The Antecedents of Intergroup Contact: A Multilevel Approach

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Memorandum

The research for this thesis was conducted while the author was a full-time postgraduate student in the School of Psychology at the University of East Anglia, Norwich (September 2020 – March 2025) on a studentship from the University of East Anglia.

The theoretical and empirical work herein is independent work. The author has not been awarded a degree by this university or any other university for the work included in this thesis.

Sections of both the empirical and theoretical work presented within the thesis are included within publications obtained during the course of study. These sections are identified within the footnotes in the main text.

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Access Condition and Agreement

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Abstract

Informal segregation and contact avoidance remain persistent challenges in contemporary societies, raising important questions for social psychologists about how to facilitate meaningful interactions between different social groups. This thesis addresses this issue by examining psychological and structural factors that shape intergroup contact behaviour, contributing to a new wave of research that shifts the focus from the consequences of contact to its antecedents. Across three multilevel studies, opportunities for contact at different geographical levels were measured alongside a broad range of psychological factors measured at the individual level. Study 1 analyzed secondary data from Round 7 of the European Social Survey (2014, N = 35,000), showing that high and moderate (vs. low) subjective perceptions of diversity at the individual level (Level 1) predicted more frequent contact with racial and ethnic outgroup members, whereas actual diversity at the country level (Level 2) was not significantly related to contact. Study 2 used the Eurobarometer 88.2 survey (2017, N = 28,000), demonstrating that neither country-level (Level 3) nor regional-level (Level 2) actual diversity were significantly associated with contact. In contrast, individual-level (Level 1) perceived diversity showed a significant positive association as those with high and moderate (vs. low) perceptions of diversity reported greater contact engagement with non-EU immigrants. Furthermore, greater prejudice, higher threat perceptions and rightist as well as centrist (vs. leftist) political views predicted less outgroup contact, whereas attitudes supporting immigration and supportive local norms were linked to more frequent contact. Study 3 provided the most fine-grained analysis by measuring demographic diversity at the neighbourhood level. It also explored how structural and psychological factors influenced both the frequency of interethnic contact and the formation of interethnic friendships, as well as how these relationships varied by ethnic group status. Multilevel analysis of Round 7 of the British Citizenship Survey (2011, N = 16,000) revealed that greater neighbourhood diversity was associated with significantly more frequent interethnic contact for ethnic majority group members, those who perceived higher ethnic diversity, had a stronger perception of national norms, expressed greater trust in people in their neighbourhood and showed higher support for multiculturalism. Additionally, greater neighbourhood

diversity predicted a higher number of interethnic friendships for ethnic majority group members, those with a stronger perception of ethnic diversity and lower identification with their ethnic background. These findings provide valuable insights into the psychological characteristics of individuals who are most and least likely to engage with diversity, as well as for whom greater opportunities for cross-group interactions translate to greater contact engagement. A better understanding of contact antecedents not only advances the contact literature but also helps shape future social policies aimed at fostering more cohesive communities.

Chapter 1: Introduction and Overview

"Diversity is not about how we differ. Diversity is about embracing one another's uniqueness" – *Ola Joseph*

Intergroup contact is a well-established technique for reducing prejudice and improving intergroup relations (Pettigrew & Tropp, 2006) yet contact between different racial and ethnic groups occurs less often than expected (Paolini, Harwood, Hewstone, & Neumann, 2018). While modern diverse societies provide ample opportunities for cross-group interactions, many individuals are reluctant to explore these opportunities. In social settings, people often create subtle patterns of *informal segregation* by unintentionally or without much awareness distancing themselves from individuals with different ethnic backgrounds. Others deliberately *avoid* interacting with ethnic outgroup members, missing out on the wide-ranging benefits of intergroup contact (Kauff et al., 2020; Paolini et al., 2018).

In today's highly connected and multicultural world, understanding segregating behaviour and contact avoidance is more urgent than ever. Recent political events, such as Donald Trump's presidency in the United States, Brexit in the United Kingdom and the migration crisis in Europe highlight that ethnocentrism and xenophobia are globally rising (Joppke, 2021; Schain, 2018). Divisions between communities are also increasingly evident in the UK. Following a series of ethnic disturbances in 2001, an inquiry led by Ted Cantle revealed that ethnic communities in Britain were living *'parallel lives'*, separated by distinct educational systems, employment, language and social networks (Cantle, 2001). Two decades after the Cantle Report (2001), evidence suggests that patterns of ethnic clustering in neighbourhoods persist, with a recent survey showing that 44% of British adults never interact with people from different ethnic backgrounds (The Challenge, 2019).

This raises the key question of how members of different ethnic groups can be brought together. Given the significant benefits of cross-group interactions for social cohesion and intergroup relations, it is crucial to gain a better understanding of what drives people to seek out or avoid intergroup contact.

Antecedents of Intergroup Contact

By examining the *antecedents* of intergroup contact, this thesis addresses a prominent critique of the early contact literature which has primarily focused on the consequences of contact (Pettigrew, Tropp, Wagner, & Christ, 2011). Another major limitation of prior research is its emphasis on *individual-level* processes, often neglecting the broader *social context* in which intergroup interactions occur (Dixon et al., 2005). In response to these critiques, this thesis adopts a *multilevel approach,* simultaneously testing predictors of contact engagement at both *the individual (micro)* level and the *social-context (macro) level*. Additionally, this thesis explores whether the effects of micro-level variables on intergroup contact are moderated by group status. Previous research examined predictors of contact engagement primarily from the perspective of the majority status group, typically focusing on a single variable at a time. In contrast, the present work contributes to the literature by investigating a *wide range* of antecedents that may either inhibit or facilitate contact engagement, examining factors at both the *micro* and *macro levels* as well as their interplay, and considering the perspectives of both *majority* and *minority* status groups.

Inhibitors and Facilitators of Intergroup Contact at the Contextual (Macro) Level

One of the most relevant contextual-level predictors of intergroup contact is *neighborhood diversity*. Diverse (as opposed to homogeneous) neighborhoods provide more opportunities for intergroup contact, however as the Cantle Report (2001) illustrates, greater opportunities for cross-group interactions do not necessarily lead to greater contact engagement. Ethnographic research further supports this showing that in educational and public settings, individuals often avoid opportunities for mixing with diverse others, typically interacting with people from the same racial and ethnic

background (Ramiah et al., 2014; Dixon & Durrheim, 2003). This reluctance is problematic as contact literature suggests that positive intergroup experiences are more common than negative ones (Graf, Paolini & Rubin, 2014). Therefore, increased opportunities for intergroup contact should, in theory, lead to more frequent positive cross-group interactions.

There is some evidence supporting this prediction. Research shows that living in an ethnically diverse neighbourhood can increase majority group members' frequency of contact with ethnic minorities (Brune, Asbrock, & Sibley, 2016). Even highly biased individuals tend to spend more time with minority peers in ethnically diverse (vs. homogeneous) environments (Brune et al., 2016). However, a recent study found that majority group members living in a diverse neighbourhood typically experience both positive AND negative intergroup contact (Prati, Schaefer, Hewstone, & Christ, 2022). Moreover, the effects of neighborhood diversity on the quantity and quality of contact experiences differ for majority and minority groups. While neighbourhood diversity can significantly influence the frequency of both positive and negative intergroup contact experiences for the majority group, it does not predict either type of contact for minority group members (Prati et al., 2022). More research is needed to understand how neighborhood diversity shapes contact-seeking behavior and the underlying mechanisms driving interethnic contact.

While to date, only a handful of studies have investigated how contextual-level diversity affects majority and minority group members' intergroup contact experiences, considerably more research, mainly in sociology and political science, has examined the effects of neighborhood diversity on intergroup attitudes and community cohesion (Newton & Delhey, 2005; Putnam, 2007; Stolle et al., 2013). These studies show that majority group members living in diverse neighborhoods are generally less trusting of immigrant groups and tend to "hunker down" from community life (Putnam, 2007). However, this effect can weaken or even disappear when individuals engage in intergroup contact, particularly through friendships or romantic relationships with ethnic minority peers (Stolle et al., 2013). Thus, interethnic contact has a "buffering effect" as

neighborhood diversity increases trust only when majority residents engage in meaningful contact with ethnic minority groups (Stolle et al., 2013).

These findings highlight that diversity is not inherently positive, nor does it necessarily foster tolerance; rather, its impact depends on whether it facilitates genuine intergroup contact. This raises a crucial question: why does diversity not always promote contact, and consequently its beneficial effects on intergroup relations? One key factor is the role of *social norms*. Research suggests that tolerant norms in favor of diversity can significantly increase individuals' willingness to engage in intergroup contact (Green et al., 2020). Supportive social norms have been shown to predict greater trust in outgroup members and increased interest in cross-ethnic friendships over time (Tropp, O'Brian, & Migacheva, 2014). Additionally, normative support for intergroup contact has been found to reduce perceptions of threat related to immigration and increase the frequency of contact between native majority and immigrant minority groups (Green et al., 2020). Additionally, emerging evidence suggests that ingroup norms supporting intergroup contact predict more frequent positive contact experiences for both majority and minority groups (Prati et al., 2022).

Inhibitors and Facilitators of Intergroup Contact at the Individual (Micro) Level

At the individual level, evidence suggests that people with higher levels of prejudice experience fewer positive and more frequent negative outgroup interactions compared to individuals with more egalitarian views (Dhont & Van Hiel, 2009). Research also indicates that social dominance orientation (SDO), which reflects a preference for social hierarchy and inequality (Sidanius & Pratto, 1999), as well as right-wing authoritarianism (RWA), characterized by a preference for traditional values, order and stability (Altemeyer, 1991), predict negative outgroup attitudes and a tendency to avoid intergroup contact (Pettigrew, 2008). In contrast, certain personality traits such as openness (a preference for new experiences) and extraversion (characterised by strong social interaction skills) have been shown to facilitate cross-cultural contact (Turner et al., 2014). Moreover, contact self-efficacy, the belief that one can successfully navigate social

interactions, has been linked to lower intergroup anxiety and higher-quality cross-ethnic friendships among both adults and children (Bagci et al., 2019). Finally, individuals with a strong commitment to their ingroup tend to feel less threatened by outgroups (Ellemers, Spears, & Doosje, 1999) while those with an insecure ethnic identity feel more threatened and are less likely to interact with outgroup members (Phinney et al., 2007).

One micro-level factor that has received considerable attention is *perceived diversity*. Given the inconsistent findings on when macro-level neighborhood diversity can lead to contact avoidance versus contact-seeking, it is possible that individuals' *subjective* perception of diversity, rather than the actual presence of outgroup members, plays a more significant role in predicting intergroup contact behavior (Semoyonov et al., 2004). Supporting this argument, research suggests that greater perceived diversity is linked to stronger feelings of threat and more negative attitudes toward foreigners, whereas actual diversity shows no significant association with threat perceptions or attitudes toward outgroups (Semoyonov et al., 2004). Further studies indicate that the effects of perceived and actual diversity on intergroup behavior can vary as a function of ethnic group membership. A large-scale study found that among majority group members, perceived (but not actual) diversity predicted lower levels of outgroup trust, ingroup trust and neighborhood trust. In contrast, for minority group members, perceived (but not actual) diversity increased all three types of trust via the mediating effect of positive intergroup contact (Schmid et al., 2014).

In summary, living in an ethnically diverse area does not necessarily lead to more frequent cross-group interactions (Cantle, 2001). While the structural availability of contact opportunities can motivate some individuals to engage in interethnic contact, others may be unaffected or even avoid contact (Brune et al., 2016; Prati et al., 2022). Furthermore, initial evidence shows that in a normative environment where cross-group mixing is collectively supported, individuals are more likely to engage in interethnic contact (Green et al., 2020; Tropp et al., 2014). Moreover, psychological factors including individuals' attitudes, personality characteristics, ideological views, social skills, ingroup identification and subjective perceptions of diversity may further influence intergroup

contact behaviour (Kauff et al., 2020; Paolini et al., 2018; Ron et al., 2017). Finally, the effects of individual-level psychological and group-level structural antecedents on contact engagement may be different for majority and minority ethnic groups (Prati et al., 2022; Schmid et al., 2014).

Our final research questions, therefore, are: What structural (macro-level) and psychological (micro-level) factors can predict intergroup contact behaviour? How do psychological factors interact with contextual-level diversity to determine when and for whom greater contact opportunities translate into greater contact engagement? Lastly, does ethnic group status moderate the effects of individual-level psychological and group-level structural antecedents on contact engagement?

Overview

This thesis begins with a critical review of the intergroup contact literature. *Chapter 2* highlights that contact research has traditionally focused on the consequences of intergroup contact with prejudice as the primary outcome of interest. Only recently has research begun to explore intergroup contact as the dependent variable, employing more sophisticated techniques such as multilevel modelling. It will discuss initial evidence on how individual-level (psychological) and contextual-level (structural) antecedents influence intergroup contact behavior. Furthermore, it will integrate the literatures from sociology, political science and intergroup contact research to examine how contextual diversity affects social cohesion. It is argued that diversity negatively impacts community cohesion only when members of different ethnic groups fail to interact across group lines.

In *Chapter 3*, structural and psychological antecedents of intergroup contact are empirically tested within the European context. Data from Round 7 of the European Social Survey (ESS, 2014) is analyzed using multilevel modeling, with individuals (Level 1) nested within countries (Level 2). At the individual level, psychological antecedents of intergroup contact include perceived diversity, prejudice, national identification, openness to change, self-transcendence, self-enhancement and conservation. At the country-level,

actual diversity is tested as a contextual predictor of contact engagement with racial and ethnic minorities. Finally, interaction effects between Level 1 and Level 2 predictor variables are explored.

Chapter 4 builds on previous findings by examining the psychological and structural antecedents of intergroup contact at three levels. Data from Eurobarometer 88.2 (2017) is analyzed, with individuals (Level 1) nested within geographical regions (Level 2) which were further nested within countries (Level 3). At the individual level, predictors of intergroup contact include perceived diversity, prejudice, attitudes towards immigration, perceived local norms, perceived national norms, perceived threat and political orientation. At the regional level, the association between actual regional diversity and contact with non-EU immigrants is tested. At the country-level, predictors of intergroup contact include actual national diversity and actual national norms. Additionally, interaction effects between Level 1 and Level 2, as well as Level 1 and Level 3 predictor variables are examined.

Chapter 5 provides the most fine-grained analysis of contact antecedents within the British context. The British Citizenship Survey (2010) is analyzed, with White British majority and ethnic minority individuals (Level 1) nested within primary sampling units (PSU, Level 2). PSUs are small administrative units, typically including 500 addresses. Using a small (vs. large) unit for grouping participants is preferable as similarities within groups can more accurately modelled (Hox et al., 2017). At the individual level, the effects of perceived diversity, ethnic identification, perceived local norms, perceived national norms, dispositional trust and support for multiculturalism on contact engagement are tested. At the contextual level (PSUs), actual diversity is examined as a predictor of contact engagement with ethnic minority groups. Furthermore, Level 1 interaction effects are added to determine whether the influence of Level 1 predictor variables on intergroup contact varies as a function of ethnic group membership. Finally, cross-level interaction effects are assessed by examining the moderating impact of Level 1 explanatory variables on the relationship between Level 2 actual ethnic diversity and contact

engagement. This analytic strategy is then repeated with cross-group friendship, which is a more intimate form of intergroup contact, as the outcome variable.

Chapter 6 summarizes the key findings of this thesis, considers potential limitations and discusses both the theoretical and practical implications of the results. This thesis concludes that living in a diverse environment encourages more frequent contact between different ethnic groups and fosters the formation of interethnic friendships. Additionally, several psychological factors are identified, including subjective perceptions of diversity, prejudice, attitudes toward immigration, support for multiculturalism, ethnic identification, perceived local and national norms and political orientation as significant predictors of intergroup contact behavior. Lastly, it is demonstrated that the influence of psychological and structural antecedents on contact engagement varies by social group membership and the contact behavior of majority and minority groups is shaped by distinct psychological factors.

Chapter 2: Literature Review

Intergroup Contact Theory

Intergroup contact research has a long history of examining how interactions between members of different groups affect intergroup attitudes, with the primary focus traditionally placed on prejudice as the key outcome. In 1954, Gordon Allport published *The Nature of Prejudice*, arguing that under certain 'optimal' conditions, positive interactions between members of different social groups can reduce prejudicial attitudes. He proposed that when group members share (1) equal status, (2) common goals, (3) cooperation, and (4) institutional support, individuals in the contact situation develop less prejudice and more favorable attitudes toward outgroup members, provided the interaction is positive (Allport, 1954). Allport's *contact hypothesis* (1954) has become one of the most influential theories in social psychology, inspiring more than six decades of research that investigated the effects of intergroup contact on prejudice and outgroup attitudes.

Early research on the contact–prejudice relationship demonstrated that intergroup contact can indeed "work" in reducing outgroup prejudice and promoting positive intergroup relations. Multiple meta-analytic reviews have shown that more frequent intergroup contact is associated with less prejudicial attitudes (Beelmann & Heinemann, 2014; Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Miles & Crisp, 2014). Among these, one of the most influential meta-analyses was conducted by Pettigrew and Tropp (2006) who synthesized findings from over 500 studies. Their analysis confirmed that intergroup contact effectively reduces prejudice across multiple diverse populations and settings (r = -0.22, p < .001). Furthermore, they found that while Allport's optimal conditions were linked to greater prejudice reduction (r = -0.25, p < .001), they were not essential for positive outcomes. Attitudes generally improved even when these conditions were not fully met, suggesting that optimal conditions facilitate but are not necessary for successfully reducing prejudice (Pettigrew & Tropp, 2006).

Around the same time, Brown and Hewstone (2005) synthesized prior literature into what is now known as *Intergroup Contact Theory*. The theory suggests that when contact occurs between individuals who are representative or typical of their social group, attitudes toward individual group members can further generalise to the outgroup as a whole (Brown & Hewstone, 2005). In contrast, when group memberships are less salient, contact partners perceive each other as individuals, attributing their experiences to personal rather than group characteristics. Attitudes can also generalise to other outgroups beyond the contact situation. This secondary transfer effect occurs when contact experiences with one outgroup (e.g., Blacks) influence attitudes toward another, secondary outgroup as well (e.g., Asians; Pettigrew, 1997, 1998, 2009).

Mediators and Moderators of Contact Effects

Allport (1954) argued that intergroup contact increases ingroup members' *knowledge* of the outgroup which in turn reduces prejudice. Empirical findings confirmed his proposition, showing that learning about the outgroup is associated with more positive attitudes and fewer negative stereotypes (Stephan & Stephan, 1984). Moreover, intergroup contact provides insight not only into outgroups but also into ingroups, revealing that ingroup norms and customs are not the only ways to navigate the social world. This broader perspective can lead ingroup members to reassess their own group's attributes and values (Pettigrew, 1998). However, subsequent research suggests that while new knowledge and *ingroup reappraisal* can contribute to positive attitude change, their impact is generally minor compared to affective mediators which play a more significant role in prejudice reduction (Pettigrew & Tropp, 2008).

Some of the most widely researched affective mediators of contact effects are *intergroup threat* and *intergroup anxiety*. When encountering members of an outgroup, people may feel apprehensive due to the uncertainty about appropriate norms and behaviour (Stephan & Stephan, 1985). These feelings can generate negative expectations from the contact situation, including being rejected or misunderstood (Stephan & Stephan, 1985). Moreover, feelings of threat and anxiety can heighten arousal

and narrow attention which are linked to simplified, expectancy-confirming processing (Wilder & Simon, 2001). This information processing bias can influence how individuals appraise their contact experience with an outgroup member. Negative contact experiences increase anxiety, which in turn increase prejudicial attitudes, whereas positive contact experiences alleviate anxiety, which in turn reduce ingroup members' prejudice towards the outgroup (Pettigrew & Tropp, 2011).

In contrast, *empathy* and *perspective-taking* foster more favorable attitudes. Positive intergroup contact encourages individuals to adopt the perspective of outgroup members and empathize with their concerns (Pettigrew & Tropp, 2008). This new perspective enhances liking and compassion which can inspire altruistic behavior and motivate individuals to act without prejudice (Batson, Early, & Salvarani, 1997). Empathy can also be cultivated through friendship (Pettigrew, 1998). Cross-group friendships are especially effective in reducing prejudicial attitudes as they promote self-disclosure, encouraging individuals to share personal information and experiences. This can build intimacy and interpersonal attraction which improves attitudes towards both the outgroup member and their outgroup (Turner, Hewstone, Voci, 2007).

Intergroup contact is most effective in reducing prejudice when contact experiences are positive and intimate. However, in naturalistic settings, interactions with outgroup members are not always positive as people often encounter both positive and *negative* cross-group interactions (Pettigrew, 2008). While positive contact experiences are more prevalent, negative experiences with outgroup members can be more influential and have a greater impact on outgroup attitudes (Graf, Paolini & Rubin, 2014). Experimental evidence confirms that though positive intergroup contact successfully reduces prejudice in a wide variety of settings and populations, negative intergroup contact increases prejudice more strongly than positive contact decreases it (Barlow et al., 2012; Graf & Paolini, 2017).

This negativity bias or *negative valence asymmetry* is well-documented not just in the contact literature but in several other domains within psychology. From cognitive and

perception research we know that people often spend more time processing negative than positive information (Fiske, 1980). Furthermore, negative behaviour and personal traits attract more attention than positive traits and carry more weight in impression formation (Pratto & John, 1991). Once established, negative impressions are also more resistant to change, by requiring less evidence to be confirmed and more evidence to be disconfirmed (Rothbart & Park, 1986). In a similar vein, negative affects elicited by negative contact experiences can more easily be generalised to the outgroup as a whole. This is because negative experiences can draw disproportionate attention to ingroup-outgroup distinctions (Gaertner & Dovidio, 2005). Under high category salience, group members are seen as typical or representative of their group, allowing negative characteristics to be inferred to both individual outgroup members as well as their outgroup (Brown & Hewstone, 2005).

Hence, *contact valence* is a significant moderator of the contact-prejudice link, with a general consensus that "bad is stronger than good" (Paolini & McIntyre, 2019). However, violations to this rule are also documented. Studies show a positive valence asymmetry in preference for contact, that is when people can actively choose whether to seek out positive or negative intergroup contact (Husnu & Paolini, 2018). In many circumstances, decisions about whether one engages in intergroup contact is mandated, for example in workplaces, classrooms or prisons (Bekhuis et al., 2013). In contrast, when contact is volitional, that is one can freely choose to interact with an outgroup member, contact is perceived as a more intimate and positive experience (Bagci, Husnu, Turnuklu, & Tercan, 2020). While some scholars argue that positive contact experiences can buffer against the detrimental effects of negative contact (Árnadóttir, Lolliot, Brown, & Hewstone, 2018; Paolini et al., 2014), meta-analytic evidence shows that the adverse effects of negative contact prevail over the benefits of positive contact and the negativity bias is stronger when one has the opportunity and/or motivation to opt out of intergroup contact (Paolini, Gibbs, Sales, Anderson, & McIntyre, 2024).

Finally, contact experiences can be moderated by *individual differences* in ideological attitudes and worldview. Right-wing authoritarianism (RWA, Altemeyer, 1981)

reflects a desire for social order and security, while social dominance orientation (SDO, Pratto, Sidanus, Stallworth, & Malle, 1994) captures individuals' endorsement of group-based hierarchy and inequality. RWA and SDO are among the most extensively studied moderators of the contact-prejudice relationship (Pettigrew & Tropp, 2006). Research suggests that individuals high in RWA, and to a lesser extent SDO, show lower levels of prejudice following positive intergroup contact but exhibit heightened prejudice after negative intergroup contact (Dhont & Van Hiel, 2009; Hodson, 2008). Moreover, those high in RWA demonstrate a stronger reduction in prejudice following positive contact experiences than people with more tolerant ideologies, suggesting that one does not need to have a positive predisposition towards outgroups to experience the benefits of intergroup contact (Hodson, 2011).

 Group Status

While frequent positive outgroup interactions are shown to reduce prejudice and improve attitudes between groups (Beelmann & Heinemann, 2014; Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Miles & Crisp, 2014; Pettigrew & Tropp, 2006), the degree to which these effects occur can vary as a function of group status (Tropp & Pettigrew, 2005). Specifically, the prejudice-reducing effect of intergroup contact is generally weaker for low-status minority groups, suggesting that members of minority groups benefit less from cross-group interactions compared to members of majority groups (Tropp & Pettigrew, 2005).

Given their different histories and experiences within society, minority and majority group members face different challenges during intergroup contact (Devine & Vasquez, 1998). Members of majority status groups are typically concerned about being perceived as prejudiced, whereas members of minority status groups may be concerned about becoming the target of prejudice while interacting with individuals from higher status groups (Plant, 2004). These different expectations for intergroup contact may influence how minority and majority group members conceive their experiences during cross-group interactions (Sidanus & Pratto, 1999). Furthermore, members of majority groups are

generally less likely to reflect on their privileged status, while members of minority groups are usually acutely aware of their group's lower position. For minority groups, inferior treatment and regular reminders of devaluation may become enduring features of intergroup relations, inhibiting the degree to which contact can improve their attitudes towards the majority group (Tropp & Pettigrew, 2005).

Group status not only moderates the relationship between contact and prejudice but also shapes other attitudinal outcomes, such as individuals' willingness to advocate for social change (Hässler, Ullrich, Bernadino, et al., 2020). For majority group members, positive contact with minority group members is linked to greater support for social equality (Reimer et al., 2017; Tropp & Barlow, 2018). According to the *mobilization hypothesis*, positive contact fosters participation in collective action by reducing majority group members' ingroup identification, raising awareness of structural discrimination, improving attitudes toward minority groups and increasing acknowledgment of their struggles (Van Zomeren, Postmes, & Spears, 2008). In contrast, minority group members' support for social change is often driven by perceptions of injustice. However, frequent positive interactions with majority group members may promote perceptions of harmonious intergroup relations, leading to a 'sedative' effect that undermines their motivation to engage in collective action for social equality (Çakal, Hewstone, Schwär, & Heath, 2011; Reicher, 2007).

While positive intergroup contact tends to mobilize majority groups and demobilize minority groups, negative intergroup contact has the opposite effect (Reimer et al., 2017). For majority group members, negative interactions with minority group members worsen outgroup attitudes and reduce their willingness to engage in activism on behalf of the minority group (Hayward et al., 2017). Conversely, negative contact with majority group members often heightens minority group members' perceptions of discrimination, both personal and group-based, and increases feelings of anger toward the majority group. These experiences can strengthen minority group members' intention to engage in collective action and challenge the status quo to achieve greater equality (Hayward, Tropp, Hornsey, & Barlow, 2017). However, majority group members may be more

susceptible to the negativity bias of intergroup contact as outgroup attitudes have been shown to be the most unfavorable following negative interactions with individuals from low-status or stigmatized groups compared to high-status or admired groups (Paolini et al., 2024).

In summary, the mechanisms underlying positive and negative intergroup contact can differ for minority and majority groups, shaping how interactions with outgroup members influence prejudice and other attitudinal outcomes. While the effects of intergroup contact can vary as a function of both contact valence (positive vs. negative) and group status (minority vs. majority), the overall impact of intergroup contact remains positive, confirming its effectiveness as a strategy to improve social cohesion (Pettigrew & Tropp, 2006).

After more than seven decades of comprehensive research primarily focused on the *consequences* of contact, we now have a nuanced understanding of how intergroup contact shapes attitudes across various settings and populations (Paolini et al., 2024). However, little is known about the factors that *precede* contact. To address this gap, it is crucial to flip the contact-prejudice relationship around and study intergroup contact as the dependent variable. By investigating the antecedents of intergroup contact, this thesis directly addresses the *'leading-the-horses-to-water'* problem. Critics have long argued that while intergroup contact theory offers a comprehensive understanding of when, why and for whom contact is most effective in improving intergroup relations, it fails to explain how to bring groups together (Pettigrew et al., 2011). Considering the wide-ranging benefits of cross-group interactions, we need to better understand what drives this behaviour and explore the factors that may motivate or deter people from engaging in interethnic contact. (Kauff et al., 2020; Paolini et al., 2018).

Social segregation and Contact Avoidance

Studying the antecedents of intergroup contact has never been more urgent. Ethnocentric and populist views are on the rise globally (Bieber, 2018; Joppke, 2021),

reflected in recent political shifts such as the US elections, Brexit in the United Kingdom and the growing success of far-right parties in Italy, Germany, Hungary and France. Additionally, exclusionary government practices in countries like China, the Philippines, India and South Africa signal a broader shift in attitudes toward migrants and minorities (Bremmer, 2017). Ethnocentrism plays a key role in deepening divisions between ethnic communities. Those with strong ethnocentric views perceive their own ethnic group as superior, fostering a heightened positive bias towards their ingroup and negative attitudes towards outgroups (Adorno, 1950). This *"us versus them"* mindset is further reinforced by nationalist and populist ideologies which emphasize social order, the protection of national interests and resistance to cultural diversity (Aschauer, 2016). Ethnocentric and nationalist views can significantly erode social cohesion as racially and ethnically divided communities often engage in segregating behaviour and avoid intergroup contact (Cantle, 2001).

While real-world examples of social segregation and contact avoidance are alarmingly easy to find, it is important to note that direct, face-to-face contact can only occur when outgroup members are present. Empirical findings confirm that the mere presence of outgroups, i.e. the availability of contact opportunities, does not on its own guarantee that members of different social groups will engage in meaningful contact (Dixon & Durrheim, 2003; Kotzur & Wagner, 2021). Ramiah and colleagues (2014) observed the contact behaviour of high school students in the cafeteria of a British school with a high proportion of White and Asian students. Across three studies, they found that Asian students tended to cluster in one area of the cafeteria, while White students were more evenly dispersed in other areas. Despite the many opportunities for social mixing, students mostly interacted with peers of the same ethnicity. This reluctance to engage with ethnically diverse others was linked to a lack of interest in the outgroup. However, having outgroup friends and perceiving positive ingroup norms about ethnic mixing increased students' willingness to engage in interethnic contact (Ramiah et al., 2014).

Patterns of informal segregation and contact avoidance have also been tested in public spaces. Dixon and Durrheim (2003) examined the racial distribution of White and

Black holidaymakers at an "open" beach in post-apartheid South Africa. Although beaches were racially segregated under apartheid, post-apartheid policies led to the desegregation of these spaces. However, Dixon and Durrheim identified several forms of informal segregation. Using a series of 99 maps created by a team of observers during peak holiday seasons, they documented patterns of racial clustering and isolation within small, shared spaces (termed "umbrella spaces") as well as across larger areas of the beach. They also noted a trend of *temporal segregation*, with White people avoiding the beach on public holidays when Black people were present in larger numbers. These findings suggest that even when there is institutional support to integrate different racial or ethnic groups, these efforts can be countered by behaviours that encourage people to separate again along racial or ethnic lines. This re-segregation can occur subtly such as when individuals choose to interact with others of the same background in public spaces, thereby recreating divisions that desegregation policies were meant to eliminate (Dixon & Durrheim, 2003).

Informal segregation and contact avoidance remain a persistent feature of societies around the world. Although we live in an increasingly multicultural world with ample opportunities to interact with racially and ethnically diverse others, both real-world examples and empirical findings indicate that the mere presence of outgroups does not guarantee that people will engage in intergroup contact (Ramiah et al., 2014; Cantle, 2001; Dixon & Durrheim, 2003). This raises the crucial question of how can people from different ethnic groups be brought together? Contact avoidance remains a critical issue with significant negative consequences for intergroup relations (Aschauer, 2016; Cantle, 2001). Therefore, it is essential to study the antecedents of intergroup contact and gain a better understanding of the factors that may facilitate or hinder intergroup contact engagement.

Multilevel Approach

One of the major limitations of the early contact literature is that by focusing predominantly on the prejudiced individual, the broader *social context* in which cross-

group interactions occur was largely neglected (Pettigrew, 2008). Ignoring the wider context not only risks to inadequately depict the complexity of everyday life, but it can also lead to incorrect inferences (Pettigrew, 2008). For example, research demonstrates that intergroup contact relates to prejudice differently at different levels of analysis (Forbes 1997, 2004). At the individual level, most studies show a negative association, meaning that more frequent intergroup contact is generally associated with less prejudicial views (Pettigrew & Tropp, 2006). However, at the contextual level the association sometimes reverses as countries with higher average level of intergroup contact have been shown to exhibit, on average, greater prejudicial attitudes (Coenders, Lubbers, & Scheepers, 2008). This seemingly contradictory pattern is a well-documented statistical phenomenon. The relationship between the same two variables measured at the individual level and the aggregate level can be different in sign (Forbes, 2004) because they are mathematically independent from each other (Hox et al, 2017).

Further evidence demonstrates that the association between the same two variables measured at different levels of analysis can also differ in magnitude (Forbes, 2004). Across seven multilevel studies, Christ and colleagues (2014) investigated the impact of individual- as well as contextual-level intergroup contact on prejudice. They found that both individual- and contextual-level contact reduced majority group members' prejudicial attitudes towards minority outgroups, however the association between positive intergroup contact and outgroup prejudice between social contexts (the between-level effect) was stronger than that of within social contexts (the within-level effect). This suggests that living in an area where positive interactions with outgroup members are more common can reduce prejudicial attitudes more effectively than individual contact experiences with minority group members, therefore, prejudice is shaped not only by whom one interacts with but also by the environment in which one lives (Christ et al., 2014).

These findings reinforce the notion that the social context matters. Attitudes can not only be influenced by individuals' direct contact experiences with outgroup members, but also by the behaviour of other ingroup members (Christ et al., 2014). To capture such

effects and more accurately model the complexity of social interactions, it is crucial to study the antecedents of intergroup contact within a *multilevel framework* (Paolini et al., 2018; Pettigrew & Tropp, 2011). Accordingly, this thesis *simultaneously* examines predictors of contact engagement at both the *individual and contextual levels*, as well as their *interplay*. Contrary to previous studies that analyzed single predictors of intergroup contact in isolation, the present work adopts a *multivariate approach*, investigating a wide range of psychological and structural factors that may facilitate or hinder contact engagement. Finally, this thesis incorporates both *majority and minority* group perspectives by testing whether the relationship between individual-level antecedents and intergroup contact is moderated by ethnic group status.

Contextual-Level Antecedents of Intergroup Contact

Neighbourhood diversity. Diverse neighborhoods, in contrast to homogeneous ones, naturally create more opportunities for intergroup contact. Intergroup contact theory suggests that positive interactions between groups occur more frequently than negative ones (Graf, Paolini & Rubin, 2014; Pettigrew & Tropp, 2011). Therefore, a greater structural availability of contact opportunities should, in principle, foster a higher prevalence of positive cross-group encounters, ultimately leading to improved relations between groups and greater social cohesion. Supporting this argument, initial evidence shows that living in an ethnically diverse neighbourhood can increase majority group members' frequency of contact with ethnic minorities (Brune, Asbrock, & Sibley, 2016).

Brune and colleagues (2016) investigated how contextual diversity, measured by the proportion of Asian people in the neighborhood, related to the amount of time New Zealand European majority group members spent with Asian minorities. They found that greater opportunities for intergroup contact in diverse neighborhoods was associated with more frequent interactions between New Zealand Europeans and Asian peers. Additionally, they examined whether higher (vs. lower) neighborhood diversity could foster more frequent positive contact experiences for highly prejudiced individuals, particularly those high in right-wing authoritarianism (RWA; Altemeyer, 1981). Prior research

indicates that highly prejudiced people tend to avoid outgroup contact, despite often showing greater attitudinal improvements following cross-group interactions (Hodson, Costello, & MacInnis, 2013). However, Brune and colleagues (2016) found that individuals high in RWA spent more time with Asian friends in neighborhoods with a higher proportion of Asian minorities but avoided intergroup contact in predominantly White areas. This suggests that while highly prejudiced individuals may avoid intergroup contact in homogenous settings, they can adapt their behaviour in ethnically diverse environments. Therefore, neighbourhood diversity may foster more frequent contact behavior even for the highly prejudiced (Brune et al., 2016).

However, it is reasonable to assume that greater diversity could also lead to an increase in *negative* contact experiences. Furthermore, the impact of neighborhood diversity on positive and negative contact experiences may vary between *majority and minority* groups. A recent study used diary data to explore the relationship between neighborhood diversity and the frequency of positive and negative contact experiences between White British majority and Asian British minority individuals (Prati, Schaefer, Hewstone, & Christ, 2022). For the majority group, neighborhood diversity was linked to more frequent positive AND negative outgroup contact. However, for the minority group, neighborhood diversity did not predict either positive or negative intergroup contact. Moreover, Prati and colleagues (2022) investigated how ideological attitudes including right-wing authoritarianism (RWA) and social-dominance orientation (SDO) can moderate the contact experiences of majority and minority groups. Consistent with Brune and colleagues' (2016) findings, they showed that White British majorities high in RWA engaged in more frequent interethnic contact in ethnically diverse neighbourhoods. However, those high in RWA (but not SDO) also reported significantly more frequent negative outgroup contact with Asian minorities (Prati et al., 2022).

These finding suggests that negative contact experiences with outgroup members may be more strongly linked to authoritarian tendencies rather than to the support for intergroup inequality (Prati et al., 2022). However, it is unclear whether the increase in both positive AND negative contact experiences among high-RWA individuals in diverse

areas is driven by those high in RWA avoiding contact or those low in RWA being more willing to engage in it. The fact that majority group members high in RWA report both more positive and negative cross-group interactions when opportunities for intergroup contact increase suggests that their lower frequency of negative contact in segregated areas is likely due to their tendency to avoid outgroup interactions (Prati et al., 2022). Although this avoidance behaviour has been observed by prior studies (Dhont & Van Hiel, 2009), research also indicates that when individuals with strong right-leaning ideologies engage in intergroup contact, their attitudes can become more tolerant and open-minded (Hodson et al., 2013).

Given the mixed findings on the effects of neighborhood diversity on intergroup contact, there is a clear need for further research in this area. Previous studies, primarily from fields such as sociology and political science, have mainly focused on the impact of neighborhood diversity on outgroup attitudes rather than intergroup contact behavior. These studies suggest that greater ethnic heterogeneity is associated with lower social trust (Newton & Delhey, 2005) and reduced investment in public goods (Soroka et al., 2007). Additionally, there is evidence that people in ethnically diverse environments may "hunker down" and withdraw from community life. They tend to distrust their neighbors, regardless of their racial or ethnic background, participate less in activities such as volunteering or voting, and hold more negative views about their community and leaders (Putnam, 2007). In sum, political science suggests that ethnic diversity is negatively related to outgroup attitudes, social solidarity and social capital, ultimately eroding trust and social cohesion (Putnam, 2007).

Challenging this view, contact research argues that generalised trust is relatively unaffected by neighbourhood diversity. Stolle and colleagues (2013) investigated the relationship between neighbourhood diversity (proportion of foreigners in the neighbourhood) and generalised trust in Germany. They also measured various forms of intergroup contact between native Germans and immigrants, distinguishing between weak and strong ties, and examined whether the quality of interethnic contact could moderate the effect of neighborhood diversity on trust. Their findings revealed that

individuals in highly diverse neighbourhoods who had no contact or only weak ties with immigrants were less trusting. However, higher-quality interethnic contact had a *'cushioning effect'*: the negative association between diversity and trust was weaker among those with strong ties with immigrants compared to those with weak ties. The study concluded that neighborhood diversity reduces trust only when residents avoid intergroup interactions, whereas trust remains stable when people engage across group lines (Stolle et al., 2013).

Even within political science, there is no consensus on how contextual diversity influences social cohesion, particularly generalized trust. For instance, Marshall and Stolle (2004) found that neighborhood diversity was positively correlated with trust and social interactions in heterogeneous areas were more beneficial than those in racially similar ones. In contrast, a cross-national study conducted in the U.S. and Canada revealed that, for majority group members, greater contextual diversity was associated with lower trust. However, the effect of diversity on trust depended on social engagement: individuals who regularly interacted with their neighbours were less affected by the racial and ethnic composition of their surroundings than those with limited social connections (Stolle, Soroka, & Johnston, 2008). These findings challenge the narrative of diversity's negative impact on trust, suggesting that such effects can be mitigated through positive intergroup behavior.

Collectively, the above findings suggest that diversity is not inherently positive, nor does it necessarily promote positive intergroup relations. Instead, its impact depends on whether it facilitates genuine intergroup contact. While some individuals "hunker down" in the presence of diversity (Putnam, 2007), others seize the opportunity for cross-group contact and form meaningful relationships with members of different groups (Prati et al., 2022; Stolle et al., 2013). This raises some key questions, including why some people in diverse neighborhoods avoid contact with outgroup members while others actively engage with diversity? Is this due to *structural barriers*, such as lack of authority support, or is it influenced by *psychological factors*, such as attitudes or personality traits? In other words, if contextual diversity leads to more frequent intergroup contact for some people

but not for others, what psychological characteristics distinguish those who embrace opportunities for mixing from those who avoid contact?

One key factor that have consistently been shown to influence segregating behaviour and contact avoidance is *perceived threat* and *anxiety* (Bettencourt, Dixon, & Castro, 2019). In a novel experiment, Dixon and colleagues (2020) examined the use of public spaces by Catholics and Protestants in Belfast, Northern Ireland. Using GPS technology, they tracked the amount of time participants spent in public areas that were predominantly Catholic, predominantly Protestant, or mixed, as well as the number of locations they visited over two weeks. They found that both Catholic and Protestant participants predominantly used spaces within their own communities, showing high levels of sectarian segregation (Dixon et al., 2020). Furthermore, self-reported willingness to use public spaces outside one's own community was influenced by both realistic and perceived threats, as well as anxiety about interacting across sectarian lines (Dixon et al., 2020).

