contextual features might limit the generalizability of the present findings. Future research should examine how contextual factors (e.g., share of immigrant population in the neighborhood or at school) can shape the associations between prejudice and well-being of ethnic majority adolescents.

Conclusions

Ethnic prejudice can have heinous consequences for its victims, while less is known about its effect on the well-being of those who endorse it. The current research provided novel insight into the medium- and short-term interplay between affective and cognitive facets of prejudice and several adjustment outcomes in adolescence. In the medium-term endorsing ethnic prejudice was linked to poorer well-being, physical health, and sleep functioning, mainly at the between- but also at the within-person level. Furthermore, within-person increases in subjective well-being led to decreases in cognitive prejudice. This latter

result was further clarified by the study of short-term processes that revealed how subjective

perceptions of maladjustment contributed to day-to-day increases in negative emotions and

stereotypes against diverse others. Overall, this research highlights the toll of prejudice,

which not only hampers intergroup relationships in diverse societies but also brings a

personal cost for adolescents' well-being.

Supplemental Materials

Table S10.1

Descriptive statistics

	Time 1		Time 2		Time 3		Time 4	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1.Affective ethnic prejudice	41.48	28.48	37.73	27.07	36.55	27.15	41.68	29.25
2.Cognitive ethnic prejudice	1.72	0.70	1.78	0.73	1.92	0.75	1.99	0.79
3.Subjective well-being	3.97	1.11	4.10	1.09	4.18	1.13	4.22	1.02
4.Psychological well-being	3.88	1.10	3.93	1.13	4.03	1.11	4.07	1.03
5.Social well-being	2.84	1.05	3.13	1.21	3.25	1.25	3.45	1.10
6.Physical health	3.85	0.62	3.78	0.67	3.69	0.70	3.68	0.71
7.Sleep problems	12.96	5.40	13.33	6.15	12.43	5.80	12.71	5.56
8.Wake problems	13.71	5.03	14.46	5.55	13.61	5.50	13.97	5.17
9.Sleep duration (minutes)	425.37	43.47	411.51	48.73	422.58	48.63	417.80	47.09
10.Sleep efficiency	92.46	3.34	91.67	3.69	92.77	3.65	93.11	3.18
11.Sleep onset latency (minutes)	12.48	8.03	13.45	8.01	10.38	4.96	10.68	5.50

Note. *M* = Mean, *SD* = Standard Deviation.

Table S10.2

Correlations among T1 study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.Affective ethnic prejudice										
2.Cognitive ethnic prejudice	.50***									
3.Subjective well-being	.03	-.01								
4.Psychological well-being	.01	-.04	.69***							
5.Social well-being	.01	-.01	.60***	.65***						
6.Physical health	-.01	-.02	.36***	.32***	.27***					
7.Sleep problems	-.06	-.12**	-.31***	-.22***	-.24***	-.26***				
8.Wake problems	-.13***	-.12***	-.38***	-.33***	-.33***	-.35***	.51***			
9.Sleep duration (minutes)	.05	-.01	.12**	.15***	.10*	.10*	-.13**	-.22***		
10.Sleep efficiency	-.04	-.06	-.07	.00	-.08	.02	-.07	.01	.25***	
11.Sleep onset latency (minutes)	.03	.01	.04	.01	.03	.02	-.01	-.01	-.02	-.50***

Note. * *p* < .05; ** *p* < .01; *** *p* < .001.

Study I: Longitudinal Measurement Invariance

As a preliminary step, configural, metric, and scalar levels of longitudinal measurement invariance were tested for each variable included in Study I, separately (except for the actigraphic parameters of sleep quantity and quality). To this end, the configural models are first estimated as baseline models and their fit evaluated based on the following criteria. The Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI) with values higher than .90 and .95 indicate an acceptable and very good fit, respectively. The Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) with values below .08 and .05 are indicative of an acceptable and very good fit, respectively (Byrne, 2012). Additionally, the RMSEA's 90% confidence interval's upper bound lower than .10 indicates an acceptable fit of the model (Chen et al., 2008). In order to establish metric (i.e., constraining factor loadings to be equal across time) and scalar (i.e., constraining intercepts to be equal across time) invariances, changes in fit indices from the configural to the metric model and from the metric model to the scalar were evaluated (e.g., Cheung & Rensvold, 2002). Specifically, a significant $\Delta\chi^2_{SB}$ (Satorra & Bentler, 2001), and $\Delta CFI \geq -.010$ supplemented by $\Delta RMSEA \geq .015$ (Chen, 2007) are indicative of non-invariance. If full (metric and/or scalar) invariance could not be reached, paths were examined, and the ones deemed to differ greatly across assessments were unconstrained.

Results are displayed in Table S3. As can be inferred, full scalar invariance was reached only for the psychological well-being scale, whereas all the other variables displayed partial scalar invariance. Based on these results, we could proceed with the main analyses included in Study I.

Table S10.3

Longitudinal measurement invariance

Models	Model fit						Models	Model comparisons		
	χ^2	df	CFI	TLI	SRMR	RMSEA [90% CI]		$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
Affective Prejudice										
Configural (M1)	470.774	210	.975	.967	.031	.034 [.030, .038]				
Metric (M2)	495.395	225	.974	.968	.032	.034 [.030, .038]	M2-M1	16.126 (15)	-.001	.000
Scalar (M3)	636.939	243	.962	.957	.039	.039 [.035, .043]	M3-M2	198.451 (18)***	-.012	.005
Partial scalar (M3a)[1]	548.000	237	.970	.965	.036	.035 [.031, .039]	M3a-M2	42.306 (12)***	-.004	.001
Cognitive Prejudice										
Configural (M1)	414.614	134	.957	.939	.037	.045 [.040, .049]				
Metric (M2)	438.317	146	.955	.942	.042	.044 [.039, .048]	M2-M1	24.102 (12)*	-.002	-.001
Scalar (M3)	598.008	161	.933	.921	.064	.051 [.046, .055]	M3-M2	111.917 (15)***	-.022	.007
Partial scalar (M3a)[2]	476.926	149	.950	.936	.045	.046 [.041, .050]	M3a-M2	29.493 (3)***	-.005	.002
Subjective Well-Being										
Configural (M1)	32.450	30	.999	.998	.017	.009 [.000, .025]				
Metric (M2)	44.179	36	.998	.996	.031	.015 [.000, .028]	M2-M1	12.411 (6)	-.001	-.001
Scalar (M3)	125.490	45	.976	.965	.049	.041 [.033, .050]	M3-M2	91.837 (9)***	-.022	.026
Partial scalar (M3a)[3]	56.777	39	.995	.991	.034	.021 [.006, .032]	M3a-M2	14.449 (3)**	-.003	.006
Psychological Well-Being										
Configural (M1)	401.551	210	.973	.965	.038	.029 [.025, .034]				
Metric (M2)	432.314	225	.971	.965	.043	.029 [.025, .034]	M2-M1	31.440 (15)**	-.002	.000
Scalar (M3)	518.210	243	.962	.957	.046	.033 [.029, .036]	M3-M2	93.955 (18)***	-.009	.004
Social Well-Being										
Configural (M1)	229.090	134	.984	.977	.033	.026 [.020, .031]				
Metric (M2)	285.975	146	.977	.969	.045	.030 [.025, .035]	M2-M1	66.980 (12)***	-.007	.004
Scalar (M3)	642.613	161	.919	.905	.086	.053 [.049, .057]	M3-M2	388.266 (15)***	-.058	.023
Partial scalar (M3a)[4]	310.077	149	.973	.966	.047	.032 [.027, .037]	M3a-M2	26.002 (3)***	-.004	.002

(continues on the next page)

Table S3 (continued)

Models	Model fit						Models	Model comparisons		
	χ^2	df	CFI	TLI	SRMR	RMSEA [90% CI]		$\Delta\chi_{SB}^2$	ΔCFI	ΔRMSEA
Physical Health										
Configural (M1)	162.314	74	.979	.966	.028	.033 [.026, .040]				
Metric (M2)	177.720	83	.978	.968	.036	.033 [.026, .039]	M2-M1	15.960 (9)	-.001	.000
Scalar (M3)	260.959	95	.961	.950	.049	.040 [.035, .046]	M3-M2	93.341 (12)***	-.017	.007
Partial scalar (M3a)[5]	193.878	86	.975	.964	.039	.034 [.028, .041]	M3a-M2	18.032 (3)***	-.003	.001
Subjective Sleep-Wake Problems										
Configural (M1)	1448.815	512	.924	.906	.059	.041 [.039, .044]				
Metric (M2)	1492.194	533	.922	.908	.061	.041 [.039, .043]	M2-M1	43.415 (21)**	-.002	.000
Scalar (M3)	1689.757	560	.908	.897	.062	.043 [.041, .046]	M3-M2	208.932 (27)***	-.014	.002
Partial scalar (M3a)[6]	1600.674	551	.915	.902	.062	.042 [.040, .045]	M3a-M2	114.012 (18)***	-.007	.001

Note. M = model; χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter. [1]In this model, the intercepts of items 5 and 6 were unconstrained. [2]In this model, the intercepts of items 1, 2, 3, and 5 were unconstrained. [3]In this model, the intercepts of items 1 and 3 were unconstrained. [4]In this model, the intercepts of items 1, 3, 4, and 5 were unconstrained. [5]In this model, the intercepts of items 2, 3, and 4 were unconstrained. [6]In this model, the intercepts of items 2, 5, and 8 were unconstrained. * $p < .05$; ** $p < .01$; *** $p < .001$

Table S10.4

Descriptive statistics and correlations (averaged across the daily assessments)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.Affective ethnic prejudice											
2.Cognitive ethnic prejudice	.489***										
3.Subjective well-being	-.190***	-.045									
4.Psychological well-being	-.194***	-.069	.843***								
5.Social well-being	-.238***	-.089	.806***	.815***							
6.Physical health	-.183***	-.010	.521***	.496***	.447***						
7.Sleep problems	.055	.043	-.014	-.036	.033	-.017					
8.Wake problems	.159**	.046	-.242***	-.195***	-.198***	-.287***	.279***				
9.Sleep duration (minutes)	.034	-.002	.150**	.127*	.095	.062	-.003	-.090			
10.Sleep efficiency	-.076	-.088	-.092	-.105*	-.127*	-.033	-.022	.048	.217***		
11.Sleep onset latency (minutes)	-.059	-.045	.066	.028	.044	-.023	.014	-.044	.156**	-.371***	
M	32.30	1.73	3.77	3.78	3.21	3.41	2.87	3.44	419.00	92.95	10.74
SD	28.43	0.81	1.10	1.04	1.09	0.88	1.46	1.40	47.47	3.39	5.35

Note. M = Mean; *SD* = Standard Deviation. * $p < .05$; ** $p < .01$; *** $p < .001$.