Other studies confirm that intergroup anxiety plays a crucial role in perpetuating segregating behaviour and can be exacerbated by negative *meta-stereotypes*, the belief that one's own ingroup is viewed unfavourably by members of another group (Finchilescu, 2010). This is well demonstrated by Dixon and Durrheim's (2003) novel experiment in the South African context in which, apart from observing how Blacks and Whites used space and interacted with each other over time, they also asked participants about their experiences of desegregation and attitudes towards beachgoers from the other racial group. Their findings revealed that Black beachgoers perceived racial segregation patterns as manifestations of White racism and efforts to preserve White privilege (Durrheim & Dixon, 2005). These perceptions were based in the negative meta-stereotype that Black people are "dirty" and "dangerous" which, according to Black participants, led White people to avoid contact with them. Conversely, White participants explained the lack of interaction with Blacks as part of the "natural order of things", thereby normalizing segregating behaviour (Durrheim & Dixon, 2005).

Discursive practices that frame racial segregation as "normal" or "natural" often reflect underlying *hostile attitudes* and *racism*. Ethnographic research on the construction of race ("race talk") in post-apartheid South Africa demonstrates that such rhetorics are commonly used to justify segregation as unchallengeable and beyond dispute, thereby shutting down meaningful conversations about race (Besharati & Foster, 2013). Moreover, members of the dominant group frequently rely on the "culture" defence to deflect self-blame or accusations of racism. Within this framing, racial divisions are rationalized as stemming from cultural differences or dismissed as inherent lifestyles or habits. The portrayal of minorities as having distinct customs or unusual habits is strategically employed to defend cultural exclusivity, ultimately reinforcing the social hierarchy in favour of the dominant group (Besharati & Foster, 2013).

A further process underlying avoidance of contact opportunities and segregating behaviour is *ingroup identification*, referring to the extent to which an individual feels connected to their ingroup (Bettencourt et al., 2019). When ingroup identity is threatened, for example in educational settings where ethnic minority students may be overrepresented, students belonging to the majority group can be more inclined to interact with members of their own ingroup from fear of losing cultural dominance (De Haan & Leander, 2011). Higher identification with the ingroup is also related to a stronger tendency to protect the ingroup's interests and status (Verkuyten & Brug, 2004). Consequently, social segregation practices such as choosing where to sit in shared spaces, can serve as a means for individuals with strong ingroup identity to define group boundaries and present themselves as members of a higher-status group (De Haan & Leander, 2011; Salari, Brown, & Eaton, 2006).

Actual social norms. Social norms, defined as shared standards of appropriate rules and behaviour, can play a key role in reproducing segregating behaviour. In a longitudinal experiment, Alexander and Tredoux (2010) observed the seating patterns of undergraduate students over an entire academic year. Their findings revealed strong patterns of racial segregation, maintained through a set of nonverbal intergroup norms. These unspoken rules reinforced segregation by creating a sense of "belonging" for some

groups while excluding others, thereby sustaining the dominant social order. More recently, Paajanen and colleagues (2023) investigated how informal segregation is constructed and perpetuated through normative practices among mothers in public playgrounds in Finland. Despite playgrounds being public spaces that could facilitate interaction across social groups, they found that mothers predominantly socialized with ethnically similar peers. Moreover, they organized playground activities in ways that minimized opportunities for contact between ethnic minority and majority children (Paajanen et al., 2023).

Social norms have also been linked to contact-seeking behaviour. For example, Meleady (2021) demonstrated that normative social interventions significantly enhance majority group members' willingness to engage in intergroup contact. Across a series of studies, she found that White British participants were more likely to interact with immigrants when they perceived more frequent intergroup contact among their ingroup peers (Study 1). Additionally, participants reported a stronger tendency to approach outgroups when informed that a significant proportion of their ingroup regularly interacted with immigrants (Study 2). Importantly, normative social influences improved not only self-reported attitudes but also behavioral measures of outgroup approach and avoidance (Study 3). Lastly, a dynamic intervention framing intergroup contact as low but steadily increasing boosted participants' interest in cross-group interactions. This effect was mediated by pre-conformity, the belief that intergroup contact will become more popular in the future (Study 4). These findings illustrate that people are more likely to engage in intergroup contact when they perceive it as normative within their ingroup, highlighting the powerful role of social norms in shaping intergroup behavior (Meleady, 2021).

Additionally, normative information may be conveyed through institutional support, such as policies and legislation. Green and colleagues (2020) investigated how normative support for intergroup contact influences perceptions of threat related to immigration and frequency of contact between native and immigrant citizens. Normative support was assessed using the Migrant Integration Index (MIPEX), which measures a country's inclusiveness of migrant integration policies across domains like employment, education,

and healthcare. Multilevel regression analysis of Round 7 of the European Social Survey (*N* = 32,093) found that in more inclusive countries, contact with immigrants occurred more frequently, and perceptions of symbolic threat were lower, though perceptions of realistic threat remained unaffected. Consequently, the normative environment in which individuals are embedded matters as tolerant norms that emphasize diversity can significantly boost contact-seeking behaviour (Green et al., 2020).

Individual-Level Antecedents of Intergroup Contact

Perceived Diversity. Initial evidence on the effects of contextual-level diversity on contact behaviour suggests that diversity can lead to both beneficial and detrimental outcomes. While it can foster improved intergroup attitudes and encourage contact-seeking behaviour, for some individuals it may instead heighten prejudice and lead them to avoid contact (Crocetti et al., 2021). One factor that can help mitigate these negative effects is positive contact with members of ethnic outgroups (Stolle et al., 2008; Stolle et al., 2013). However, it remains unclear whether contact behaviour is primarily influenced by the actual presence of outgroup members in a diverse neighbourhood or by individuals' *subjective perception of diversity*. This distinction is crucial, as perceived diversity may be a stronger predictor of intergroup attitudes and behaviour than actual demographic diversity (Semyonov, Raijman, Tov, & Schmidt, 2004).

Supporting this argument, Semyonov and colleagues (2004) examined the impact of both perceived and actual diversity on discriminatory attitudes toward foreigners in Germany. Findings revealed that only perceived, but not actual diversity was associated with individuals' sense of threat and discriminatory attitudes. Specifically, greater subjective perceptions of diversity predicted stronger feelings of threat and increased support for exclusionary practices. Additionally, perceived threat mediated the relationship between perceived diversity and discrimination, reinforcing the argument that it is not the actual size of the outgroup but rather individuals' subjective perception of diversity that prompts anti-foreigner attitudes via heightened perceptions of threat (Semyonov et al., 2004).

Further studies reveal that the impact of perceived and actual diversity on intergroup behaviour can vary as a function of ethnic group membership. A large-scale multilevel study by Schmid, Ramiah, and Hewstone (2014) examined the relationships between perceived diversity, actual diversity and three types of trust, outgroup, ingroup, and neighbourhood trust, as well as intergroup contact. The analysis was conducted separately for White majority and ethnic minority respondents nested within British neighbourhoods. For the White majority group, actual diversity was directly associated with lower outgroup and neighbourhood trust, while perceived diversity was negatively linked to all three types of trust. However, the indirect effects of both actual and perceived diversity through contact were positive, indicating that greater diversity fostered more intergroup contact and reduced perceptions of threat. In contrast, for the ethnic minority group, actual diversity was not directly related to trust or intergroup contact. Perceived diversity, however, showed positive indirect effects with all three trust outcomes via more frequent intergroup contact and reduced threat, highlighting the importance of subjective (as opposed to objective) perceptions of diversity in predicting outgroup attitudes and behaviour (Schmid et al., 2014).

Right-Wing Authoritarianism and Social Dominance Orientation. Individual differences in socio-ideological attitudes, such as right-wing authoritarianism (RWA; Altemeyer, 1996) and social dominance orientation (SDO; Sidanius & Pratto, 1999), are both directly and indirectly linked to contact avoidance (Pettigrew, 2008). RWA reflects a preference for traditional values, order and stability, while SDO represents a preference for social hierarchy and inequality. Initial evidence for this was previously discussed, showing that in diverse neighbourhoods, majority group members high (vs. low) in RWA spend more time with ethnic minority peers but tend to avoid contact in ethnically homogeneous areas (Brune et al., 2016). In contrast, other studies suggest that authoritarians are less likely to reside in neighbourhoods with a high proportion of racial and ethnic minorities, and those who do live in diverse areas are less likely to engage in positive intergroup contact (Pettigrew, 2008). Finally, research exploring the direct link between socio-ideological attitudes and intergroup contact demonstrates that individuals high in RWA and SDO tend to show less interest in outgroup interactions and are more

likely to experience negative rather than positive intergroup contact (Dhont & Van Hiel, 2009).

Such behaviour may be rooted in the core characteristics of their personalities. RWA is driven by a threat-based motivation for collective security and ingroup cohesion, as authoritarians prioritize adherence to ingroup norms and the protection of the ingroup from perceived threats (Duckitt, 2001). From this perspective, prejudice and contact avoidance serve as self-protective mechanisms, helping individuals feel safer and protect ingroup interest by avoiding those they see as threatening (Kessler & Cohrs, 2008). In contrast, SDO reflects a competition-driven motivation for group-based dominance, emphasizing values of power and superiority over other groups (Pratto et al., 1994). Accordingly, individuals high in SDO may avoid contact as a way to establish and reinforce social hierarchies, thereby maintaining dominance over other groups (Asbrock, Christ, Duckitt, & Sibley, 2012).

Supporting this argument, longitudinal research in Germany indicates that authoritarians are significantly less likely to interact with their Muslim neighbours or form friendships with them (Heitmeyer & Soeffner, 2004). Furthermore, those high (vs. low) in RWA tend to feel more threatened by Turkish Muslim immigrants, both individually and collectively. This heightened sense of threat may stem from the large differences between German and Turkish cultures as well as the perceived lack of integration of the Muslim population into the host society (Heitmeyer & Soeffner, 2004). More recently, a study on Islamophobia in the United States found that individuals high in RWA and SDO are more likely than their egalitarian counterparts to perceive Muslims as a threat to their values, safety and political power (Granger, 2024). Consequently, cultural distance and perceived threat may be particularly important for individuals high in right-leaning ideologies, indirectly influencing their willingness to engage in intergroup contact (Brune et al., 2016; Granger, 2024).

Prejudice. While Allport's (1954) *"contact effect"* which refers to the positive impact of intergroup contact on reducing outgroup prejudice has been the primary focus of

contact research for many decades, the *"prejudice effect"* — the influence of prejudice on contact — has also been explored. Pettigrew (1997) examined the bidirectional relationship between contact and prejudice across seven large-scale surveys conducted in France, the UK, the Netherlands and Germany. Consistent with the contact hypothesis, he found that positive intergroup contact, particularly friendships with minority group members, *caused* reduced prejudice in all European contexts, even after accounting for demographics and political attitudes (Pettigrew, 1997). Additionally, he tested the reverse causality and found that individuals with higher levels of prejudice were more likely to avoid intergroup contact. Notably, the causal pathway from contact to prejudice was stronger than the reverse pathway from prejudice to contact (Pettigrew, 1997).

Pettigrew's (1997) findings inspired a wave of subsequent research seeking to determine whether intergroup contact reduces prejudice or prejudice reduces intergroup contact. A longitudinal study tracking a cohort of 2000 American students over five years found that students with more cross-group friends showed less ingroup bias and intergroup anxiety by the end of their college years (Levin, Van Laar, & Sidanus, 2003). More importantly, equally strong effects were observed for the opposite path. Students who reported more ingroup bias and intergroup anxiety at the end of their first year had fewer outgroup friends and more ingroup friends during their second and third years (Levin et al., 2003). Similarly, Binder and colleagues (2009) found equally large longitudinal contact effects and longitudinal prejudice effects among secondary school students surveyed in Germany, Belgium and England. In contrast, Eller and Abrams (2003) found stronger support for the effect of prejudice on contact over time. Overall, the available evidence suggests a bidirectional relationship between prejudice and contact, with outgroup contact reducing prejudice while prejudice decreasing the likelihood that one will engage in outgroup contact.

Although existing literature indicates that prejudice is a significant predictor of intergroup contact, there is limited evidence on how this relationship applies to minority and majority status groups. Tropp and Pettigrew (2005) demonstrated that contact effects are generally weaker for minorities compared to majorities. However, there is less

research examining how prejudice effects might vary as a function of group status. Binder and colleagues (2009), in their aforementioned study, also investigated whether longitudinal contact and prejudice effects were moderated by group status. Consistent with Tropp and Pettigrew's (2005) findings, they observed stronger contact effects for majority group members. However, their analysis showed no interaction between prejudice and group status, suggesting that the relationship between prejudice and intergroup contact might not significantly differ for minority and majority groups (Binder et al., 2009). To the best of our knowledge, no further studies have tested the moderating role of group status on the prejudice effect, leaving an important gap in the literature.

Personality Traits. The five-factor model of personality (FFM, Goldberg, 1992) is a widely recognized framework for understanding and evaluating personality traits, supported by substantial empirical evidence (McCrae & Costa, 1987). This model posits that five core dimensions sufficiently capture the most significant aspects of personality. *Extraverted* individuals are typically talkative, sociable and lively; *agreeable* individuals are often sympathetic, warm and cooperative; those high *in openness to experience* are characterized by imagination, intellectual curiosity and a tendency toward nonconformity; *conscientious* individuals are generally ethical, reliable and goal-oriented, whereas *neurotic* individuals tend to experience anxiety, insecurity and self-consciousness (McCrae & Costa, 1987).

Personality traits can play a significant role in determining why some individuals engage in contact and form friendships with diverse others while others do not. Jackson and Poulsen (2005) examined the relationship between university students' personality traits and their contact experiences. They found that individuals scoring high (vs. low) on agreeableness and openness to experience were more likely to initiate intergroup contact and view these experiences positively. Further studies indicate that highly extraverted individuals are more likely to form cross-group friendships, regardless of the number of their ingroup friends (Turner et al., 2014). Extraverts are typically characterized by having numerous friends, strong social skills and the ability to navigate social interactions effectively. Consequently, they may be particularly successful at initiating and maintaining

interactions with outgroup members, a skill that also contributes to multicultural success (Turner et al., 2014).

Van der Zee and Van Oudenhoven (2000) investigated the personality predictors of multicultural effectiveness, defined as maintaining an open, unprejudiced attitude toward diverse cultural norms and values, as well as adapting behavioral strategies to different circumstances within a foreign culture. Multicultural effectiveness was assessed through several indicators, including the number of countries visited, the number of languages spoken, whether participants had friends abroad and the number of friends from other nationalities. The study revealed that high levels of extraversion and openness to experience were significantly positively correlated with multicultural activity, whereas high levels of agreeableness were significantly negatively correlated with these outcomes. These findings suggest that extraversion and openness to experience may enhance individuals' interest in exploring foreign cultures and forming friendships with people from other countries, while agreeableness might have the opposite effect (Van der Zee & Van Oudenhoven, 2000).

Stürmer and colleagues (2013) partially replicated these findings, demonstrating that individuals with high levels of endeavor-related personality traits (as opposed to altruism/cooperation traits) were more likely to seek out intergroup contact. Specifically, those scoring high on extraversion and openness to experience were more inclined to engage in cross-cultural interactions (Stürmer et al., 2013). In contrast, highly conscientious individuals tended to pursue contact with culturally dissimilar others only when they anticipated material or economic benefits from outgroup interactions. Interestingly, and contrary to Van der Zee and Van Oudenhoven's (2000) findings, agreeableness was not significantly associated with cross-cultural contact. This suggests that, despite intuitive expectations, altruism/cooperation related traits may have a less significant influence on shaping contact intentions than endeavor-related traits (Stürmer et al., 2013). Among these, openness (a preference for new experiences) and extraversion (strong social interaction skills) emerge as the most reliable predictors of intergroup contact (Turner et al., 2014).

As the examples above illustrate, evidence regarding the influence of personality traits on intergroup contact engagement is mixed, highlighting the need for further research on personality traits as antecedents of intergroup contact. Additionally, it is important to investigate whether the effects of personality traits on intergroup contact intentions and behaviors differ between minority and majority status groups. While some initial evidence suggests that the relationship between openness, agreeableness, and intergroup contact is not moderated by group status (Vezzali et al., 2017), there is limited research exploring how other personality traits relate to intergroup contact behavior, particularly from the perspective of both minority and majority status groups.

Contact Self-Efficacy / Confidence in Contact. Intentions to engage in intergroup contact are often driven by specific goals, for example to acquire new skills (Migacheva & Tropp, 2012), learn about the outgroup (Ron & Maoz, 2013), make new friends (Turner, Dhont, Hewstone, Prestwich, & Vonofakou, 2014) or to gain symbolic or material resources (Turner, Hodson, & Dhont, 2020). While some motivations for intergroup contact may arise from practical or social needs, others can reflect a desire for personal growth through relationships. According to the self-expansion model (Dys-Steenbergen, Wright, & Aron, 2016), forming close connections with others allows individuals to integrate aspects of the other person's identity into their own and provides with the unique opportunity to gain new knowledge, perspectives and skills. Consequently, intergroup contact may fulfill a fundamental human need to expand one's sense of self and generate self-growth as well as self-efficacy (Dys-Steenbergen et al., 2016).

Contact self-efficacy, the belief that one can successfully navigate social interactions, can be a crucial factor in facilitating intergroup contact (Kauff, Beneda, Paolini, Bilewicz, Kotzur, & O'Donnell et al. 2020). Bagci and colleagues (2019) provided empirical support for this by examining the role of contact self-efficacy in predicting cross-ethnic friendship quality in an ethnically diverse school in London, UK. They measured several indicators of cross-ethnic friendship self-efficacy (CEFSE), including intergroup anxiety, social norms, prior contact and indirect contact. Findings showed that all sources

of CEFSE, except social norms, predicted the belief that one can successfully form and maintain cross-ethnic friendships, which in turn predicted higher quality friendships reported (Bagci et al., 2019). Furthermore, the quality of parental cross-ethnic friendships was found to be significantly associated with the quality of children's cross-ethnic friendships. This suggests that observing parents' cross-ethnic friendship behavior provided an opportunity to convey positive messages to children about ethnic relations (Bagci et al., 2019).

Further studies confirm that observing successful interactions between ingroup and outgroup members (i.e. vicarious contact) can enhance one's expectancy of self-efficacy and willingness to engage in cross-group contact. Throughout two experiments, Mazziotta and colleagues (2011) asked German and Chinese university students to watch video clips depicting positive interactions with an ingroup member and between a German and Chinese student. They proposed that in vicarious contact situations, the in-group member will serve as a model, showing the observer how successful cross-group interactions can be achieved. In line with this hypothesis, they found that observing positive cross-group interactions increased the observer's sense of self-efficacy which then alleviated feelings of uncertainty. This, in turn, led to more favorable attitudes toward the out-group and a greater willingness to engage in direct intergroup contact (Mazziotta, Mummendey, & Wright, 2011).

Ingroup identification. Individuals' motivation to identify with their ingroup can be driven by various psychological mechanisms that influence how people feel towards outgroups and their intentions to engage in intergroup contact. According to *uncertainty-identity theory* (Hogg, 2000; 2007), uncertainty about appropriate behavior and others' reactions in social situations can provoke anxiety. To mitigate this anxiety, individuals may categorize themselves as group members rather than individuals which can elicit group-oriented behaviors such as ingroup bias and outgroup prejudice. As a result, anxiety related to uncertainty about interacting with an outgroup may intensify ingroup favoritism and outgroup hostility (Stathi, Crisp, & Hogg, 2011).

Social dominance theory offers a similar perspective but argues that ingroup favoritism and outgroup derogation stem from a desire to establish and maintain social dominance over other groups (Brewer, 1979). In contrast, *social identity theory* (Tajfel & Turner, 1979) suggests that ingroup favoritism is driven by social identity needs, such as achieving positive group distinctiveness and enhancing the aspect of one's self-image that is tied to group membership. Consequently, ingroup bias primarily reflects a preference for the ingroup rather than hostility towards outgroups. Thus, contrary to the more pessimistic predictions of uncertainty-identity and social dominance theories, stronger identification with one's ingroup may foster positive outgroup attitudes and greater willingness to engage in intergroup contact (Boccato, Capozza, Trifiletti, & Bernardo, 2015).

This view is supported by Phinney, Jacoby, and Silva (2007) who studied Asian American, African American, Latino and European American university students' attitudes and experiences in a multicultural society. They found that participants with a stronger ethnic identity, characterized by a secure sense of self as an ethnic group member, displayed more positive attitudes towards other groups. Additionally, these participants recognized both positive and negative aspects of intergroup contact and how such experiences shaped their understanding of culture. This finding aligns with further studies showing that a strong ethnic identity and commitment to one's ingroup can be associated with reduced feelings of threat from other groups (Ellemers, Spears, & Doosje, 1999). In contrast, individuals with a weaker ethnic identity and an insecure sense of self as an ethnic group member are more likely to feel threatened by outgroups and less open to interacting with them (Phinney et al., 2007).

However, individuals' identity needs and motivation to engage in intergroup contact can be strongly influenced by the social status of the group they belong to (Ron et al., 2017). Since social group membership is an important part of the self-concept, people are motivated to uphold a positive perception of their group which is generally achieved through intergroup comparisons (Tajfel & Turner, 1979). A key factor influencing the value attributed to social group membership and the threats it faces is the group's relative

position within the social hierarchy (advantaged vs. disadvantaged). Members of advantaged, majority groups typically enjoy a valued social identity that they aim to preserve, while members of disadvantaged minority groups with lower social status are generally motivated to enhance the value of their social status (Ellemers, Spears, & Doosje, 2002). Thus, advantaged group members with strong identity needs may be especially inclined to develop negative attitudes toward outgroups and a reluctance to engage in intergroup contact (Ron et al., 2017).

Levin and Sidanius (1999) provide evidence for this across three intergroup contexts: Whites and Latinos in the United States, Ashkenazim and Mizrachim in Israel, and Jews and Arabs in Israel. They showed that stronger ingroup identification was associated with more positive attitudes toward the ingroup for both high- and low-status groups. Among high-status groups, including Whites, Ashkenazim and Jews, stronger ingroup identification was linked to more negative attitudes towards outgroups. Consistent with the predictions of social dominance theory, high-status group members were motivated to maintain intergroup status differences by fostering greater ingroup identification and developing negative attitudes towards low-status groups as a strategy to reinforce their dominant position in society. For low-status groups, such as Latinos and Arabs, weaker ingroup identification predicted more negative attitudes towards their own group. Interestingly, for Arabs, this decreased ingroup identification did not lead to more positive attitudes towards the outgroup, whereas for Latinos, lower ingroup identification was associated with more favorable attitudes towards Whites (Levin & Sidanius, 1999).

Contact behaviour is also shaped by the content of intergroup encounters. Advantaged group members' positive social identity can be threatened when they perceive their privilege as not fully earned (Knowles et al., 2014). To protect their moral self-image, they may deny their privilege, distance themselves from it, or adopt beliefs that justify inequality. However, interactions with disadvantaged groups can challenge these defenses by exposing the reality of inequality (Sonnenschein, Bekerman, & Horenczyk, 2010). Consequently, highly identified members of the advantaged group may avoid cross-group interactions or prefer encounters emphasizing shared traits (Saguy &

Kteily, 2014). By focusing on commonalities and interpersonal connections, intergroup encounters reduce the threat to their moral identity and address deeper needs for belonging and connection (Baumeister & Leary, 1995). Positive encounters can also fulfill advantaged group members' need to feel part of a tolerant and moral community (Shnabel & Nadler, 2008).

In contrast, disadvantaged group members are motivated by the desire to enhance their social identity, therefore may be more inclined to engage in intergroup contact (Saguy & Kteily, 2014). While advantaged groups tend to focus on commonalities, disadvantaged groups often view these interactions as opportunities to address power imbalances. This preference becomes stronger when they perceive status hierarchies as changeable, encouraging highly identified group members to challenge the position of the advantaged group (Ellemers et al., 2002). In summary, advantaged and disadvantaged group members have different motivations to engage in intergroup contact, shaped by their identity needs, expectations from cross-group interactions and motivations to preserve vs. challenge the status quo. Further research is necessary to explore how varying levels of ingroup identification can impact contact behavior, simultaneously considering the perspectives of both advantaged majority and disadvantaged minority groups.

Perceived social norms. Social norms are unwritten rules of how individuals typically behave or are expected to behave within a particular social context (Turner, 1991). Social norms consist of two main dimensions: *descriptive norms* which reflect what people believe others commonly do, and *injunctive norms* which represent what people believe is socially approved or disapproved of (Cialdini et al., 1990). While both types of norms can influence behaviour, they do so in different ways. Descriptive norms guide behaviour by offering cues about what is typical or expected in a given situation. They help individuals determine how to act by observing what others commonly do. In contrast, injunctive norms influence behaviour by indicating what is socially acceptable or unacceptable, often driven by the desire for approval or the fear of disapproval (Cialdini, 2003; Rivis & Sheeran, 2003).

Psychology has long recognized the role of social norms in shaping human behaviour (Ash, 1951; Sherif, 1936). One influential study by Goldstein and colleagues (2008) showed that descriptive norms can help promote pro-environmental behaviour. In a field experiment, the authors provided guests in half of the rooms with a standard environmental message: *"Help save the environment".* For the remaining rooms, they introduced an additional message that included the descriptive norm: *"Join your fellow guests in helping to save the environment. Almost 75% of guests reuse their towels during their stay"*. They found that this additional message, emphasizing the behaviour of others, resulted in a 26% reduction in towel washing across the hotel (Goldstein et al., 2008). More recently, Dorigoni and Bonini (2023) demonstrated that displaying the descriptive normative message, *"Two in three people from this area drink tap water,"* led to a fourfold increase in tap water consumption over bottled water in a restaurant setting. Social norm interventions have also been successfully used to promote other desirable behaviours, such as reducing energy consumption (Schultz et al., 2007), encouraging recycling (Flygansvær, Samuelsen, & Støyle, 2021), reducing workplace absence rates (Kohler et al., 2025), and promoting healthy food choices (Guichard et al., 2021).

Social norms also play a key role in shaping intergroup contact behaviour. Tropp, O'Brian and Migacheva (2014) explored how social norms influence interest in cross-ethnic friendships among ethnic majority and minority children. Using a cross-sectional design, they interviewed European American and African American students attending two racially homogeneous middle schools in the US. Inclusive social norms were measured by asking children how likely their peers would be to accept children from the other racial group as friends, while exclusive social norms were assessed the extent to which children observed their peers making jokes at the expense of children from the other racial group. Their findings demonstrated that perceiving inclusive social norms for cross-group relations from ingroup peers significantly increased children's interest in forming cross-group friendships, even beyond the influence of exclusive ingroup norms and existing friendships (Tropp et al., 2014).

Furthermore, Tropp and colleagues (2016) examined how injunctive norms for cross-ethnic relations predict interethnic experiences among ethnic majority and minority students in Chile and the United States. In a cross-sectional study, they recruited 654 Chilean majority and 244 Mapuche minority students from two Chilean cities. Among other questions, students were asked how many friends they had from the outgroup and the extent to which they believed teachers and peers from their own ethnic group would approve of them having friends from the other ethnic group. Results showed that injunctive social norms predicted greater comfort in intergroup contact, stronger interest in cross-ethnic friendships and higher contact quality among both Chilean and Mapuche students. Tropp and colleagues (2016) also tested the impact of injunctive social norms on intergroup relations using a longitudinal design. They recruited 468 non-Hispanic White and 126 Latino students from three public middle schools in Massachusetts and measured students' perception of school and peer norms on cross-ethnic relations at two timepoints six months apart. Results revealed different patterns of norm effects for majority (White) and minority (Latino) students. Injunctive peer norms more strongly predicted comfort in intergroup contact among majority students, whereas injunctive school norms more strongly predicted a higher number of cross-ethnic friendships among minority students. These findings suggest that injunctive norms surrounding intergroup relations can significantly shape both the quantity and quality of young adolescents' contact behaviour, with distinct effects for ethnic majority and minority youth over time (Tropp et al., 2016).

Summary and Conclusions

Contact research has a long history of examining the consequences of intergroup contact, yet little attention has been paid to the challenge of how to get people in contact in the first place (Kauff et al., 2020; Paolini et al., 2018; Ron et al., 2017). Recent advances in the literature reveal that individual-level predictors such as attitudes, ideology, personality traits and perceived social norms, along with group-level factors such as actual social norms and contextual diversity can significantly influence intergroup attitudes and behavior (Ron et al., 2017). Furthermore, emerging evidence suggests that

the relationship between individual- and contextual-level predictors of intergroup contact and contact engagement can differ for majority and minority status groups (Prati et al., 2022; Stolle et al., 2013). A deeper understanding is needed of the psychological and structural antecedents of intergroup contact for both majority and minority status groups, as well as the factors that may explain why some individuals engage with diversity while others avoid contact, even when opportunities are abundant.

Aims of Thesis

This thesis addresses the pressing issue of social segregation and contact avoidance in contemporary societies. Despite increasing multiculturalism and abundant opportunities for intergroup contact, many individuals remain reluctant to engage with diversity. To better understand this behavior and the factors that facilitate or hinder contact, this thesis explores the antecedents of intergroup contact. While research in this area is relatively recent, prior studies have typically examined antecedents of intergroup contact one variable at a time. A key contribution of this study is its multilevel and multivariate approach which simultaneously considers a wide range of individual-level predictors and social environmental factors, as well as their interplay, capturing the real-world complexity of cross-group interactions. Additionally, this thesis incorporates both majority and minority perspectives, testing how group status moderates the relationship between psychological antecedents and intergroup contact. Finally, it investigates when and for whom demographic diversity translates into more frequent cross-group interactions, contributing to broader discussions on diversity's impact on social cohesion.

Chapter 3: Examining the Antecedents of Intergroup Contact at Two Levels in the European Context

Chapter 3 presents an initial empirical test of the antecedents of intergroup contact. The aim is to explore how individual-level psychological factors and contextual diversity independently and jointly predict intergroup contact engagement in the European context. Additionally, it investigates when and for whom contextual diversity translates into greater contact engagement by testing cross-level interaction effects between contextual diversity and individual-level psychological variables. Secondary data analysis of the European Social Survey is conducted, with racial and ethnic minorities as the target outgroup.

Study 1

The European Social Survey (ESS) is a pan-European, biennial survey that collects data on people's attitudes, beliefs, and behaviours across multiple European countries (ESS-7 Documentation Report, 2014). It monitors changes in social attitudes over time, covering topics such as political and religious beliefs, societal participation, immigration and health behaviours. In its seventh round of fieldwork 21 countries participated, including *Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Lithuania, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Sweden, Switzerland,* and *the UK*. The ESS data is widely utilized by policymakers, national governments, the European Commission, think tanks, academics, and journalists. Beyond its immediate applications, the survey serves as a historical record of social attitudes, providing analysts with valuable insights into public perspectives on key societal issues (ESS-7 Documentation Report, 2014).

Round 7 data was selected because it includes the rotating module of *"Attitudes Towards Immigration and Their Antecedents"* (ESS-7 Documentation Report, 2014). This module measures native residents' attitudes and frequency of contact with people from different racial or ethnic backgrounds, as well as prejudice, ingroup identification and

perceptions of diversity. In addition to individual responses, the ESS7 includes country-level contextual data such as population size, unemployment rates and ethnic fractionalisation (ESS-7 Documentation Report, 2014). Given its multilevel structure, incorporating a wide range of individual- and contextual-level variables, this dataset enabled a comprehensive investigation of psychological and structural antecedents of intergroup contact and their interplay.

Prior research examining the relationship between contextual diversity and contact behaviour indicate that diversity can have both positive and negative consequences for social cohesion. While it has the potential to improve intergroup attitudes and promote contact-seeking behaviour, for some individuals, it may instead heighten prejudice and lead to contact avoidance (Crocetti et al., 2021). Positive interactions with ethnic minorities have been shown to counteract these negative effects (Stolle et al., 2008; Stolle et al., 2013). However, it remains unclear whether it is the actual presence of outgroup members or individuals' subjective perception of diversity that primarily shapes contact engagement in diverse settings. To address this gap, Study 1 tests the simultaneous impact of country-level actual diversity and individual-level perceived diversity on contact engagement. It is hypothesized that both country-level actual diversity and individual-level perceived diversity will positively be associated with intergroup contact (H_1). Furthermore, individual-level perceived diversity will be a stronger predictor of contact engagement than country-level actual diversity (H_2).

Study 1 also examines the impact of prejudice on intergroup contact engagement. Although evidence suggests that prejudice-prone individuals typically avoid outgroup contact (Levin et al., 2003; Pettigrew, 1997), previous studies have measured prejudice employing different approaches. For example, Pettigrew (1997) used the Blatant and Subtle Prejudice Scale which includes items measuring anti-intimacy, as well as affective responses, traditional values and cultural differences (Pettigrew & Meertens, 1995). In contrast, Binder and colleagues (2003) focused on intergroup emotions (affective prejudice) and individuals' desire for social distance (behavioural aspects of prejudice). In the present study, prejudice is conceptualised as "opposition to people of different race

and ethnic groups," representing a more general, attitudinal perspective (ESS-7 Documentation Report, 2014). It is hypothesised that prejudice will negatively be related to contact engagement with racial and ethnic minorities (H_3).

Another psychological antecedent examined in Study 1 is national identification. There is a debate in the literature on how positive perceptions of one's ingroup relate to attitudes towards minorities. Some studies suggest that ingroup favoritism leads to negative attitudes towards outgroups, while others show that a stronger ethnic identity predicts more positive evaluations of outgroups and a greater willingness to engage in intergroup contact (Blank & Schmidt, 2003; Phinney et al., 2007). Prior research also distinguishes between nationalism and constructive patriotism. Nationalism is characterised by an uncritical attachment to the nation and a sense of national superiority over other countries and it has consistently been linked to negative attitudes towards outgroups (Blank & Schmidt, 2003; Wagner et al., 2012). In contrast, constructive patriotism involves a critical view of the nation and pride in its positive aspects, for example democracy. The ESS focuses on national attachment, measuring individuals' emotional bond with the nation, which is a component of both nationalism and constructive patriotism (ESS-7 Documentation Report, 2014). Given the mixed findings and varying conceptualizations in prior research, this study takes an exploratory approach to investigate the strength and direction of the relationship between national identification and intergroup contact engagement.

Study 1 also examines how *human values*, including *openness to change, self-transcendence, self-enhancement* and *conservation* shape contact engagement (ESS-7 Documentation Report, 2014). Values represent what individuals consider important in life, though their significance varies from person to person (Schwartz, 2012). Schwartz's Value Theory (1992, 2006) defines the key characteristics of values and distinguishes them from other guiding principles, such as norms and attitudes. According to this theory, values are deeply connected to emotions. When a value is activated, it elicits strong emotional responses such as happiness when a valued goal is achieved, or distress when it is threatened. For example, a person who values independence may feel joy when

experiencing personal freedom but anxiety if that independence is compromised. Beyond their emotional impact, values also serve as motivators, driving individuals to pursue meaningful goals. For instance, someone who prioritizes social order, justice, or helpfulness is more likely to engage in behaviours that uphold these principles. Unlike norms or attitudes which typically apply to specific situations, values transcend social contexts. Qualities like honesty or obedience, for example, can shape behaviour across different settings, from workplaces and personal relationships to broader social and political environments (Schwartz, 2012).

Another key function of values is their role as standards for decision-making. They influence how people evaluate actions and events, shaping judgments about what is right or wrong, justified or unacceptable. While their impact on everyday decisions is often unconscious, values become more evident when individuals face choices involving conflicting priorities. For instance, a person may recognize their values when deciding whether to prioritise family obligations over personal ambitions (Schwartz, 2012). Values are also hierarchically ordered, meaning individuals prioritise some values over others. One person may place the highest importance on achievement, while another may value tradition or justice above all else. This hierarchy creates a *unique value system* that guides behaviour through trade-offs between competing priorities. Since most actions reflect multiple values simultaneously, individuals must constantly balance these influences. For example, attending church may reinforce values of tradition and conformity, but conflict with values of personal pleasure or novelty (Schwartz, 2012).

Values are closely linked to intergroup behaviour (Sagiv & Schwartz, 1995). Research suggests that human values serve as standards for guiding actions, form the basis for evaluating intergroup attitudes and behaviours and can justify prejudicial views and actions (Eiser & Eiser, 1987; Kristiansen & Zanna, 1994; Rokeach, 1973). Struch and Schwartz (1989) demonstrated this in their study examining Israelis' attitudes toward ultraorthodox Jews. They found that perceptions of religious intergroup conflict and aggression toward the outgroup was mediated by the belief that the outgroup held different values. Specifically, Israelis justified intergroup aggression by dehumanizing

ultraorthodox Jews, perceiving them as "lacking the moral sensibilities that distinguish humankind" (Struch & Schwartz, 1989, p. 365). This belief may have also functioned as a psychological strategy to mitigate the negative impact of such hostile behaviour on self-regard (Struch & Schwartz, 1989).

Further evidence confirms that both personal value endorsement and perceptions of group values can significantly influence intergroup attitudes. Howat (2021) explored the role of value perceptions in shaping intergroup behaviour across different social groups. He found that White Americans who personally endorsed self-transcendence values - motivations centered on care and concern for others - showed greater solidarity and tolerance towards Blacks and Latinos. In contrast, those who prioritized conservation values, which emphasize safety and social stability, expressed less favourable attitudes and were less willing to engage in intergroup contact. Furthermore, perceptions of an outgroup's collective value endorsement were an even stronger predictor of intergroup attitudes. Viewing Jews and Muslims as endorsing self-transcendence values was associated with greater positive affect, solidarity and political action intentions. On the other hand, perceiving these groups as prioritising self-enhancement – focused on power and success - predicted more negative attitudes and a reduced willingness to engage in political action (Howat, 2021).

While the link between human values and intergroup attitudes is well established, few studies have explored human values as antecedents of intergroup contact. Sagiv and Schwartz (1995) investigated the relationship between Israeli Jews' (majority) value priorities and their willingness to interact with Israeli Arabs (minority). They found that Israeli Jews' readiness for outgroup contact was positively correlated with values of universalisms and self-direction, but negatively correlated with tradition, security and conformity values (Sagiv & Schwartz, 1995). More recently, Lefringhausen, Ferenczi, and Marshall (2020) examined the role of human values in predicting Americans' intergroup contact experiences with migrants. Structural path analysis revealed that personal value priorities, driven by motivations for growth and self-protection, significantly predicted attitudes and behaviours towards migrant cultures. Specifically, growth values, such as

self-transcendence and openness to change, encouraged the view of diversity as an opportunity for stimulation and inspiration rather than a threat, leading Americans to seek and positively engage in intergroup contact. In contrast, self-protection values, such as self-enhancement and conservation, fostered the perception of diversity as a challenge to established social norms and hierarchies, thus viewed as a threat, prompting Americans to avoid intergroup contact (Lefringhousen et al., 2020).

While these studies provide initial evidence for the link between human values and intergroup contact, how these dynamics operate in different social contexts remains unclear. Study 1 addresses this gap by examining how majority group members' *openness to change, self-transcendence, self-enhancement* and *conservation* values may affect frequency of contact with racial and ethnic minorities. It is hypothesized that openness to change and self-transcendence will positively be associated with native Europeans' frequency of contact with racial and ethnic minorities (H_4), while self-enhancement and conservation will negatively be associated with outgroup contact engagement (H_5). Lastly, Study 1 investigates when and for whom actual diversity may predict more frequent contact engagement by testing *cross-level interaction effects* between country-level actual diversity and each individual-level predictor variable. Since there is no prior evidence on how individual-level psychological antecedents interact with contextual diversity, no predictions are made regarding the direction of these relationships.

In sum, Study 1 adopts Round 7 of the European Social Survey (ESS Round 7, 2014) to explore the psychological and structural antecedents of intergroup contact. Specifically, it examines the effects of individual-level psychological factors, including *perceived diversity, prejudice, national identification, openness to change, self-transcendence, self-enhancement* and *conservation*, as well as country-level *actual diversity* in predicting native Europeans' frequency of contact with racial and ethnic minorities. Furthermore, multilevel moderation analyses test interaction effects between country-level actual diversity and individual-level psychological predictor variables.

Methods

Data

Data was obtained from Round 7 of the European Social Survey (ESS7, 2014) and was downloaded from the ESS Data Portal at www.europeansocialsurvey.org. The survey was conducted across 21 countries (Europe and Israel) with a total sample of 40,185 respondents. The target population was individuals aged 15 and above. Israel was excluded from the analysis because it is not part of the European continent, and no demographic data was available for the country (Green et al., 2019). Minority respondents were also excluded as the dependent variable specifically measured intergroup contact engagement with minority group members (see below under '*Measures*'). A separate measure of contact with majority group members was not available. After these exclusions, the final sample consisted of 32,854 participants. (ESS7, 2014).