Study II: Longitudinal Measurement Invariance

While most constructs examined in Study II were evaluated using a single-item measure, the subjective, psychological, and social well-being were assessed using multiple items. Therefore, as a preliminary step, longitudinal measurement invariance was tested across the seven days of assessment for each scale separately. The same procedure outlined in Study I was followed in the present research. Results are reported in Table S5. As can be inferred, all three scales reached full scalar invariance, and therefore we could proceed with testing the main models.

Table S10.5

Longitudinal measurement invariance

Models	Model fit						Models	Model comparisons		
	χ^2	df	CFI	TLI	SRMR	RMSEA [90% CI]		$\Delta\chi^2_{SB}$	ΔCFI	ΔRMSEA
Subjective Well-Being										
Configural (M1)	455.019	120	.905	.834	.058	.079 [.071, .087]				
Metric (M2)	479.270	134	.902	.847	.063	.076 [.069, .083]	M2-M1	17.613 (14)	-.003	-.003
Scalar (M3)	519.229	152	.896	.857	.066	.074 [.067, .081]	M3-M2	35.570 (18)**	-.006	-.002
Psychological Well-Being										
Configural (M1)	1043.249	672	.950	.936	.047	.035 [.031, .039]				
Metric (M2)	1077.928	702	.950	.938	.047	.035 [.030, .039]	M2-M1	28.916 (30)	.000	.000
Scalar (M3)	1128.142	738	.948	.939	.048	.034 [.030, .038]	M3-M2	49.276 (36)	-.002	-.001
Social Well-Being										
Configural (M1)	610.890	434	.973	.962	.036	.030 [.024, .036]				
Metric (M2)	649.044	458	.970	.961	.041	.031 [.025, .036]	M2-M1	40.119 (24)*	-.003	.001
Scalar (M3)	689.696	488	.969	.962	.043	.030 [.025, .036]	M3-M2	40.274 (30)	-.001	-.001

Note. M = model; χ^2 = chi-square; df = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; Δ = change in the parameter.
* $p < .05$; ** $p < .01$

CHAPTER **11**

General Discussion

General Discussion

Ethnic prejudice is a heinous social phenomenon that not only has negative consequences for individuals (e.g., segregation, discrimination; Brown, 2017), but also hampers the very fabric of current multicultural societies (Ward et al., 2017). It emerges in early childhood and progressively changes over time (for meta-analyses, see Crocetti et al., 2021; Raabe & Beelmann, 2011). In this regard, adolescence represents an especially fertile moment for the consolidation of attitudes, in light of the increasingly sophisticated cognitive, social, and moral competences (for a review, see Meeus, 2019) as well as the novel and enlarged interpersonal networks and experiences (Engels et al., 2007) that characterize this phase. These crucial developmental changes support adolescents in evaluating, revising, and consolidating their individual and intergroup attitudes, which become important organizational principle of their adults' social and political orientations (Rekker, 2016).

In light of these considerations, the present dissertation sought to provide a comprehensive understanding of the development, correlates, and implications of ethnic prejudice in adolescence and the transition to emerging adulthood. In doing so, it adopted an ecological and transactional perspective on prejudice as hesitating from the dynamic interplay with several factors, agents, and events in the multiple layers of youth's developmental environment (Bronfenbrenner & Morris, 2007; Sameroff, 2009). Additionally, the current dissertation benefitted from a cross-fertilized approach that complements the study of prejudice as a traditional social phenomenon with a developmental account of its stability and trajectories of change over time.

In this last chapter, a brief overview of the main findings of each study will be presented. Next, these will be further discussed and integrated in relation to the multifaceted nature of ethnic prejudice. Thereafter, important common threads will be presented as building blocks of the theoretical and practical implications of the current dissertation. Last,

the strengths and limitations of this work will be discussed and new venues for future research will be proposed.

An Ecological Model of Prejudice Development: Overview of Current Findings

Over the past decade, extant research has contributed to the understanding of ethnic prejudice development in the crucial phase of adolescence (for a meta-analysis, see Crocetti et al., 2021). However, important gaps still existed in relation to how changes in prejudice unfold in the transition from late adolescence to emerging adulthood, a fertile developmental window for the progressive consolidation of youth's social and political orientations (Rekker, 2016). Relatedly, **Chapter 3** aimed to fill this gap by unraveling the developmental trajectories of affective and cognitive prejudice as well as variability in such changes across this transition moment. The current findings highlighted that cognitive prejudice significantly decreased over time, while its affective counterpart remained stable, and that interindividual stability was high across both facets of prejudice. Moreover, variability around these developmental trajectories could be traced back to the existence of different sub-groups of youth, with respectively low, moderate, and high levels of negative emotions and cognitions against diverse others. These findings highlight how, from late adolescence onward, prejudicial attitudes are on a developmental pathway leading toward progressive intra- and inter-individual stability. Therefore, they substantiate the need to understand ethnic prejudice antecedents and consequences in the previous years of adolescence with the aim to identify the individual (Section A), proximal (Section B), and distal (Section C) factors that can be effectively employed in preventing the heinous consequences (Section D) of negative intergroup relationships (Beelmann & Lutterbach, 2021).

Who Am I and Who Are They? The Role of Individual and Identity Factors

The progressive advancements in social and cognitive skills, among which empathy, can help adolescents in developing inclusive attitudes toward others, as well as in

consolidating their own identity across multiple personal and social domains (Albarello, Crocetti, et al., 2018). Notably, the ways in which youth define their own identities (i.e., the answer to the question "Who am I?") might influence how they perceive and behave towards diverse others (i.e., the answer to the question "Who are they?"; for reviews, see Crocetti et al., 2018, 2023). Therefore, it is crucial to study the interplay between ethnic prejudice and individual (i.e., empathic competences) and identity (i.e., personal and social identity) factors. On the one hand, several experimental (e.g., Batson et al., 2002; Sierksma et al., 2014; Taylor & Glen, 2020) but only few longitudinal studies (Miklikowska, 2018; Taylor & McKeown, 2021) have documented how empathy might help overcome prejudice. On the other hand, there is a dearth of studies linking the development of personal and social identity to changes in multiple facets of prejudice. The studies included in **Section A** aimed to fill these gaps.

Chapter 2 advanced our understanding of the role of empathy in influencing changes in intergroup attitudes in adolescence by unraveling the longitudinal and reciprocal interplay within and between the affective and cognitive facets of both ethnic prejudice and empathic competences. The findings of this study highlighted for the first time the precedence of affective (i.e., affective prejudice and empathic concern) over cognitive (i.e., cognitive prejudice and perspective-taking) processes, and the protective role of empathic concern as a way to prevent the development of negative intergroup attitudes and behaviors. Conversely, they suggest that being able to cognitively assume the perspective of others might serve either altruistic or egoistic purposes and therefore be associated with heightened cognitive and behavioral prejudice. All in all, training youth in tuning into the feelings of others might be beneficial to reduce their negative emotions against ethnic minorities and, subsequently, to prevent the endorsement of stereotypes and negative beliefs about them.

Beyond the role of individual competences, the remaining studies in this section focused on how the identity quest that characterizes adolescence and the transition to

emerging adulthood is intertwined with the consolidation of attitudes. Focusing on personal identity, **Chapter 3** highlighted that late adolescents who explored in-depth their commitments in the educational domain were more likely to be members of the low rather than the moderate affective and cognitive prejudice groups and less likely to fall in the high rather than the moderate affective prejudice profile. Furthermore, **Chapter 4** unraveled the between-person (i.e., stable individual levels) and within-person (i.e., temporal fluctuations around the individual mean) interplay between affective prejudice and social identification processes, mainly with the national (i.e., Italian) and supraordinate human groups. It showed that while higher between-person levels of identification with the Italian and human groups were linked to respectively higher and lower prejudice against different ethnic outgroups, within-person increases in the strength of both identifications contributed to significant decreases in affective prejudice levels. In other words, a heightened salience of one's social identities, which might result from actively reflecting on one's identity and developing a strong sense of belonging, can contribute to reducing negative intergroup attitudes (Allport, 1954; Spiegler et al., 2022) and facilitate harmonious relations among diverse individuals.

Family Ties, Classroom Walls, and International Borders: The Role of Proximal Contexts

The development of ethnic prejudice in childhood and adolescence has been often linked to the socialization practices of multiple proximal contexts, such as the family, peer, and school (Aboud & Amato, 2002; Allport, 1954). Nevertheless, most of this research has considered these contexts separately, rather than recognizing their meso-systemic interactions. Moreover, the family and school micro-systems can contribute to changes in adolescents' attitudes and beliefs by providing them with unique opportunities, such as spending a certain amount of time studying abroad, to reflect on their personal and social views. Prior research on the implication of international mobility experiences for adolescents' attitudes and adjustment is quite limited, as most of the available studies focused on young

adults and adults (e.g., Mitchell & Maloff, 2016; Wortman, 2002). Building upon these gaps, the studies included in **Section B** examined the unique and combined influences of social agents (i.e., parents and classmates) and experiences (e.g., study abroad) in the proximal contexts for the consolidation of adolescents' intergroup attitudes.

Chapter 5 highlighted that parents and classmates exert unique and synergic influences on changes in different facets of ethnic prejudice. Specifically, parents' stereotypes about ethnic minorities contributed to increases in adolescents' cognitive prejudice, whereas classmates mostly concurred to heightened negative emotions against diverse others. Furthermore, the meso-systemic interaction of their cognitive prejudice was found to lead to ulterior increases in youth's negative beliefs and stereotypes against ethnic minority groups and individuals (i.e., amplifying effect), while the most negative referent guided increases in affective prejudice of adolescents (i.e., adverse compensatory effect). These findings suggest that adolescents draw information from multiple social contexts and balance out the influences of different social referents when developing their intergroup attitudes.

Moreover, research presented in **Chapter 6** highlighted that the ways in which youth retrospectively narrate their international mobility experiences were linked to social identity processes in the national and European domains. In turn, these processes, and more specifically in-depth exploration, contributed to lower levels of (mostly) affective ethnic prejudice. These findings underscore the importance of supporting youth in a progressive movement from familiar proximal environments (e.g., family, peer group) toward challenging and unexplored contexts, where they have the opportunity to build inclusive identities.

What's on the News Today? The Role of Distal Contexts

Another way through which individuals can widen their horizon is via the information environment created by the media outlets in a given socio-historical context (Boomgaarden, 2007; Jerit et al., 2006). Although prior research has highlighted how the media can shape

individuals' attitudes about diverse others (for a review, see Mastro, 2009), it is less clear whether similar processes can also influence adolescents. Further, the younger generation mostly relies on modern (i.e., social media) rather than traditional (i.e., newspaper) sources of information (e.g., Marchi, 2012). Therefore, the studies included in **Section C** sought to understand whether the media can contribute to creating a distal information environment that can orient how adolescents think and feel about diverse others.