Analytic Strategy

Multilevel modelling (MLM) is a statistical approach used to analyze data with a hierarchical structure, where lower-level entities such as individuals are nested within higher-level groups such as countries. As a results of this nested structure, observations within the same group are likely to exhibit greater similarity (i.e. dependence) than those across different groups. To address these dependencies, MLM models relationships both within and between groups. Furthermore, MLM enables researchers to examine the influence of variables at both the individual (Level 1) and group (Level 2) levels, as well as their interactions across these levels (Enders & Tofighi, 2007; Snijders & Bosker, 2012).

In the ESS data set, individuals (Level 1) were nested within countries (Level 2). The dependent variable (DV) was frequency of contact with racial and ethnic minorities. The variance explained in the DV was calculated at both levels of analysis (Hox et al., 2017). At Level 1, variance was explained with variables measured at the level of the individual, including *perceived diversity, prejudice, national identification, openness to*

change, self-transcendence, self-enhancement, and conservation. At Level 2, variance was explained with variables measured at the level of the country, including *actual diversity* (see Figure 1).

Figure 1

The Proposed Analytic Strategy for Study 1

Level 2

Actual diversity   Controls   Population size   Material and social deprivation

Level 1

Perceived diversity

Prejudice

National identification

Openness to change

Self-transcendence

Self-enhancement

Conservation

Frequency of contact (measured at L1)

Controls

Age

Gender

Education

Area type
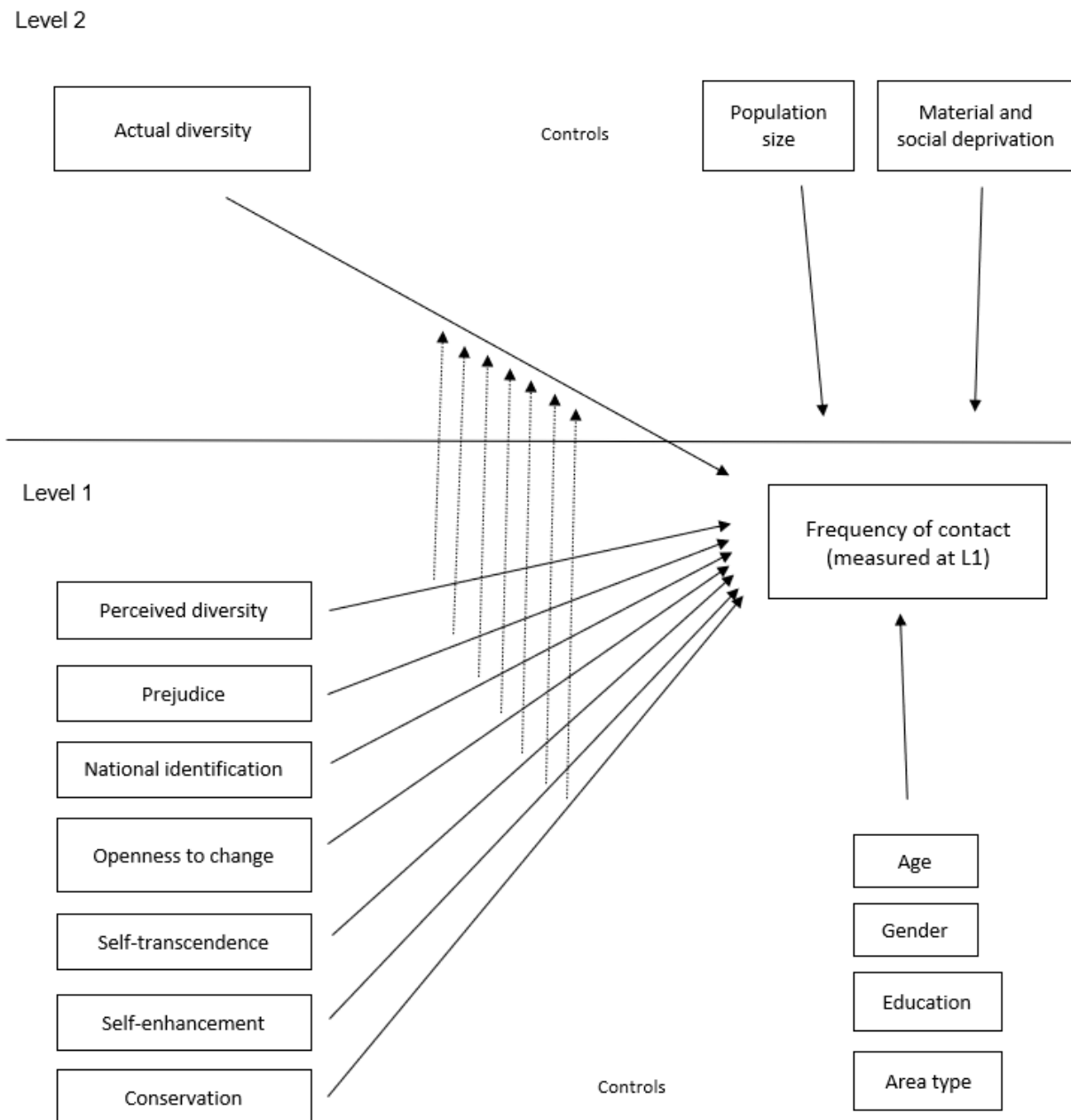
Note. Conceptual representation of the proposed model. Dotted lines represent cross-level interaction effects between Level 2 Actual diversity and Level 1 explanatory variables.

First, a variance components model was fitted to partition the variance in the dependent variable across the two levels and to assess the degree of clustering in the data (Model 1). This was followed by a random intercept model which included Level 1 control variables (Model 2). In the next step, Level 1 explanatory variables were added to the model (Model 3), followed by Level 2 control and explanatory variables (Model 4). Finally, cross-level interaction effects were investigated by testing the moderating impact of Level 1 explanatory variables on the relationship between Level 2 actual diversity and contact engagement. Assumptions of multilevel modelling were tested and found satisfactory (see Appendix A).

Centering

Individual level (Level 1) continuous predictor variables were group mean centered. Centering at the group mean involves subtracting the group-specific mean from each individual observation: $x_{ij} - \bar{x}_j$. Group-mean centering removes all between-group variation to capture within-group effects only (Enders & Tofighi, 2007). Centering Level 1 predictor variables at their country (Level 2) mean allowed the researcher to hold country-specific characteristics of the predictors constant. The resulting regression coefficients were pure estimates of the relationship between Level 1 predictor variables and contact without the confounding effect of country-level omitted variables. Fixed effect slope coefficients of group-mean centered continuous predictors were interpreted as the average change in contact within a country, for a one-unit increase in predictor X relative to its country mean.

Individual level (Level 1) categorical predictor variables were also group-mean centered by deviating each participant's score from the proportion of reference scores within each cluster, $x_{ij} - \bar{x}_j = x_{ij} - (p_{1j} - p_{0j})$ (Enders & Tofighi, 2007). The literature

suggests that the same way as continuous predictors, categorical predictors must also be partitioned into within-group and between-group variance to avoid conflated parameter estimates (Enders & Tofighi, 2007; Yaremych, Preacher, & Hedeker, 2023). Therefore, Level 1 categorical variables were centered at their country (Level 2) mean so country-level characteristics were held constant. Fixed effect slope coefficients of group-mean centered categorical predictors were interpreted as the expected change in frequency of contact within a country, on average, compared to the reference category.

Country-level (Level 2) continuous predictor variables were grand mean centered. Grand mean centering involves subtracting the overall (grand) mean from each individual observation: $x_j - \bar{x}$. Grand-mean centering was used to make the interpretation of parameter estimates more meaningful (Enders & Tofighi, 2007). Fixed effect slope coefficients of grand-mean centered continuous predictors were interpreted as the expected change in frequency of contact, on average (across all countries), for a one-unit increase in predictor X, relative to the overall (grand) mean.

Sampling Design and Weighting

To ensure representativeness and equivalent samples across all countries, sampling designs for each of the participating countries were developed (ESS, 2014). The ESS data is based on various sample designs, including stratified random sampling, multi-stage random sampling and the combinations thereof. Sampling designs differed across countries with varying magnitude of selection probabilities, clustering, and stratification. Individual sampling frames were also influenced by the desired sample size, the local sampling context and the expected response rate of respective countries (ESS, 2014).

There are different ways to account for the sampling design in multilevel analyses (Huang, 2024). Commercial softwares such as MPLus, MLwiN, and GLLAMM allow users to create a survey design object that specifies clustering, stratification and weighting. This survey design object is then applied in both descriptive and inferential multilevel analyses

(Carle, 2009). Each of these softwares have strengths and limitations. While all of them can fit a wide array of models within the MLM framework, some of them have limited features to deal with 3-level models (MPlus), the scaling of weights (MLwiN, GLLAMM) and estimating continuous outcomes (GLLAMM, Carle, 2009). None of the above softwares included features to handle the analytic strategy of all three studies. With the aim to apply MLM consistently throughout all three studies using one software only, data was analysed in R.

R can account for sampling designs by incorporating sampling weights at each level of analysis (Huang, 2024; Rathbun et al., 2021). When weights are available at both the individual (Level 1) and cluster (Level 2, Level 3, etc.) levels, the *WeMix* package can be used (Bailey et al., 2023). If weights are only available at the individual level, the *lme4* package with rescaled weights is recommended (Bates et al., 2023; Müller-Plath & Lüdecke, 2024; Asparouhov, 2006). The ESS data included individual-level (Level 1) *design weights*, which accounted for differences in inclusion probabilities, sampling errors, and non-response errors, preventing over- or under-representation of certain groups. *Post-stratification weights* adjusted the design weights, ensuring that individual samples reflected the population distribution for age, gender, education, and their intersections.   As each country had varying population sizes but similar sample sizes, Level 2 *population weights* were used to ensure that each country was represented in proportion to its population size. Analysis was conducted using the WeMix package (Version 4.0.3, Bailey et al., 2023), incorporating Level 1 post-stratification weights and Level 2 population weights.

Measures

Dependent Variable

Frequency of contact was measured with the item "How often do you have any contact with people who are of a different race or ethnic group from most [country] people when you are out and about? This could be on public transport, in the street, in shops or in the neighbourhood." Responses were given on a scale of 1 = never, 2 = less than once

a month, 3 = once a month, 4 = several times a month, 5 = once a week, 6 = several times a week, and 7 = every day, with higher scores representing more frequent intergroup contact.

Individual-Level (Level 1) Explanatory Variables

Perceived diversity was measured with the question "How would you describe the area where you currently live?". Response categories were 1 = An area where almost nobody is of a different race or ethnic group from most [country] people, 2 = Some people are of a different race or ethnic group from most [country] people and 3 = Many people are of a different race or ethnic group. To create more meaningful categories, response 3 was renamed high perceived diversity, response 2 moderate perceived diversity and response 1 low perceived diversity. Response categories were included in the analyses as dummy variables with low perceived diversity as the reference category.

Prejudice was measured with the item "To what extent do you think [country] should allow people of a different race or ethnic group from most [country] people to come and live here?" Answers ranged from 1 = allow many, 2 = allow some, 3 = allow a few and 4 = allow none, with higher scores representing more prejudice against racial and ethnic outgroups.

National identification was assessed with the question "How close do you feel to [country]?". Answers ranged from 1 = very close, 2 = close, 3 = not very close, and 4 = not close at all. For ease of interpretation this item was reverse coded so that higher scores corresponded to a greater degree of national identification.

Human values were measured by the Portrait Values Questionnaire (PVQ; Schwartz, 2012). Schwartz's Theory of Basic Human Values (2012) suggests that there are ten basic human values that are recognised across all cultures, with each value reflecting a desirable goal or motivation. The ten values and their underlying motivations have dynamic relationships and are organised into the four overarching value dimensions of Openness to change, Self-transcendence, Self-enhancement and Conservation

(Schwartz, 2012). A detailed description of Schwartz's human values is included in Appendix B.

Openness to change (OTC) represents values concerned with stimulation (e.g. excitement, novelty), and self-direction (e.g. independence, Schwartz, 2012). OTC was measured with six items, including "He/she likes surprises and is always looking for new things to do. He/she thinks it is important to do lots of different things in life". Responses ranged from 1 = very much like me, 2 = like me, 3 = somewhat like me, 4 = a little like me, 5 = not like me and 6 = not like me at all. Values were reverse coded so that higher scores represented greater openness to change. Cronbach's alpha test confirmed that the mean score of the six items provided a reliable measure (α = .749).

S*elf-transcendence (STR)* represents values related to cooperation and tolerance (Schwartz, 2012). STR was measured with five items, including "It is very important to him/her to help the people around him/her. He/she wants to care for their well-being". Responses ranged from 1 = very much like me to 6 = not like me at all and were reverse coded so that higher scores represented greater self-transcendence (α = .722).

Self-enhancement (SEH) emphasizes achievement and power, with a motivation for personal success as well as control and dominance over people and resources (Schwartz, 2012). SEH was measured with four items, for example "It is very important to him/her to show his/her abilities. He/she wants people to admire what he/she does". Responses ranged from 1 = very much like me to 6 = not like me at all and were reverse coded so that higher scores represented greater self-enhancement (α = .729).

Conservation (CON) reflects a preference for security and tradition, as well as conformity to social norms and standards (Schwartz, 2012). CON was measured with six items, for example "It is important to him/her to live in secure surroundings. He/she avoids anything that might endanger his/her safety". Responses ranged from 1 = very much like me to 6 = not like me at all and were reverse coded so that higher scores represented greater conservation (α = .708).

Individual-level (Level 1) Controls

To account for demographic and regional characteristics, a number of individual-level covariates were included in the analyses. *Age* was assessed with the question "In what year were you born?". Participants' age was calculated by the interviewers and added to the data. *Gender* had two categories, 1 = male, and 2 = female. Gender was included in the analyses as a dummy variable with female as the reference category. *Education* was measured with the question "What is the highest level of education you have successfully completed?". Responses ranged from 1 = less than lower secondary to 7 = higher tertiary education. Lastly, *area type* was measured with the item "Which phrase best describes the area where you live?". Responses included 1 = a big city, 2 = the suburbs, 3 = a town 4 = a country village and 5 = a farm or home in the countryside. To simplify analyses and interpretation of results, responses were recoded into two overarching categories: values 1, 2 and 3 into 1 = urban, values 4 and 5 into 2 = rural (reference category).

Group-level (Level 2) Explanatory Variable

Actual diversity was assessed by the Ethnolinguistic Fractionalization Index included in the ESS data set (ESS7, 2014). The index was compiled by Alesina and colleagues (2003) and represent the probability that two randomly selected individuals in a given country will not belong to the same ethnic group. Ethnicity was defined as a combination of racial and linguistic characteristics. Values ranged from 0 to 1, with higher values representing a more ethnically fractionalised society (ESS7, 2014).

Group-level (Level 2) Controls

Majority group members may have more frequent contact with ethnic minorities simply because their country is more highly populated. To account for such effects, the total *population size* of countries was controlled. The ESS dataset included population size figures, representing the total number of individuals residing in each country as of January 1, 2014. This data included all individuals who had lived in their usual residence

for at least 12 continuous months before the reference date (ESS7, 2014). Since population size was measured on a vastly different scale from other variables — potentially affecting model convergence — values were converted into proportions. The transformed values represented each country's population size as a proportion of the total population across all 20 participating countries.

Material and social deprivation (MSD) was measured because contextual diversity and deprivation often covary (Letki, 2008). MSD was assessed by the EU's material and social deprivation indicator which refers to the inability (rather than a choice) to afford some items considered by most people to be desirable or necessary to lead an adequate life (Eurostat, 2023). The indicator shows the percentage of the population lacking at least five items out of 13 deprivation indicators, for example facing unexpected expenses, being able to afford a meal with meat, or having regular leisure activities (Eurostat, 2023). Data was obtained from EUROSTAT (https://ec.europa.eu) and added to the data set.

Missing data

Missing data analysis indicated that the proportion of missing values was low (<5%) and that the missingness was completely at random (i.e. unrelated to any observed or unobserved variables; Enders, 2022). In large datasets with minimal missing values, listwise deletion is a suitable approach as excluding a small percentage of cases does not introduce bias. Additionally, when data is missing completely at random, the reduction in sample size is unlikely to result in significant power loss (Enders, 2022). Based on these considerations, missing data was handled using listwise deletion.

Results

Descriptive statistics

The data set included 32,854 individuals (Level 1 units) nested within 20 countries (Level 2 units). There were 15,500 males and 17,354 females in the sample. The mean age across all countries and individuals was 47.79 years (*SD* = 18.86). Descriptive

statistics per countries related to intergroup contact (DV) and selected predictor variables (IVs) are summarized in Table 1.

Table 1

Descriptive Statistics per Countries in the ESS

Country Code	Country	Mean Contact (scale 1 – 7)	*SD*	Level 1 Perceived diversity %			Level 2 Actual diversity (scale 0 – 1)
				High	Moderate	Low	
AT	Austria	4.75	1.94	16.25	49.07	34.68	0.11
BE	Belgium	4.78	2.05	13.43	38.55	48.02	0.56
CH	Switzerland	5.06	1.84	19.91	52.36	27.73	0.53
CZ	Czech Republic	3.62	1.97	8.99	45.11	45.90	0.32
DE	Germany	5.08	1.96	13.47	47.87	38.66	0.17
DK	Denmark	4.96	1.94	10.25	36.07	53.67	0.08
EE	Estonia	4.28	2.18	13.49	46.12	40.39	0.51
ES	Spain	4.60	2.24	18.70	47.67	33.63	0.42
FI	Finland	4.09	1.94	6.59	38.42	54.99	0.13
FR	France	4.73	2.03	23.72	44.59	31.69	0.10
GB	United Kingdom	5.16	1.86	17.19	43.32	39.48	0.12
HU	Hungary	3.37	2.17	7.03	44.12	48.85	0.15
IE	Ireland	4.82	2.02	12.84	50.00	37.16	0.12
LT	Lithuania	3.46	2.17	3.93	31.22	64.85	0.32
NL	Netherland	5.00	1.86	11.01	38.06	50.93	0.11
NO	Norway	5.31	1.76	10.68	50.87	38.45	0.06
PL	Poland	2.21	1.74	1.59	17.89	80.53	0.12
PT	Portugal	4.07	2.15	6.29	31.54	62.17	0.05
SE	Sweden	5.90	1.50	12.77	41.87	45.36	0.06
SI	Slovenia	4.48	2.19	13.01	43.98	43.00	0.22

Note. Values represent weighted averages.

As Figure 2 illustrates, the average frequency of contact varied substantially between countries. Average frequency of contact was the highest in Sweden ($M = 5.90$, $SD = 1.50$). and the lowest in Poland ($M = 2.21$, $SD = 1.74$).

Figure 2

Variation of Mean Contact Between Countries in the ESS
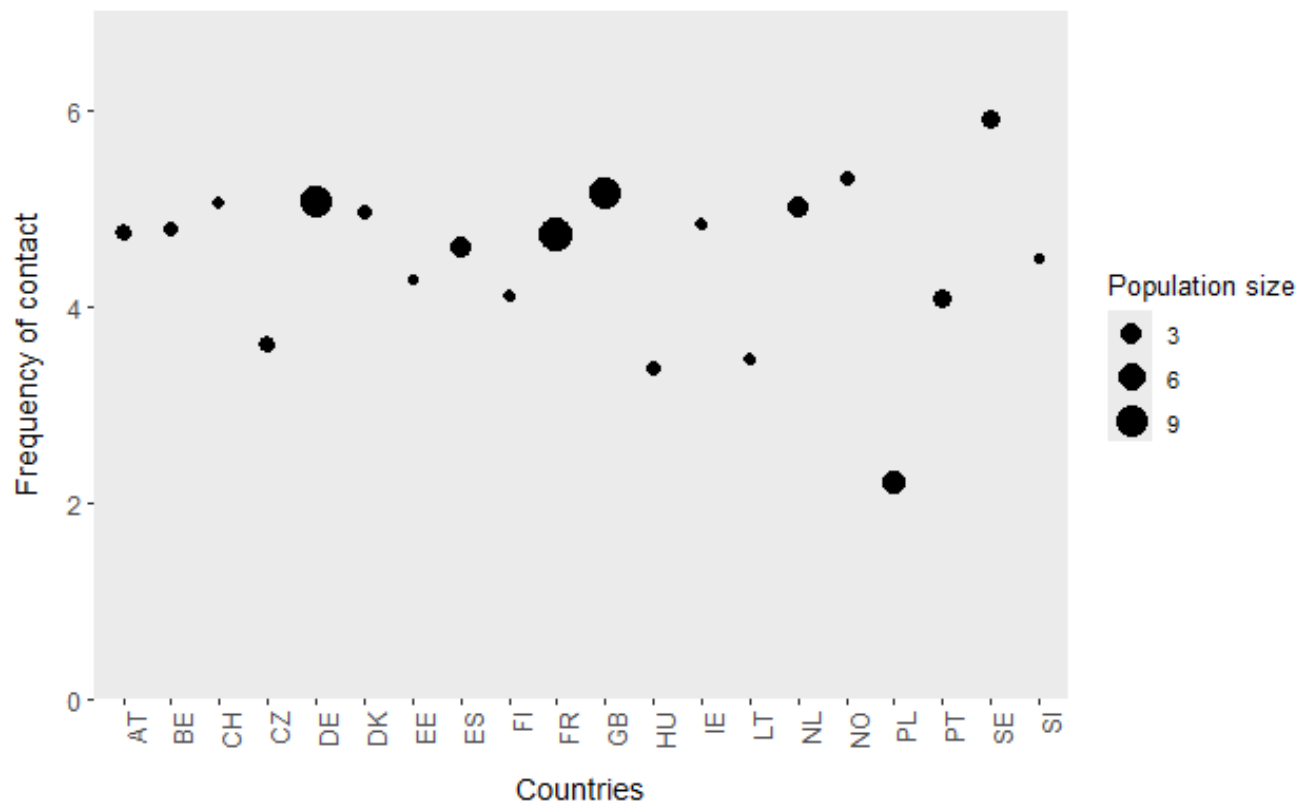
Multilevel models

Model 0: The Linear Regression Model. With the aim of establishing the need for modelling the data at multiple levels, a single-level linear regression model and a two-level variance-components model were fitted and results compared. First, a linear regression model was fitted for frequency of contact (DV) with no covariates (see Figure 3). The model is written as

$$Cont_i = \beta_0 + r_i$$

in which $Cont_i$ stands for frequency of contact for individual i

β_0 is the overall intercept (or grand mean)

r_i represents the total residuals

Linear regression assumes that the residuals follow a normal distribution with a mean of 0 and a variance of σ_r^2.

$$r_i \sim N(0, \sigma_r^2)$$

A further assumption is that the residuals are independent and therefore there is no clustering or dependency in the data.

$$Cor(r_i, r_{i'}) = 0$$

Figure 3

The Linear Regression Model
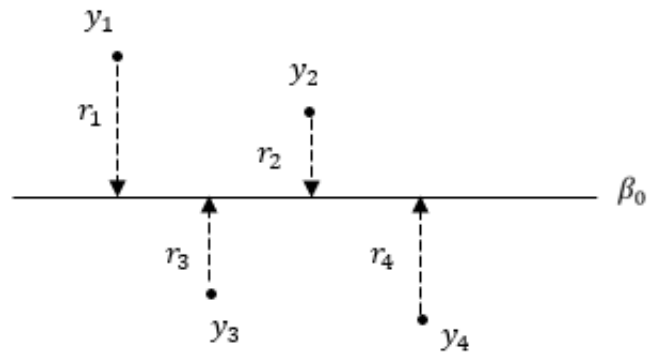
Note. Theoretical representation of the linear regression model using four data points. β_0 is the overall mean for the outcome variable y. y_1, y_2, y_3 and y_4 represent the value of the outcome variable y for individuals 1, 2, 3 and 4 while r_1, r_2, r_3, and r_4 are the residuals for individuals 1, 2, 3 and 4.

Model 1: The Variance Components Model. Next, a two-level variance-components model was fitted (see Figure 4), by decomposing the total residuals r_{ij} into country-level residuals u_j and individual-level residuals e_{ij}. The variance components model recognizes that the residuals are not independent and therefore there may be some clustering in the data. The two-level variance components model is written as

$$Cont_{ij} = \beta_0 + \underbrace{u_j + e_{ij}}_{r_{ij}}$$

in which $Cont_{ij}$ stands for frequency of contact for individual *i* in country *j*

β_0 is the overall intercept (or grand mean)

e_{ij} is the Level 1 random effect (or residual)

u_j is the Level 2 random effect (or residual)

$\beta_0 + u_j$ is the group mean or random intercept for country *j*

The u_j are assumed to be normally distributed with a mean of 0 and a variance of σ_u^2, where σ_u^2 is the between-country variance and measures the variability of the country means. The e_{ij} are also assumed to be normally distributed with a mean of 0 and a variance of σ_e^2 where σ_e^2 is the within-country variance and measures the average variability of contact between individuals.

$$u_j \sim N(0, \sigma_u^2)$$
$$e_{ij} \sim N(0, \sigma_e^2)$$

Figure 4

The Two-Level Variance Components Model
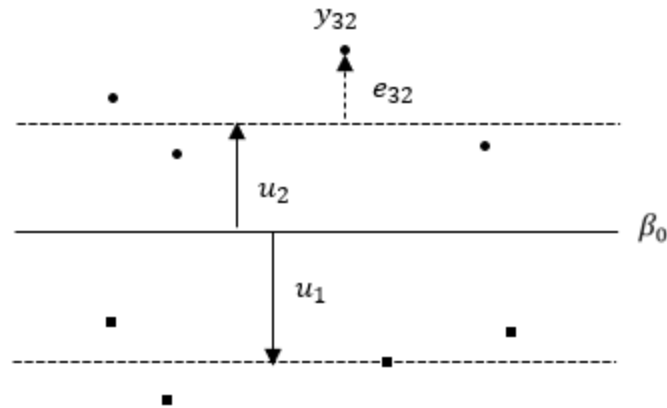
Note. Theoretical representation of the two-level variance components model for eight individuals in two groups. β_0 is shown as a solid line and represents the overall mean. Group 1 (u_1) is shown as a dashed line and has a below-average mean while Group 2 (u_2) is above average. Individuals in Group 1 are denoted by squares, whereas individuals in Group 2 are denoted by circles including the residual for the 3rd individual in Group 2 (e_{32}).

Table 2 shows the model fit of the linear regression model (Model 0) and the variance components model (Model 1). Wald test indicated that the two-level variance components model provided a significantly better fit to the data, $W(1) = 169.8$, $p < .001$.

Table 2

Model Fit of the Single-Level Linear Regression Model and the Two-Level Variance-Components Model in the ESS

	Model 0		Model 1	
Parameter	Estimate	SE	Estimate	SE
β_0 **Intercept**	**4.553*****	0.012	**4.448*****	0.341
σ_u^2 Country variance	-	-	0.962	0.592
σ_e^2 Individual variance	4.697	0.012	3.916	0.148
Deviance	165685		137718	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

The variance components model suggests that averaging across all countries, the overall mean contact was 4.448 which translates to *'several times a month to once a week'.* The between-country variance (σ_u^2) was 0.962, the within-country variance (σ_e^2) was 3.916, thus the total variance was 0.962 + 3.916 = 4.878. The model also shows that there is clustering in the data. To quantify the degree of clustering, Variance Partition Coefficient (VPC) and Intraclass Correlation Coefficient (ICC) statistics were calculated. The VPC is calculated by dividing the between-group variance by the total variance.

$$VPC_u = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2} = \frac{0.962}{0.962 + 3.916} = 0.197$$

Results show that approximately 20% of the variation in contact lied between countries. This means that 80% of the variation in contact lied between individuals. The ICC measures the expected correlation between two individuals from the same country. The formula for the ICC coincides with the formula for the VPC.

$$ICC_u \equiv VPC_u = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2} = \frac{0.962}{0.962 + 3.916} = 0.197$$

The ICC indicates that the correlation in frequency of contact between individuals within the same country was 0.20.

Model 2: The Random Intercept Model with Level 1 Controls. To answer the research question *"What individual-level (Level 1) demographic factors can explain contact engagement with racial and ethnic outgroups?"*, Level 1 demographic control variables including age, gender, education and area type were added to the model. Variables were centered around their group mean and reflected deviations from the average age, gender, education level and area type in respective countries. The two-level random-intercept model (see Figure 5) with demographic controls is written as

$$Cont_{ij} = \underbrace{\beta_0 + \beta_1 Age_{ij} + \beta_2 Male_{ij} + \beta_3 Edu_{ij} + \beta_4 Urb_{ij}}_{fixed\ part} + \underbrace{u_j + e_{ij}}_{random\ part}$$

$$u_j \sim N(0, \sigma_u^2)$$

$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1, β_2, β_3 and β_4 are fixed effects

- β_0 is the overall intercept

- β_1 is the slope coefficient for Age

- β_2 is the slope coefficient for Males (ref. Females)

- β_3 is the slope coefficient for Education

- β_4 is the slope coefficient for Urban area (ref. Rural)

and u_j and e_{ij} are random effects

- u_j is the Level 2 random effect

- e_{ij} is the Level 1 random effect

Figure 5

The Two-Level Random Intercept Model
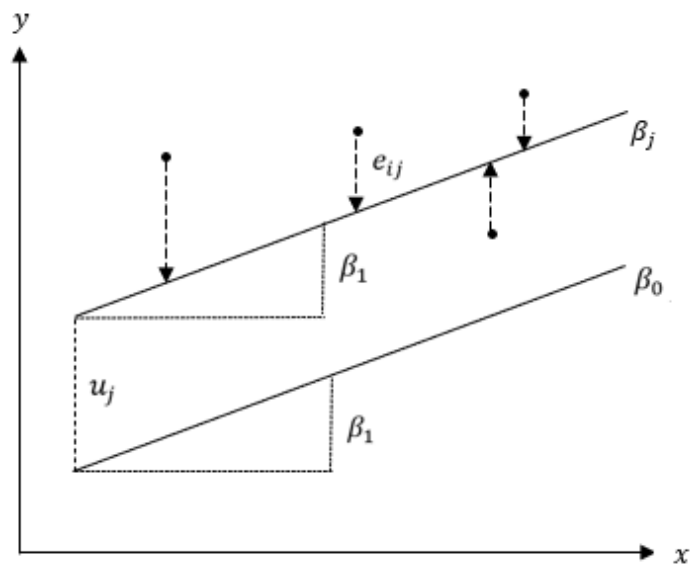
Note. Theoretical illustration of the two-level random-intercept model where each Level 2 group has their own intercept $\beta_0 + u_j$, but all Level 2 groups share a common slope β_1. Level 1 individuals' deviation from the group mean is given by $\beta_0 + u_j + e_{ij}$.

Table 3 shows the comparison between the two-level variance components model (Model 1) and the two-level random-intercept model where Level 1 control variables were accounted for (Model 2). Wald test showed that the random-intercept model provided a significantly better fit to the data, $W(5) = 120.4$, $p < .001$.

Table 3

Model Comparison of the Two-Level Variance Components Model and the Two-Level Random-Intercept Model with Level 1 Controls in the ESS

	Parameter	Model 1		Model 2	
		Estimate	SE	Estimate	SE
β_0	**Intercept**	4.448***	0.341	**4.415*****	0.338
β_1	**Age**	-	-	**- 0.030*****	0.002
β_2	Males (Ref. Females)	-	-	0.034	0.032
β_3	**Education**	-	-	**0.040****	0.015
β_4	**Urban (Ref. Rural)**	-	-	**0.787*****	0.072
σ_u^2	Country variance	0.962	0.592	0.962	0.586
σ_e^2	Individual variance	3.916	0.148	3.423	0.156
	Deviance	137718		133314	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

The association between contact and age was negative, suggesting that individuals older than the average age in their country reported significantly less frequent contact with people of a different race or ethnic group, $b = - 0.030$, $p < .001$. There was no significant difference between the frequency males and females engaged in contact with racial or ethnic outgroups, $b = 0.034$, $p = .294$. Individuals more educated than their country average reported significantly more frequent contact, $b = 0.040$, $p = .009$. Finally,

compared to living in rural areas, people living in urban areas such as cities, suburbs and towns reported significantly more frequent contact with racial or ethnic outgroups, $b = 0.787$, $p < .001$.

There was substantial variation in frequency of contact even after accounting for Level 1 control variables. As Table 4 demonstrates, the conditional VPC was 0.219, indicating that approximately 22% of the variation in frequency of contact lied between countries, and 78% within countries when Level 1 control variables were accounted for. The total variance was estimated to be 4.385 (= 0.962 + 3.423), suggesting that adjusting for Level 1 control variables explained approximately 10% (= (4.385 − 4.878) / 4.878) of the total variation in frequency of contact. Level-specific changes in variance were also calculated. Proportion change in variance (PCV) statistic showed that at the country level (Level 2), variance was unchanged. At the individual level (Level 1), variance dropped by 13%, indicating that differences in age, gender, education and area type within countries explained approximately 13% of the variation in frequency of contact.

$$\widehat{PCV_e} = \frac{\hat{\sigma}_e^{2(\text{RI})} - \hat{\sigma}_e^{2(\text{VC})}}{\hat{\sigma}_e^{2(\text{VC})}} = \frac{3.423 - 3.916}{3.916} = -0.126$$

Table 4

VPC, PCV and ICC Statistics for the Two-Level Random Intercept Model with L1 Controls in the ESS

Level	VPC	PCV	ICC
Country	0.219	0	0.219
Individual	0.781	- 0.126	-

Model 3: The Random Intercept Model with Level 1 Controls and Level 1 Explanatory Variables. To answer the research question *"What individual-level (Level 1) psychological factors can explain contact engagement with racial or ethnic*

outgroups?", Level 1 explanatory variables were added to the model, including *perceived diversity, prejudice, national identification, openness to change, conservation, self-enhancement* and *self-transcendence*. Variables were centered around their country (Level 2) mean. The two-level random-intercept model with Level 1 control- and Level 1 explanatory variables is written as

$$Cont_{ij} = \underbrace{\begin{matrix} \beta_0 + \beta_1 Age_{ij} + \beta_2 Male_{ij} + \beta_3 Edu_{ij} + \beta_4 Urb_{ij} + \beta_5 PD_{H_{ij}} + \\ \beta_6 PD_{M_{ij}} + \beta_7 Prej_{ij} + \beta_8 NI_{ij} + \beta_9 OTC_{ij} + \beta_{10} CON_{ij} + \beta_{11} SEH_{ij} + \beta_{12} STR_{ij} \end{matrix}}_{fixed\ part} +$$

$$\underbrace{u_j + e_{ij}}_{random\ part}$$

$$u_j \sim N(0, \sigma_u^2)$$
$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1 - β_{12} are fixed effects

- β_5 is the slope coefficient for high perceived diversity

- β_6 is the slope coefficient for moderate perceived diversity (Ref. low)

- β_7 is the slope coefficient for prejudice

- β_8 is the slope coefficient for national identification

- β_9 is the slope coefficient for openness to change

- β_{10} is the slope coefficient for conservation values

- β_{11} is the slope coefficient for self-enhancement

- β_{12} is the slope coefficient for self-transcendence

and $u_j\ and\ e_{ij}$ are random effects

- u_j is the Level 2 random effect

- e_{ij} is the Level 1 random effect

Table 5 shows the comparison between the random-intercept model with Level 1 controls (Model 2) and the random-intercept model with Level 1 controls and Level 1

explanatory variables (Model 3). Results indicate that Model 3 provided a significantly better fit to the data, $W(13) = 3462.8$, $p < .001$.

Table 5

Model Comparison of the Two-Level Random-Intercept Model with Level 1 Controls and the Two-Level Random-Intercept Model with Level 1 Controls and Level 1 Explanatory Variables in the ESS

Parameter		Model 2 Estimate	Model 2 SE	Model 3 Estimate	Model 3 SE
β_0	**Intercept**	4.415***	0.338	**4.417***	0.340
β_1	**Age**	- 0.030***	0.002	**- 0.025***	0.002
β_2	**Males (Ref. Females)**	0.034	0.032	**0.064***	0.030
β_3	**Education**	0.040**	0.015	**0.029***	0.012
β_4	**Urban (Ref. Rural)**	0.787***	0.072	**0.425***	0.060
β_5	**Perceived diversity High (Ref. Low)**	-	-	**1.390***	0.143
β_6	**Perceived diversity Mod.**	-	-	**0.834***	0.097
β_7	**Prejudice**	-	-	**- 0.201***	0.022
β_8	**National identification**	-	-	**0.130***	0.036
β_9	Openness to change	-	-	0.110	0.204
β_{10}	Conservation	-	-	- 0.175	0.205
β_{11}	Self-transcendence	-	-	0.310	0.163
β_{12}	Self-enhancement	-	-	- 0.010	0.134
σ_u^2	Country variance	0.962	0.586	0.968	0.593
σ_e^2	Individual variance	3.423	0.156	3.109	0.125
	Deviance	133314		130170	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

The association between high perceived diversity and contact was positive, suggesting that people with higher than average (vs. lower) perception of diversity reported significantly more frequent contact with racial or ethnic outgroups, $b = 1.390$, p

< .001. Moderate (vs. low) perceived diversity was also significantly associated with contact, $b = 0.834$, $p < .001$. Prejudice was negatively associated with intergroup contact. Individuals more prejudiced than their country average engaged in less frequent outgroup contact, $b = -0.201$, $p < .001$. National identification showed a positive relationship with contact. Individuals who felt closer to their country than their country average engaged in more frequent outgroup contact, $b = 0.130$, $p < .001$. Openness to change, conservation, self-enhancement and self-transcendence were not significantly related to contact.

There was substantial variation in frequency of contact even after accounting for Level 1 explanatory variables. As Table 6 demonstrates, the conditional VPC was 0.237, indicating that approximately 24% of the variation in frequency of contact lied between countries, and 76% within countries when Level 1 control and Level 1 explanatory variables were accounted for. Together, the Level 1 control variables explained approximately 7% of the total variance in frequency of contact. Proportion change in variance (PCV) statistic showed that at the country level (Level 2), variance has slightly increased. At the individual level (Level 1), variance decreased by 9%, indicating that within-country differences in perceived diversity, prejudice, national identification and selected human values explained approximately 9% of the within-country variance in frequency of contact.

Table 6

VPC, PCV and ICC Statistics for the Two-Level Random Intercept Model with L1 Covariates in the ESS

Level	VPC	PCV	ICC
Country	0.237	0.006	0.237
Individual	0.763	- 0.092	-

Model 4: The Random Intercept Model with Level 1 and Level 2 Covariates. To answer the research question *"What country-level (Level 2) structural factors can predict contact engagement with racial or ethnic outgroups?"*, *national population size,*

material and social deprivation as well as *actual diversity* were added to the model. Level 2 variables were centered around the grand mean. The two-level random intercept model with Level 1 and Level 2 covariates is written as

$$Cont_{ij} = \beta_0 + \beta_1 Age_{ij} + \beta_2 Male_{ij} + \beta_3 Edu_{ij} + \beta_4 Urb_{ij} + \beta_5 PD_{H_{ij}} + \beta_6 PD_{M_{ij}} + \beta_7 Prej_{ij}$$
$$\underbrace{+ \beta_8 NI_{ij} + \beta_9 OTC_{ij} + \beta_{10} CON_{ij} + \beta_{11} SEH_{ij} + \beta_{12} STR_{ij} + \beta_{13} Pops_j + \beta_{14} MSD_j + \beta_{15} AD_j +}_{fixed\ part}$$

$$\underbrace{u_j + e_{ij}}_{random\ part}$$

$$u_j \sim N(0, \sigma_u^2)$$
$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1 - β_{15} are fixed effects

- β_{13} is the slope coefficient for population size

- β_{14} is the slope coefficient for material and social deprivation

- β_{15} is the slope coefficient for actual diversity

and u_j and e_{ij} are random effects

- u_j is the Level 2 random effect

- e_{ij} is the Level 1 random effect

The model fit was significant, $W(16) = 28412.7$, $p < .001$. Regression coefficients of the two-level random-intercept model with Level 1 and Level 2 covariates are summarised in Table 7.

Table 7

Model Comparison of the Two-Level Random-Intercept Model with Level 1 Covariates and the Two-Level Random-Intercept Model with Level 1 and Level 2 Covariates in the ESS

Parameter		Model 3		Model 4	
		Estimate	SE	Estimate	SE
β_0	**Intercept**	4.417***	0.340	**4.342*****	0.265
β_1	**Age**	- 0.025***	0.002	**- 0.025*****	0.002
β_2	**Males (Ref. Females)**	0.064*	0.030	**0.064***	0.030
β_3	**Education**	0.029*	0.012	**0.029***	0.012
β_4	**Urban (Ref. Rural)**	0.425***	0.060	**0.425*****	0.060
β_5	**Perceived diversity High (Ref. Low)**	1.390***	0.143	**1.390*****	0.143
β_6	**Perceived diversity Mod.**	0.834***	0.097	**0.834*****	0.097
β_7	**Prejudice**	- 0.201***	0.022	**- 0.201*****	0.022
β_8	**National identification**	0.130***	0.036	**0.130*****	0.036
β_9	Openness to change	0.110	0.204	0.110	0.204
β_{10}	Conservation	- 0.175	0.205	- 0.175	0.205
β_{11}	Self-transcendence	0.310	0.163	0.310	0.162
β_{12}	Self-enhancement	- 0.010	0.134	- 0.010	0.134
β_{13}	**Population size**	-	-	**0.040***	0.020
β_{14}	**Material and social deprivation**	-	-	**- 0.077***	0.032
β_{15}	Actual diversity	-	-	1.026	1.146
σ_u^2	Country variance	0.968	0.593	0.596	0.358
σ_e^2	Individual variance	3.109	0.125	3.109	0.125
Deviance		130170		130162	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

There was no significant association between actual diversity and contact ($p = .371$), suggesting that living in more ethnically diverse countries did not encourage more frequent interethnic contact. Population size showed a marginally significant association with contact ($p = .051$), implying that people who lived in more densely populated

countries did report significantly more frequent interethnic contact. Material and social deprivation was a significant predictor of contact engagement (b = - 0.077, p = .017). Living in countries where a higher proportion of the population was lacking basic material and social resources was associated with significantly less contact engagement with racial or ethnic outgroups.

There was substantial variation in frequency of contact even after accounting for Level 2 covariates. As Table 8 demonstrates, the conditional VPC was 0.161, indicating that approximately 16% of the variation in frequency of contact lied between countries, and 84% within countries when Level 2 explanatory variables were included in the model. Proportion change in variance (PCV) showed that an additional 38% of variance in countries' frequency of contact was explained by country-level differences in Level 2 covariates. Residual variance at the individual-level was unchanged.

Table 8

VPC, PCV and ICC Statistics for the Two-Level Random Intercept Model with L1 and L2 Covariates in the ESS

Level	VPC	PCV	ICC
Country	0.161	- 0.384	0.161
Individual	0.839	0	-

A summary of all models testing the association between Level 1 and Level 2 predictor variables and intergroup contact are displayed in Table 9.

Table 9

Model Summary of Study 1

Parameter	Model 1		Model 2		Model 3		Model 4	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Fixed effects								
Intercept	**4.448***	0.341	**4.415***	0.338	**4.417***	0.340	**4.342***	0.265
Level 1 controls								
Age			**- 0.030***	0.002	**- 0.025***	0.002	**- 0.025***	0.002
Males (Ref. Females)			0.034	0.032	**0.064***	0.030	**0.064***	0.030
Education			**0.040**	0.015	**0.029***	0.012	**0.029***	0.012
Urban (Ref. Rural)			**0.787***	0.072	**0.425***	0.060	**0.425***	0.060
Level 1 explanatory variables								
Perceived diversity High					**1.390***	0.143	**1.390***	0.143
Perceived diversity Mod.					**0.834***	0.097	**0.834***	0.097
Prejudice					**- 0.201***	0.022	**- 0.201***	0.022
National identification					**0.130***	0.036	**0.130***	0.036
Openness to change					0.110	0.204	0.110	0.204
Conservation					- 0.175	0.205	- 0.175	0.205
Self-transcendence					0.310	0.163	0.310	0.163
Self-enhancement					- 0.010	0.134	- 0.010	0.134
Level 2 controls								
Population size							**0.040***	0.020
Material deprivation							**- 0.077***	0.032
Level 2 explanatory variable								
Actual diversity							1.026	1.146
Random effects								
Country-level variance	0.962	0.592	0.962	0.586	0.968	0.593	0.596	0.358
Individual-level variance	3.916	0.148	3.423	0.156	3.109	0.125	3.109	0.125
Deviance	137718		133314		130170		130162	
VPC ≡ ICC	0.197		0.219		0.237			
PCV	-							
Country level			0		0.006			
Individual level			- 0.126		- 0.092		0	

Notes. The response is frequency of contact. N = 32,854 respondents nested within 20 countries. *** $p < .001$, ** $p < .01$, * $p < .05$

Cross-level Interactions

Generally, cross-level interaction effects occur when the nature or strength of the association between a lower-level predictor *(X)* and lower-level outcome variable *(Y)* change as a function of a higher-level predictor variable *(W)* (Aguinis et al., 2013). However, from a statistical standpoint, interaction terms are symmetrical *(X * W = W * X).* This means that while we can describe the higher-level predictor (Level 2) as moderating the effect of the lower-level predictor (Level 1) on the outcome variable (Level 1), we can also state that the lower-level predictor (Level 1) moderates the effect of the higher-level predictor (Level 2) on the outcome (Level 1). Ultimately, how researchers conceptualize cross-level interaction effects must be a theoretical decision (Aguinis et al., 2013; Anderson, Cuervo-Cazurra, & Nielsen, 2014). In the context of the present study, cross-level interaction effects measure the moderating impact of individual-level explanatory variables (Level 1) on the relationship between country-level diversity (Level 2) and frequency of contact. The aim is to determine how individual-level psychological factors (Level 1) interact with contextual-level diversity (Level 2) to identify when and for whom greater contact opportunities translate to greater contact engagement.

Furthermore, the literature suggests that in moderated multilevel modelling (MMLM), a random slope term must be included on the lower-level component to obtain accurate parameter estimates about the cross-level interaction term and the main effect of the lower-level predictor variable (Heisig & Schaeffer, 2019). Omission of the random slope term results in overly optimistic *p* values as well as cluster-driven heteroskedasticity thus violating fundamental model assumptions (Bell, Fairbrother, & Jones, 2019; Heisig & Schaeffer, 2019). Compared to random-intercept models in which the intercept of the regression lines can vary but slopes are fixed, in random slopes models both the intercepts and the slopes can vary across higher-level groups (see Figure 6).

Figure 6

The Random Slopes Model
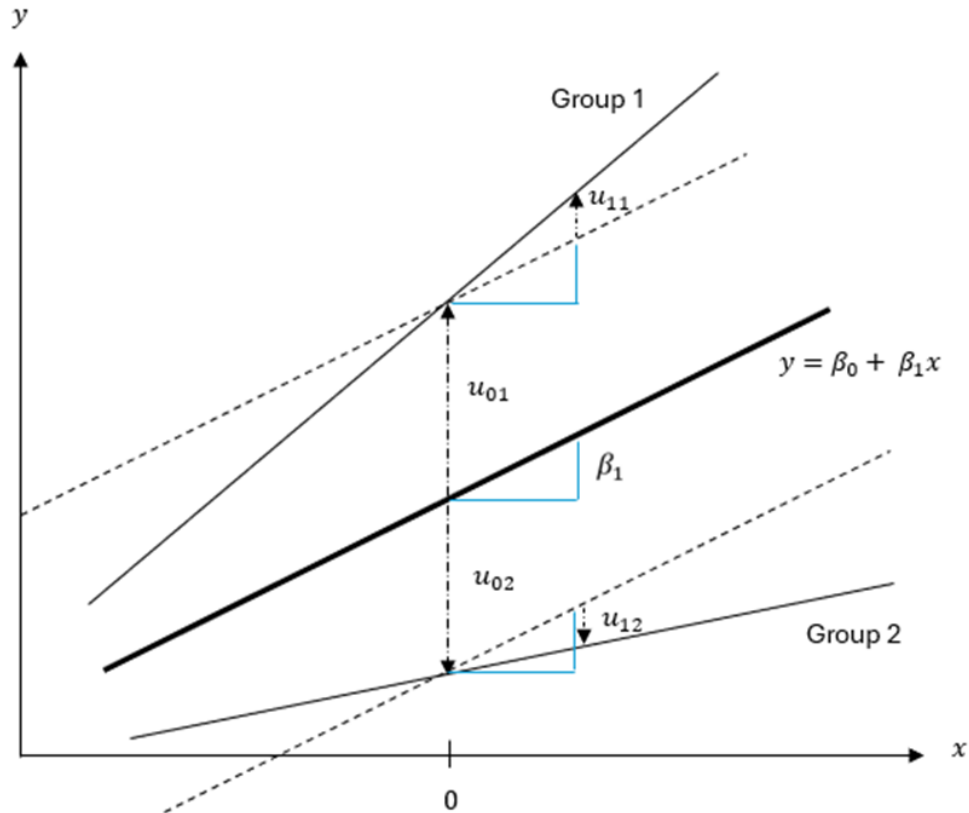
Note. Theoretical illustration of the random slopes model. The slope for group 1 is steeper than the slope for the average line by an amount of u_{11} while the slope for group 2 is smaller than the average by an amount of u_{12}.

Model 4 has shown that Level 2 actual diversity was not significantly associated with contact engagement. However, interaction effects can still be significant even when the main effect of a predictor variable is not. This is because an interaction effect captures whether the relationship between an independent variable and a dependent variable changes across levels of another variable, regardless of whether the main effect is significant (Aguinis et al., 2013). First, we tested the moderating impact of Level 1 high (vs. low) perceived diversity on the relationship between Level 2 actual diversity and contact engagement, including random

slopes for Level 1 high perceived diversity. To compare the impact of high perceived diversity with low perceived diversity, moderate perceived diversity was also included in the model. The model is written as

$$Cont_{ij} = \underbrace{\beta_0 + \beta_1 PD_{Hij} + \beta_2 PD_{Mij} + \beta_3 AD_j + \beta_4 AD_j * PD_{Hij}}_{fixed\ part} + \underbrace{u_{0j} + u_{1j} PD_{Hij} + e_{ij}}_{random\ part}$$

$$\begin{pmatrix} u_{0j} \\ u_{1j} \end{pmatrix} \sim N \left\{ \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{u0}^2 & \\ \sigma_{u01} & \sigma_{u1}^2 \end{pmatrix} \right\}$$

$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1 - β_4 are fixed effects

- β_4 is the slope coefficient for the interaction term

and u_j and e_{ij} are random effects

- u_{0j} is the Level 2 random intercept

- $u_{1j} PD_{Hij}$ is the Level 2 random slope for high perceived diversity

- e_{ij} is the Level 1 random effect

Results showed no significant moderation effect, b = - 0.077, p = .877, suggesting that greater objective opportunities for contact did not predict greater contact engagement with ethnic outgroups when individuals' subjective perception of diversity was high, compared to when it was low. Using the same analytical strategy, the potential moderating effects of moderate (vs. low) perceived diversity, prejudice, national identification, openness to change, conservation, self-transcendence, and self-enhancement were tested. Non-significant moderation effects were found for moderate (vs. low) perceived diversity (p = .398), prejudice (p = .987), national identification (p = .904), openness to change (p = .324), conservation (p = .708), and self-enhancement (p = .948).

The interaction between actual diversity and self-transcendence was significant, $b = -0.564$, $p = .005$. However, simple slopes analysis showed no significant moderation effect at different levels of self-transcendence. When self-transcendence values were below their country average (1 SD below the group mean), the slope coefficient for actual diversity was $b = -0.01$, $p = 1.00$. When self-transcendence values were at their country mean, the slope coefficient for actual diversity was $b = -0.34$, $p = .770$. Finally, when self-transcendence values were above their country mean (1 SD above the group mean), the slope coefficient for actual diversity was $b = -0.67$, $p = .580$. The effect size for the interaction term was 0.000 with a confidence interval of 0.000 and 0.001, suggesting that the interaction had a negligible effect on the dependent variable. As interaction terms are symmetrical, it is possible that the significant moderation effect reflected the impact of actual diversity on the relationship between self-transcendence and contact, rather than the impact of self-transcendence on the relationship between actual diversity and contact. Further analysis confirmed that the positive association between self-transcendence and intergroup contact was significantly stronger when actual diversity rates were lower than average (1 SD below the mean), $b = 0.27$, $p < .001$, compared to when they were average (at the mean), $b = 0.19$, $p < .001$, and higher than average (1 SD above the mean), $b = 0.10$, $p = .050$ (see Figure 7). This suggests that individuals who prioritise cooperation and tolerance are more likely to seek contact opportunities, especially when they are scarce, and may actively go out of their way to engage with racial and ethnic minorities (Lefringhausen et al., 2020).

Figure 7

Cross-Level Interaction Between Level 1 Self-Transcendence and Level 2 Actual Diversity
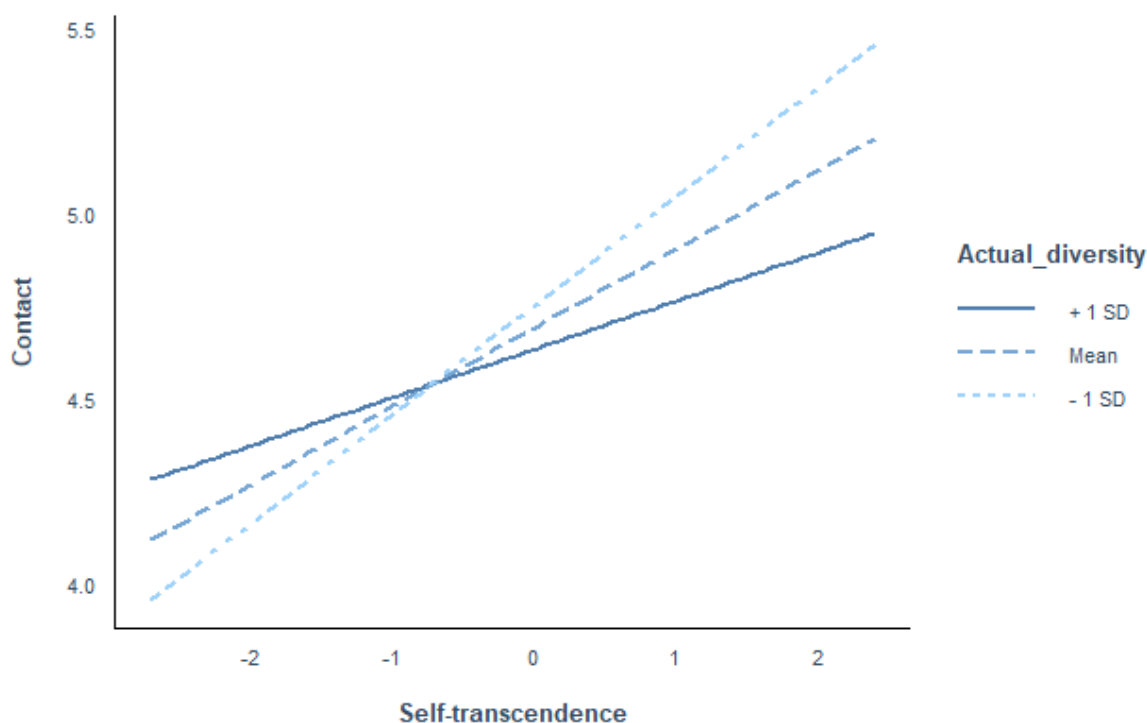
Discussion

Study 1 explored psychological and structural antecedents of intergroup contact in the European context. Results showed that actual diversity was not a significant predictor of intergroup contact. However, individuals who perceived their neighbourhood as highly or moderately diverse, compared to those who saw it as minimally diverse, engaged in more frequent contact with racial and ethnic outgroup members. This finding aligns with previous research suggesting that individuals' subjective perception of diversity is often a stronger predictor of contact behaviour than actual contextual diversity (Semyonov et al., 2004; Schmid et al., 2014). However, it is important to note that perceived diversity captured individuals' perception of *regional* diversity, whereas actual diversity was measured at the *national* level. Perhaps a more localised measure of actual diversity may have been a stronger predictor of contact engagement, but such data were not available. Additionally, some of the data used to compute the ethnic fractionalization index were outdated, with index scores dating back to the 1990s or earlier in certain countries. Unfortunately, more recent data were not available.

Prejudice was negatively associated with interethnic contact, with individuals scoring higher in prejudice engaging in less frequent cross-group interactions. This aligns with previous

research suggesting that individuals with higher levels of prejudice are more likely to avoid intergroup contact (Pettigrew, 1997). However, as Study 1 used cross-sectional data, a causal relationship cannot be assumed. Prior research suggests that the causal link between contact and prejudice is bidirectional, with greater intergroup contact leading to lower prejudice, commonly referred to as the "contact effect", and higher prejudice leading to reduced intergroup contact, known as the "prejudice effect" (Binder et al., 2009; Levin, Van Laar & Sidanius, 2003). Our findings provide cross-sectional (but not causal) evidence in support of the *"prejudice effect",* demonstrating that the contact-reducing effect of prejudice can be generalised across European countries.

National identification was positively linked to contact as individuals who felt a stronger connection to their country reported more frequent outgroup interactions. The literature presents mixed evidence on how ingroup identification influences contact behaviour. While advantaged group members motivated to maintain their group's higher social status tend to avoid intergroup contact (Ron et al., 2017), those with a secure sense of self are more inclined to engage socially with outgroups (Phinney et al., 2007). This may be because individuals with a secure ingroup identity feel less threatened by outgroups and perceive intergroup contact as an opportunity for interpersonal connection (Shnabel & Nadler, 2008). Furthermore, a stronger national identity can reflect patriotic views, where individuals support their country in a critical and reflective manner, emphasising democratic values rather than the superiority and competition typically associated with nationalist views (Bitschnau & Mußotter, 2024).

Finally, actual diversity significantly moderated the relationship between self-transcendence and interethnic contact. Greater endorsement of self-transcendence values predicted greater engagement in outgroup contact, especially when actual diversity rates were low and average, compared to when they were high. This finding aligns with previous research suggesting that self-transcendence values encourage individuals to perceive diversity as a source of stimulation and inspiration rather than a threat (Lefringhausen et al., 2020). Even when opportunities for intergroup contact are limited, those who prioritise cooperation and tolerance over other values are more likely to seek out and engage in outgroup interactions.

Chapter 4: Examining the Antecedents of Intergroup Contact at Three Levels in the European Context

Chapter 4 presents the second empirical test of how individual-level psychological antecedents and contextual diversity influence intergroup contact engagement. Expanding on the findings of the ESS study, this chapter offers a more in-depth analysis by modelling data at three levels. The aim is to examine the individual and joint impact of individual-level psychological factors (Level 1), regional-level diversity (Level 2) and country-level diversity (Level 3) on intergroup contact. A further aim is to investigate how individual-level psychological antecedents interact with regional-level diversity and country-level diversity, providing further insights into when and for whom contextual diversity translates into greater contact engagement. Secondary data analysis is conducted using the Eurobarometer survey, with non-EU immigrants as the target outgroup.

Study 2

The Eurobarometer Survey Series is a long-standing program of cross-national and cross-temporal survey research initiated in 1970 by the Commission of the European Communities (GESIS-Leibniz Institute for the Social Sciences, 2022). Conducted biannually, it builds on early European Community surveys, with the first official Eurobarometer launched in 1974. The Eurobarometer 88.2 (2017) survey was a special release, measuring public opinion on immigration and attitudes towards immigrants. It also examined perceptions for successful integration as well as personal experiences and ties with immigrants. The survey was conducted across 28 countries, including *Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden,* and *the United Kingdom* (GESIS, 2022).

The Eurobarometer 88.2 (2017) survey dataset has a hierarchical structure, with individuals (Level 1) nested within NUTS regions (Level 2), which are further nested within countries (Level 3). NUTS is a geographical classification system that divides the EU's economic territory into three levels — NUTS 1, 2, and 3 — ranging from larger to smaller

territorial units. Regions within each level are designed to be comparable in population size, with NUTS 1 regions containing approximately 3–7 million residents, NUTS 2 regions 800,000– 3 million residents, and NUTS 3 regions 150,000–800,000 residents (EUROSTAT, 2023). Although the Eurobarometer 88.2 (2017) did not include contextual variables at the NUTS regional level, the multilevel structure enabled the researcher to add regional diversity data at NUTS 1, 2 or 3 to the original dataset.

Study 1 found that country-level actual diversity, measured by Alesina and colleagues' (2003) index of ethnic fractionalization, did not predict contact engagement with racial and ethnic outgroups. However, the reliability of this measure has been criticised as some of the data used to compute the index was outdated (Drazanova, 2020). Furthermore, the ethnic fractionalization index reflected ethnic diversity at the country level, whereas the contact measure reflected contact engagement "in the streets, in shops or in the neighbourhood". The literature argues that neighbourhoods are key arenas for intergroup contact as social interactions occur in micro-level spaces such as streets, parks, schools and the workplace (Pettigrew, 1998). As individuals' attitudes are primarily shaped through social interactions in their local residential environment, a more localized measure of diversity may better capture the relationship between contextual diversity and intergroup contact (Laurence et al., 2018; Prati et al., 2022; Pettigrew, 1998). Therefore, Study 2 includes an additional measure of contextual diversity, assessing diversity at both the country-level and at the NUTS regional level. It is expected that *opportunities for contact at the regional level* will have a stronger influence on intergroup contact engagement than *opportunities for contact at the country level* (H_1). Furthermore, evidence suggests that subjective perceptions of diversity play a more important role in predicting intergroup contact than actual diversity rates (Schmid et al., 2014; Semyonov et al., 2004). Therefore, it is hypothesized that *individual-level perceived diversity* will be a stronger predictor of contact engagement than regional-level and country-level actual diversity (H_2).

Based on the findings of Study 1, *prejudice* is expected to be negatively related to contact engagement with non-EU immigrants (H_3). Study 2 also investigates the influence of *perceived local and national norms* surrounding intergroup contact engagement, operationalized through individuals' perceptions of migrant integration at both the local and

national levels. Perceived social norms have previously been linked to intergroup behaviour. Normative practices that emphasize separation between groups have been shown to reinforce segregating behaviour (Alexander & Tredoux, 2010; Paajanen et al., 2023), whereas perceiving inclusive social norms in intergroup relations has been found to increase interest in cross-group interactions (Meleady, 2021; Tropp et al., 2014). More recently, Valsecchi and colleagues (2024) showed that inclusive social norms, measured by individuals' perception of how egalitarian their country is and how often natives interact with outgroup members, increased highly prejudiced individuals' willingness to interact with immigrants, but not with refugees. The authors argued that social norms are more likely to promote positive outgroup orientations when personal contact experiences with outgroup members are positive and frequent. In general, contact experiences with refugees are less frequent than with immigrants, which may explain why inclusive social norms did not enhance highly prejudiced individuals' frequency of contact with refugees. However, when imagining a positive contact situation (vs. no contact or negative contact) with a refugee, even highly prejudiced individuals conformed to inclusive social norms which in turn increased their intention to engage in intergroup contact (Valsecchi et al., 2024). In sum, prior studies show that individuals' perception of inclusive social norms promotes more frequent contact with outgroup members (Meleady, 2021; Valsecchi et al., 2024). Therefore, it is hypothesized that individuals who perceive immigrant integration as more successful - both locally (*perceived local norms*) and nationally (*perceived national norms*) – will report more frequent intergroup contact with non-EU immigrants (H_4).

Similarly to perceived social norms at the individual level, social norms at the context level have also been linked to intergroup behaviour. Context-level norms around intergroup contact often manifest as institutional support which is one of Allport's (1954) optimal conditions for achieving positive intergroup relations. The literature provides ample evidence that positive contact experiences between members of different social groups reduce threat perceptions and improve intergroup attitudes, especially when the institutional stance on the treatment of outgroup members conveys positive normative cues (Pettigrew & Tropp, 2006; Pettigrew et al., 2007). However, some research suggests that the positive impact of institutional support on intergroup relations may have been overestimated (Molina & Wittig, 2006). Molina and Wittig (2006) investigated which of Allport's (1954) optimal contact conditions most strongly predict reductions in prejudice among middle and high school students in the United States. They

compared the influence of acquaintance potential, cooperative interdependence, equal treatment and institutional support, and found that acquaintance potential was the most consistent and powerful predictor of reduced prejudice. In contrast, institutional support showed no significant effect (Molina & Wittig, 2006). Meanwhile, Koschate and van Dick (2011) investigated the role of institutional norms, specifically authority support, in predicting intergroup attitudes within a workplace setting. They asked group managers at a large mailing company how frequently they encouraged their employees to cooperate with members of another work group, and how strongly they supported them when intergroup conflicts arose. Consistent with the findings of Molina and Wittig (2006), Koschate and van Dick (2011) also found that authority support was not a significant predictor of intergroup attitudes. However, it is important to consider the methodological limitations of their approach. In Koschate and van Dick's (2011) study, authority support was measured based on self-reports from the managers themselves which may have been influenced by social desirability bias. Additionally, employees may have had differing perceptions of the actual support they received, leading to a possible mismatch between reported and experienced authority support (Koschate & van Dick, 2011).

In contrast to studies relying on self-reported measures of authority support, research using more objective indicators has yielded different results. Kauff et al. (2020) examined how societal norms, conveyed through institutional policies and decisions, influence frequency of intergroup contact. Using survey data from the United Kingdom, their first study found that at the neighbourhood level, antidiscrimination policies concerning ethnic minority members was positively associated with majority group members' egalitarian beliefs and frequency of intergroup contact. A second study conducted at the national level showed a similar pattern: countries with stronger antidiscrimination policies reported higher levels of intergroup contact between ethnic majority and minority groups. These findings suggest that context-level social norms, particularly those promoting egalitarian views, can play a significant role in shaping intergroup behaviour, encouraging greater contact across social groups in organizations, neighbourhoods and in wider society. A common measure of antidiscrimination policies is the Migrant Integration Policy Index (MIPEX) which reflects the efforts governments make to promote immigrant integration (Solano & Huddleston, 2020). Research shows that in countries with tolerant (vs intolerant) integration policies (high MIPEX), attitudes towards immigration are generally more positive (Schlueter et al., 2013). However, there is less evidence on the impact

of immigrant integration policies on actual intergroup contact behaviour (Christ et al., 2014). One of the most comprehensive investigations in this area was conducted by Green and colleagues (2020), who examined how country-level integration policies (measured by the MIPEX) shape the relationship between intergroup contact and perceived threat. A multilevel analysis of Round 7 of the European Social Survey (2014) showed that in countries with more (vs. less) inclusive integration policies, everyday interactions between native and immigrant populations were more frequent and perceptions of immigration-related threat were lower (Green et al., 2020). Furthermore, the threat-reducing effect of intergroup contact was stronger in countries that signalled tolerant norms about cultural diversity and immigration (high MIPEX) compared with those with intolerant integration policies (low MIPEX, Green et al., 2020).

This thesis builds upon the work of Green and colleagues (2020) in several key ways. First, Green et al. (2020) examined how intergroup contact (independent variable) influences threat perceptions (dependent variable), moderated by social norms, whereas the present study reverses this relationship, investigating perceived threat as the independent variable and intergroup contact as the dependent variable. Second, Green and colleagues (2020) based their analysis on data from the 2014 European Social Survey (ESS), while the present thesis uses the 2017 Eurobarometer 88.2 dataset. Although Study 1 within this project also utilizes the 2014 ESS to explore the antecedents of intergroup contact, it does not include perceived threat as a predictor variable[1]. By employing the Eurobarometer 88.2 (2017) data set, this thesis examines the extent to which perceived threat, perceived social norms and actual social norms predict intergroup contact engagement, while also controlling for a wide range of other factors at the individual (Level 1), regional (Level 2) and national levels (Level 3). Based on the above evidence, actual social norms are expected to be positively related to intergroup contact, with higher national norms predicting more frequent contact engagement. (H_5).

The Eurobarometer also measures European natives' *attitudes towards immigration*. Immigration can increase the supply of labour which may lead to lower wages (Borjas, 2003;

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[1] Perceived threat (PT) was not included as a predictor variable due to a mismatch in the operationalization of PT (independent variable) and intergroup contact (dependent variable) regarding the target outgroup: PT captured threat perceptions towards *immigrants* while intergroup contact measured contact engagement with *'people of a different race or ethnic group'*.

Hatton & Williamson, 2005). This fundamental economic concept is a key reason for opposition to immigration on economic grounds. However, attitudes toward immigration are also shaped by non-economic factors. Some natives may oppose immigration due to an irrational aversion to foreigners, while others may prefer a society with a strong national identity and well-established social norms. In this case, opposition to excessive immigration may arise from concerns about preserving these norms, rather than from a dislike of foreigners (Hillmann & Weiss, 1999). Further evidence suggests that individuals with greater exposure to other cultures, such as those who have lived abroad or have at least one foreign-born parent, are generally less hostile toward immigration and are more likely to view diversity as a positive force (O'Rourke & Sinnott, 2006). Moreover, individuals with an open, unprejudiced attitude toward diverse cultures are more likely to participate in multicultural activities and typically show greater interest in exploring foreign cultures (Van der Zee & Van Oudenhoven, 2000). Based on prior literature, it is hypothesized that European natives who see immigration as an opportunity for their country as opposed to being neutral will engage in more frequent contact with non-EU immigrants (H_6).

Another key psychological measure in the Eurobarometer survey is *intergroup threat* which can manifest as either symbolic or realistic. Symbolic threat refers to concerns about the ingroup's values, belief system, morality, or worldview, while realistic threat involves concerns about resources, the physical safety of the ingroup and its political or economic power (Stephan, Ybarra, & Rios, 2015). Both forms of intergroup threat are closely related and are positively associated with prejudice and negatively associated with out-group positivity and trust (Riek et al., 2006). Indeed, perceived threat is a key mediator of contact effects with intergroup contact fostering greater tolerance by reducing individuals' perception of threat (Tausch et al., 2007). Moreover, recent advances in the literature have shown that perceived threat also moderates the contact-attitude association, with both individuals high and low in perceived threat benefitting from intergroup contact experiences (Van Assche, Swart, Schmid, Dhont, Ramiah, Christ…et al., 2023). While prior research has primarily focused on the role of perceived threat in shaping intergroup attitudes, relatively few studies have investigated threat perceptions as an antecedent of intergroup contact. Among them is Dixon and colleagues' (2023) cross-sectional study which examined intergroup dynamics between majority Indian and minority Black African residents in Northdale, South Africa. Their findings indicated that Indian

residents who lived in close proximity to Black African residents reported heightened threat perceptions, which in turn led to reduced intergroup contact. Furthermore, Van Acker and colleagues (2014) investigated how perceived intergroup threat influenced Belgian majority students' outgroup appraisal and daily contact experiences with Turkish immigrant peers using diary data. They showed that majority students who viewed immigrant minorities as threatening experienced greater anxiety and fear during daily interactions with Turkish peers. While these studies provide initial evidence of the role of threat perceptions in shaping contact behaviour, little is known about how well these effects generalize across cultures. Moreover, it remains unclear whether greater contextual diversity may predict more frequent contact engagement for individuals with a low (vs. high) perception of threat. Prior research shows that subjective (but not objective) perceptions of diversity can foster anti-foreigner attitudes via heightened perceptions of threat (Semyonov et al., 2004). However, other evidence indicates that greater diversity encourages more frequent intergroup contact by reducing individuals' perception of threat (Schmid et al., 2014). Building on these findings, it is hypothesized that higher threat perceptions will be associated with less frequent outgroup contact with non-EU immigrants (H_7). Furthermore, it is expected that perceived threat will moderate the relationship between actual diversity and contact, with greater regional and national diversity predicting more frequent contact engagement with non-EU immigrants for individuals with a lower (vs. higher) perception of threat (H_8).

Finally, The Eurobarometer survey assessed individuals' *political orientation*, distinguishing between leftist, rightist and centrist views (GESIS Variable Report, 2022). Evidence on the effect of political ideologies on intergroup contact behaviour is mixed. Korman and colleagues (2023) examined how community support for far-right political parties influenced intergroup dynamics between native Germans and immigrants. Their findings indicated that individuals employed in regions with strong far-right support reported less frequent contact with immigrant coworkers (Korman et al., 2023). Conversely, a large-scale study across 21 European countries found that intergroup contact was associated with less opposition to immigration among both left- and right-leaning individuals (Thomsen & Rafiqi, 2019). Notably, this negative association was strongest among leftist individuals and weakest among those with rightist political views (Thomsen & Rafiqi, 2019). Further evidence suggests that individuals with right-leaning ideologies such as right-wing authoritarianism (RWA;

Altemeyer, 1996) and social dominance orientation (SDO; Sidanius & Pratto, 1999) typically show less interest in intergroup interactions and are more likely to experience negative rather than positive intergroup contact (Dhont & Van Hiel, 2009). This may be because of their tendency to be threat sensitive and anxious around outgroups (Hodson et al., 2009; Stephan, 2014). However, when right-leaning individuals do engage in intergroup contact, they show substantially less intergroup bias via greater empathy and reduced intergroup threat (Asbrock et al., 2012; Hodson, 2008; Hodson et al., 2013). Therefore, it is particularly important to better understand how political ideology shapes contact behaviour, as well as how greater opportunities for intergroup contact influence leftist and rightist individuals intergroup contact behaviour. Based on existing evidence, it is expected that leftist political views will predict more frequent intergroup contact (H_9), whereas individuals with rightist views will engage in less frequent contact (H_{10}). The present study takes an exploratory approach to examine the extent to which centrist political views may predict intergroup contact engagement as well as to test whether political orientation will moderate the relationship between Level 2 actual regional diversity and intergroup contact, as well as Level 3 actual national diversity and intergroup contact.

In sum, Study 2 adopts the Eurobarometer 88.2 (2017) survey to examine the psychological and structural antecedents of intergroup contact. Specifically, it investigates how individual-level psychological factors, including *perceived national diversity, attitudes towards immigration, prejudice, perceived local norms, perceived national norms, perceived threat* and *political orientation* predict native Europeans' frequency of contact with non-EU immigrants. Furthermore, Study 2 tests the impact of *regional-level actual diversity* and *country-level actual diversity* on contact engagement. Finally, multilevel moderation analyses explore interactions between regional-level actual diversity and individual-level psychological antecedents, as well as country-level actual diversity and individual-level psychological antecedents.

Methods

Data

Data was obtained from the Eurobarometer 88.2 (2017) and downloaded from GESIS Leibniz Institute for the Social Sciences data catalogue at

https://search.gesis.org/research_data. The Eurobarometer is a polling instrument that monitors public opinion in Europe on issues related to the European Union (EU) as well as on political and social attitudes. It is carried out by Taylor Nelson Sofres (TNS) Opinion Brussels, on behalf of the European Commission. Survey 88.2 (2017) included 28,000+ interviews from 28 countries across the European Union. Participants were residents of respective EU countries, national and non-national EU citizens aged 15 and over. As the dependent variable measured native citizens' contact engagement with immigrants, respondents with a country of birth outside of the European Union were excluded from analyses. A contact measure assessing immigrants' contact engagement with native residents was not available. The Eurobarometer defines immigrants as people born outside of the European Union who have moved away from their country of birth and at the time of the interview were staying legally in the respective country. This definition excludes EU citizens, children of immigrants who have EU nationality and immigrants staying illegally (GESIS Variable Report, 2022). The final sample consisted of 24,672 participants.

Analytic strategy

Multilevel modelling was applied with individuals (Level 1) nested within NUTS regions (Level 2), and NUTS regions nested within countries (Level 3). At Level 1, variance was explained with variables measured at the level of the individual, including *perceived national diversity, attitudes towards immigration, prejudice, perceived local norms, perceived national norms, perceived threat, and political orientation*. At Level 2, variance was explained with variables measured at the level of NUTS regions, including *actual regional diversity*. At Level 3, variance was explained with variables measured at the level of the countries, including *actual national diversity* and *actual national norms*.

Figure 8

The Proposed Analytic Strategy for Study 2

Level 3

Controls

Population size

Material and social deprivation

Actual national diversity

Actual national norms

Level 2

Controls

Population size

Actual regional diversity

Level 1

Perceived national diversity

Attitudes towards immigration

Prejudice

Perceived local norms

Perceived national norms

Perceived threat

Political orientation

Frequency of contact (measured at L1)

Age

Gender

Controls

Area type

Note. Conceptual representation of the proposed model. Blue dashed lines represent cross-level interaction effects between Level 1 explanatory variables and Level 2 Actual regional

diversity, whereas red dashed lines show cross-level interactions between Level 1 explanatory variables and Level 3 Actual national diversity.

First, a variance components model was fitted to partition the variance in the dependent variable across the three levels and to assess the degree of clustering in the data (Model 1). This was followed by a random intercept model which included Level 1 control variables (Model 2). In the next step, Level 1 explanatory variables were added to the model (Model 3), followed by Level 2 control and explanatory variables (Model 4). In Model 5, Level 3 covariates were added. Finally, cross-level interaction effects were included to test whether the effects of Level 2 actual regional diversity and Level 3 actual national diversity on contact engagement are moderated by Level 1 explanatory variables. Assumptions of multilevel modelling were tested and found satisfactory (see Appendix C).

Centering

Level 1 continuous predictor variables were centered around their regional (Level 2) mean $x_{ijk} - \bar{x}_{jk}$, allowing the researcher to hold region-specific characteristics of the predictors constant (Enders & Tofighi, 2007). The resulting regression coefficients were pure estimates of the relationship between Level 1 predictor variables and intergroup contact without the confounding effect of regional-level omitted variables. Fixed effect slope coefficients of group-mean centered continuous predictor variables were interpreted as the average change in contact within a region, for a one-unit increase in predictor X relative to its regional mean. *Level 1 categorical* predictor variables were also centered at their regional (Level 2) mean, $x_{ijk} - \bar{x}_{jk} = x_{ijk} - \left(p_{1jk} - p_{0jk} \right)$. Fixed effect slope coefficients of group-mean centered categorical predictor variables were interpreted as the expected change in the outcome within a region, on average, compared to the reference category (Enders & Tofighi, 2007).

Level 2 continuous predictor variables were centered around their country (Level 3) mean $x_{jk} - \bar{x}_k$, allowing the researcher to hold country-specific characteristics of regional-level predictor variables constant. Fixed effect slope coefficients of centered Level 2 predictor variables were interpreted as the average change in intergroup contact within a country, for a one-unit increase in predictor X relative to its country mean (Enders & Tofighi, 2007).

Level 3 continuous predictor variables were grand mean centered to make the interpretation of parameter estimates more meaningful, $x_k - \bar{x}$ (Enders & Tofighi, 2007). Fixed effect slope coefficients of grand-mean centered continuous predictor variables were interpreted as the expected change in frequency of contact, on average (across all countries), for a one-unit increase in predictor X, relative to its overall (grand) mean.

Sampling Design and Weighting

The survey used a two-stage stratified sampling technique. In the first stage, primary sampling units (PSU) were selected from administrative regional units (NUTS) in each country. PSUs were selected systematically with probability proportional to the population size stratified by the degree of urbanization. In the second stage, a random sample of addresses were selected from each sampled PSU. At each address, one participant was drawn at random. The sample size was 1000 participants per country, except the United Kingdom where separate samples were drawn for Great Britain (N = 1000) and Northern Ireland (N = 300); Germany where separate samples were drawn for the Eastern (N = 500) and the Western part (N = 1000); as well as Luxembourg, Cyprus and Malta with 500 interviews each (GESIS Variable Report, 2022).

Two types of weighting were available in the data set. *Post-stratification weights* adjusted for sex, age, NUTS regions and size of locality (urban vs. rural) so that each sample reflected the demographic and regional makeup of the respective country. *Population size weights* adjusted for the population size so that each sample was represented in proportion to its share in the total population of the European Union. Population size weights also included the post-stratification weighting factors and were applied in both descriptive and inferential analyses.

As variables representing clustering, stratification and cluster-level weighting were not available in the data set, the sampling design of respective countries could not be accounted for. An attempt was made to obtain this information from the data provider. Unfortunately, the Eurobarometer Data Service of GESIS could not provide any sampling identifiers in the publicly

available data set. Obtaining data via a "secure access" route was explored, however extended data was not available. As weighting was only available at the individual- (Level 1) and country levels (Level 3), but not at the regional level (Level 2), the *lme4* package in R (version 1.1-35.1, Bates et al., 2023) was used with rescaled weights (Asparouhov, 2006; Carle, 2009).

Measures

Dependent Variable

Frequency of contact was measured with the question 'On average, how often do you interact with immigrants? Interaction can mean anything from exchanging a few words to doing activity together.' Contact was measured at six locations, including the workplace, school, neighbourhood, when using public services, when using household services and during sport. Responses ranged from 1 = daily, 2 = at least once a week, 3 = at least once a month, 4 = at least once a year and 5 = less often or never. Scores were reverse coded so that higher values represented more frequent intergroup contact. Analysis was conducted using the mean score of the six items (Cronbach's alpha, α = .844).

Individual-level (Level 1) Explanatory Variables

Perceived national diversity was measured with the item 'To your knowledge, what is the proportion of immigrants in the total population in [country]?' Responses ranged from 1 = from 0% to less than 9%, 2 = from 9% to less than 15%, 3 = from 15% to less than 25%, 4 = from 25% to less than 50%, and 5 = 50% or more. As missing values (No answer, Don't know, and Refusal) took up 31.5% of the total responses, the item was recoded into a categorical measure. Response 1 was recoded into the category low perceived diversity, 2 and 3 into the category moderate perceived diversity, 4 and 5 into the category high perceived diversity, whereas missing values were recoded into the category no response (Enders, 2022). Response categories were included in the analyses as dummy variables with low perceived diversity as the reference category.

Attitudes towards immigration was measured with the item 'Generally speaking, do you think immigration from outside the EU is more of a problem or more of an opportunity for

[country] today? Responses categories were 1 = immigration is more of a problem, 2 = immigration is more of an opportunity, 3 = immigration is equally a problem and an opportunity, 4 = immigration is neither a problem nor an opportunity. Categories were included in the analyses as dummy variables with 4 = immigration is neither a problem nor an opportunity as the reference category.

Prejudice was measured with a social distance scale. As group avoidance and prejudice stem from the same origins, prior research has used social distancing as an indicator of prejudice (Dovidio, Kawakami, & Gaertner, 2002; Goff, Steele, & Davies, 2008). The six-item measure included the following questions: 'Would you personally feel comfortable or uncomfortable having an immigrant as your … 1. …manager, 2. …work colleague, 3. …neighbour, 4…. doctor, 5. …family member (including partner), and 6. …friend?' Responses ranged from 1 = totally comfortable, 2 = somewhat comfortable, 3 = somewhat uncomfortable, and 4 = totally uncomfortable, with higher scores representing greater preferred social distance. Analyses were conducted using the mean score of the six items (Cronbach's alpha, α = .959).