Chapter 7 highlighted that the quality (rather than quantity) of news and the characterization of the ethnic minority target (i.e., as a migrant, refugee, or foreigner) significantly influenced changes in affective and cognitive prejudice of youth. Specifically, positive and negative news contributed to respectively decreases and increases in both facets of prejudice. However, when accounting for the target of news, depictions of "refugees" in the national newspapers contributed to increases in prejudice against ethnic minority in general regardless of the quality of these recounts. Interestingly, these influences occurred regardless of youth's direct consumption of newspaper. In a similar way, the study in **Chapter 8** found that increased salience in the national newspaper (but not on Twitter) of the Ukrainian population's sufferings during the Russia-Ukraine war was linked to significant decreases in affective prejudice against the Ukrainian minority in the Italian context. Again, this effect remained significant across adolescents with low and those with high levels of newspaper consumption. All in all, these findings provide strong support for the premises of the information environment approach, according to which the media can shape individuals' attitudes and beliefs mostly via indirect influences, such as the creation of a shared corpus of representations that is conveyed via mediatic recounts (Boomgaarden, 2007).

Adjustment in Multicultural Societies: The Implications of Ethnic Prejudice

Besides tackling the correlates of ethnic prejudice across multiple developmental contexts of adolescents, the current dissertation further examined its consequences for the

adjustment and well-being of ethnic minority and majority youth. For what concerns the former (i.e., ethnic minority youth) , extensive research has highlighted the implications of discrimination (for reviews, see Benner, 2017; Pascoe & Richman, 2009; Schmitt et al., 2014). However, it is less clear how exo- and macro-contextual factors (e.g., ethnic minority status) and experiences (e.g., perceived discrimination) can influence an important gateway of adolescents' adjustment, mainly sleep functioning (McGlinchey, 2015). Moreover, quite limited knowledge is available on how the extent to which adolescents hold prejudicial attitudes might impair their well-being in current multicultural societies.

Relatedly, the studies included in **Section D** aimed to provide a comprehensive and nuanced understanding of the implications of ethnic prejudice. **Chapter 9** systematically reviewed relevant studies on the distal determinants of sleep quality in adolescence and highlighted the detrimental effects of ethnic minority status, neighborhood deprivation, community violence, and ethnic-based discrimination experiences on sleep quality. It additionally identified several gaps in the literature on the consequences of prejudice and discrimination, such as (a) the limited number of longitudinal studies, (b) the exclusive focus on the American context, and (c) the lack of research on the effects of holding prejudicial attitudes for ethnic majority youth's adjustment to current multicultural societies.

Building upon these premises, **Chapter 10** tackled the longitudinal reciprocal interplay between affective and cognitive prejudice of ethnic majority (i.e., Italian) adolescents and multiple adjustment outcomes in the medium- and short-term. Regarding the former timeframe, ethnic prejudice was linked to poorer well-being, physical health, and sleep functioning, and only one within-person pathway emerged in the opposite direction (i.e., from well-being to prejudice). Conversely, regarding the latter timeframe, day-to-day increases in adjustment (i.e., subjective well-being and physical health) contributed to decreases in prejudice on the following day. Overall, these findings underscore the

intertwined nature of personal well-being and intergroup outcomes and the idea that building evidence-based interventions tackling both aspects can have important collective and individual implications.

A Long Way to Prejudice and Back: Unravelling Common Threads Across the Studies

The current dissertation tackled the interplay between ethnic prejudice and a plethora of individual and socio-contextual factors, thus providing a comprehensive understanding of how prejudice changes within the multiple ecological contexts of adolescents' development. Each chapter addressed the main findings and implications thereof of each study. Nevertheless, it is crucial to identify common threads across the different chapters. These recurring elements, which will be presented in the following paragraphs, can be fruitfully employed to build evidence-based interventions aimed at improving the quality of intergroup relationships in current multicultural societies.

Heart and Mind: The Multifaceted Nature of Ethnic Prejudice

Ethnic prejudice has been traditionally defined as a set of negative emotions and cognitions against individuals because of their different ethnic background (Allport, 1954; Brown, 2011). Despite this definition, prior research has rarely accounted for the multidimensional nature of this social phenomenon. However, meta-analytical findings have highlighted unique developmental features (Crocetti et al., 2021), as well as different levels of interventions effectiveness (Beelmann & Heinemann, 2014) depending on the facet of ethnic prejudice accounted for. Therefore, building upon these theoretical assumptions and empirical findings, most of the studies of the current dissertation examined the developmental trajectories and correlates of the affective and cognitive facets of ethnic prejudice simultaneously.

From a developmental perspective, Chapter 3 highlighted significantly different developmental trajectories for the two facets of ethnic prejudice in the transition from late

adolescence to emerging adulthood. On the one hand, affective prejudice did not display any significant change over this period of time coupled with high rank-order stability levels. On the other hand, cognitive prejudice displayed a significant, although slight, decrease from late adolescence to emerging adulthood, coupled again with high rank-order stability levels. These unique developmental trajectories can be a consequence of the progressive advancements in youth's cognitive reasoning and skills (Kuhn, 2009), which might contribute more consistently to changes in the dichotomous thinking (i.e., "Us vs. Them") that lies at the core of cognitive prejudice (e.g., Albarello et al., 2020). Conversely, affective prejudice, which displayed lower interpersonal stability during adolescence (Crocetti et al., 2021), might have already reached a stable intra- and inter-personal organization by the end of this life phase.

Combining these developmental findings with prior meta-analytical results might help identify important sensitive periods for the development and prevention of ethnic prejudice (Beelmann & Lutterbach, 2021). For instance, affective prejudice might be more susceptible to change from early to late adolescence, while its cognitive counterpart might be more effectively tackled in the following years of emerging adulthood. Interestingly, this differential sensitivity appears to be consistent with the precedence of affective over cognitive processes highlighted in Chapter 2. That is, feelings and emotions toward diverse others are an important organizing principle of adolescents' subsequent stereotypes and negative beliefs against the same target group. These findings underscore the importance of identifying the individual and socio-contextual factors that can contribute to changes in affective prejudice throughout adolescence.