Perceived local norms was measured with the item 'Generally speaking, how successful or not is the integration of most immigrants living in the city or area where you live?' Responses ranged from 1 = very successful, 2 = fairly successful, 3 = not very successful, 4 = not at all successful, 5 = there are no or almost no immigrants in …, and 6 = don't know (coded as missing). As responses 5 and 6 took up 19.6% of the total responses, the item was recoded into a categorical measure (Enders, 2022). Responses 1 and 2 were recoded into the category high perceived local norms, 3 and 4 into the category low perceived local norms (Ref.), whereas 5 and 6 into the category no response.

Perceived national norms was measured with the item 'Generally speaking, how successful or not is the integration of most immigrants living in [country]?' Responses ranged from 1 = very successful, 2 = fairly successful, 3 = not very successful, 4 = not at all successful, 5 = there are no or almost no immigrants in …, and 6 = don't know (coded as missing). As responses 5 and 6 took up 12.3% of the total responses, the item was recoded into a categorical measure (Enders, 2022). Responses 1 and 2 were recoded into the category high

perceived national norms, 3 and 4 into the category low perceived national norms (Ref.), while 5 and 6 into the category no response.

Perceived threat was measured with the question 'There are different views regarding the impact of immigrants on society in [country]. To what extent do you agree or disagree with each of the following statements?' Five items were measuring realistic threat, for example 'Overall, immigrants have a positive impact on the [nationality] economy' and 'Immigrants are a burden on our welfare system' (reverse coded). Two items were measuring symbolic threat, including 'Immigrants bring new ideas and/or boost innovation in [country]' and 'Immigrants enrich [nationality] cultural life (art, music, food, etc.)'. Responses ranged from 1 = totally agree, 2 = tend to agree, 3 = tend to disagree, and 4 = totally disagree, with higher scores representing greater perceived threat. The seven items formed a reliable measure (Cronbach's alpha, α = .812; Schmid et al., 2014; Setiawan et al., 2021).

Political orientation was measured with the item 'In political matters people talk of 'the left' and 'the right'. How would you place your views on this scale?'. Responses ranged from 1 = Left to 10 = Right. As missing values took up 20.3% of the total responses, a categorical version of this variable was used which was available in the data set. Category 1 represented leftist (Ref.), 2 centrist, and 3 rightist views. Missing values were recoded into 4 = no response.

Regional-level (Level 2) Explanatory Variables

Actual regional diversity was measured by the number of non-EU immigrants residing in respective NUTS regions in 2017. Non-EU immigrants were defined as individuals who established their usual residence in the territory of an EU Member State for a period of at least 12 months, having previously been usually resident in a third country. Data was obtained from EUROSTAT (https://ec.europa.eu) which is the statistical office of the European Union. Data with no open access was requested from the national statistical authority of respective EU countries and added to the data set. Data was converted into percentages so that values represented the proportion of the total regional population with a non-EU background. There were two main reasons for this decision: firstly, the scale of measurements can influence model convergence in multilevel analysis (Hox, Moerbeek, & Van de Schoot, 2017). Secondly,

converting the measurements facilitated interpretation by enabling a clearer comparison between regional diversity and perceived diversity.

Country-level (Level 3) Explanatory Variables

Actual national diversity was measured by the number of non-EU immigrants residing in respective countries in 2017. Data was obtained from EUROSTAT (https://ec.europa.eu) and added to the data set. Data was converted into percentages so that values represented the proportion of the total national population with a non-EU background (Hox et al., 2017).

Actual national norms were measured by the Migrant Integration Policy Index (MIPEX, 2020). Data was downloaded from https://www.mipex.eu and added to the data set. The MIPEX is an annual index that measures what governments are doing to promote the integration of immigrants in a country. It is based on a set of indicators covering eight policy areas, including labour market mobility, family reunification, education, political participation, permanent residence, access to nationality, anti-discrimination and health. Index scores ranged from 0 to 100, with 100 representing the highest standards for equal treatment (Solano & Huddleston, 2020).

Individual-level (Level 1) Control Variables

Individual-level (Level 1) control variables included age, gender and area type. Age was measured with the question 'How old are you?'. Gender had two categories 1 = male and 2 = female (Reference category). Area type was measured with the item 'Would you say you live in 1 = a rural area or village, 2 = a small or middle-sized town or 3 = a large town/city?'. Values 2 and 3 were recoded into 1 = urban while the value 1 was recoded into 2 = rural (Reference category).

Regional-level (Level 2) Control Variables

Regional-level control variables included *population size*. Population size was measured by the total number of people residing in NUTS regions in 2017. Data was obtained from EUROSTAT (https://ec.europa.eu) and added to the data set. Values were converted into

percentages, so they represented the percentage of the national population residing in respective regions (Hox et al., 2017).

An attempt was made to obtain data on regional-level *material and social deprivation (MSD).* While there was some data available in the EUROSTAT database (https://ec.europa.eu), a complete set of data could not be obtained. Therefore, MSD on the regional level was not included in the analyses.

Country-level (Level 3) Control Variables

To control for demographics at the country level, population size and material deprivation were included in the analyses. European natives may have more frequent contact with non-EU immigrants simply because their country is more highly populated. To account for this, national population size was controlled. *Population size* was measured by the total number of people residing in respective countries in 2017. Data was obtained from EUROSTAT (https://ec.europa.eu) and added to the data set. Values were converted into percentages, so they represented the percentage of the total (EU28) population residing in respective countries (Hox et al., 2017).

Material and social deprivation (MSD) was measured by the EU's material and social deprivation indicator (Eurostat, 2023). Data was obtained from EUROSTAT (https://ec.europa.eu) and added to the data set.

Missing data

Missing data analysis revealed that less than 5% of the data was missing. This low proportion was partly due to the recoding of missing values in several variables, including perceived national diversity, perceived local norms, and perceived national norms into a non-response category. This approach is a common strategy for minimizing data loss while maintaining analytical validity (Enders, 2022). Furthermore, values were missing completely at random. Following recommendations of the literature, missing data was handled using listwise deletion (Enders, 2022).

Results

Descriptive statistics

The data set included 24,672 individuals (Level 1) nested within 246 NUTS regions (Level 2), which were further nested within 28 countries (Level 3). There were 11095 males and 13577 females in the sample. The mean age across the whole sample was 48.39 years (*SD* = 18.73). Descriptive statistics per countries related to intergroup contact (DV) and selected predictor variables (IVs) are summarized in Table 10.

Table 10

Descriptive Statistics per Countries in the Eurobarometer Survey

Country Code	Country	Mean Contact (scale 1 – 5)	*SD*	Level 1 Perceived diversity %			Level 3 Actual diversity %
				High (>25%)	Moderate (9-25%)	Low (<9%)	
AT	Austria	2.96	1.24	25.13	44.75	16.93	10.37
BE	Belgium	2.65	1.14	28.77	38.90	23.15	8.81
BG	Bulgaria	1.24	0.56	2.60	9.59	16.62	1.31
HR	Croatia	1.69	1.01	8.22	13.65	42.81	11.34
CY	Cyprus	2.75	1.19	15.43	31.95	9.69	7.02
CZ	Czech Rep.	2.11	0.92	8.05	20.44	40.58	2.68
DK	Denmark	2.59	1.01	8.37	31.22	50.05	7.65
EE	Estonia	1.75	0.99	11.91	16.09	35.20	13.10
FI	Finland	2.24	1.03	2.62	17.74	63.97	4.12
FR	France	2.29	1.18	20.62	32.46	22.49	8.84
DE	Germany	2.29	1.04	14.00	33.00	42.61	8.79
GR	Greece	2.91	0.99	21.55	37.42	6.72	8.41
HU	Hungary	1.45	0.71	5.67	20.68	43.86	1.96
IE	Ireland	3.07	1.08	16.56	29.68	22.49	4.09
IT	Italy	2.86	1.17	32.31	31.39	11.60	6.92
LV	Latvia	1.72	0.95	16.89	19.86	28.97	11.48
LT	Lithuania	1.41	0.72	6.79	30.89	39.10	3.75

LU	Luxembourg	2.56	1.16	33.84	30.42	20.17	10.96
MT	Malta	2.74	1.24	12.11	18.01	15.29	7.80
NL	Netherlands	2.43	1.01	16.34	33.15	43.44	9.11
PL	Poland	2.00	1.07	4.44	23.50	34.33	1.13
PT	Portugal	2.67	1.23	9.34	17.46	4.95	6.17
RO	Romania	1.29	0.67	6.81	11.80	36.03	1.24
SK	Slovakia	1.74	0.87	4.33	19.06	40.94	0.60
SI	Slovenia	2.07	1.14	25.54	38.31	19.17	8.66
ES	Spain	2.80	1.19	16.19	26.46	5.27	8.77
SE	Sweden	2.92	0.95	8.39	50.20	32.57	12.43
GB	United Kingdom	2.67	1.18	22.25	26.44	18.99	8.63

Notes. Values represent weighted averages. Percentage of no response categories are not included.

As Table 10 demonstrates, individuals' perception of national diversity (measured by the question *'To your knowledge, what is the proportion of immigrants in the total population in [country]?'*) was generally higher than country-level (Level 3) actual diversity data. For example, in Slovakia, perception of national diversity was mainly low with approximately 41% of the respondents saying that the proportion of immigrants was below 9%. However, 19% of the respondents said that the proportion of immigrants was between 9 and 25%, and 4% that the proportion of immigrants was above 25%, despite the actual diversity rate being only 0.6%, the lowest in the EU.

As Figure 9 illustrates, the average frequency of contact varied substantially between regions and countries. Average frequency of contact on the regional level was the highest in the NUTS region Madrid in Spain ($M = 3.74$, $SD = .98$) and the lowest in the NUTS region Zadarska in Croatia ($M = 1.00$, $SD = < .001$), while average frequency of contact on the country level was the highest in Ireland ($M = 3.07$, $SD = 1.08$) and the lowest in Bulgaria ($M = 1.24$, $SD = .56$).

Figure 9

Variation of Mean Contact Between Regions and Countries in the Eurobarometer Survey
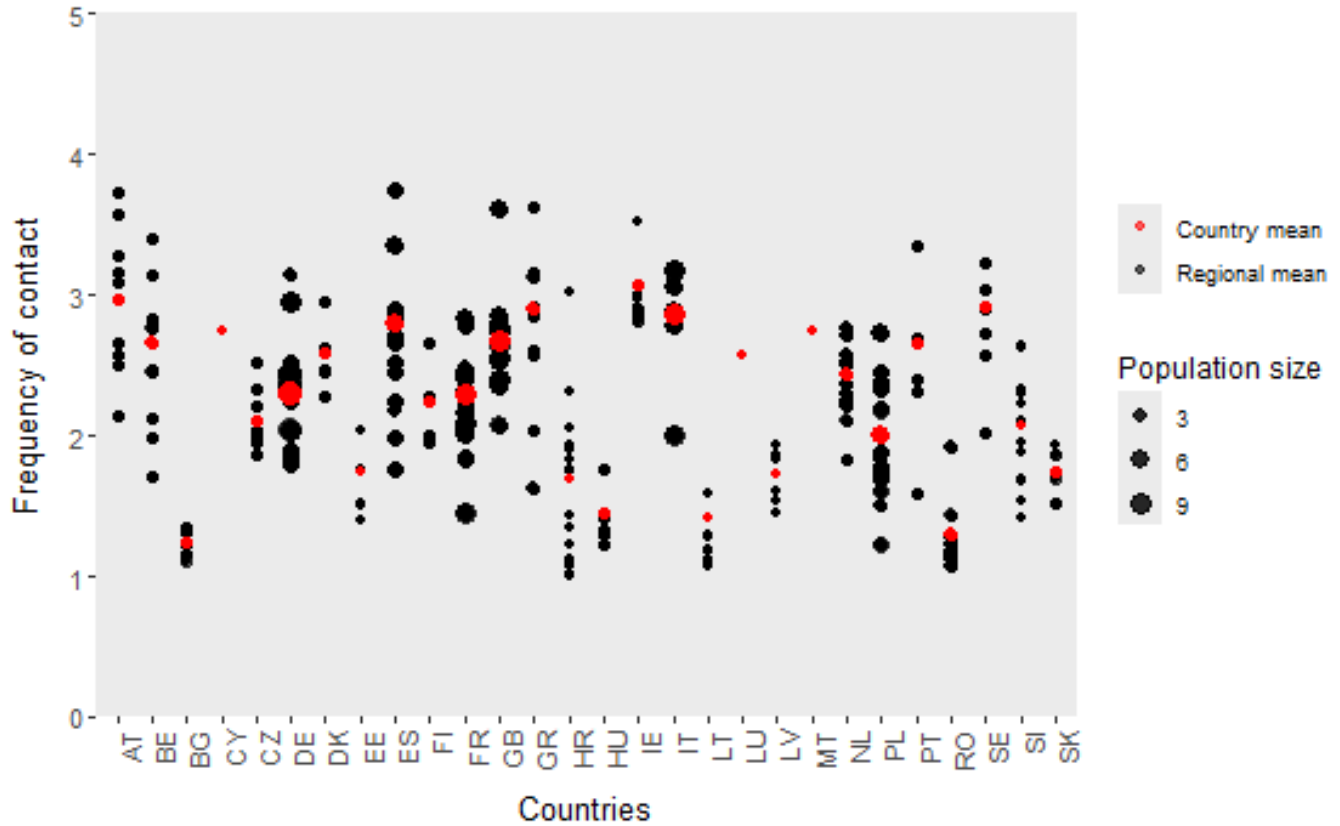
Multilevel models

Model 0: The Linear Regression Model. With the aim of establishing the need for modelling the data at multiple levels, a single-level linear regression model and a three-level variance-components model were fitted and results compared. First, a linear regression model was fitted for frequency of contact (DV) with no covariates. The model is written as

$$Cont_i = \beta_0 + r_i$$
$$r_i \sim N(0, \sigma_r^2)$$

in which $Cont_i$ stands for frequency of contact for individual *i*

β_0 is the overall intercept (or grand mean)

r_i is the total residuals

Model 1: The Variance Components Model. Next, a three-level variance-components model was fitted (see Figure 10) by decomposing the total residuals r_{ijk} into country-level (Level 3) residuals v_k ,regional-level (Level 2) residuals u_{jk} and individual-level (Level 1) residuals e_{ijk}. The model is written as

$$Cont_{ijk} = \beta_0 + \underbrace{v_k + u_{jk} + e_{ijk}}_{r_{ijk}}$$

$$v_k \sim N(0, \sigma_v^2)$$
$$u_{jk} \sim N(0, \sigma_u^2)$$
$$e_{ijk} \sim N(0, \sigma_e^2)$$

in which $Cont_{ijk}$ stands for frequency of contact for individual *i* in region *j* and country *k*

β_0 is the overall intercept (grand mean)

e_{ijk} is the Level 1 random effect

u_{jk} is the Level 2 random effect

v_k is the Level 3 random effect

Figure 10

The Three-Level Variance Components Model
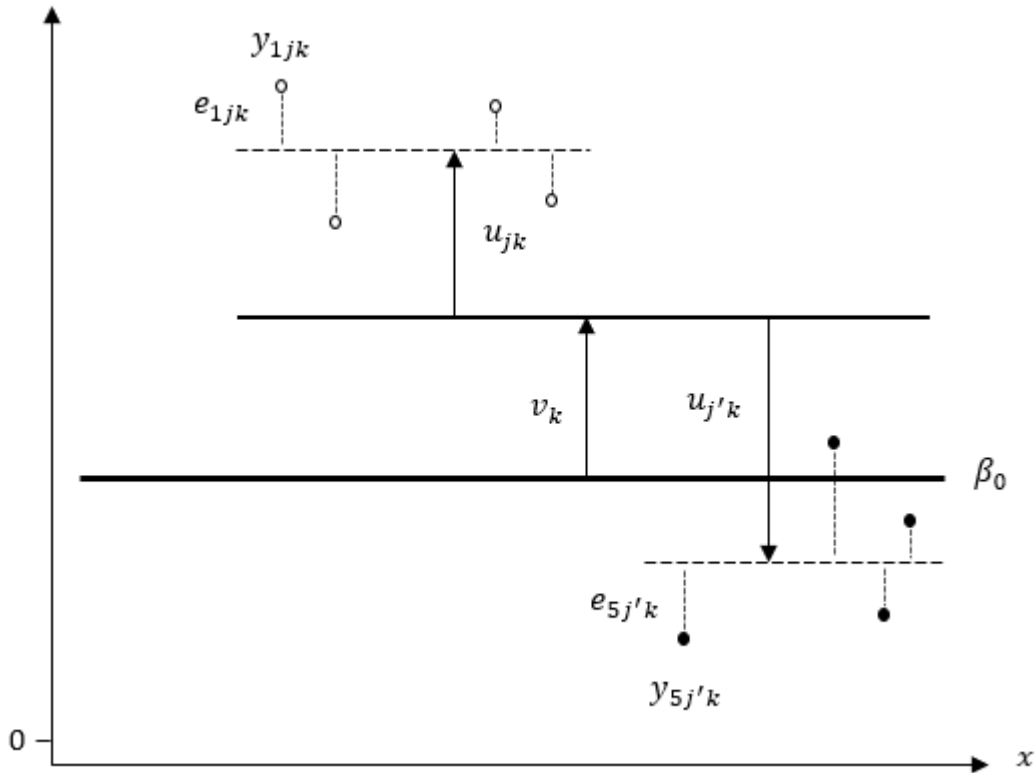
Notes. Theoretical representation of the three-level variance components model for eight individuals, nested in two regions *j* and *j'*, nested within country *k*. The observed responses for region *j* are shown as hollow circles while the observed responses for region *j'* are shown as solid circles. The overall mean β_0 is represented by the thick solid horizontal line. The country mean $\beta_0 + v_k$ is represented by the thin solid horizontal line. The means for the regions $\beta_0 + v_k + u_{jk}$ and $\beta_0 + v_k + u_{j'k}$ are shown as dashed horizontal lines. Also shown are the Level 1 residual error e_{1jk} for the first individual in region *j* and Level 1 residual error $e_{5j'k}$ for the fifth individual in region *j'*.

Table 11 shows the model fit of the single-level linear regression model (Model 0) and the three-level variance components model (Model 1). Likelihood ratio test indicates that the three-level variance components model provided a significantly better fit to the data, $\chi^2(2) = 7744$, $p < .001$.

Table 11

Model Fit of the Single-Level Linear Regression Model and the Three-Level Variance-Components Model in the Eurobarometer Survey

		Model 0		Model 1	
Parameter		Estimate	SE	Estimate	SE
β_0 **Intercept**		**2.257*****	0.007	**2.215*****	0.103
σ_v^2 Country variance		-	-	0.267	0.003
σ_u^2 Regional variance		-	-	0.131	0.002
σ_e^2 Individual variance		1.351	0.007	0.960	0.006
Deviance		79273		71529	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

The three-level variance components model shows that averaging across all countries, regions, and individuals the overall mean contact was 2.215 which translates to something between *'at least once a year'* and *'at least once a month'*. The between-country variance (σ_v^2) was 0.267, the between-region variance (σ_u^2) was 0.131, while the between-individual variance (σ_e^2) was 0.960, adding up to a total variance of 1.358. The model confirms that there is clustering in the data. To quantify the degree of clustering, Variance Partition Coefficient (VPC) and Intraclass Correlation Coefficient (ICC) statistics were calculated. The VPC shows the proportion of the response variance at each level of the model hierarchy. The country-level VPC is calculated as the ratio of the country variance to the total variance:

$$VPC_v = \frac{\sigma_v^2}{\sigma_v^2 + \sigma_u^2 + \sigma_e^2} = \frac{0.267}{0.267 + 0.131 + 0.960} = 0.197$$

The regional-level VPC is calculated as the ratio of the regional variance to the total variance:

$$VPC_u = \frac{\sigma_u^2}{\sigma_v^2 + \sigma_u^2 + \sigma_e^2} = \frac{0.131}{0.267 + 0.131 + 0.960} = 0.096$$

The individual-level VPC is calculated as the ratio of the individual variance to the total variance:

$$VPC_e = \frac{\sigma_e^2}{\sigma_v^2 + \sigma_u^2 + \sigma_e^2} = \frac{0.960}{0.267 + 0.131 + 0.963} = 0.707$$

Results show that approximately 20% of the variation in contact lied between countries, 10% of the variation lied between regions, and 70% of the variation lied between individuals. Intraclass correlation coefficients (ICCs) were also calculated. The ICC measures the expected degree of similarity (or homogeneity) between responses within a given cluster. The country-level ICC coincides with the country-level VPC:

$$ICC_v \equiv VPC_v = \frac{\sigma_v^2}{\sigma_v^2 + \sigma_u^2 + \sigma_e^2} = \frac{0.267}{0.267 + 0.131 + 0.960} = 0.197$$

The country-level ICC indicates that the correlation in frequency of contact between two individuals who live in the same country but in different regions is 0.20. The regional-level ICC is calculated as the ratio of the country-level plus the regional-level variance to the total variance:

$$ICC_u = \frac{\sigma_v^2 + \sigma_u^2}{\sigma_v^2 + \sigma_u^2 + \sigma_e^2} = \frac{0.267 + 0.131}{0.267 + 0.131 + 0.960} = 0.293$$

The regional-level ICC indicates that the correlation in frequency of contact between two individuals who live in the same region (and therefore the same country) is 0.293. The individual-level ICC equals to 1 as it shows the correlation between an individual and themselves. In summary, VPC and ICC statistics show that there is evidence of clustering at each level of hierarchy. There was substantial variation between countries, but relatively little variation from one region to the next. However, approximately two-third of the response variation was attributable to individuals themselves. As Table 12 demonstrates, individuals from the same region were more similar in their responses regarding intergroup contact (ICC = 0.293) than individuals from different regions but from the same country (ICC = 0.197).

Table 12

VPC and ICC Statistics for the Three-Level Variance Components Model in the Eurobarometer Survey

Level	VPC	ICC
Country	0.197	0.197
Region	0.096	0.293
Individual	0.707	-

Model 2: The Random Intercept Model with Level 1 Controls. To answer the research *question "What individual-level (Level 1) demographic factors can explain contact engagement with immigrant outgroups?"*, Level 1 control variables including age, gender and area type were added to the model. Variables were centered around their Level 2 group mean and reflected deviations from the average age, gender and area type in respective regions. The three-level random-intercept model with demographic controls is written as

$$Cont_{ijk} = \underbrace{\beta_0 + \beta_1 Age_{ijk} + \beta_2 Male_{ijk} + \beta_3 Urb_{ijk}}_{fixed\ part} + \underbrace{v_k + u_{jk} + e_{ijk}}_{random\ part}$$

$$v_k \sim N(0, \sigma_v^2)$$
$$u_{jk} \sim N(0, \sigma_u^2)$$
$$e_{ijk} \sim N(0, \sigma_e^2)$$

in which β_1, β_2, and β_3 are fixed effects
- β_0 is the overall intercept
- β_1 is the slope coefficient for Age
- β_2 is the slope coefficient for Males (Ref. Females)
- β_3 is the slope coefficient for Urban area (Ref. Rural)

and v_k u_{jk} and e_{ijk} are random effects
- v_k is the Level 3 random effect
- u_{jk} is the Level 2 random effect

- e_{ijk} is the Level 1 random effect

Compared to the three-level variance components model (VC), the three-level random-intercept model (RI) provided a significantly better fit to the data, χ^2 (3, N = 24672) = 1472, p < .001. Regression coefficients of the random-intercept model are summarized in Table 13.

Table 13

Model Comparison of the Three-Level Variance Components Model and the Three-Level Random-Intercept Model in the Eurobarometer Survey

Parameter	Model 1		Model 2	
	Estimate	SE	Estimate	SE
β_0 **Intercept**	2.215***	0.103	**2.173***	0.103
β_1 **Age**	-	-	**- 0.012***	< 0.001
β_2 Males (Ref. Females)	-	-	- 0.019	0.012
β_3 **Urban (Ref. Rural)**	-	-	**0.209***	0.014
σ_v^2 Country variance	0.267	0.003	0.267	0.003
σ_u^2 Regional variance	0.131	0.002	0.133	0.002
σ_e^2 Individual variance	0.960	0.006	0.904	0.006
Deviance	71529		70057	

Notes. *** p < .001, ** p < .01, * p < .05

The association between contact and age was negative, suggesting that individuals older than the average age in their region reported significantly less frequent contact with immigrants, b = - 0.012, p < .001. The association between gender and contact was not significant, b = - 0.019, p = .114. Finally, compared to living in rural areas, people living in urban areas reported significantly more frequent contact engagement with immigrant outgroups, b = 0.209, p < .001.

There was substantial variation in frequency of contact even after accounting for Level 1 control variables. VPC statistics indicated that approximately 21% of the variation in frequency of contact lied between countries, 10% between regions and 69% between

individuals (see Table 14). The total variance was estimated to be 1.304 (= 0.267 + 0.133 + 0.904), suggesting that adjusting for Level 1 control variables explained approximately 4% (= (1.304 – 1.358) / 1.358) of the total variation in frequency of contact. Level-specific changes in variance were also calculated. As Table 14 demonstrates, country-level (Level 3) and regional level (Level 2) variances remained approximately the same. Proportion change in variance (PCV) statistics showed that individual-level (Level 1) variance decreased by 6%:

Table 14

VPC, PCV and ICC Statistics for the Three-Level Random Intercept Model in the Eurobarometer Survey

Level	VPC	PCV	ICC
Country	0.205	0	0.205
Region	0.102	0.015	0.307
Individual	0.693	- 0.058	-

Model 3: The Random Intercept Model with Level 1 Controls and Level 1 Explanatory Variables. To answer the research question *"What individual-level (Level 1) psychological factors can explain contact engagement with immigrant outgroups?",* Level 1 explanatory variables were added to the model, including *perceived national diversity, attitudes towards immigration, prejudice, perceived local norms, perceived national norms, perceived threat,* and *political orientation.* Variables were centered around their regional (Level 2) mean. The three-level random-intercept model with Level 1 control- and Level 1 explanatory variables is written as

$$
Cont_{ijk} = \underbrace{\begin{aligned} &\beta_0 + \beta_1 Age_{ijk} + \beta_2 Male_{ijk} + \beta_3 Urb_{ijk} + \\ &\beta_4 PD_{H_{ijk}} + \beta_5 PD_{M_{ijk}} + \beta_6 PD_{NR_{ijk}} + \beta_7 ATI_{P_{ijk}} + \beta_8 ATI_{O_{ijk}} + \\ &\beta_9 ATI_{ePO_{ijk}} + \beta_{10} Prej_{ijk} + \beta_{11} PLN_{H_{ijk}} + \beta_{12} PLN_{NR_{ijk}} + \beta_{13} PNN_{H_{ijk}} + \\ &\beta_{14} PNN_{NR_{ijk}} + \beta_{15} PT_{ijk} + \beta_{16} PO_{C_{ijk}} + \beta_{17} PO_{R_{ijk}} + \beta_{18} PO_{NR_{ijk}} + \end{aligned}}_{fixed\ part}
$$

$$
\underbrace{v_k + u_{jk} + e_{ijk}}_{random\ part}
$$

$$v_k \sim N(0, \sigma_v^2)$$
$$u_{jk} \sim N(0, \sigma_u^2)$$
$$e_{ijk} \sim N(0, \sigma_e^2)$$

in which β_1 - β_{18} are fixed effects

- β_4 is the slope coefficient for high perceived national diversity

- β_5 is the slope coefficient for moderate perceived national diversity

- β_6 is the slope coefficient for perceived diversity with no response

- β_7 is the slope coefficient for attitudes towards immigration being a problem

- β_8 is the slope coefficient for attitudes towards immigration being an opportunity

- β_9 is the slope coefficient for attitudes towards immigration being equally a problem and an opportunity

- β_{10} is the slope coefficient for prejudice

- β_{11} is the slope coefficient for high perceived local norms

- β_{12} is the slope coefficient for perceived local norms with no response

- β_{13} is the slope coefficient for high perceived national norms

- β_{14} is the slope coefficient for perceived national norms with no response

- β_{15} is the slope coefficient for perceived threat

- β_{16} is the slope coefficient for centrist political orientation

- β_{17} is the slope coefficient for rightist political orientation

- β_{18} is the slope coefficient for political orientation with no response

and v_k u_{jk} and e_{ijk} are random effects

- v_k is the Level 3 random effect

- u_{jk} is the Level 2 random effect

- e_{ijk} is the Level 1 random effect

Model 3 (vs. Model 2) provided a significantly better fit to the data, χ^2 (16, $N =$ 24672) = 1935, $p <$ .001. Regression coefficients of the three-level random-intercept

model with Level 1 control- and Level 1 explanatory variables are summarized in Table 15.

Table 15

Model Comparison of the Three-Level Random-Intercept Model with Level 1 Controls and the Three-Level Random-Intercept Model with Level 1 Controls and Level 1 Explanatory Variables in the Eurobarometer Survey

Parameter		Model 2		Model 3	
		Estimate	SE	Estimate	SE
β_0	**Intercept**	2.173***	0.103	**2.171***	0.104
β_1	**Age**	- 0.012***	< 0.001	**- 0.009***	< 0.001
β_2	Males (Ref. Females)	- 0.019	0.012	- 0.012	0.012
β_3	**Urban (Ref. Rural)**	0.209***	0.014	**0.165***	0.014
β_4	**Perceived national diversity H (Ref Low)**	-	-	**0.249***	0.021
β_5	**Perceived national diversity M**	-	-	**0.104***	0.017
β_6	Perceived diversity NR	-	-	-	-
β_7	Attitudes towards immigration P (Ref. nPO)	-	-	- 0.003	0.024
β_8	**Attitudes towards immigration O**	-	-	**0.099***	0.025
β_9	Attitudes towards immigration ePO	-	-	0.010	0.023
β_{10}	**Prejudice**	-	-	**- 0.158***	0.010
β_{11}	**Perc local norms H (Ref. Low)**	-	-	**0.135***	0.017
β_{12}	Perceived local norms NR	-	-	-	-
β_{13}	Perceived national norms H (Ref. Low)	-	-	0.015	0.016
β_{14}	Perceived national norms NR	-	-	-	-
β_{15}	**Perceived threat**	-	-	**- 0.094***	0.013
β_{16}	**Political orientation centrist (Ref. Leftist)**	-	-	**- 0.075***	0.016
β_{17}	**Political orientation rightist**	-	-	**- 0.065***	0.018
β_{18}	Political orientation NR	-	-	-	-
σ_v^2	Country variance	0.267	0.003	0.273	0.003
σ_u^2	Regional variance	0.133	0.002	0.134	0.002

σ_e^2 Individual variance		0.904	0.006	0.835	0.006
Deviance		70057		68123	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

The association between high perceived national diversity and contact was positive, suggesting that people who perceived the proportion of immigrants in their country as high (vs. low) reported significantly more frequent contact with immigrants, b = 0.249, $p < .001$. Similarly, moderate (vs. low) perceived national diversity predicted significantly more frequent outgroup contact, $b = 0.104$, $p < .001$. When immigration was seen as an opportunity rather than neither a problem nor an opportunity, individuals engaged in significantly more frequent intergroup contact, $b = 0.099$, $p < .001$. Prejudice and contact were negatively related. Individuals who felt uncomfortable having an immigrant as a manager, work colleague, neighbours, or partner more than then the regional average reported less frequent outgroup contact, b = - 0.158, $p < .001$. High (vs. low) perceived local norms had a positive association with contact. Individuals who thought that the integration of most immigrants in their area was successful engaged in significantly more frequent intergroup contact, $b = 0.135$, $p < .001$. In contrast, high (vs. low) perceived national norms, reflecting the integration of immigrants on the national level, was not significantly associated with contact, $b = 0.015$, $p = .346$. Perceived threat and contact were negatively related. People who viewed immigrants as being a threat to society by taking jobs away and worsening crimes reported less frequent outgroup contact, b = - 0.094, $p < .001$. Finally, political orientation was a significant predictor of contact, with both centrist, b = - 0.075, $p < .001$, and rightist individuals reporting less frequent contact with immigrants, b = - 0.065, $p < .001$, compared to leftist.

There was substantial variation in frequency of contact even after accounting for Level 1 explanatory variables. VPC statistics indicated that approximately 22% of the variation in frequency of contact lied between countries, 11% between regions and 67% between individuals (see Table 16). Adjusting for Level 1 explanatory variables explained approximately 5% of the total variance in frequency of contact. PCV statistics showed that the country-level (Level 3) variance increased by 2.2%, the regional level (Level 2)

variance remained approximately the same, and the individual-level (Level 1) variance decreased by 7.6%.

Table 16

VPC, PCV and ICC Statistics for the Three-Level Random Intercept Model with L1 Covariates in the Eurobarometer Survey

Level	VPC	PCV	ICC
Country	0.220	0.022	0.220
Region	0.108	0.008	0.328
Individual	0.672	- 0.076	-

Model 4: The Random Intercept Model with Level 1 and Level 2 Covariates.
To answer the research question *"What regional-level (Level 2) structural factors can predict contact engagement with immigrant outgroups?",* regional population size and actual regional diversity were added to the model. Both variables were centered around their country (Level 3) mean. The three-level random intercept model with Level 1 and Level 2 covariates is written as

$$Cont_{ijk} = \underbrace{\begin{aligned} &\beta_0 + \beta_1 Age_{ijk} + \beta_2 Male_{ijk} + \beta_3 Urb_{ijk} + \\ &\beta_4 PD_{H_{ijk}} + \beta_5 PD_{M_{ijk}} + \beta_6 PD_{NR_{ijk}} + \beta_7 ATI_{P_{ijk}} + \beta_8 ATI_{O_{ijk}} + \\ &\beta_9 ATI_{ePO_{ijk}} + \beta_{10} Prej_{ijk} + \beta_{11} PLN_{H_{ijk}} + \beta_{12} PLN_{NR_{ijk}} + \beta_{13} PNN_{H_{ijk}} + \\ &\beta_{14} PNN_{NR_{ijk}} + \beta_{15} PT_{ijk} + \beta_{16} PO_{C_{ijk}} + \beta_{17} PO_{R_{ijk}} + \beta_{18} PO_{NR_{ijk}} + \\ &\beta_{19} Pops_{R_{jk}} + \beta_{20} ARD_{jk} + \end{aligned}}_{fixed\ part}$$

$$\underbrace{v_k + u_{jk} + e_{ijk}}_{random\ part}$$

$$v_k \sim N(0, \sigma_v^2)$$
$$u_{jk} \sim N(0, \sigma_u^2)$$
$$e_{ijk} \sim N(0, \sigma_e^2)$$

in which β_1 - β_{20} are fixed effects

- β_{19} is the slope coefficient for the population size of regions

- β_{20} is the slope coefficient for actual regional diversity

 and v_k u_{jk} and e_{ijk} are random effects

- v_k is the Level 3 random effect

- u_{jk} is the Level 2 random effect

- e_{ijk} is the Level 1 random effect

Model 4 (vs. Model 3) provided a significantly better fit to the data, χ^2 (2, $N =$ 24672) = 25, $p < .001$. Regression coefficients of the three-level random-intercept model with Level 1 and Level 2 covariates are summarized in Table 17.

Table 17

Model Comparison of the Three-Level Random-Intercept Model with Level 1 Covariates and the Three-Level Random Intercept Model with Level 1 and Level 2 Covariates in the Eurobarometer Survey

	Model 3		Model 4	
Parameter	Estimate	SE	Estimate	SE
β_0 **Intercept**	2.171***	0.104	**2.218*****	0.105
β_1 **Age**	- 0.009***	< 0.001	**- 0.009*****	< 0.001
β_2 Males (Ref. Females)	- 0.012	0.012	- 0.012	0.012
β_3 **Urban (Ref. Rural)**	0.165***	0.014	**0.165*****	0.014
β_4 **Perceived national diversity H (Ref. Low)**	0.249***	0.021	**0.249*****	0.021
β_5 **Perceived national diversity M**	0.104***	0.017	**0.103*****	0.017
β_6 Perceived diversity NR	-	-	-	-
β_7 Attitudes towards immigration P (Ref. nPO)	- 0.003	0.024	- 0.002	0.024
β_8 **Attitudes towards immigration O**	0.099***	0.025	**0.100*****	0.025
β_9 Attitudes towards immigration ePO	0.010	0.023	0.010	0.023
β_{10} **Prejudice**	- 0.158***	0.010	**- 0.158*****	0.010
β_{11} **Perc local norms H (Ref. Low)**	0.135***	0.017	**0.135*****	0.017

β_{12}	Perceived local norms NR	-	-	-	-
β_{13}	Perceived national norms H (Ref. Low)	0.015	0.016	0.015	0.016
β_{14}	Perceived national norms NR	-	-	-	-
β_{15}	**Perceived threat**	- 0.094***	0.013	**- 0.094*****	0.013
β_{16}	**Political orientation centrist (Ref. Leftist)**	- 0.075***	0.016	**- 0.075*****	0.016
β_{17}	**Political orientation rightist**	- 0.065***	0.018	**- 0.065*****	0.018
β_{18}	Political orientation NR	-	-	-	-
β_{19}	**Population size regional**	-	-	**0.019*****	0.004
β_{20}	Actual regional diversity	-	-	< 0.001	< 0.001
σ_v^2	Country variance	0.273	0.003	0.281	0.003
σ_u^2	Regional variance	0.134	0.002	0.121	0.002
σ_e^2	Individual variance	0.835	0.006	0.835	0.006
	Deviance		68123		68098

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Population size was positively associated with contact. The larger the population of the region people resided in, the more frequent contact with immigrants was reported, $b = 0.019$, $p < .001$. However, regional diversity and contact engagement were not significantly related, $b = < 0.001$, $p = .817$. VPC, PCV and ICC statistics are summarized in Table 18. This shows that that the country-level (Level 3) variance increased by 2.9%, the regional level (Level 2) variance decreased by 9.7%, and the individual-level (Level 1) variance remained the same.

Table 18

VPC, PCV and ICC Statistics for the Three-Level Random Intercept Model with L1 and L2 Covariates in the Eurobarometer Survey

Level	VPC	PCV	ICC
Country	0.227	0.029	0.227
Region	0.098	- 0.097	0.325
Individual	0.675	0	-

Model 5: The Random Intercept Model with Level 1, Level 2 and Level 3 Covariates. To answer the research question *"What country-level (Level 3) structural factors can predict contact engagement with immigrant outgroups?"*, national population size, material and social deprivation, actual national diversity and actual national norms were added to the model. Level 3 variables were centered around the grand mean. The three-level random intercept model with Level 1, Level 2 and Level 3 covariates is written as

$$Cont_{ijk} = \underbrace{\begin{aligned} &\beta_0 + \beta_1 Age_{ijk} + \beta_2 Male_{ijk} + \beta_3 Urb_{ijk} + \\ &\beta_4 PD_{H_{ijk}} + \beta_5 PD_{M_{ijk}} + \beta_6 PD_{NR_{ijk}} + \beta_7 ATI_{P_{ijk}} + \beta_8 ATI_{O_{ijk}} + \\ &\beta_9 ATI_{ePO_{ijk}} + \beta_{10} Prej_{ijk} + \beta_{11} PLN_{H_{ijk}} + \beta_{12} PLN_{NR_{ijk}} + \beta_{13} PNN_{H_{ijk}} + \\ &\beta_{14} PNN_{NR_{ijk}} + \beta_{15} PT_{ijk} + \beta_{16} PO_{C_{ijk}} + \beta_{17} PO_{R_{ijk}} + \beta_{18} PO_{NR_{ijk}} + \\ &\beta_{19} Pops_{R_{jk}} + \beta_{20} ARD_{jk} + \\ &\beta_{21} Pops_{N_k} + \beta_{22} MSD_k + \beta_{23} AND_k + \beta_{24} ANN_k \end{aligned}}_{fixed\ part}$$

$$\underbrace{v_k + u_{jk} + e_{ijk}}_{random\ part}$$

$$v_k \sim N(0, \sigma_v^2)$$
$$u_{jk} \sim N(0, \sigma_u^2)$$
$$e_{ijk} \sim N(0, \sigma_e^2)$$

in which β_1 - β_{24} are fixed effects

- β_{21} is the slope coefficient for the population size of countries
- β_{22} is the slope coefficient for material and social deprivation
- β_{23} is the slope coefficient for actual national diversity
- β_{24} is the slope coefficient for actual national norms

and v_k u_{jk} and e_{ijk} are random effects

- v_k is the Level 3 random effect
- u_{jk} is the Level 2 random effect
- e_{ijk} is the Level 1 random effect

Model 5 (vs. Model 4) provided a significantly better fit to the data, χ^2 (4, $N =$ 24672) = 14, $p < .001$. Regression coefficients of the three-level random-intercept model with Level 1, Level 2 and Level 3 covariates are summarized in Table 19.

Table 19

Model Comparison of the Three-Level Random-Intercept Model with Level 1 and Level 2 Covariates and the Three-Level Random Intercept Model with Level 1, Level 2, and Level 3 Covariates in the Eurobarometer Survey

Parameter		Model 4		Model 5	
		Estimate	SE	Estimate	SE
β_0	**Intercept**	2.218***	0.105	**2.216***	0.082
β_1	**Age**	- 0.009***	< 0.001	**- 0.009***	< 0.001
β_2	Males (Ref. Females)	- 0.012	0.012	- 0.012	0.012
β_3	**Urban (Ref. Rural)**	0.165***	0.014	**0.165***	0.014
β_4	**Perceived national diversity H (Ref. Low)**	0.249***	0.021	**0.249***	0.021
β_5	**Perceived national diversity M**	0.103***	0.017	**0.103***	0.017
β_6	Perceived diversity NR	-	-	-	-
β_7	Attitudes towards immigration P (Ref. nPO)	- 0.002	0.024	- 0.002	0.024
β_8	**Attitudes towards immigration O**	0.100***	0.025	**0.100***	0.025
β_9	Attitudes towards immigration ePO	0.010	0.023	0.011	0.023
β_{10}	**Prejudice**	- 0.158***	0.010	**- 0.158***	0.010
β_{11}	**Perc local norms H (Ref. Low)**	0.135***	0.017	**0.135***	0.017
β_{12}	Perceived local norms NR	-	-	-	-
β_{13}	Perceived national norms H (Ref. Low)	0.015	0.016	0.015	0.016
β_{14}	Perceived national norms NR	-	-	-	-
β_{15}	**Perceived threat**	- 0.094***	0.013	**- 0.094***	0.013
β_{16}	**Political orientation centrist (Ref. Leftist)**	- 0.075***	0.016	**- 0.075***	0.016
β_{17}	**Political orientation rightist**	- 0.065***	0.018	**- 0.065***	0.018
β_{18}	Political orientation NR	-	-	-	-
β_{19}	**Population size regional**	0.019***	0.004	**0.019***	0.004

β_{20}	Actual regional diversity	< 0.001	< 0.001	< 0.001	< 0.001
β_{21}	Population size national	-	-	0.013	0.018
β_{22}	Material and social deprivation	-	-	- 0.015	0.009
β_{23}	Actual national diversity	-	-	0.034	0.025
β_{24}	Actual national norms	-	-	0.010	0.006
σ_v^2	Country variance	0.281	0.003	0.161	0.003
σ_u^2	Regional variance	0.121	0.002	0.121	0.002
σ_e^2	Individual variance	0.835	0.006	0.835	0.006
Deviance		68098		68084	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Country-level (Level 3) covariates were not significantly associated with intergroup contact. VPC, PCV and ICC statistics are summarized in Table 20. This shows that the country-level (Level 3) variance decreased by 42.7%, while the regional level (Level 2) and individual-level (Level 1) variances remained the same.

Table 20

VPC, PCV and ICC Statistics for the Three-Level Random Intercept Model with L1, L2 and L3 Covariates in the Eurobarometer Survey

Level	VPC	PCV	ICC
Country	0.144	- 0.427	0.144
Region	0.108	0	0.252
Individual	0.748	0	-

A summary of all models testing the association between Level 1, Level 2, and Level 3 predictor variables and contact are displayed in Table 21.

Table 21

Model Summary of Study 2

Parameter	Model 2 Estimate	Model 2 SE	Model 3 Estimate	Model 3 SE	Model 4 Estimate	Model 4 SE	Model 5 Estimate	Model 5 SE
Fixed effects								
Intercept	**2.173*****	0.103	**2.171*****	0.104	**2.218*****	0.105	**2.216*****	0.082
Level 1 controls								
Age	**- 0.012*****	< 0.001	**- 0.009*****	< 0.001	**- 0.009*****	< 0.001	**- 0.009*****	< 0.001
Males (Ref. Females)	- 0.019	0.012	- 0.012	0.012	- 0.012	0.012	- 0.012	0.012
Urban (Ref. Rural)	**0.209*****	0.014	**0.165*****	0.014	**0.165*****	0.014	**0.165*****	0.014
Level 1 explanatory variables								
Perceived national diversity H (Ref L)			**0.249*****	0.021	**0.249*****	0.021	**0.249*****	0.021
Perceived national diversity M			**0.104*****	0.017	**0.103*****	0.017	**0.103*****	0.017
Attitudes immigration P (Ref. nPO)			- 0.003	0.024	- 0.002	0.024	- 0.002	0.024
Attitudes immigration O			**0.099*****	0.025	**0.100*****	0.025	**0.100*****	0.025
Attitudes immigration ePO			0.010	0.023	0.010	0.023	0.011	0.023
Prejudice			**- 0.158*****	0010	**- 0.158*****	0010	**- 0.158*****	0010
Perceived local norms H (Ref. Low)			**0.135*****	0.017	**0.135*****	0.017	**0.135*****	0.017
Perceived national norms H (Ref. Low)			0.015	0.016	0.015	0.016	0.015	0.016
Perceived threat			**- 0.094*****	0.013	**- 0.094*****	0.013	**- 0.094*****	0.013
Political orientation center (Ref. Left)			**- 0.075*****	0.016	**- 0.075*****	0.016	**- 0.075*****	0.016
Political orientation right			**- 0.065*****	0.018	**- 0.065*****	0.018	**- 0.065*****	0.018
Level 2 control								
Population size regional					**0.019*****	0.004	**0.019*****	0.004
Level 2 explanatory variable								
Actual regional diversity					< 0.001	< 0.001	< 0.001	< 0.001
Level 3 controls								
Population size national							0.013	0.018
Material and social deprivation							- 0.015	0.009
Level 3 explanatory variables								
Actual national diversity							0.034	0.025

	Model 1		Model 2		Model 3		Model 4	
Actual national norms							0.010	0.006
Random effects								
Country-level variance	0.267	0.003	0.273	0.003	0.281	0.003	0.161	0.003
Regional-level variance	0.133	0.002	0.134	0.002	0.121	0.002	0.121	0.002
Individual-level variance	0.904	0.006	0.835	0.006	0.835	0.006	0.835	0.006
Deviance	70057		68123		68098		68084	
ICC								
Country level	0.205		0.220		0.227		0.144	
Regional level	0.307		0.328		0.325		0.252	
Individual level	-		-		-		-	
VPC								
Country level	0.205		0.220		0.227		0.144	
Regional level	0.102		0.108		0.098		0.108	
Individual level	0.693		0.672		0.675		0.748	
PCV								
Country level	0		0.022		0.029		- 0.427	
Regional level	0.015		0.008		- 0.097		0	
Individual level	- 0.058		- 0.076		0		0	

Notes. The outcome variable was frequency of contact. $N = 24{,}672$ respondents were nested within 246 NUTS regions and 28 countries.

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

Cross-level Interactions

To address the research question, *"When and for whom does regional-level diversity influence intergroup contact engagement?"*, cross-level interaction terms were tested. Although regional-level diversity (Level 2) was not directly associated with contact, its relationship with intergroup contact could significantly vary depending on another predictor variable (Aguinis et al., 2013). First, the moderating effect of Level 1 high (vs. low) perceived diversity on the relationship between Level 2 actual regional diversity and intergroup contact was examined. Additionally, random slopes were included for Level 1 high perceived diversity to account for potential variability across regions (Heisig & Schaeffer, 2019). The model is written as

$$Cont_{ijk} = \underbrace{\beta_0 + \beta_1 PD_{H_{ijk}} + \beta_2 PD_{M_{ijk}} + \beta_3 PD_{NR_{ijk}} + \beta_4 ARD_{jk} + \beta_5 ARD_{jk} * PD_{H_{ijk}}}_{fixed\ part} +$$

$$\underbrace{v_k + u_{0jk} + u_{1jk} PD_{H_{ijk}} + e_{ijk}}_{random\ part}$$

$$v_k \sim N(0, \sigma_v^2)$$

$$\begin{pmatrix} u_{0jk} \\ u_{1jk} \end{pmatrix} \sim N \left\{ \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{u0}^2 & \\ \sigma_{u01} & \sigma_{u1}^2 \end{pmatrix} \right\}$$

$$e_{ijk} \sim N(0, \sigma_e^2)$$

in which β_1 - β_5 are fixed effects
- β_5 is the slope coefficient for the interaction term

and v_k u_{jk} and e_{ijk} are random effects
- v_k is the Level 3 random effect
- u_{0jk} is the Level 2 random intercept
- $u_{1jk} PD_{H_{ijk}}$ is the Level 2 random slope for high perceived diversity

- e_{ijk} is the Level 1 random effect

Results showed no significant moderation effect, $b = < - 0.001$, $p = .465$, indicating that actual regional diversity rates did not influence the frequency of outgroup contact among individuals who perceived the proportion of immigrants in their country as high compared to those who perceived it as low. Using the same analytical approach, the potential moderating effects of the remaining Level 1 explanatory variables were also tested. Non-significant moderation effects were found for medium (vs. low) perceived diversity, $b = < - 0.001$, $p = .164$; attitudes towards immigration is an opportunity (vs. neither a problem nor an opportunity), $b = < 0.001$, $p = .709$; attitudes towards immigration is a problem (vs. neither a problem nor an opportunity), $b < - 0.001$, $p = .588$; attitudes towards immigration is equally a problem and an opportunity (vs. neither a problem nor an opportunity), $b < - 0.001$, $p = .850$; prejudice, $b < - 0.001$, $p = .755$; high (vs. low) perceived local norms, $b < - 0.001$, $p = .595$; high (vs. low) perceived national norms, $b < - 0.001$, $p = .595$; perceived threat, $b < - 0.001$, $p = .226$; centrist (vs. leftist) political orientation, $b < 0.001$, $p = .716$; and rightist (vs. leftist) political orientation, $b < - 0.001$, $p = .374$.

To address the research question, *"When and for whom does country-level diversity influence intergroup contact engagement?"*, cross-level interaction terms between Level 3 actual national diversity and Level 1 explanatory variables were tested. First, the moderating effect of high (vs. low) perceived diversity on the relationship between Level 3 actual national diversity and intergroup contact was examined. Additionally, random slopes were included for Level 1 high perceived diversity to account for potential variability across countries (Heisig & Schaeffer, 2019). The model is written as:

$$Cont_{ijk} = \underbrace{\beta_0 + \beta_1 PD_{H_{ijk}} + \beta_2 PD_{M_{ijk}} + \beta_3 PD_{NR_{ijk}} + \beta_4 AND_k + \beta_5 AND_k * PD_{H_{ijk}}}_{fixed\ part} +$$

$$\underbrace{v_{0k} + v_{1k} PD_{H_{ijk}} + u_{jk} + e_{ijk}}_{random\ part}$$

$$\begin{pmatrix} v_{0k} \\ v_{1k} \end{pmatrix} \sim N \left\{ \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{v0}^2 & \\ \sigma_{v01} & \sigma_{v1}^2 \end{pmatrix} \right\}$$

$$u_{jk} \sim N(0, \sigma_u^2)$$
$$e_{ijk} \sim N(0, \sigma_e^2)$$

in which β_1 - β_5 are fixed effects

- β_5 is the slope coefficient for the interaction term

and v_k u_{jk} and e_{ijk} are random effects

- v_{0k} is the Level 3 random intercept

- $v_{1k} PD_{H_{ijk}}$ is the Level 3 random slope for high (vs. low) perceived national diversity

- u_{jk} is the Level 2 random effect

- e_{ijk} is the Level 1 random effect

Results showed a significant moderation effect between Level 3 actual national diversity and Level 1 high (vs. low) perceived national diversity, $b = 0.036$, $p = .006$. As Figure 11 illustrates, higher than average actual national diversity rates predicted more frequent contact engagement with immigrants, $b = 0.055$, $p = .047$. This relationship was significantly stronger when individuals' perception of national diversity was high, $b = 0.090$, $p < .001$, compared to when it was low, $b = 0.050$, $p = .060$.

Figure 11

Cross-Level Interaction Between Level 3 Actual National Diversity and Level 1 High Perceived National Diversity
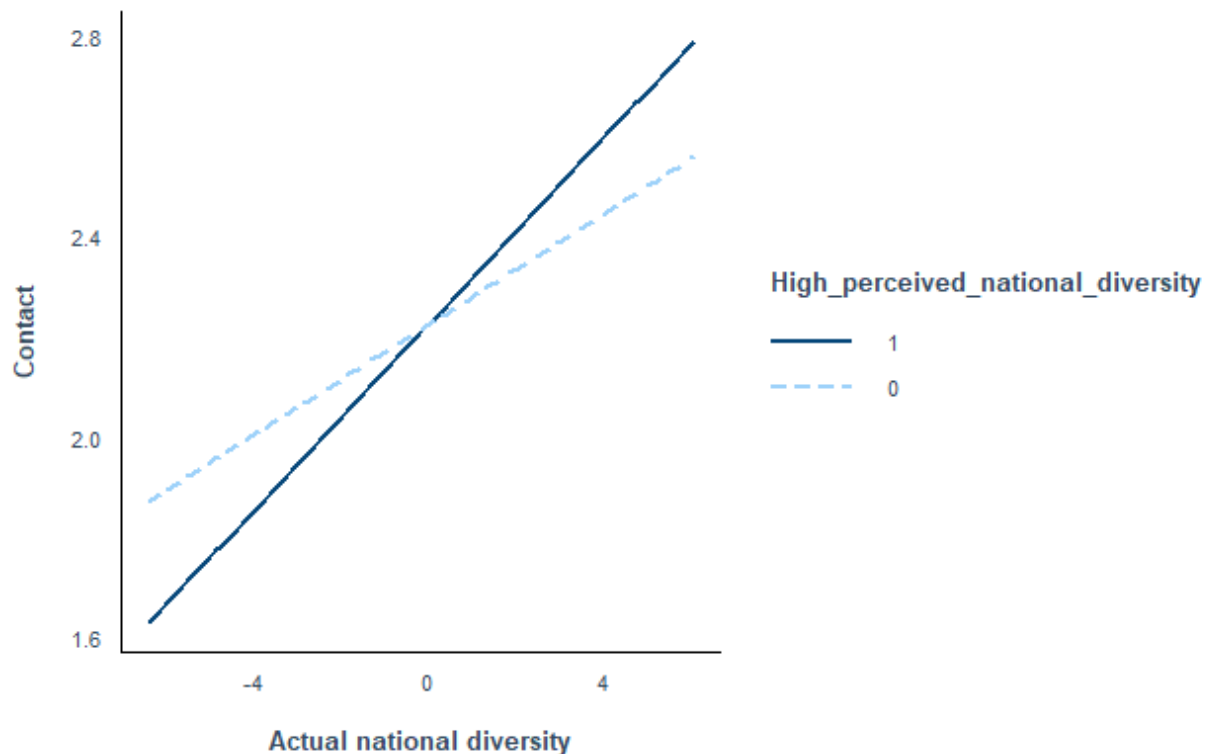
Applying the same analytic strategy, the moderating effect of each individual-level predictor on the relationship between Level 3 actual national diversity and intergroup contact was tested. Results showed significant moderation effect for Level 1 attitudes towards immigration seen as an opportunity (Ref. neither a problem, nor an opportunity), $b = 0.023$, $p = .004$. As Figure 12 illustrates, higher than average actual diversity rates predicted more frequent contact engagement with immigrants, $b = 0.061$, $p = .025$. This relationship was significantly stronger when individuals saw immigration as an opportunity, $b = 0.080$, $p = .010$, compared to when they thought immigration was neither a problem nor an opportunity, $b = 0.050$, $p = .040$.

Figure 12

Cross-Level Interaction Between Level 3 Actual National Diversity and Level 1 Attitudes Towards Immigrations Seen as an Opportunity
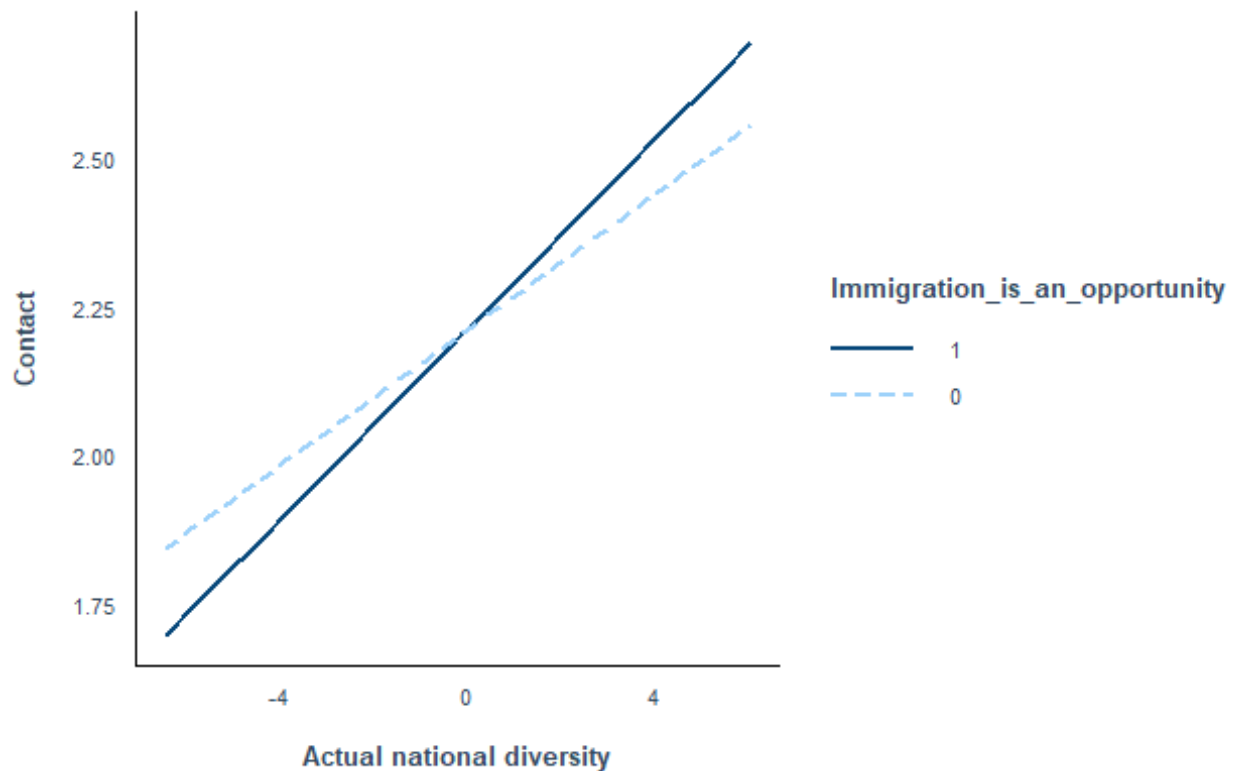
Furthermore, Level 1 perceived threat moderated the relationship between Level 3 actual national diversity and intergroup contact, $b = -0.014$, $p = .050$. As Figure 13 illustrates, greater than average actual national diversity rates predicted more frequent contact with immigrants, $b = 0.059$, $p = .027$. When individuals' perception of threat was lower than average (1 SD below the regional mean) this association was significantly stronger, $b = 0.060$, $p = .020$, compared to when perceived threat was average (at the regional mean), $b = 0.060$, $p = .030$, and higher than average (1 SD above the regional mean), $b = 0.050$, $p = .070$.

Figure 13

Cross-Level Interaction Between Level 3 Actual National Diversity and Level 1 Perceived Threat
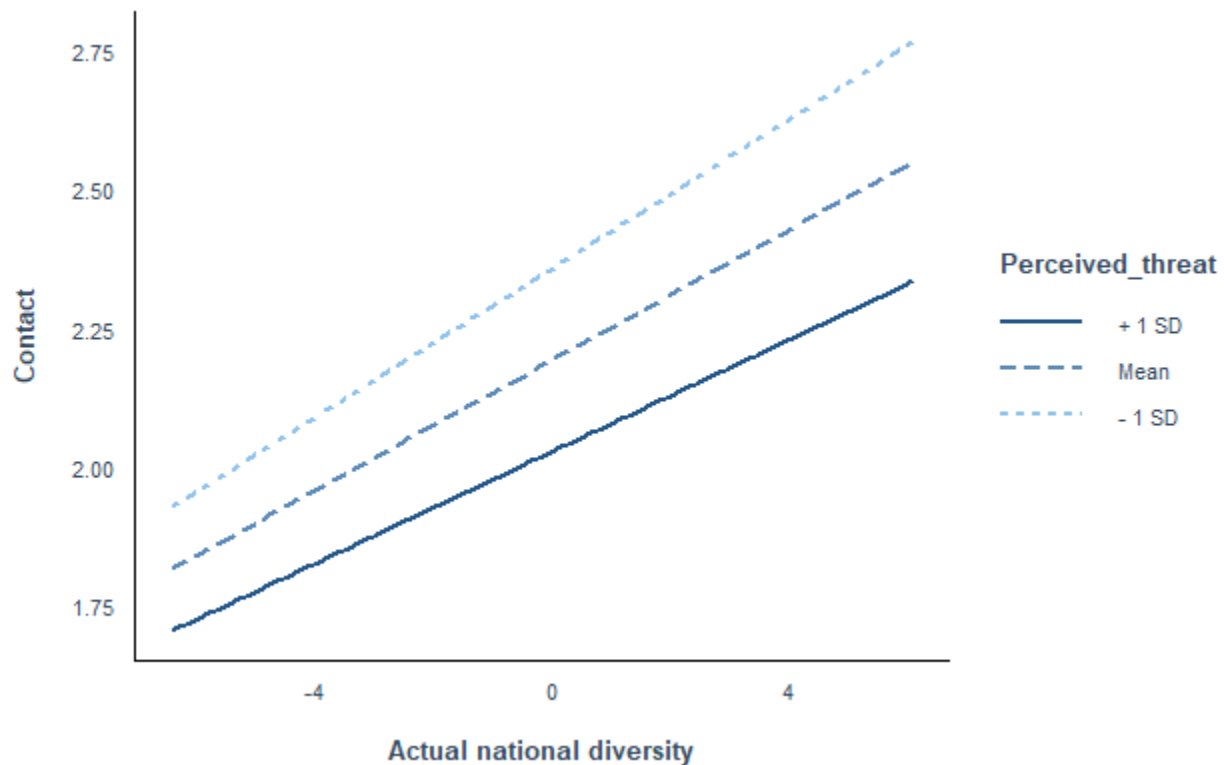
Finally, a significant moderation effect was found for Level 1 rightist political orientation, $b = -0.015$, $p = .012$. As Figure 14 illustrates, higher than average actual national diversity rates predicted more frequent contact engagement with immigrants, $b = 0.067$, $p = .016$. This relationship was significantly weaker for individuals who endorsed rightist political views, $b = 0.050$, $p = .040$, compared to those with leftist views, $b = 0.060$, $p = .020$.

Figure 14

Cross-Level Interaction Between Level 3 Actual National Diversity and Level 1 Rightist Political Orientation
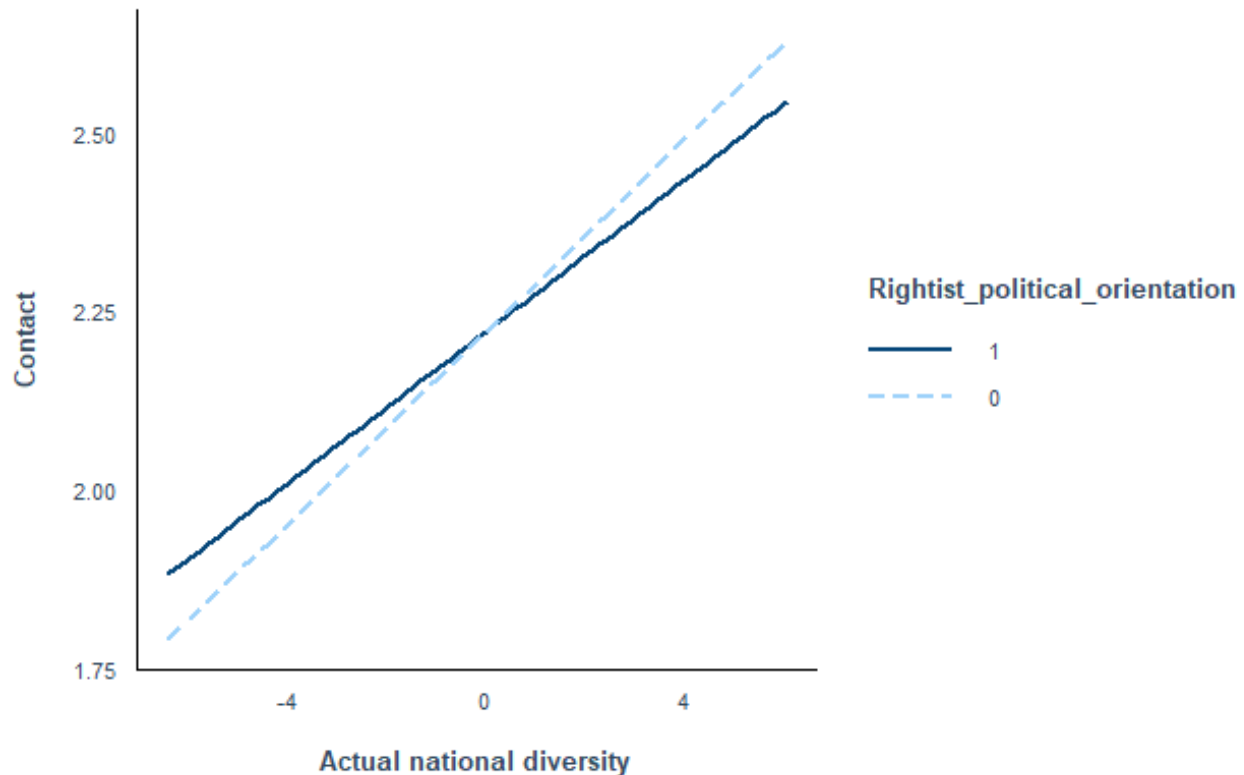
Discussion

Study 2 examined the psychological and structural antecedents of intergroup contact at the individual (Level 1), regional (Level 2), and country (Level 3) levels. Results indicated that the main effects of actual regional diversity (Level 2) and actual national diversity (Level 3) on intergroup contact were not significant. However, perceived national diversity (Level 1) emerged as a significant predictor; individuals who viewed their country as highly or moderately diverse engaged in more frequent contact with non-EU immigrants compared to those who saw it as minimally diverse. This finding aligns with Study 1 and prior research showing that subjective perceptions of diversity can be more influential than objective opportunities for cross-group interaction in shaping majority group members' contact behaviour (Semyonov et al., 2004; Schmid et al., 2014). Scholars argue that localized measures of contextual diversity more accurately capture the social environment where cross-group interactions occur (Pettigrew & Tropp, 2006). Research further demonstrates that the geographical scale at which diversity is measured is crucial, as the size, significance and even direction of contextual effects can vary across different

spatial units (Fotheringham & Wong, 1991; Sluiter, Tolsma, & Scheepers, 2015). In the current study, regional diversity was defined as the proportion of non-EU immigrants within NUTS regions. It is possible that a more fine-grained measure, for example diversity within census tracts or cities would have yielded significant results, but such data were not available.

While actual regional diversity (Level 2) and actual national diversity (level 3) did not predict intergroup contact engagement when individual-level psychological and country-level structural covariates were accounted for, a significant positive association emerged between actual national diversity (Level 3) and intergroup contact when the effect of actual national diversity was tested in a simpler model. Multilevel moderation analyses showed that higher-than-average actual national diversity (Level 3) was linked to more frequent contact with non-EU immigrants, particularly among individuals who perceived national diversity (Level 1) as high rather than low. This pattern was also observed among individuals who viewed immigration as an opportunity rather than neutrally, those who perceived immigrants as less rather than more threatening to society, and those with a leftist rather than rightist political orientation.

These findings support the argument that living in diverse environments increases opportunities for intergroup interaction (Brune et al., 2016) and provides insight into who is most likely to engage in outgroup contact. While prior research suggests that subjective perceptions of diversity can heighten feelings of threat and anti-foreigner attitudes (Semyonov et al., 2004), greater diversity has also been linked to reduced threat perceptions and more frequent outgroup contact with ethnic minorities (Schmid et al., 2014). The present findings align with the latter perspective, demonstrating that in countries with a higher proportion of non-EU immigrants, native Europeans engaged in more frequent intergroup contact; particularly those who perceived immigrant presence as high rather than low and felt less threatened by non-EU immigrants.

Higher-than-average national diversity rates were also associated with more frequent intergroup contact among individuals who viewed immigration from outside the

EU as an opportunity for their country. This aligns with prior research showing that individuals with greater exposure to other cultures are more likely to see immigration as a positive force (O'Rourke & Sinnott, 2006). Furthermore, those with an open, unprejudiced attitude toward diverse cultures are more likely to participate in multicultural activities and tend to show greater interest in exploring foreign cultures (Van der Zee & Van Oudenhoven, 2000). Additionally, individuals with a more liberal rather than conservative political orientation engaged in more frequent intergroup contact in countries with a higher immigrant presence. This finding supports previous research suggesting that intergroup contact is linked to less opposition to immigration among both left- and right-leaning individuals, with this negative association being strongest among individuals with leftist views and weakest among those with a right-leaning political orientation (Thomsen & Rafiqi, 2019).

High (vs. low) perceptions of national diversity, attitudes towards immigration seen as an opportunity (vs. neutral), perceived threat and right (vs. left) political orientation also showed a significant direct association with intergroup contact engagement. Furthermore, prejudice was negatively related to contact, with individuals preferring a greater social distance from immigrants outside the EU reporting less frequent outgroup contact. Lastly, high (vs. low) perceived local norms had a positive association with contact as individuals who believed that most immigrants in their area had successfully integrated engaged in significantly more frequent intergroup contact. This finding aligns with prior studies showing that normative social interventions can enhance majority group members' willingness to engage in intergroup contact (Meleady, 2021) and that tolerant norms emphasizing diversity may further promote positive intergroup behaviour (Green et al., 2020).

Chapter 5: Examining the Antecedents of Intergroup Contact at Two Levels in the British Context

Chapter 5 presents the third and most fine-grained empirical test of the antecedents of intergroup contact. Building on the findings of the Eurobarometer study, this chapter shifts from a broad national and regional perspective to a more localized neighbourhood-level analysis of contextual diversity. By integrating both individual-level psychological factors (Level 1) and neighbourhood-level diversity (Level 2), this study provides a comprehensive, in-depth examination of the conditions that shape intergroup contact. A key strength of this chapter is its investigation of group-specific dynamics, examining whether the influence of individual-level psychological antecedents (Level 1) on intergroup contact is moderated by ethnic group membership (Level 1). Furthermore, by testing cross-level interaction effects, this study explores the conditions under which contextual diversity fosters greater engagement in intergroup contact, identifying when and for whom diversity translates into meaningful social interactions. To enhance the robustness of these findings, analyses are extended to intergroup friendship as the dependent variable, offering a deeper understanding of the factors that facilitate or hinder positive cross-group experiences. Study 3 is using secondary data from the British Citizenship Survey, with ethnic minorities as the target outgroup.

Study 3

The British Citizenship Survey (2011), also known as the Communities Study, ran from 2001 to 2011. It began as the Home Office Citizenship Survey (HOCS), collecting data on community cohesion, civic engagement, race, religion, ethnic mixing and volunteering (DCLG, Technical Report, 2011). Designed for both academic and public use, the survey has been widely utilized by the government and external stakeholders to inform their work on these issues. The survey included a core sample of White British individuals (n = 10,000), an ethnic minority boost sample comprising Mixed, Asian, Black, Chinese and Other ethnic groups (n = 5,490), and a Muslim boost sample (n = 799). Participants were drawn from 8,800 wards across England and Wales. While wards were

initially used to cluster the sample, these were later converted into 1,405 Primary Sampling Units (PSUs; DCLG, Technical Report, 2011; subsequently referred to as neighbourhoods, Schmid et al., 2014).

One of the key findings in Study 2 was that regional-level actual diversity (Level 2) and country-level actual diversity (Level 3) did not predict contact engagement with immigrant outgroups when controlling for individual-level psychological and country-level structural covariates. While country-level actual diversity was a significant predictor in a simpler model, regional-level diversity showed no significant association with contact. This finding is somewhat surprising, as opportunities for contact at a more localized level were expected to better capture the relationship between contextual diversity and intergroup contact (Laurence et al., 2018; Prati et al., 2022; Pettigrew, 1998). A possible explanation is that regional-level diversity was measured using NUTS geographical units, which represent populations ranging from 800,000 to 7 million residents. Although more localized than country-level clusters (460,000 to 82 million residents), these units still covered relatively large areas. Study 3 addresses this limitation by measuring contextual diversity at the PSU level. PSUs are administrative divisions typically containing 2,500 addresses (DCLG, Technical Report, 2011), making them a more precise representation of the local neighbourhoods where social interactions occur (Oliver & Wong, 2003; Pettigrew, 1998). Additionally, individual-level perceived diversity captures how individuals perceive ethnic diversity in their local area. It is hypothesized that both individual-level perceived ethnic diversity (Level 1) and PSU-level actual ethnic diversity (Level 2) will positively be related to interethnic contact (H_1).

Furthermore, Study 3 advances the literature by examining not only the impact of psychological and structural antecedents on intergroup contact engagement but also on *intergroup friendships*. A notable limitation of the intergroup contact measures used across the three studies is that they capture contact quantity but not contact quality. Measuring the frequency of cross-group interactions does not guarantee that these interactions reflect positive experiences, as in everyday life intergroup contact can be both positive and negative (Pettigrew, 2008). Intergroup friendship, however, represents

a more intimate and meaningful form of contact, inherently implying positive experiences. Friendships embody many of the optimal conditions for effective intergroup contact, as they typically involve cooperation and shared goals. Additionally, friendships encourage self-disclosure which has been shown to facilitate positive intergroup outcomes (Pettigrew et al., 2011). Contact researchers have long emphasized the role of intimacy in reducing prejudicial attitudes. Such friendships not only foster strong, positive attitudes toward the outgroup but also tend to be more enduring and resistant to change (Turner et al., 2007). Despite its relevance, to the best of the researcher's knowledge no prior research has systematically examined the psychological and structural antecedents of intergroup friendships. Study 3 addresses this critical gap in the literature by providing a comprehensive multilevel and multivariate investigation into the factors that facilitate or inhibit both intergroup contact and intergroup friendships.

One of the key psychological factors previously been shown to predict intergroup contact engagement is *social identification*. However, evidence on the direction of this relationship is mixed. Some studies suggest that ingroup favouritism leads to negative outgroup attitudes (Blank & Schmidt, 2003; Fershtman & Gneezy, 2001), while others show that a stronger ethnic identity predicts more positive evaluations of outgroups and a greater willingness to engage in intergroup contact (Phinney et al., 2007). Study 1 measured national identification, which tapped into the concepts of both nationalism and constructive patriotism. Results indicated a positive association with contact engagement as individuals who felt a stronger connection to their country reported more frequent outgroup contact with racial and ethnic minorities. In contrast, Study 3 measures ethnic identification which is a slightly different concept, assessing the extent to which individuals identify with their racial and ethnic background. The literature suggests that advantaged and disadvantaged group members tend to have different social identity needs. Due to their relatively low status, disadvantaged group members are generally motivated to enhance the value of their social identity (Ellemers et al., 2002) and are more likely to interact with advantaged group members when they have the opportunity to address both commonalities and power differences (Saguy & Kteily, 2014). In contrast, advantaged group members typically hold a valued social identity and are more inclined to engage in

intergroup encounters that do not challenge their advantaged position but instead emphasize commonalities and interpersonal connections (Baumeister & Leary, 1995). Furthermore, minority group members are often more cognitively preoccupied with their group membership than majority group members (Lücken & Simon, 2005). This heightened cognitive focus on group membership can foster collective identification, as it keeps minority individuals focused on their group identity, thereby promoting collective self-interpretation rather than individual self-interpretation (Simon, 2004). Based on the available evidence, it is hypothesized that, for ethnic minority group members, ethnic identification will be positively related to interethnic contact and friendship (H_2), whereas for ethnic majority group members, these associations will be negative (H_3).

Study 3 also investigates the influence of *perceived local* and *national norms* surrounding interethnic contact and friendship. In Study 2, perceived local (but not national) norms were positively associated with intergroup contact. Specifically, individuals who believed that most immigrants in their area were successfully integrated reported significantly more frequent contact with non-EU immigrants. Study 3 adopts a different conceptualization of local and national norms, with local norms reflecting individuals' perception of how well people in their area get along, while national norms assess perceptions of racial prejudice in Britain. The literature suggests that both perceived and actual social norms can predict intergroup contact behaviour. Normative practices that emphasize separation between groups have been shown to reinforce segregating behaviour (Alexander & Tredoux, 2010; Paajanen et al., 2023), whereas perceiving inclusive social norms in intergroup relations has been found to increase interest in cross-group interactions (Meleady, 2021; Tropp et al., 2014). Furthermore, tolerant norms that emphasize diversity and inclusion were linked to more frequent outgroup contact via reduced threat perceptions and improved attitudes (Green et al., 2020). Recent experimental evidence also establishes a causal link between social norms and intergroup contact, demonstrating that positive norms surrounding intergroup contact lead to improved outgroup attitudes, which in turn foster greater intentions for and engagement in intergroup contact (Boss, Buliga, & MacInnis, 2023). However, prior research has rarely examined whether the impact of social norms on contact behaviour

differs between majority and minority groups. While some evidence suggests that ingroup norms favouring intergroup contact are positively associated with contact engagement for both groups (Prati et al., 2022), it can be expected that ingroup norms may be more predictive of contact engagement for majority group members. This is because advantaged groups may perceive societal institutions that communicate norms as more reflective of their interests, whereas disadvantaged minority groups may not feel as represented (Kauff et al., 2020). Based on prior literature, it is hypothesized that for both majority and minority group members, perceived local and national norms will positively be related to interethnic contact and friendship, with higher perceptions of local and national norms predicting more frequent contact engagement and friendships with members of ethnic outgroups (H_4).

The British Citizenship Survey (BCS, 2011) also measures *dispositional trust*, assessed by individuals' perception of the trustworthiness of people in their neighbourhood. While some evidence exists on how intergroup contact influences outgroup trust, less is known about the role of intergroup trust in predicting intergroup contact. Prior research shows that for ethnic majority group members, greater neighbourhood diversity (both perceived and actual) is associated with lower outgroup and neighbourhood trust. However, positive intergroup contact has been shown to mitigate these effects (Schmid et al., 2014). In contrast, for ethnic minority group members, neither perceived nor actual neighbourhood diversity have been associated with outgroup or neighbourhood trust, although they were positively associated with ingroup trust (Schmid et al., 2014). Further research shows that imagined contact predicts greater intentions to engage with outgroup members via improved outgroup attitudes and greater outgroup trust (Turner, West, & Christie, 2013). Finally, longitudinal evidence suggests that intergroup contact predicts positive changes in intergroup trust over time; however, greater intergroup trust does not predict more frequent intergroup contact (Yuan et al., 2024). Given the mixed findings on the impact of trust on intergroup contact, the present study adopts an exploratory approach to examine the extent to which dispositional trust may predict intergroup contact engagement and friendship for both majority and minority group members.

Finally, the BCS (2011) measures individuals' *support for multiculturalism*. Multiculturalism refers to the ideology of promoting a culturally diverse society. Supporting multiculturalism entails appreciating cultural differences and actively advocating for equal opportunities (Arends-Tóth & Van de Vijver, 2003). According to Berry's acculturation model (Berry, 1997), ethnic minority members may have different preferences about how they want to live in their destination country: they may either choose to maintain their original culture or seek contact with members of the majority society. The intersection of these two dimensions results in four acculturation preferences which are integration, assimilation, separation and marginalisation (Berry, 1997). Furthermore, majority group members also have preferences about whether minority members should maintain their original culture and/or adopt aspects of the host culture. Prior research suggests that, in general, majority members disapprove of minority members maintaining their original culture and instead prefer them to adapt to the culture of the host society (Arends-Tóth & Van de Vijver, 2003; Schalk-Soekar, Van de Vijver, & Hoogsteder, 2004). The more majority members perceive that minority members wish to maintain their original culture, the more threatened they feel, and the less likely they are to support multiculturalism (Tip et al., 2012). In contrast, when majority members perceive that ethnic minorities are willing to adopt the host culture, they feel less threatened and are more likely to support multiculturalism (Tip et al., 2012). Furthermore, native citizens who perceive minority groups as a threat to their economic, cultural and future societal position tend to hold negative attitudes towards cultural diversity, however having more immigrant friends has been shown to mitigate these effects (Callens, Meuleman, Marie, 2019). While research has traditionally focused on the effects of multiculturalism on intergroup attitudes, less attention has been paid how support for multiculturalism may predict intergroup contact engagement. Verkuyten and Yogeeswaran (2020) examined Dutch majority group members' attitudes and intentions to interact with immigrants after exposing them to a multiculturalism prime which described the importance of acknowledging the distinct identities of various cultural groups and fostering positive relationships. They found that the multiculturalism prime (compared to a no-information control condition) had no impact on outgroup attitudes or willingness to engage in intergroup contact (Verkuyten & Yogeeswaran, 2020). In contrast, a recent study showed that eliciting cultural humility

during imagined contact reduced intergroup anxiety and increased majority group members' future contact intentions with immigrant minorities (Visintin, Rullo, & Lo Destro, 2024). As only a handful of studies to date have examined support for multiculturalism as an antecedent of intergroup contact, it is difficult the predict its relationship with interethnic contact engagement and friendship. Therefore, the present study takes an exploratory approach, aiming to determine the extent to which this variable may be associated with interethnic contact and friendship for both majority and minority groups.