Relatedly, the current dissertation examined multiple correlates of ethnic prejudice at the individual, micro-, meso-, and macro-contextual levels. A general look at the main findings of this project highlights that, overall, and consistently with the developmental

assumptions presented above, most of the emerging significant influences concerned the dimension of affective prejudice. This is especially true when examining the interplay of ethnic prejudice and individual (i.e., empathic competences and identity processes) and proximal contexts (e.g., classroom, study abroad).

Specifically, empathic concern (Chapter 2) as well as in-depth exploration of personal (i.e., educational domain; Chapter 3) and social (i.e., national and European domains; Chapter 6) identity facets were significantly and consistently linked to decreases in affective prejudice during adolescence and lower levels thereof in the transition to emerging adulthood. Moreover, across different referents and experiences in the proximal contexts of development, the less stable and enduring influences, such as those of classmates and of study abroad experiences, were found more often to contribute to changes in affective prejudice. For instance, adolescents are embedded in the classroom context for a limited period of time (i.e., the five years of high school), although it corresponds to a crucial phase for youth's development (Meeus, 2019). Similarly, the events unfolding during a study abroad experience occupy a very short moment of adolescents' lifespan (ranging from a few weeks to a year at most), although with possibly long-lasting consequences for their development (e.g., Duerden et al., 2018; Greischel et al., 2019; Zimmermann & Neyer, 2013). These considerations do not imply that these contexts exercise a fleeting influence on adolescents. Rather, even processes occurring over a short period of time might contribute to significant changes in adolescents' prejudice because this represents an especially sensitive phase for the consolidation of feelings toward divers others. Conversely, the family is the first and most consistent context of youth development, whose influences start quite early and unfold throughout the years (Grusec, 2011; Smetana, 2011). As a consequence, parental attitudes might be socialized over a longer period of time and contribute to defining the stereotypes and negative beliefs on which adolescents rely when approaching diversity.

On the contrary, affective and cognitive prejudice appeared to display similar associations with macro-contextual, such as news about ethnic minorities, and well-being factors. On the one hand, the valence and target of the news reported in the national newspaper were found to contribute to changes in both dimensions of prejudice (Chapter 7). On the other hand, several well-being indicators contributed to day-to-day changes in affective and cognitive prejudice, which in turn influenced medium-term changes in adolescents' adjustment outcomes (Chapter 10). Overall, it appears that individual and identity factors and proximal referents and experiences can be especially important for the consolidation of adolescents' affective prejudice levels, whereas distal conditions might exert more generalized and not dimension-specific influences. These findings represent important building blocks for identifying the theoretical and practical implications of the current dissertation (see section below).

Exploring the Self: How Identity-Relevant Reflection Influence Other-Oriented Attitudes

Another important common thread of the present work is the protective role played by the process of identity in-depth exploration to prevent the development of ethnic prejudice. Across two studies (Chapters 3 and 6), adolescents who explored in-depth their identity commitments in relevant personal and social domains were found to report significantly lower levels of affective prejudice. Furthermore, momentary increases in youth's levels of identification with a given group (i.e., national or human) were found to contribute to significant decreases in prejudice against ethnic minorities (Chapter 4). These within-person fluctuations can capture moments in which, due to the increased salience of a given identity, youth actively reflect upon their membership into relevant groups and strengthen their identification with them (i.e., the identity maintenance cycle; Crocetti et al., 2023).

Overall, these findings suggest that reflecting on identity-relevant questions, such as "Who am I?" and "Who are we?", can deepen the ways in which youth think about

themselves, others, and the social world more in general. Through thoroughly reflecting on and exploring their commitments, youth might come to understand the complexity of their own identity, its overlapping components, and their multifaceted implications (e.g., Crocetti et al., 2012; Phinney et al., 2007). Such understanding supports the development of a more secure and achieved identity (Crocetti, 2018), which represents the cornerstone for lower defensive ingroup positivity (e.g., Cichocka, 2016) and open attitudes toward others (e.g., Allport, 1954; Erentaitė et al., 2019; Spiegler et al., 2022).

From We to Us: How Superordinate Identities Can Prevent Prejudice Development

Two of the studies included in the current dissertation highlighted the protective role of identification with superordinate groups, such as the European (Chapter 6) and human (Chapter 4) ones. This finding is consistent with the Self-Categorization Theory (Turner et al., 1987) and the Common Ingroup Identity model (Gaertner et al., 1993; Gaertner & Dovidio, 2000), which posit that identifying with a superordinate group implies the focus on similarities with members of the same group. For instance, identifying with the supernational group of Europeans supports youth in recognizing similarities with others, rather than ethnic-based or nationality-based differences. Taking a step further, identifying with the overarching human group allows individuals to overcome intergroup differences by focusing on shared features of humankind.

The current findings fall within these theoretical premises and provide additional empirical evidence for the assumption that fostering superordinate identifications might break the dichotomous view of "Us vs. Them" that lays at the core of ethnic prejudice. Additionally, they extend prior empirical findings on the role of inclusive identities, from the European (Curtis, 2014; A. Kende et al., 2019) to the all-embracing human identity (Albarello & Rubini, 2012; McFarland et al., 2019), for reducing prejudice. Overall, they highlight the

need to support youth in recognizing and embracing such identities not only as important definitions of the self, but also as crucial resources for more open attitudes toward diversity.