It is well established that the mechanisms underlying intergroup contact can differ for minority and majority group members, shaping how interactions with outgroup members influence their prejudice and other attitudinal outcomes (Paolini et al., 2024; Tropp & Pettigrew, 2005). Additionally, emerging evidence suggests that the influence of individual- and contextual-level antecedents on intergroup contact engagement may also vary by group status. Majority and minority group members have been shown to differ in their social identity needs (Ellemers et al., 2002), perceptions of how well social norms serve their interests (Kauff et al., 2020), the degree to which they trust ingroup and outgroup members (Schmid et al., 2014), and in their attitudes toward cultural diversity (Callens et al., 2019). A key advantage of the British Citizenship Survey (2011) is that it includes both an ethnic majority and minority sample. This enables the researcher to examine whether the relationship between psychological and structural antecedents and interethnic contact as well as friendship may be moderated by ethnic group membership.

In sum, Study 3 adopts the British Citizenship Survey (BCS, 2011) to test the psychological and structural antecedents of intergroup contact. Specifically, it examines how individual-level psychological factors, including *ethnic group membership, perceived ethnic diversity, ethnic identification, perceived local norms, perceived national norms, dispositional trust* and *support for multiculturalism*, as well as neighbourhood-level *actual ethnic diversity* predicts White British individuals' frequency of contact and friendship with ethnic outgroup members. Furthermore, Study 3 examines Level 1 interaction effects by testing whether the impact of Level 1 psychological antecedents on intergroup contact and friendship may differ for ethnic majority and ethnic minority group members. Lastly,

multilevel moderation analyses explore cross-level interactions between neighbourhood-level diversity and individual-level psychological antecedents, to further clarify who are most likely to engage in meaningful, positive cross-group interactions in diverse environments.

Methods

Data

Data was obtained from Round 7 of the British Citizenship Survey (BCS, 2011) and was downloaded from the UK Data Service at www.ukdataservice.ac.uk. The BCS is a flagship survey carried out by Ipsos MORI on behalf of the Department for Communities and Local Government (DCLG). It measures attitudes and behaviour on a wide range of topics such as social cohesion, race, religion and local affairs. The survey was conducted in England and Wales with a total sample of 16,966 respondents. The target population was individuals 16 years and over living in private households. The sample included participants from the ethnic majority (White), ethnic minority (Mixed, Asian, Black, and Chinese), and Muslim communities. This was divided into ethnic majority (Whites) and ethnic minority (Mixed, Asian, Black, Chinese, and Muslim) subsamples (DCLG, Technical Report, 2011).

Analytic strategy

Multilevel modelling was applied with individuals (Level 1) nested within Primary Sampling Units (PSUs, Level 2). PSUs are administrative divisions typically containing 2,500 addresses (DCLG, Technical Report, 2011). At Level 1, variance was explained with variables measured at the level of the individual, including *ethnic group membership, perceived ethnic diversity, ethnic identification, perceived local norms, perceived national norms, dispositional trust,* and *support for multiculturalism*. At Level 2, variance was explained with a*ctual ethnic diversity*, measured at the level of PSUs (see Figure 15).

Figure 15

The Proposed Analytic Strategy for Study 3
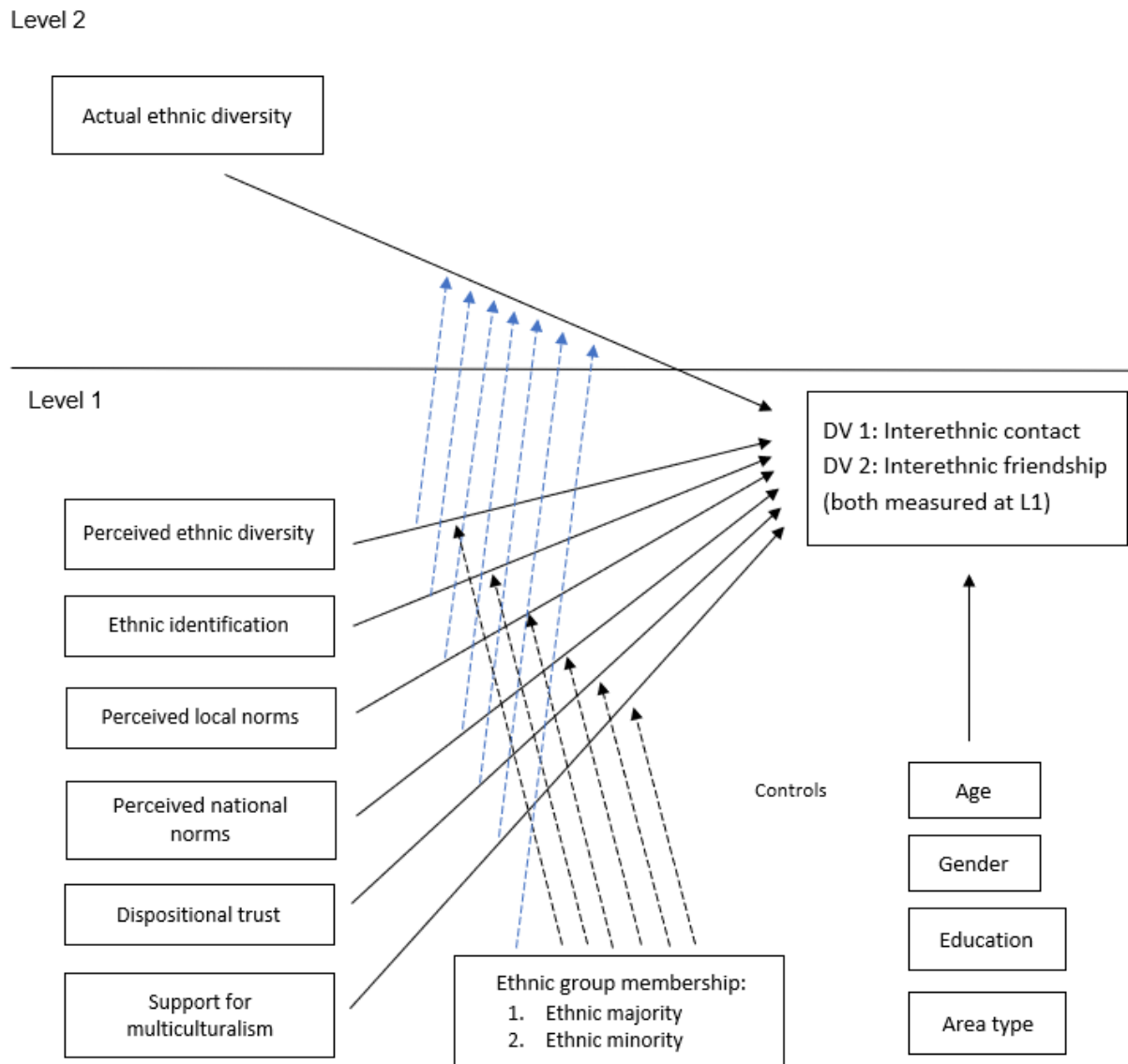
Note. Conceptual representation of the proposed model. Black dashed lines represent interaction effects between Level 1 Ethnic group membership and Level 1 explanatory variables, whereas blue dashed lines show cross-level interactions between Level 1 explanatory variables and Level 2 Actual ethnic diversity.

The outcome variable was frequency of contact (DV_1) with ethnic and religious outgroups, measured at the level of the individual (Level 1). First, a variance components model was fitted to partition the variance in the dependent variable across two levels and to assess the degree of clustering in the data (Model 1). This was followed by a random intercept model which included Level 1 control variables (Model 2). In the next step, Level 1 explanatory variables were added to the model (Model 3), followed by Level 2 control and explanatory variables (Model 4). Group-specific dynamics were tested by examining the interaction between individual-level psychological antecedents (Level 1) and ethnic group membership (Level 1). Finally, cross-level interactions were investigated by testing the moderating impact of Level 1 explanatory variables on the relationship between Level 2 actual ethnic diversity and contact engagement. Using the same analytic strategy, analyses were repeated with friendship as the dependent variable (DV_2). Assumptions of multilevel modelling were checked and found satisfactory (see Appendix D).

Centering

Level 1 continuous predictor variables were centered around their PSU mean, $x_{ij} - \bar{x}_j$, allowing the researcher to hold PSU-specific characteristics of the predictors constant (Enders & Tofighi, 2007). The resulting regression coefficients were pure estimates of the relationship between Level 1 predictor variables and contact without the confounding effect of PSU level omitted variables. Fixed effect slope coefficients of group-mean centered continuous predictors were interpreted as the average change in contact within a PSU, for a one-unit increase in predictor X relative to its PSU mean. *Level 1 categorical* predictor variables were also centered at their PSU mean, $x_{ij} - \bar{x}_j = x_{ij} - (p_{1j} - p_{0j})$. Fixed effect slope coefficients of group-mean centered categorical predictor variables were interpreted as the expected change in frequency of contact within a PSU, on average, compared to the reference category (Enders & Tofighi, 2007).

The *Level 2 continuous* predictor variable was grand mean centered, $x_j - \bar{x}$ to make the interpretation of the parameter estimate more meaningful (Enders & Tofighi, 2007). The fixed effect slope coefficient of the grand-mean centered continuous predictor

was interpreted as the expected change in frequency of contact, on average (across all PSUs), for a one-unit increase in predictor X relative to the overall (grand) mean.

Sampling design and Weighting

Ethnic majority and ethnic minority participants were sampled separately using a two-stage stratified sampling technique. In the first stage, for both the ethnic majority and ethnic minority samples, a systematic sample of wards was selected. Wards containing fewer than 500 addresses were grouped with neighbouring wards to form primary sampling units (PSUs). In the second stage, addresses were systematically sampled within selected PSUs from the small-user postcode address file (PAF).

Two types of weighting were available in the data set. The *individual weight* was the product of the household screening non-response weight, the address selection weight, the household (cooperation) non-response weight, the dwelling unit selection weight and the individual selection weight (w1 x w2 x w3 x w4 x w5). This weight was then calibrated to the population of England and Wales aged 16 or over according to the 2009 mid-year household population estimates, including age, sex and Government Office Regions (GOR). The *household weight* included the household screening non-response weight, the address selection weight, the household cooperation non-response weight and the dwelling unit selection weight. The product of these was calibrated with the same approach as applied to the individual weight (DCLG, Technical Report, 2011).

Weighting at the PSU level was not available. Efforts were made to obtain this and other relevant information from the data provider. However, the UK Data Service was unable to provide an extended dataset. Continuous attempts were made to access the extended data via "secure access." The UK Data Service requested it from the data owner, while the research team submitted an institutional application which required all members to complete a Secure Access Training. Unfortunately, the UK Data Service did not receive a response from the UK Government's Department for Digital, Culture, Media & Sport (DCMS) which owns the extended data. As sampling weights at the PSU level were unavailable, the sampling design could not be fully accounted for. Instead, the *lme4*

package in R (version 1.1-35.1, Bates et al., 2023) was used with rescaled weights as recommended by the literature (Lüdecke et al., 2024; Asparouhov, 2006).

Measures

Dependent Variables

      Frequency of contact was measured with the question "In the last year, that is since [date] how often, if at all, have you mixed socially with people from different ethnic and religious groups to yourself? By "mixing socially" we mean mixing with people on a personal level by having informal conversations with them as well as meeting up with people to socialise. But don't include situations where you've interacted with people solely for work or business, for example just to buy something." Contact was measured at nine locations, for example at home, at school and at the pub. Responses ranged from 1 = daily, 2 = weekly, 3 = monthly, 4 = at least once a year, 5 = less often than once a year and 6 = never. Scores were reverse coded so that higher values represented more frequent intergroup contact. Analysis was conducted using the mean score of the nine items (Cronbach's alpha, α = .789).

      It is important to note that all participants were asked the same questions about their experiences of intergroup contact. The items were measuring individuals' frequency of contact with *"people from different ethnic and religious groups"* which captures slightly different concepts for the two ethnic groups. For members of the ethnic majority group, this translates to contact experiences with ethnic minority groups. However, for members of ethnic minority groups, intergroup contact likely captured some contact with members of the ethnic majority group as well as some inter-minority contact. Separate questions for ethnic majority and ethnic minority group members were not available.

      Friendship was measured with the item "What proportion of your friends are of the same ethnic group as you?" Responses ranged from 1 = all the same, 2 = more than a half, 3 = about a half, 4 = less than a half, with higher scores representing more outgroup friends. The Citizenship Survey asked the same question both ethnic majority and

minority participants, therefore, as previously noted, minority participants' responses likely captured both friendship with members of the ethnic majority group as well as friendships with individuals from other minority groups.

Individual-level (Level 1) Explanatory Variables

Ethnic group membership was assessed with the item "Which of these categories best describes your ethnic group?" 1 = White, 2 = Mixed, 3 = Asian, 4 = Black, 5 = Chinese, or 6 = Other. Following BCS guidelines on ethnic group categorisation, response 1 was recoded into the category ethnic majority (55.7%), whereas the remaining responses were recoded into the category ethnic minority (44.3% from which 6.2% was Muslim).

Perceived ethnic diversity was measured with the item "Thinking about the mix of people in your local area (within 15-20 minutes walking distance), what proportion of people are of the same ethnic group as you?" Responses ranged from 1 = all the same, 2 = more than a half, 3 = about a half, 4 = less than a half, with higher scores representing greater perceived ethnic diversity.

Ethnic identification was assessed with the question "How important is your ethnic or racial background to your sense of who you are?". Answers were given on a 4-point Likert scale where 1 = very important, 2 = quite important, 3 = not very important and 4 = not at all important. For ease of interpretation, this item was reverse coded so that higher scores corresponded to greater ethnic identification.

Perceived local norms were measured with the item "To what extent do you agree or disagree that your local area is a place where people from different backgrounds get on well together?". Responses were 1 = definitely agree, 2 = agree, 3 = disagree, 4 = definitely disagree, 5 = too few people in local area, 6 = all same backgrounds and 7 = don't know. While responses 5, 6 and 7 were valid attitudinal responses (DCLG, Technical Report, 2011), they could not be interpreted on a scale. Therefore, answers were recoded into categories, with responses 1 and 2 renamed to high perceived local

norms, 3 and 4 to low perceived local norms, and 5, 6, 7 to the category no response (Enders, 2022). Categories were included in the analyses as dummy variables with low perceived local norms as the reference category.

Perceived national norms were assessed with the item "Thinking about racial prejudice in Britain today, do you think that there is now 1 = less racial prejudice than there was 5 years ago, 2 = more than there was 5 years ago, 3 = about the same amount or 4 = Don't know/can't say". As "Don't know/can't say" responses were valid attitudinal responses (DCLG, Technical Report, 2011), the item was recoded into meaningful categories. Response 1 was renamed to high perceived national norms, 3 to moderate perceived national norms, 2 to low perceived national norms and 4 to no response. Categories were added as dummy variables with low perceived national norms as the reference category.

Dispositional trust was measured with the item "Would you say that 1 = Many of the people in your neighbourhood can be trusted, 2 = Some can be trusted, 3 = A few can be trusted, or 4 = None of the people in your neighbourhood can be trusted". Responses were reverse coded so that higher values represented greater dispositional trust.

Support for multiculturalism was measured with the item "How much do you agree or disagree that it is possible to fully belong to Britain and maintain a separate cultural or religious identity?". Responses included 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree and 5 = don't know. 'Don't know' responses were valid attitudinal responses (DCLG, Technical Report, 2011), however, they could not be interpreted on a scale. Therefore, the item was recoded into a categorical measure with responses 1 and 2 becoming the category high support for multiculturalism, 3 and 4 the category low support for multiculturalism (Reference category) and 5 the category no response.

Individual-level (Level 1) Control Variables

To account for demographic characteristics, a number of individual-level control variables were included in the analyses. Age was measured with the question "What was

your age at your last birthday?". *Gender* had two categories, 1 = male and 2 = female. Gender was included in the analyses as a dummy variable with female as the reference category. *Education* was assessed by asking respondents to choose the highest qualification they had from a list where 1 = Degree or equivalent, 2 = Higher education below degree level, 3 = A-level or equivalent, 4 = GCSE grades A-C, 5 = GCSE grades D-E, 6 = Foreign and other qualifications and 7 = No qualifications. While responses 6 and 7 were valid attitudinal responses (DCLG, Technical Report, 2011), they could not be interpreted on a scale. Therefore, answers were recoded into categories, with 1 and 2 renamed to high education, 3, 4 and 5 to medium education, and 6 and 7 to low education. To account for missing values which took up 16.2% of the total responses, a no response category was also created (Enders, 2022). Finally, *area type* was measured with the categories 1 = urban and 2 = rural (reference category), corresponding to geographical areas based on the size of the population (urban > 10,000, rural < 10,000, Office for National Statistics, 2011).

Group-level (Level 2) Explanatory Variable

Actual ethnic diversity was measured with the percentage of households per ward headed by someone from a non-white ethnic minority group. Data was provided in deciles[2]. Values ranged from 1 = lowest density to 10 = highest density, with higher values representing greater ethnic diversity. It is important to note that the actual diversity measure reflects contact opportunities differently for the two ethnic groups. For ethnic majority group members, higher ethnic diversity corresponds to greater opportunities for contact with ethnic minorities. However, for ethnic minority group members, it reflects the inverse relationship whereby higher ethnic diversity indicates less opportunities for contact with the ethnic majority. A separate measure representing the percentage of White individuals per PCUs was unavailable. The extended dataset included lower-output area and ward names which could have allowed the researcher to add this information from an external source (Census 2011; Office for National Statistics, ONS) and conduct

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[2] In descriptive statistics, a decile is any of the nine values that divide the sorted data into ten equal parts, so that each part represents 1/10 of the sample or population.

multi-group analysis. In the absence of this data, the available measure was used, with its limitations acknowledged.

Group-level (Level 2) Controls

Material and social deprivation (MSD) was measured by the English and Welsh Indices of Multiple Deprivation. This combines several dimensions including income, employment, health, education, housing, crime and living environment into one measure with values ranging from 1 = least deprived to 5 = most deprived. As data at PSU level were unavailable, MSD was not included in the analyses.

Population size per PSUs was not available in the current dataset. In Study 1 and Study 2, population size was included as a control variable. This decision was justified with the argument that ethnic majority group members may have more frequent contact with ethnic minorities simply because the area where they live is more highly populated. However, in Study 3, population size could not be controlled for due to the absence of the variable in the dataset.

Missing data

Analysis revealed that less than 5% of data was missing. This low proportion was partly attributed to recoding responses for certain variables, such as perceived local norms, perceived national norms, and support for multiculturalism. This method is commonly used to minimize data loss while preserving analytical validity (Enders, 2022). Moreover, missing values were missing completely at random. In line with literature recommendations, missing data was handled using listwise deletion (Enders, 2022).

Results: Interethnic Contact

Descriptive statistics

The data set included 11,470 individuals (Level 1) nested within 1405 primary sampling units (Level 2). There were 5462 males and 6008 females in the sample. The mean age across all PSUs and individuals was 41.08 years (SD = 14.88). Descriptive statistics per randomly selected PSUs are summarized in Table 22.

Table 22

Descriptive Statistics per Randomly Selected PSUs in the BCS

PSU ID	Government Office Region	Sample size	Mean Contact (scale 1-6)		Level 1 Perceived ethnic diversity (scale 1-4)		Level 2 Actual ethnic diversity (scale 1-10)
			Ethnic group status				
			Majority	Minority	Majority	Minority	
1141	London	13	3.53	4.01	2.92	3.59	10
1299	South-East	20	4.84	5.26	1.99	4.00	8
2332	West Midlands	25	4.33	4.65	4.00	3.05	10
2390	London	20	4.89	4.88	4.00	3.71	10
3263	Yorkshire and the Humber	17	5.33	5.47	2.57	3.02	9
4279	South-East	20	4.48	4.50	2.80	3.90	9
4299	South-East	19	3.52	4.86	2.08	4.00	6
4381	London	23	3.56	3.27	4.00	3.50	9
5246	East of England	14	3.91	5.44	1.68	4.00	4
5300	London	22	4.56	4.62	2.00	3.18	10
5301	London	28	3.89	4.31	3.00	2.30	10
6206	East of England	25	3.20	3.44	1.65	4.00	7
6224	South-East	19	5.42	5.34	2.93	3.10	8
7362	South-East	25	5.11	5.22	3.00	3.46	10
7391	London	14	5.33	5.27	4.00	4.00	10

9150	London	13	4.13	3.91	2.18	4.00	9
9232	Yorkshire and the Humber	18	3.77	4.25	3.16	2.93	9
9298	East of England	14	3.08	3.89	2.45	4.00	4
9361	London	14	5.78	4.46	2.00	3.06	10

Note. Values represent weighted averages.

As Figure 16 illustrates, mean frequency of contact varied substantially between randomly selected PSUs. Average frequency of contact was the highest in the South-East (PSU ID 6224, M = 5.40, SD = 1.05) and the lowest in East of England (PSU ID 9298, M = 3.12, SD = 0.79).

Figure 16

Variation of Mean Contact Among Randomly Selected PSUs in the BCS
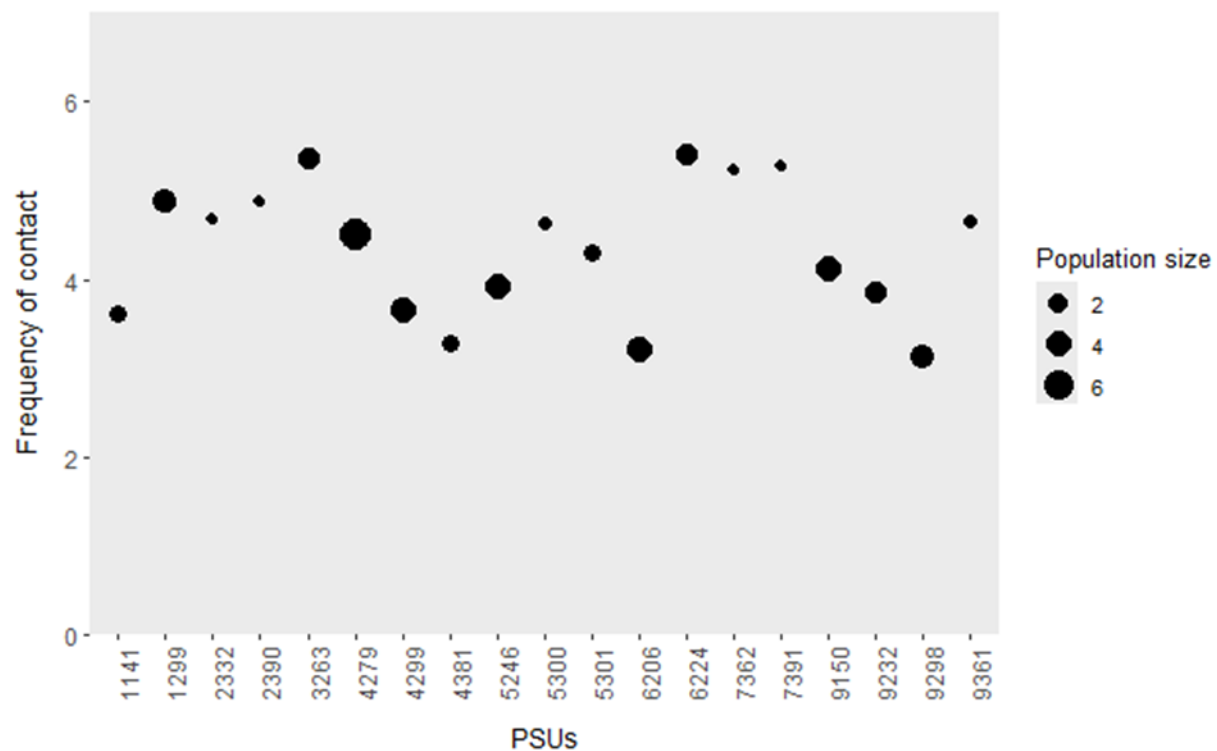
Frequency of intergroup contact by ethnic group membership is also summarized in Table 1. This suggests that in randomly selected PSUs, members of ethnic minority groups reported, on average, more frequent interethnic contact (M = 4.47, SD = 1.23), compared to members of the ethnic majority group (M = 4.04, SD = 1.16). Ethnic minorities' perception of ethnic diversity was also, on average, higher (M = 3.48, SD = 0.79) than that of the ethnic majority group (M = 2.24, SD = 0.94). Ethnic minorities' perception of ethnic diversity was generally high regardless of actual diversity rates. In contrast, perception of ethnic diversity reported by members of the ethnic majority group was in alignment with actual diversity rates (higher in areas of London, and lower in East of England).

Multilevel models

Model 0: The Linear Regression Model. With the aim of establishing the need for modelling the data at multiple levels, a single-level linear regression model and a two-level variance-components model were fitted and results compared. First, a linear regression model was fitted for frequency of contact (DV) with no covariates. This model is written as

$$Cont_i = \beta_0 + r_i$$
$$r_i \sim N(0, \sigma_r^2)$$

in which $Cont_i$ stands for frequency of contact for individual *i*

β_0 is the overall intercept (or grand mean)

r_i is the total residuals

Model 1: The Variance Components Model. Next, a two-level variance-components model was fitted (with no covariates) by decomposing the total residuals r_{ij} into individual-level (Level 1) residuals e_{ij} and PSU-level (Level 2) residuals u_j. The model is written as

$$Cont_{ij} = \beta_0 + \underbrace{u_j + e_{ij}}_{r_{ij}}$$

in which $Cont_{ij}$ stands for frequency of contact for individual *i* in PSU *j*

β_0 is the overall intercept (grand mean)

e_{ij} is the Level 1 random effect

u_j is the Level 2 random effect

Table 23 shows the model fit of the linear regression model (Model 0) and the two-level variance components model (Model 1). Likelihood ratio test indicates that the variance components model provided a significantly better fit to the data, $\chi^2(1) =$ 2731, $p < .001$.

Table 23

Model Fit of the Single-Level Linear Regression Model and the Two-Level Variance-Components Model in the BCS

Parameter		Model 0		Model 1	
		Estimate	SE	Estimate	SE
β_0	**Intercept**	**4.252*****	0.011	**4.219*****	0.022
σ_u^2	PSU variance	-	-	0.524	0.007
σ_e^2	Individual variance	1.494	0.011	0.966	0.009
Deviance		39302		36571	

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

The variance components model shows that averaging across all PSUs, the overall mean contact was 4.219 which translates to *'monthly'*. The between-PSU variance (σ_u^2) was 0.524 while the within-PSU variance (σ_e^2) was 0.966, adding up to a total variance of 1.490. The between-PSU variance suggests that there is clustering in the data. To quantify the degree of clustering, Variance Partition Coefficient (VPC) and Intraclass Correlation Coefficient (ICC) statistics were calculated. The VPC_u was 0.352, indicating

that approximately 35% of the variation in contact lied between PSUs. As the formula for the ICC coincides with the formula for the VPC, this also means that the expected correlation between two individuals from the same PSU was 0.352.

Model 2: The Random Intercept Model with Level 1 Controls. To answer the research question *"What individual-level (Level 1) demographic factors can explain contact engagement with ethnic and religious outgroups?"*, Level 1 demographic control variables including age, gender, education, and area type were added to the model. Variables were centered around their group mean and reflected deviations from the average age, gender, education level and area type in respective PCUs. The two-level random-intercept model with demographic controls is written as

$$Cont_{ij} = \underbrace{\beta_0 + \beta_1 Age_{ij} + \beta_2 Male_{ij} + \beta_3 Edu_{H_{ij}} + \beta_4 Edu_{M_{ij}} + \beta_5 Edu_{NR_{ij}} + \beta_6 Urb_{ij}}_{fixed\ part} +$$

$$\underbrace{u_j + e_{ij}}_{random\ part}$$

$$u_j \sim N(0, \sigma_u^2)$$
$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1, β_2, β_3, β_4 β_5 and β_6 are fixed effects
- β_0 is the overall intercept
- β_1 is the slope coefficient for Age
- β_2 is the slope coefficient for Males (ref. Females)
- β_3 is the slope coefficient for Education level High (ref. Low)
- β_4 is the slope coefficient for Education level Moderate
- β_5 is the slope coefficient for Education No Response
- β_6 is the slope coefficient for Urban area (ref. Rural)

and u_j and e_{ij} are random effects
- u_j is the Level 2 random effect

- e_{ij} is the Level 1 random effect

Table 24 shows the comparison between the two-level variance components model (Model 1) and the two-level random-intercept model where Level 1 control variables were accounted for (Model 2). Results indicate that the random-intercept model provided a significantly better fit to the data, $\chi^2(6) = 277$, $p < .001$.

Table 24

Model Comparison of the Variance Components Model and the Random-Intercept Model with Level 1 Controls in the BCS

		Model 1		Model 2	
Parameter		Estimate	SE	Estimate	SE
β_0	**Intercept**	4.219***	0.022	**4.384*****	0.033
β_1	**Age**	-	-	**- 0.008*****	0.001
β_2	Males (Ref. Females)	-	-	0.034	0.020
β_3	**Education High (Ref. Low)**	-	-	**0.202*****	0.028
β_4	**Education Moderate**	-	-	**0.145*****	0.028
β_5	Education No Response	-	-	-	-
β_6	Urban (Ref. Rural)	-	-	- 0.050	0.097
σ_u^2	PSU variance	0.524	0.007	0.498	0.007
σ_e^2	Individual variance	0.966	0.009	0.946	0.009
Deviance		36571		36294	

*Notes. *** $p < .001$, ** $p < .01$, * $p < .05$*

The association between intergroup contact and age was negative, suggesting that individuals older than the average age in their PSU reported significantly less frequent contact with people from different ethnic and religious groups, $b = - 0.008$, $p < .001$. Individuals with high and moderate (vs. low) levels of education reported significantly more frequent contact engagement, $b_H = 0.202$, $b_M = 0.145$, $p < .001$. Finally, gender and area type were not significantly associated with contact.

There was substantial variation in frequency of contact even after accounting for Level 1 control variables. The conditional VPC and ICC were 0.345, indicating that approximately 35% of the variation in frequency of contact lied between PSUs, and 65% within PSUs when Level 1 control variables were included in the model (see Table 25). Level-specific changes in variance were also calculated. Proportion change in variance (PCV) statistic showed that at the PSU level (Level 2), variance decreased by approximately 5%, indicating that variation in age, gender, education and area type between PSUs explained approximately 5% of the variation in frequency of contact. Furthermore, at the individual level (Level 1), variance decreased by approximately 2%, indicating that variation in Level 1 control variables within PSUs explained approximately 2% of the variation in frequency of contact.

Table 25

VPC, PCV and ICC Statistics for the Two-Level Random Intercept Model with L1 Controls in the BCS

Level	VPC	PCV	ICC
PSU	0.345	- 0.049	0.345
Individual	0.655	- 0.021	-

Model 3: The Random Intercept Model with Level 1 Controls and Level 1 Explanatory Variables. To answer the research question *"What individual-level (Level 1) psychological factors can explain contact engagement with ethnic and religious outgroups*?", Level 1 explanatory variables were added to the model, including *ethnic group membership, perceived ethnic diversity, ethnic identification, perceived local norms, perceived national norms, dispositional trust* and *support for multiculturalism*. Variables were centered around their PSU (Level 2) mean. The random-intercept model with Level 1 control- and Level 1 explanatory variables is written as

$$Cont_{ij} = \begin{aligned} &\beta_0 + \beta_1 Age_{ij} + \beta_2 Male_{ij} + \beta_3 Edu_{H_{ij}} + \beta_4 Edu_{M_{ij}} + \beta_5 Edu_{NR_{ij}} + \beta_6 Urb_{ij} + \\ &\underbrace{\beta_7 Maj_{ij} + \beta_8 PD_{ij} + \beta_9 EthID_{ij} + \beta_{10} PLN_{H_{ij}} + \beta_{11} PLN_{NR_{ij}} + \beta_{12} PNN_{H_{ij}} + }_{} \\ &\underbrace{\beta_{13} PNN_{M_{ij}} + \beta_{14} PNN_{NR_{ij}} + \beta_{15} Trust_{ij} + \beta_{16} SMc_{H_{ij}} + \beta_{17} SMc_{NR_{ij}} + }_{fixed\ part} \end{aligned}$$

$$\underbrace{u_j + e_{ij}}_{random\ part}$$

$$u_j \sim N(0, \sigma_u^2)$$
$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1 - β_{17} are fixed effects

- β_7 is the slope coefficient for ethnic majority (ref. minority)
- β_8 is the slope coefficient for perceived ethnic diversity
- β_9 is the slope coefficient for ethnic identification
- β_{10} is the slope coefficient for high perceived local norms (ref. low)
- β_{11} is the slope coefficient for perceived local norms with no response
- β_{12} is the slope coefficient for high perceived national norms (ref. low)
- β_{13} is the slope coefficient for moderate perceived national norms
- β_{14} is the slope coefficient for perceived national norms with no response
- β_{15} is the slope coefficient for dispositional trust
- β_{16} is the slope coefficient for high support for multiculturalism (ref. low)
- β_{17} is the slope coefficient for support for multiculturalism with no response

and $u_j\ and\ e_{ij}$ are random effects

- u_j is the Level 2 random effect
- e_{ij} is the Level 1 random effect

Table 26 shows the comparison between the random-intercept model with Level 1 controls (Model 2) and the random-intercept model with Level 1 controls and Level 1

explanatory variables (Model 3). Model 3 (vs. Model 2) provided a significantly better fit to the data, χ^2 (11) = 164, p < .001.

Table 26

Model Comparison of the Two-Level Random-Intercept Model with Level 1 Controls and the Two-Level Random-Intercept Model with Level 1 Controls and Level 1 Explanatory Variables in the BCS

		Model 2		Model 3	
Parameter		Estimate	SE	Estimate	SE
β_0	**Intercept**	4.384***	0.033	**4.452***	0.036
β_1	**Age**	- 0.008***	0.001	**- 0.008***	< 0.001
β_2	Males (Ref. Females)	0.034	0.020	0.025	0.020
β_3	**Education High (Ref. Low)**	0.202***	0.028	**0.190***	0.028
β_4	**Education Moderate**	0.145***	0.028	**0.147***	0.028
β_5	Education No Response	-	-	-	-
β_6	Urban (Ref. Rural)	- 0.050	0.097	- 0.075	0.097
β_7	Ethnic majority (Ref. Minority)	-	-	- 0.040	0.048
β_8	**Perceived ethnic diversity**	-	-	**0.103***	0.013
β_9	Ethnic identification	-	-	- 0.015	0.012
β_{10}	**Perc local norms H (Ref. Low)**	-	-	**0.076***	0.031
β_{11}	Perceived local norms NR	-	-	-	-
β_{12}	**Perc national norms H (Ref. Low)**	-	-	**0.105***	0.029
β_{13}	Perceived national norms M	-	-	0.012	0.023
β_{14}	Perceived national norms NR	-	-	-	-
β_{15}	**Dispositional trust**	-	-	**0.035***	0.014
β_{16}	**Support for multicult H (Ref. Low)**	-	-	**0.116***	0.025
β_{17}	Support for multiculturalism NR	-	-	-	-
σ_u^2	PSU variance	0.498	0.007	0.485	0.007
σ_e^2	Individual variance	0.946	0.009	0.934	0.009

Deviance	36294	36130

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

There was no significant association between ethnic group membership and intergroup contact, b = - 0.040, p = .404. The association between perceived diversity and contact was positive, suggesting that individuals with higher-than-average perception of diversity in their local area reported significantly more frequent contact with ethnic and religious outgroups, b = 0.103, p < .001. Higher (vs. lower) than average perception of local norms had a positive association with contact. Individuals who said that their local area is a place where people from different backgrounds get on well together engaged in significantly more frequent intergroup contact, b = 0.076, p = .012. Higher (vs. lower) than average perception of national norms was also positively associated with contact. Individuals who thought that there was less racial prejudice in Britain than there was 5 years ago reported significantly more frequent intergroup contact, b = 0.105, p < .001. Dispositional trust was positively associated with contact. Individuals with a greater than average trust in other people in their neighbourhood reported significantly more frequent outgroup contact, b = 0.035, p = .013. Higher (vs. lower) than average support for multiculturalism was positively related to contact. Respondents who thought that it was possible to fully belong to Britain and at the same time maintain a separate cultural identity engaged in more frequent intergroup contact, b = 0.116, p < .001. Finally, ethnic identification was not significantly related to contact, b = - 0.015, p = .213.

As Table 27 demonstrates, there was substantial variation in frequency of contact even after accounting for Level 1 explanatory variables. The conditional VPC was 0.342, indicating that approximately 34% of the variation in frequency of contact lied between PSUs, and 66% within PSUs when both Level 1 control and Level 1 explanatory variables were included in the model. PCV statistics indicated that between-PSU variation in Level 1 explanatory variables accounted for an additional 2.7% of the variation in frequency of contact, whereas within-PSU variation in Level 1 explanatory variables explained a further 1.3% of the variation in frequency of contact.

Table 27

VPC, PCV and ICC Statistics for the Two-Level Random Intercept Model with L1
Covariates in the BCS

Level	VPC	PCV	ICC
PSU	0.342	- 0.027	0.342
Individual	0.658	- 0.013	-

Model 4: The Random Intercept Model with Level 1 and Level 2 Covariates.
To answer the research question *"What PSU-level (Level 2) structural factors can predict*
contact engagement with ethnic and religious outgroups?", Level 2 *actual ethnic diversity*
was added to the model. The variable was centered around the grand mean and reflected
deviations from the overall average ethnic diversity rate across the whole sample. The
two-level random intercept model with Level 1 and Level 2 covariates is written as

$$Cont_{ij} = \underbrace{\begin{aligned} &\beta_0 + \beta_1 Age_{ij} + \beta_2 Male_{ij} + \beta_3 Edu_{H_{ij}} + \beta_4 Edu_{M_{ij}} + \beta_5 Edu_{NR_{ij}} + \beta_6 Urb_{ij} + \\ &\beta_7 Maj_{ij} + \beta_8 PD_{ij} + \beta_9 EthID_{ij} + \beta_{10} PLN_{H_{ij}} + \beta_{11} PLN_{NR_{ij}} + \beta_{12} PNN_{H_{ij}} + \\ &\beta_{13} PNN_{M_{ij}} + \beta_{14} PNN_{NR_{ij}} + \beta_{15} Trust_{ij} + \beta_{16} SMc_{H_{ij}} + \beta_{17} SMc_{NR_{ij}} + \beta_{18} AD_j + \end{aligned}}_{fixed\ part}$$

$$\underbrace{u_j + e_{ij}}_{random\ part}$$

$$u_j \sim N(0, \sigma_u^2)$$

$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1 - β_{18} are fixed effects

- β_{18} is the slope coefficient for actual ethnic diversity

and u_j and e_{ij} are random effects

- u_j is the Level 2 random effect

- e_{ij} is the Level 1 random effect

Table 28 shows the comparison between the random-intercept model with Level 1 covariates (Model 3) and the random-intercept model with Level 1 and Level 2 covariates (Model 4). Likelihood ratio test confirmed that Model 4 provided a significantly better fit to the data, χ^2 (1) = 316, $p < .001$.

Table 28

Model Comparison of the Two-Level Random-Intercept Model with Level 1 Covariates and the Two-Level Random-Intercept Model with Level 1 and Level 2 Covariates in the BCS

		Model 3		Model 4	
Parameter		Estimate	SE	Estimate	SE
β_0	**Intercept**	4.452***	0.036	**4.184***	0.035
β_1	**Age**	- 0.008***	< 0.001	**- 0.008***	< 0.001
β_2	Males (Ref. Females)	0.025	0.020	0.024	0.019
β_3	**Education High (Ref. Low)**	0.190***	0.028	**0.186***	0.028
β_4	**Education Moderate**	0.147***	0.028	**0.147***	0.028
β_5	Education No Response	-	-	-	-
β_6	Urban (Ref. Rural)	- 0.075	0.097	- 0.079	0.097
β_7	Ethnic majority (Ref. Minority)	- 0.040	0.048	- 0.074	0.048
β_8	**Perceived ethnic diversity**	0.103***	0.013	**0.102***	0.013
β_9	Ethnic identification	- 0.015	0.012	- 0.016	0.012
β_{10}	**Perc local norms H (Ref. Low)**	0.076**	0.031	**0.072**	0.030
β_{11}	Perceived local norms NR	-	-	-	-
β_{12}	**Perc national norms H (Ref. Low)**	0.105***	0.029	**0.106***	0.029
β_{13}	Perceived national norms M	0.012	0.023	0.017	0.023
β_{14}	Perceived national norms NR	-	-	-	-
β_{15}	**Dispositional trust**	0.035*	0.014	**0.035***	0.014
β_{16}	**Support for multicult H (Ref. Low)**	0.116***	0.025	**0.116***	0.024

β_{17}	Support for multiculturalism NR	-	-	-	-
β_{18}	**Actual ethnic diversity**	-	-	**0.136***	0.007
σ_u^2	PSU variance	0.485	0.007	0.362	0.006
σ_e^2	Individual variance	0.934	0.009	0.933	0.009
	Deviance		36130		35814

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Actual ethnic diversity was positively associated with contact. Living in a PSU where the percentage of ethnic minority households was higher than average predicted more frequent interethnic contact, $b = 0.136$, $p < .001$. VPC, PCV and ICC statistics are summarized in Table 29. This shows that PSU-level variation in actual ethnic diversity explained an additional 25% of variance in intergroup contact, whereas the individual level (Level 1) variance remained approximately the same.