Media Framing: A Potential Venue for More Positive Attitudes toward Others

The last common thread emerging across two of the studies included in the current dissertation is the important role played by the media in influencing intergroup attitudes of adolescents. Despite being positioned in the most distal layer of youth's development, the representations offered by media outlets appear to contribute to significant changes in general (Chapter 7) and group-specific (Chapter 8) ethnic prejudice levels. Additionally, adolescents' direct consumption of newspapers did not moderate the processes at play, suggesting that the media can create an information environment that spreads across and within multiple proximal contexts and directly and indirectly reaches youth and inform their orientations toward others. While negative news reports appeared to increase adolescents' affective and cognitive prejudice levels, positive and sympathetic representations were found to reduce negative emotions and cognitions about others.

Overall, these findings extend prior research on the role of the media in influencing adults' values, beliefs, and orientations (for an overview of past research, see Mastro, 2009). However, rather than focusing exclusively on negative representations in the media, they underscore the far-reaching consequences of presenting sympathetic recounts of the sufferings of diverse others, describing migration-related events from the perspective of the individuals who experience them, and challenging negative stereotypes. These elements represent important resources that transform abstract media reports, which are known to contribute to intergroup bias (e.g., Geschke et al., 2010; Graf et al., 2013), into personalized recounts that offer youth a window onto the diversity of others' perspectives and experiences (Birks, 2017; Pantti & Ojala, 2019).

Theoretical and Practical Implications of the Current Dissertation

From a theoretical perspective, the current dissertation extends our understanding of the development and correlates of ethnic prejudice during the crucial life phase of adolescence. This occurs as a result of a cross-fertilized approach to the study of prejudice, an inherently social phenomenon embedded in and influenced by continuous dynamic interactions between the developing individual (i.e., adolescent or emerging adult) and their proximal and distal environments. Along this line, this work highlights the need to examine not only the influences occurring in the proximal contexts of development (e.g., family, school), but also to consider the distal (e.g., media) and chrono-historical determinants (e.g., international war) of feelings and attitudes against diverse others. Furthermore, it extends prior limited knowledge on proximal and distal processes of influence by unraveling common and unique effects across the affective and cognitive dimensions of ethnic prejudice. That is, the current dissertation highlights the importance of accounting for different dimensions of this phenomenon as they not only display unique trajectories and sensitive windows of development, but also can be differently shaped by individual and socio-contextual factors and experiences.

Such knowledge is crucial to inform developmentally-appropriate and evidence-based interventions (Beelmann & Lutterbach, 2021). Along this line, the findings of this dissertation and prior longitudinal research on adolescents' ethnic prejudice (for a review, see Crocetti et al., 2021) highlight that adolescence might represent an important window of opportunity for interventions aimed at improving intergroup attitudes and relationships. In particular, at this life stage, affective prejudice can be successfully tackled as it displays lower rank-order stability compared to its cognitive counterpart. Conversely, interventions in the late years of adolescence and emerging adulthood might more effectively contribute to changes in individuals' stereotypes and beliefs about others, also benefitting from previously

consolidated advancements in youth's reasoning and cognitive skills (Kuhn, 2009). Besides targeting individuals during developmentally sensitive periods (i.e., the *when* of intervention research; Masten et al., 2009), it is also important to identify the most appropriate intervention strategy (i.e., the *what*; Beelmann & Lutterbach, 2021). In this regard, findings from the current dissertation can offer important lessons that practitioners should bear in mind. First, interventions targeting youth's identity development can have important implications also for their intergroup outcomes. Specifically, supporting adolescents in actively reflecting on their personally relevant identity questions (i.e., "Who am I?") and on their multiple and not mutually exclusive social memberships (i.e., "Who are we?") can contribute to forming an achieved identity and secure sense of belonging, which in turn reduce perceptions of threat and distance from other groups. Second, researchers and practitioners should consider that, while the interventions might target individuals, individuals themselves are embedded in and influenced by multiple factors, including those events and narratives that define the zeitgeist of a given physical, cultural, temporal context (Bronfenbrenner & Morris, 2007). Adopting an ecological and overarching perspective on these processes can help practitioners in effectively exploiting specific socio-historical circumstances as complement to the intervention conducted. For instance, guiding adolescents in understanding the events of the Russia-Ukraine war and their implications not only for the populations directly involved (i.e., Russians, Ukrainians) but also for them as members of the European group, might contribute to steeper and possibly more enduring reductions in prejudice against ethnic minority groups.

Overall, the current dissertation highlights the need for interventions in this realm. Specifically, it underscores the detrimental effects of ethnic prejudice not only for the victims (i.e., ethnic minority youth), but also for those who endorse similar views of diversity (i.e., ethnic majority adolescents). Further, it suggests that reducing ethnic prejudice serves the

collective good not only by fostering harmonious intergroup relationships that are crucial in current societies but also by supporting the positive adjustment and well-being of the current and future generations.

Strengths, Limitations, and Suggestion for Future Research

The present dissertation has several strengths, as well as some limitations that could be addressed in the future. First of all, throughout most of the studies, it adopted a multidimensional account of prejudice by examining its affective and cognitive facets (Brown, 2011). Affective and cognitive prejudice represent the building blocks of the behavioral expression of prejudice (Cuddy et al., 2007), and therefore these two dimensions provide a parsimonious account of a complex phenomenon. Nevertheless, knowledge on the development and unique correlates of these facets of prejudice does not allow to draw conclusions on its behavioral expression. The latter was examined in conjunction with the former only in one study (Chapter 2), thus limiting our understanding of their interplay. Future research should strive to include the behavioral facet of prejudice and examine which conditions contribute to different expressions of prejudice via increasingly complex and negative behaviors (i.e., from avoidance to overt discrimination). Furthermore, across all studies included in this dissertation, ethnic prejudice was assessed by means of participants' self-report. However, adolescents might be sensitive to self-presentation biases and therefore provide answers that do not entirely reflect their feelings and thoughts about diverse others. Future research can complement self-reported prejudice assessment with more implicit evaluations (Greenwald et al., 1998).

A second important strength of the current dissertation is the extensive reliance on longitudinal design and advanced analytical models to account for the stability and change pattern of ethnic prejudice and the effects of multiple factors above and beyond these normative developmental trajectories. However, only a few studies adopted a person-oriented

approach (Chapter 3) and separated the associations between prejudice and its correlates at the within- and between-person levels (Chapter 4 and Chapter 10). Future research should strive to preferentially adopt these analytical strategies in order to unravel the factors that contribute to different developmental profiles of youth (Bergman et al., 2003) and to understand the nuanced processes occurring within-individuals and within-family (Hamaker et al., 2015; McArdle, 2009).

Another crucial strength of the current work is the conception and study of prejudice as embedded in multiple ecological contexts, not only including the proximal ones, which have extensively been studied in relation to ethnic prejudice (for a review, see Crocetti et al., 2021), but also more distal factors and events. These contexts are quite complex and usually include multiple aspects, social agents, and experiences. The current dissertation focused only on a few of these features, while others should be further explored. For instance, one study examined the crucial role of classmates as relevant peers in the school environment (Chapter 5). However, other adult referents in the same context, such as teachers, can convey their attitudes and influence how students in that context come to perceive and approach diversity (e.g., Schwarzenthal et al., 2020). Furthermore, important features of the classroom and school environments, such as the ethnic diversity of the context (e.g., Bohman & Miklikowska, 2020; Titzmann et al., 2015) and the general climate toward inclusion of students with diverse backgrounds (e.g., Karataş et al., 2023; Tropp et al., 2016), can shape the quantity and quality of intergroup contact experiences and possibly influence ethnic prejudice (for a review, see Thijs & Verkuyten, 2014). Similarly, the role of neighborhood conditions, such as deprivation and violence, were examined in the systematic review (Chapter 9). Nevertheless, other structural characteristics, such as diversity and segregation, and experiences, such as intergroup contact, of this context can contribute to youth's attitudes toward diversity (e.g., Harrell-Levy & Harrell, 2019) and adjustment outcomes (e.g., Bagley

et al., 2018). Beyond these proximal contexts, the cultural and political conditions of a given society can contribute to how concepts of ethnicity and diversity are defined and research on those phenomena is conducted (for discussions, see Juang et al., 2021; Yip et al., 2019). Furthermore, although this dissertation focused uniquely on ethnic prejudice as a set of individual attitudes, it is also important to consider the structural and institutional factors (e.g., integration policies; e.g., Kende et al., 2022) that can influence intergroup relationships and maintain or even reinforce disparities among diverse groups (Dovidio, Hewstone, et al., 2010b; Pettigrew, 2018). Within this framework, beyond the role of institutional practices and conditions, individuals can maintain different attitudes toward the integration of ethnic minority groups within society, which can influence their approach to and relationships with diverse others (Maratia et al., 2023). Future research on the study of ethnic prejudice development should strive to take into account these elements and shed light on the transactions occurring between youth and their proximal and distal contexts.

Last, the current dissertation limited its focus on prejudice of majority youth against ethnic minority others. From a theoretical point of view, intergroup attitudes function differently from inter-minority attitudes and solidarity (e.g., Cortland et al., 2017; Meeusen et al., 2019). Nevertheless, future studies should strive to tackle the processes through which ethnic minority and majority youth think about others who are different from them. This could help identify common and unique processes that can undermine adolescents' successful adjustment to the diversity and complexity of current multicultural societies.

Conclusion

Considering the increasing ethnic and cultural diversification of current societies, it is crucial to understand how youth develop their attitudes toward others and which conditions can support them in recognizing and embracing the complexity of their social multicultural world (Bagci & Rutland, 2019). Informed by the ecological systems (Bronfenbrenner, 1992;

Bronfenbrenner & Morris, 2007) and the transactional (Sameroff, 2009) models, and benefitting from a cross-fertilization between social and developmental psychology theories and methods, the current dissertation aimed to unravel the development and correlates of ethnic prejudice in adolescence and in the transition to emerging adulthood. The studies included in the present work offered novel insight into (A) the individual and identity factors; the role of (B) proximal (e.g., family) and (C) distal (e.g., media) contexts of development; and (D) the implications of ethnic prejudice for minority and majority youth.

Overall, the current findings offer important take-home messages for researchers and practitioners in the field of prejudice research. First, these studies underscore the importance of adopting a multidimensional account of ethnic prejudice not only to gather a more nuanced understanding of this social phenomenon, but also to identify the most effective strategy and developmental window for prejudice reduction interventions. Specifically, they highlight that individual and identity processes, as well as influences in the proximal contexts of development can have a stronger impact on the affective component, whereas distal factors have a more generalized effect across both dimensions of prejudice. Second, the current findings highlight the importance of considering the crucial role of distal conditions, such as media reports and historical events, in contributing to significant changes in adolescents' prejudice. Last, the present dissertation suggests the need for interventions aimed at reducing ethnic prejudice, as they would not only serve the collective purpose of building inclusive societies, but also support the adjustment of ethnic majority and minority individuals alike.

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