Table 29

VPC, PCV and ICC Statistics for the Two-Level Random Intercept Model with L1 and L2 Covariates in the BCS

Level	VPC	PCV	ICC
PSU	0.279	- 0.254	0.279
Individual	0.721	- 0.001	-

A summary of all models testing the association between Level 1 and Level 2 predictor variables and intergroup contact are displayed in Table 30.

Table 30

Model Summary of Study 3 – DV Frequency of Contact

Parameter	Model 1 Estimate	Model 1 SE	Model 2 Estimate	Model 2 SE	Model 3 Estimate	Model 3 SE	Model 4 Estimate	Model 4 SE
Fixed effects								
Intercept	**4.219***	0.022	**4.384***	0.033	**4.452***	0.036	**4.184***	0.035
Level 1 controls								
Age			**- 0.008***	0.001	**- 0.008***	< 0.001	**- 0.008***	< 0.001
Males (Ref. Females)			0.034	0.020	0.025	0.020	0.024	0.019
Education High (Ref. Low)			**0.202***	0.028	**0.190***	0.028	**0.186***	0.028
Education Moderate			**0.145***	0.028	**0.147***	0.028	**0.147***	0.028
Urban (Ref. Rural)			- 0.050	0.097	- 0.075	0.097	- 0.079	0.097
Level 1 explanatory variables								
Ethnic majority (Ref. Minority)					- 0.040	0.048	- 0.074	0.048
Perceived ethnic diversity					**0.103***	0.013	**0.102***	0.013
Ethnic identification					- 0.015	0.012	- 0.016	0.012
Perceived local norms H (Ref. Low)					**0.076****	0.031	**0.072****	0.030
Perceived national norms H (Ref. Low)					**0.105***	0.029	**0.106***	0.029
Perceived national norms M					0.012	0.023	0.017	0.023
Dispositional trust					**0.035***	0.014	**0.035***	0.014
Support for multiculturalism H (Ref Low)					**0.116***	0.025	**0.116***	0.024
Level 2 explanatory variable								
Actual ethnic diversity							**0.136***	0.007
Random effects								
PCU-level variance	0.524	0.007	0.498	0.007	0.485	0.007	0.362	0.006
Individual-level variance	0.966	0.009	0.946	0.009	0.934	0.009	0.933	0.009
Deviance	36571		36294		36130		35814	
VPC ≡ ICC	0.352		0.345		0.342		0.279	
PCV	-							
PSU level			- 0.049		- 0.027		- 0.254	
Individual level			- 0.021		- 0.013		- 0.001	

Notes. The response is frequency of contact. N = 32,854 respondents nested within 20 countries. *** $p < .001$, ** $p < .01$, * $p < .05$

Level 1 interaction effects

To answer the research question *"Does the relationship between Level 1 psychological antecedents and intergroup contact vary as a function of Level 1 ethnic group membership?"*, Level 1 interaction terms were tested. First, the interaction between Level 1 perceived ethnic diversity and Level 1 ethnic majority (vs. minority) group membership was examined. The model is written as

$$Cont_{ij} = \underbrace{\beta_0 + \beta_1 PD_{ij} + \beta_2 Maj_{ij} + \beta_3 PD_{ij} * Maj_{ij}}_{fixed\ part}$$

$$\underbrace{u_j + e_{ij}}_{random\ part}$$

$$u_j \sim N(0, \sigma_u^2)$$
$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1 - β_3 are fixed effects
- β_1 is the slope coefficient for perceived ethnic diversity
- β_2 is the slope coefficient for majority group membership (ref. minority)
- β_3 is the slope coefficient for the interaction term

and u_j and e_{ij} are random effects
- u_j is the Level 2 random effect
- e_{ij} is the Level 1 random effect

Results revealed a significant interaction between Level 1 perceived ethnic diversity and Level 1 ethnic group membership, b = 0.060, p = .026. As Figure 17 illustrates, higher than average perceived ethnic diversity predicted significantly more frequent contact with ethnic and religious outgroups, b = 0.049, p = .009. This relationship

was significantly stronger for members of the ethnic majority group, $b = 0.110$, $p < .001$, compared to ethnic minorities, $b = 0.070$, $p < .001$.

Figure 17

*Interaction Between Level 1 Perceived Ethnic Diversity and Level 1 Ethnic Group Membership*
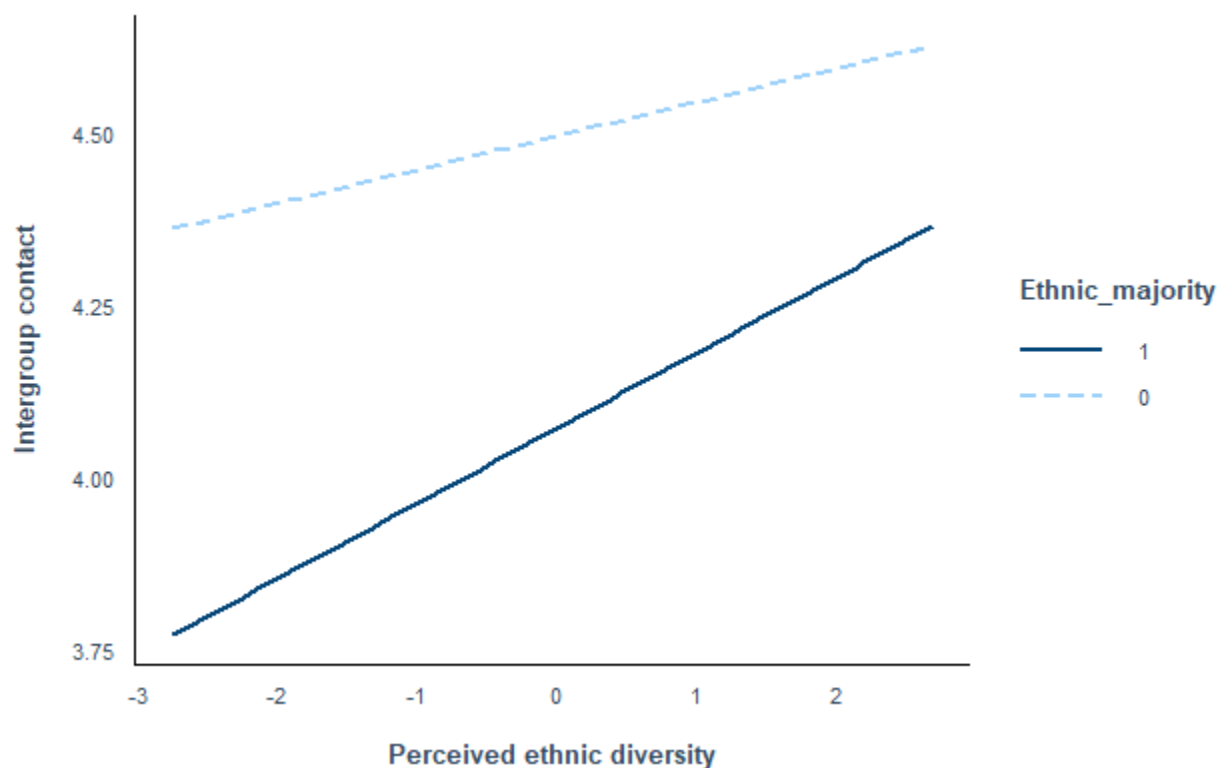
Applying the same analytic strategy, the interaction between each Level 1 explanatory variable and Level 1 ethnic majority (vs. minority) group membership was tested. Results showed a significant interaction between Level 1 dispositional trust and Level 1 ethnic group membership, $b = - 0.054$, $p = .048$. As Figure 18 illustrates, individuals with a higher-than-average belief that people in their neighbourhood can be trusted engaged in more frequent contact with ethnic and religious outgroups, $b = 0.061$, $p = .002$. This relationship was significantly stronger for members of ethnic minority

groups, $b = 0.070$, $p < .001$, compared to the ethnic majority for whom trust was not a significant predictor of intergroup contact, $b = 0.020$, $p = .370$.

Figure 18

Interaction Between Level 1 Dispositional Trust and Level 1 Ethnic Group Membership
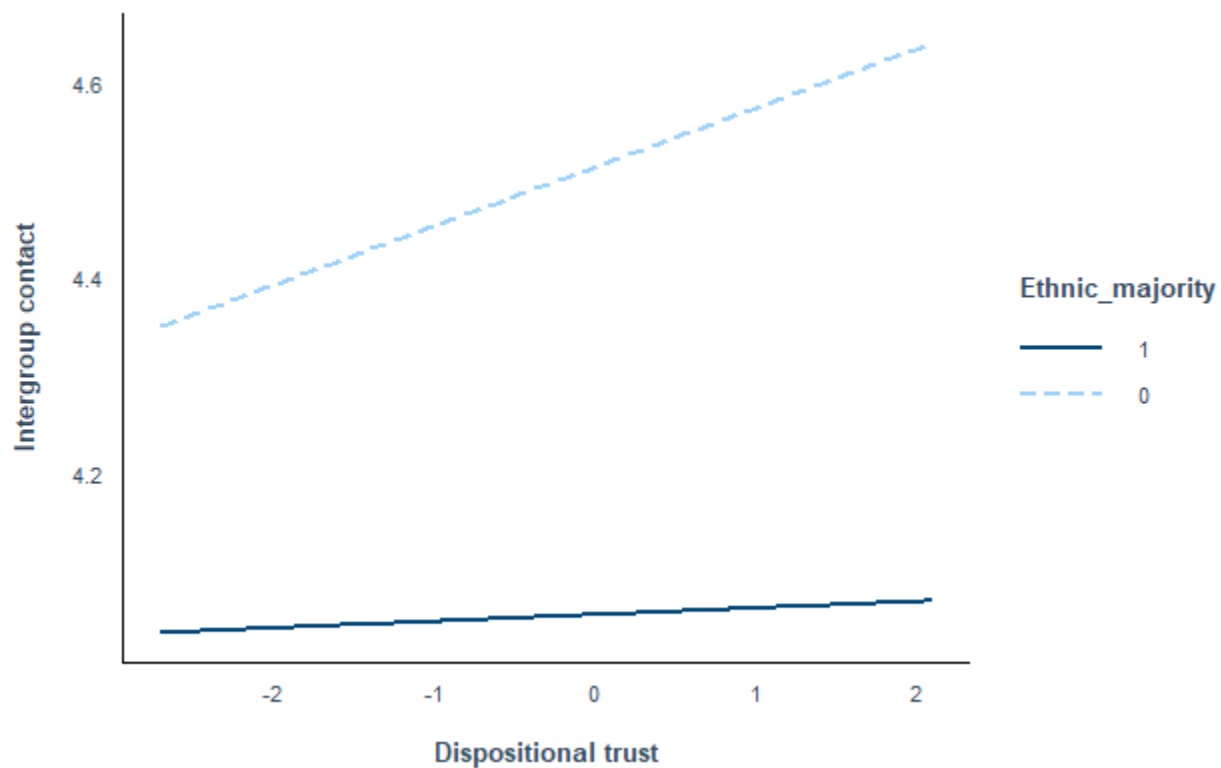
Further results showed no significant moderation effect for Level 1 ethnic identification, $b = -0.022$, $p = .385$, high (vs. low) perceived local norms, $b = 0.040$, $p = .519$; high (vs. low) perceived national norms, $b = 0.067$, $p = .218$; moderate (vs. low) perceived national norms, $b = 0.023$, $p = .591$, and high (vs. low) support for multiculturalism, $b = 0.053$, $p = .332$.

Cross-level Interactions

To answer the research question *"When and for whom does actual ethnic diversity translate to greater intergroup contact engagement?",* cross-level interaction terms were tested. First, the moderating effect of Level 1 ethnic group membership on the relationship between Level 2 actual ethnic diversity and intergroup contact was examined. Additionally, random slopes were included for Level 1 ethnic group membership to account for potential variability across PSUs (Heisig & Schaeffer, 2019). The model is written as:

$$Cont_{ij} = \underbrace{\beta_0 + \beta_1 Maj_{ij} + \beta_2 AD_j + \beta_3 AD_j * Maj_{ij}}_{fixed\ part} + \underbrace{u_{0j} + u_{1j} Maj_{ij} + e_{ij}}_{random\ part}$$

$$\begin{pmatrix} u_{0j} \\ u_{1j} \end{pmatrix} \sim N \left\{ \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{u0}^2 & \\ \sigma_{u01} & \sigma_{u1}^2 \end{pmatrix} \right\}$$

$$e_{ij} \sim N(0, \sigma_e^2)$$

in which β_1 - β_3 are fixed effects

- β_3 is the slope coefficient for the interaction term

and u_j and e_{ij} are random effects

- u_{0j} is the Level 2 random intercept

- $u_{1j} Maj_{ij}$ is the Level 2 random slope for the majority ethnic group

- e_{ij} is the Level 1 random effect

Results revealed a significant interaction between Level 2 actual ethnic diversity and Level 1 ethnic group membership, $b = 0.155$, $p < .001$. As Figure 19 illustrates, higher-than-average actual ethnic diversity predicted more frequent outgroup contact for members of the ethnic majority group, $b = 0.130$, $p < .001$, but less frequent outgroup contact for ethnic minorities, $b = -0.030$, $p = .010$. As the actual diversity measure represented slightly different concepts for the two ethnic groups, the interpretation of

these findings is as follows: for ethnic majority group members, greater opportunities to interact with ethnic minorities translated to greater contact engagement. However, for ethnic minority individuals, less opportunities to interact with majority group members were associated with less frequent contact engagement with the ethnic majority as well as ethnic minority outgroups.

Figure 19

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 Ethnic Group Membership
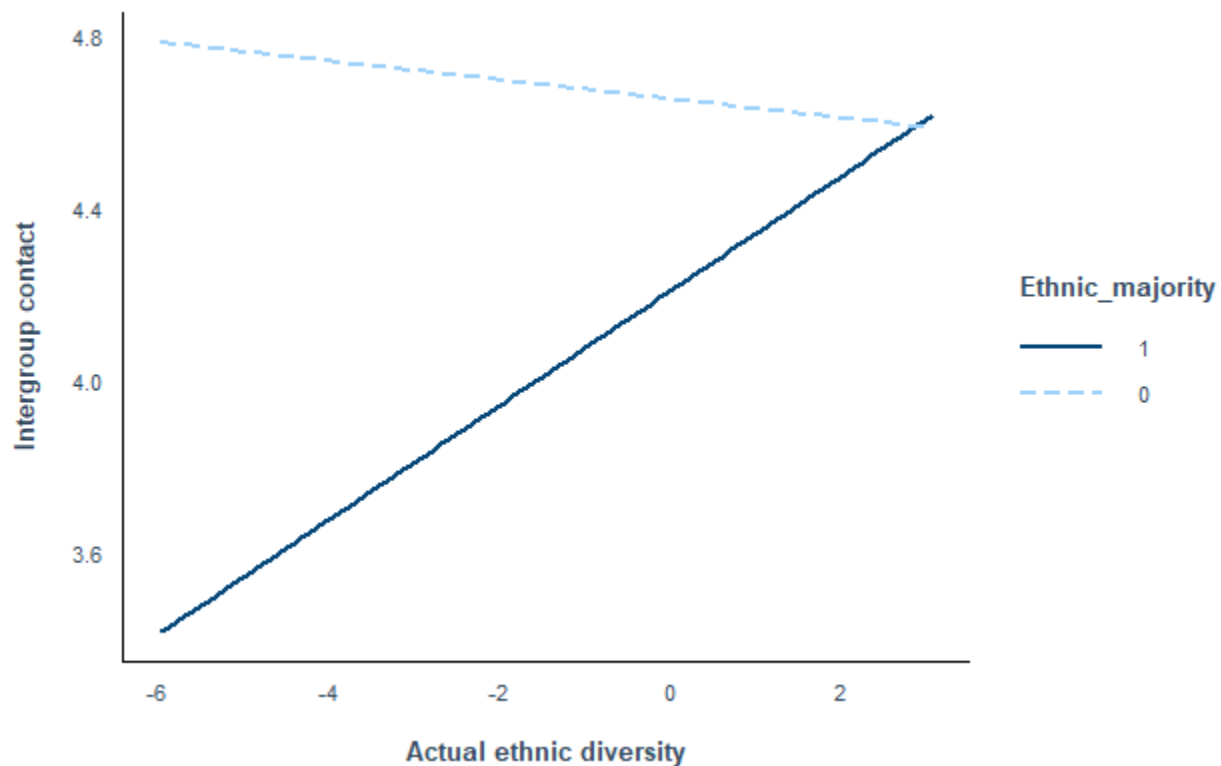
Applying the same analytic strategy, the moderating effect of each individual-level explanatory variable on the relationship between Level 2 actual ethnic diversity and intergroup contact was tested. Non-significant moderation effects were found for ethnic

identification, $b = - 0.003$, $p = .542$; high (vs. low) perceived local norms, $b = 0.002$, $p = .843$; and moderate (vs. low) perceived national norms, $b = - 0.006$, $p = .401$.

However, results showed a significant moderation effect for Level 1 perceived ethnic diversity, $b = - 0.027$, $p < .001$. As Figure 20 illustrates, higher-than-average actual diversity rates predicted significantly more frequent contact engagement with ethnic and religious outgroups when individuals' perception of ethnic diversity was higher than average (1 SD above their PSU mean), $b = 0.110$, $p < .001$, compared to when it was average (at their PSU mean), $b = 0.130$, $p < .001$, and lower than average (1 SD below their PSU mean), $b = 0.160$, $p < .001$.

Figure 20

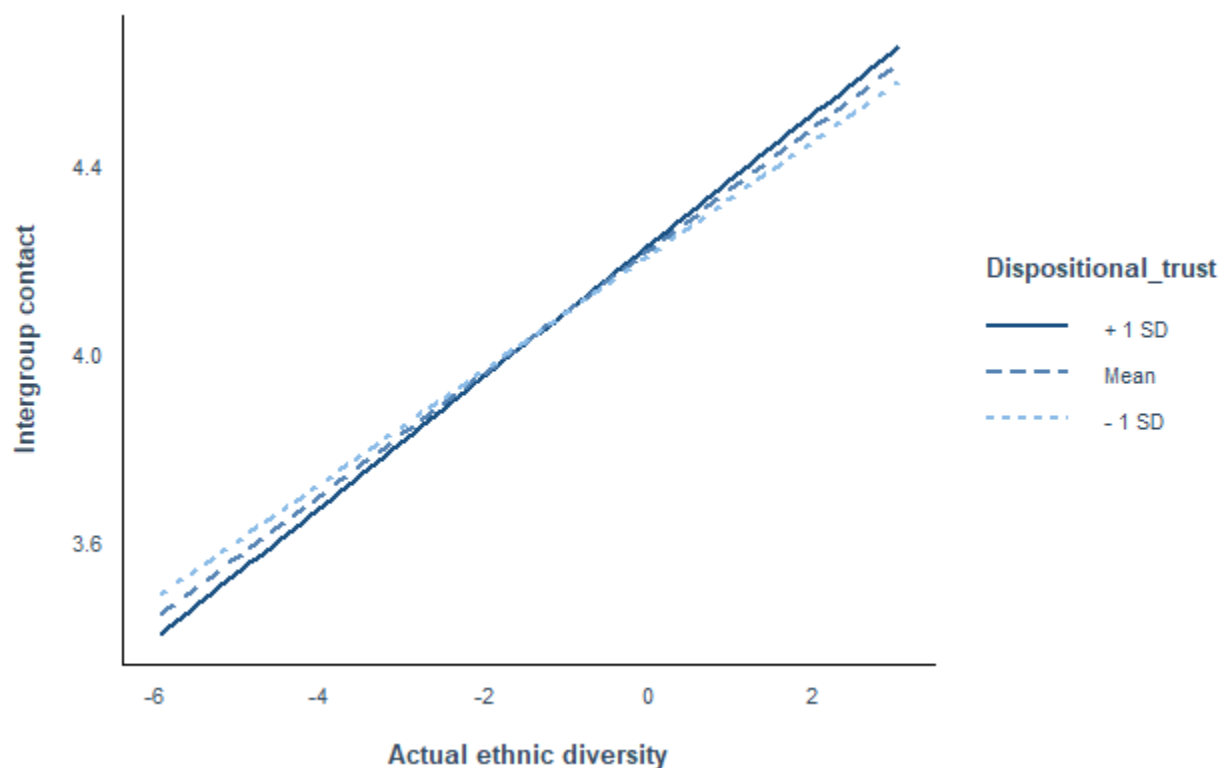*Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 Perceived Ethnic Diversity*
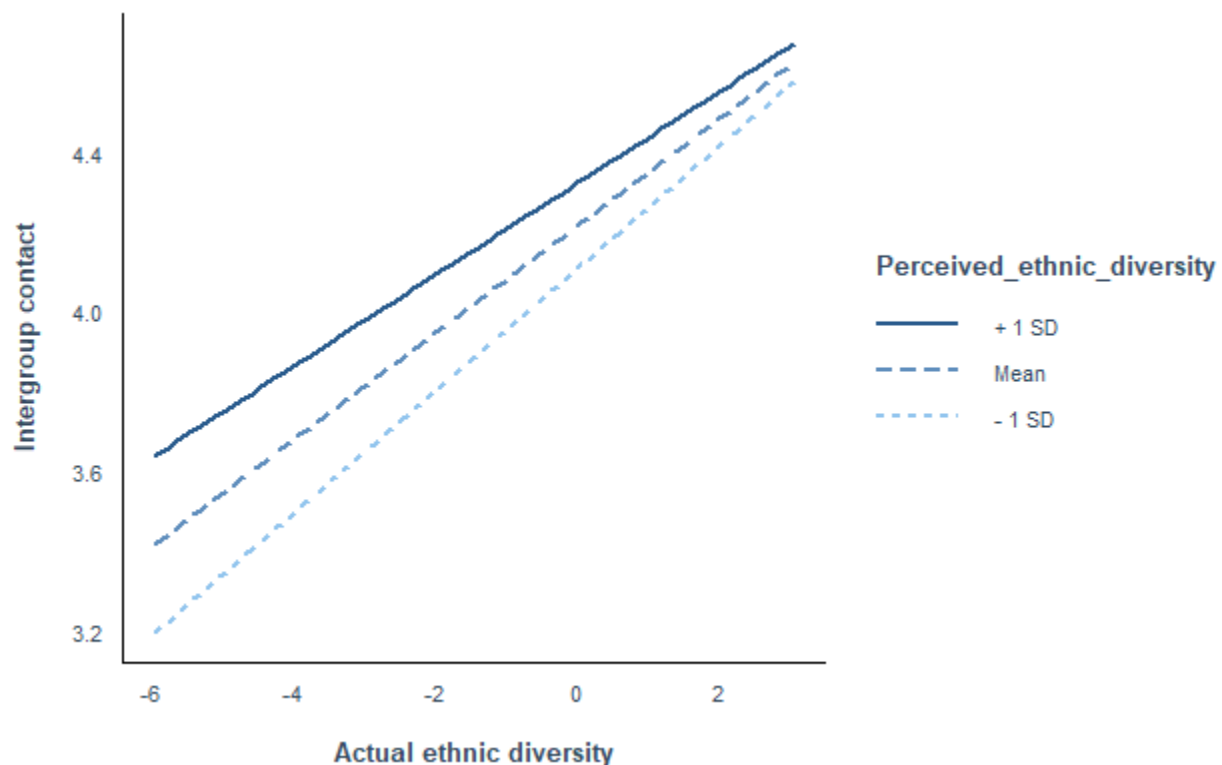
Furthermore, the interaction between Level 2 actual ethnic diversity and Level 1 high (vs. low) perceived national norms was also significant, $b = -0.021$, $p = .028$. As Figure 21 illustrates, greater-than-average contact opportunities with ethnic minorities translated to significantly more frequent contact engagement for individuals' who believed that there was less racial prejudice in Britain than five years ago, $b = 0.110$, $p < .001$, compared to those who believed that there was more racial prejudice, $b = 0.130$, $p < .001$.

Figure 21

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 High Perceived National Norms
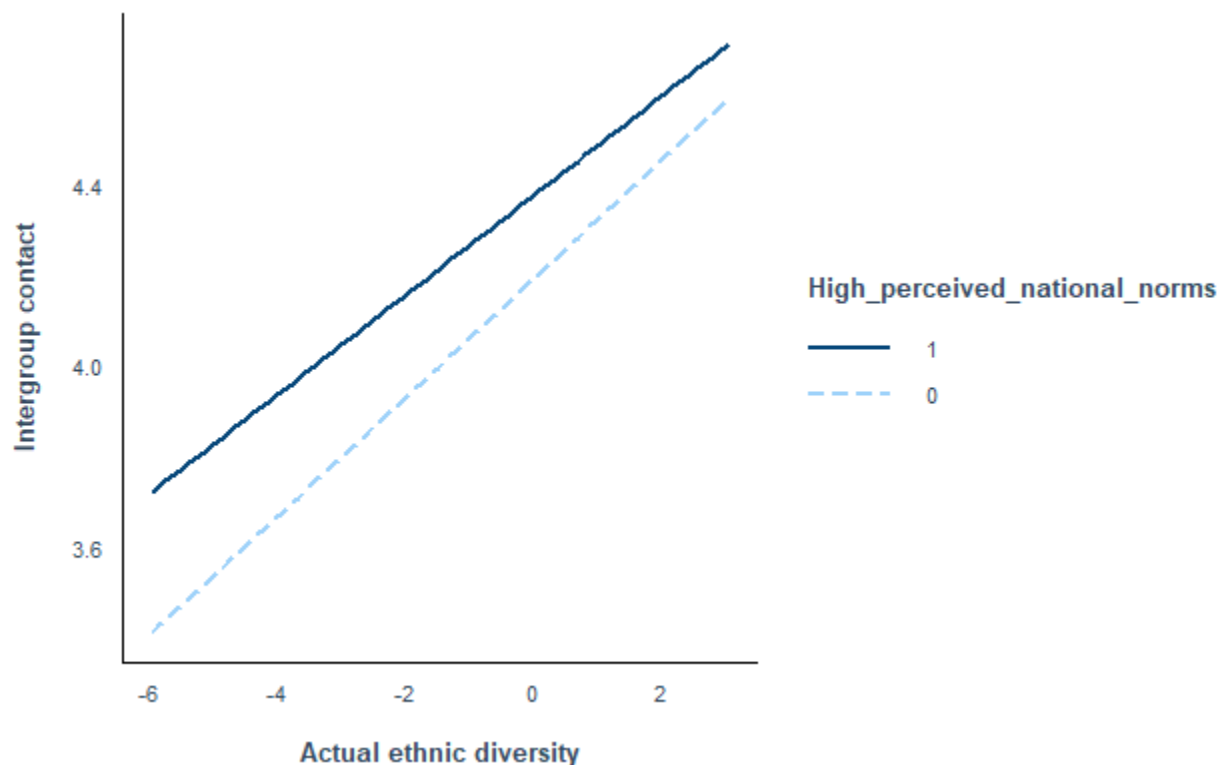
Level 1 dispositional trust significantly moderated the association between Level 2 actual ethnic diversity and intergroup contact, $b = 0.013$, $p = .021$. As Figure 22 illustrates, greater-than-average contact opportunities with ethnic minorities predicted significantly more frequent contact engagement for individuals' with a higher-than-average trust in people in their neighbourhood (1 SD above their PSU mean), $b = 0.140$, $p < .001$,

compared to those with an average level of trust (at their PSU mean), $b = 0.130$, $p < .001$, and those with a lower-than-average level of trust (1 SD below their PSU mean), $b = 0.120$, $p < .001$.

Figure 22

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 Dispositional Trust

Finally, a significant interaction effect was found between Level 2 actual ethnic diversity and Level 1 high (vs. low) support for multiculturalism, $b = -0.026$, $p = .002$. As Figure 23 illustrates, greater-than-average contact opportunities with ethnic minorities predicted significantly more frequent contact engagement for individuals' who believed that it was possible to fully belong to Britain and maintain a separate cultural identity, $b = 0.120$, $p < .001$, compared to those who did not hold this belief, $b = 0.140$, $p < .001$.

Figure 23

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 High Support for Multiculturalism
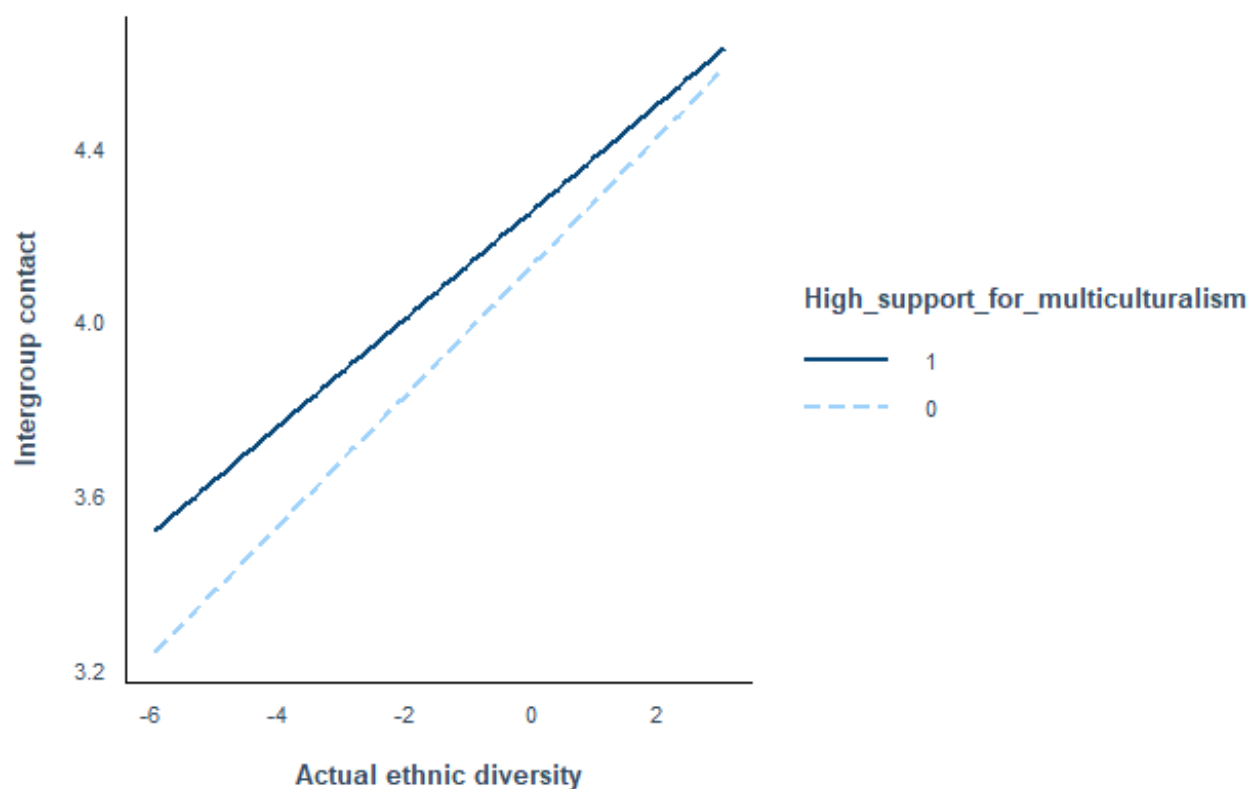
Results: Interethnic Friendship

Analyses were repeated with *friendship* as the dependent variable. As the analytic strategy for DV_2 followed the same approach as DV_1, the individual steps are not reiterated. Instead, a summary of the results is presented in Table 31.

Table 31

Model Summary of Study 3 – DV Friendship

Parameter	Model 1		Model 2		Model 3		Model 4	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Fixed effects								
Intercept	**2.042*****	0.016	**2.267*****	0.023	**2.379*****	0.024	**2.129*****	0.021
Level 1 controls								
Age			**- 0.005*****	0.001	**- 0.004*****	0.001	**- 0.004*****	0.001
Males (Ref. Females)			- 0.014	0.016	**-** 0.021	0.016	**-** 0.022	0.016
Education High (Ref. Low)			**0.302*****	0.023	**0.290*****	0.022	**0.287*****	0.022
Education Moderate			**0.159*****	0.023	**0.169*****	0.022	**0.167*****	0.022
Urban (Ref. Rural)			- 0.119	0.081	**- 0.167***	0.078	**- 0.174***	0.077
Level 1 explanatory variables								
Ethnic majority (Ref. Minority)					**- 0.324*****	0.038	**- 0.371*****	0.037
Perceived ethnic diversity					**0.239*****	0.011	**0.236*****	0.011
Ethnic identification					**- 0.031****	0.009	**- 0.031*****	0.009
Perceived local norms H (Ref. Low)					- 0.012	0.025	- 0.016	0.024
Perceived national norms H (Ref. Low)					**0.078*****	0.024	**0.082*****	0.023
Perceived national norms M					0.005	0.019	0.010	0.019
Dispositional trust					- 0.014	0.011	- 0.014	0.011
Support for multiculturalism H (Ref Low)					**0.039***	0.020	**0.040***	0.020
Level 2 explanatory variable								
Actual ethnic diversity							**0.126*****	0.004
Random effects								
PCU-level variance	0.244	0.005	0.204	0.004	0.193	0.004	0.087	0.003
Individual-level variance	0.676	0.008	0.656	0.008	0.610	0.007	0.610	0.007
Deviance	32046		31562		30747		30075	
VPC ≡ ICC	0.265		0.237		0.241		0.125	
PCV	-							
PSU level			- 0.165		- 0.050		- 0.547	
Individual level			- 0.029		- 0.070		0	

Notes. The response is frequency of contact. N = 32,854 respondents nested within 20 countries. *** $p < .001$, ** $p < .01$, * $p < .05$

Results showed that over and above demographic controls, *ethnic group membership* was significantly associated with interethnic friendship, $b = -0.324$, $p < .001$. Members of the ethnic majority group reported significantly fewer interethnic friends than ethnic minorities. However, it is important to reiterate that the outcome variable measured the proportion of friends individuals had from ethnic groups other than their own. For ethnic majority group members, this referred to friendships with ethnic minority individuals. However, for ethnic minority group members, the variable likely captured friendships both with ethnic majority members and individuals from other ethnic minority groups. This distinction may partly explain the higher number of interethnic friendships reported by minority group members.

Both Level 1 *perceived ethnic diversity*, $b = 0.239$, $p < .001$, and Level 2 *actual ethnic diversity*, $b = 0.126$, $p < .001$, were significantly associated with intergroup friendship. Consistent with previous findings on contact frequency, greater subjective perceptions of contact opportunities and actual contact opportunities both predicted a higher number of interethnic friends. This suggests that greater perceived and actual diversity not only facilitate intergroup interactions but also encourage people to build meaningful, positive relationships with ethnically dissimilar others.

Ethnic identification emerged as a significant predictor of intergroup friendship, $b = -0.031$, $p = .001$. Individuals who placed greater importance on their ethnic and racial background reported fewer interethnic friends. Notably, ethnic identification was not significantly associated with intergroup contact, suggesting that while the importance placed on one's ethnic identity does not influence the frequency of interactions with ethnic outgroup members, it does affect the likelihood of forming friendships with individuals from different ethnic groups.

Perceived local norms was not significantly associated with intergroup friendship, $b = -0.012$, $p = .620$. Individuals with a stronger belief that their local area is a place where people from different backgrounds get along well did not report having more interethnic friends. However, perceived local norms was a significant predictor of

intergroup contact, implying that while higher (vs. lower) perceptions of local norms encourage greater engagement with ethnic outgroups, they do not necessarily encourage the formation of interethnic friendships.

High (vs. low) perceived national norms was significantly related to intergroup friendship, $b = 0.078$, $p < .001$. Consistent with previous findings on intergroup contact, individuals who believed that racial prejudice in Britain had decreased in the past five years not only interacted more frequently with ethnic outgroup members but also reported having more outgroup friends. In contrast, *moderate (vs. low) perceived national norms* were not a significant predictor of intergroup friendship, $b = 0.005$, $p = .797$. This finding also aligns with previous results, suggesting that individuals who believed racial prejudice in Britain had remained the same as five years ago neither interacted more with ethnic outgroup members nor formed friendships with them.

Dispositional trust was not significantly associated with intergroup friendship, $b = -0.014$, $p = .226$. Individuals who trusted a greater number of people in their neighbourhood did not report having more intergroup friends. However, prior results indicated that trust was significantly related to contact engagement, suggesting that while greater trust encourages more frequent interactions with ethnic outgroup members, it does not promote the formation of interethnic friendships.

Finally, *high (vs. low) support for multiculturalism* significantly predicted intergroup friendship, $b = 0.039$, $p = .050$. Individuals who believed that it was possible to fully belong to Britain while maintaining a separate cultural identity reported having more outgroup friends. This finding is consistent with previous results, suggesting that individuals with strong support for multiculturalism not only interact more frequently with ethnic outgroup members but are also more likely to befriend them.

Level 1 interaction effects

Level 1 interactions were tested to find out whether the effects of Level 1 psychological antecedents on intergroup friendship may differ for ethnic majority compared to ethnic minority group members. Results revealed a significant interaction between Level 1 perceived ethnic diversity and Level 1 ethnic group membership, b = -0.044, p = .042. As Figure 24 illustrates, higher than average perceived ethnic diversity predicted significantly more interethnic friendships, b = 0.230, p < .001. This relationship was significantly stronger for members of the ethnic minority group, b = 0.250, p < .001, compared to ethnic majorities, b = 0.180, p < .001.

Figure 24

Interaction Between Level 1 Perceived Ethnic Diversity and Level 1 Ethnic Group Membership
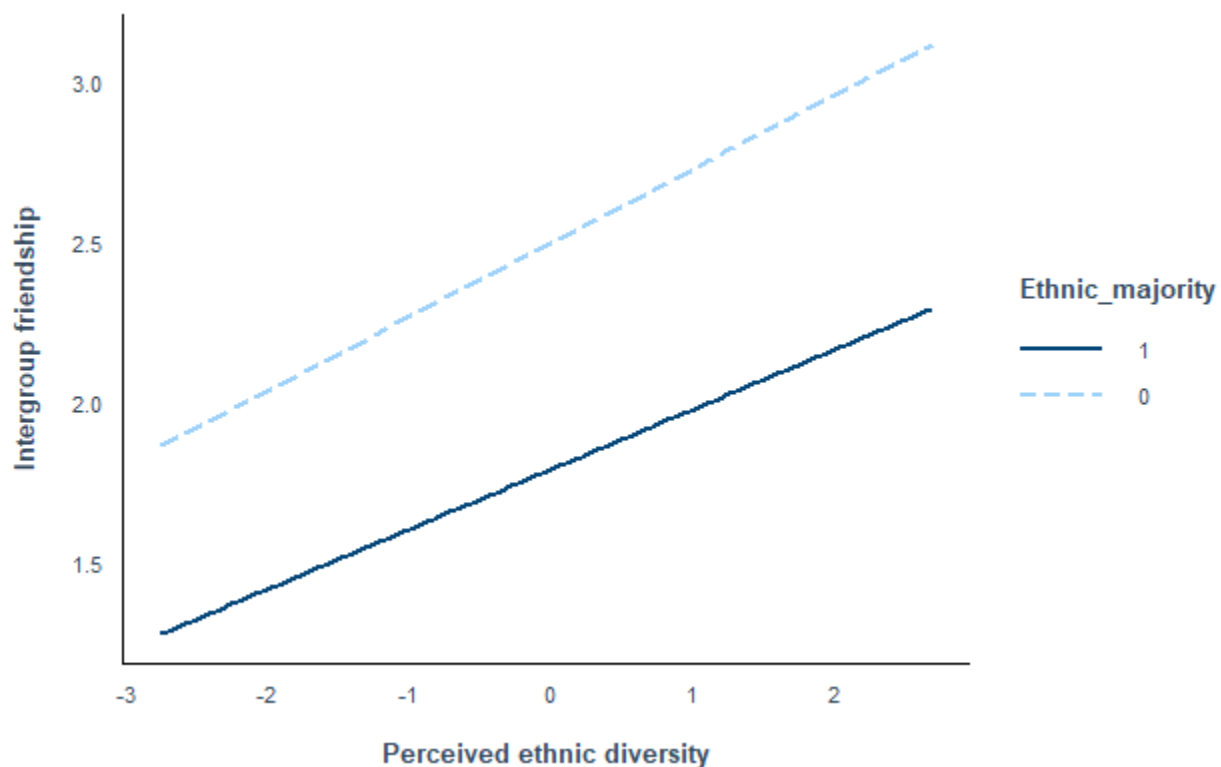
Furthermore, a significant interaction was found between Level 1 ethnic identification and Level 1 ethnic group membership, b = 0.050, p = .018. As Figure 25 illustrates, individuals who identified more strongly with their ethnic background had significantly less interethnic friends, b = - 0.086, p < .001. This association was significantly stronger for ethnic minorities, b = - 0.080, p < .001, compared to members of the ethnic majority group, b = - 0.050, p < .001.

Figure 25

Interaction Between Level 1 Ethnic Identification and Level 1 Ethnic Group Membership
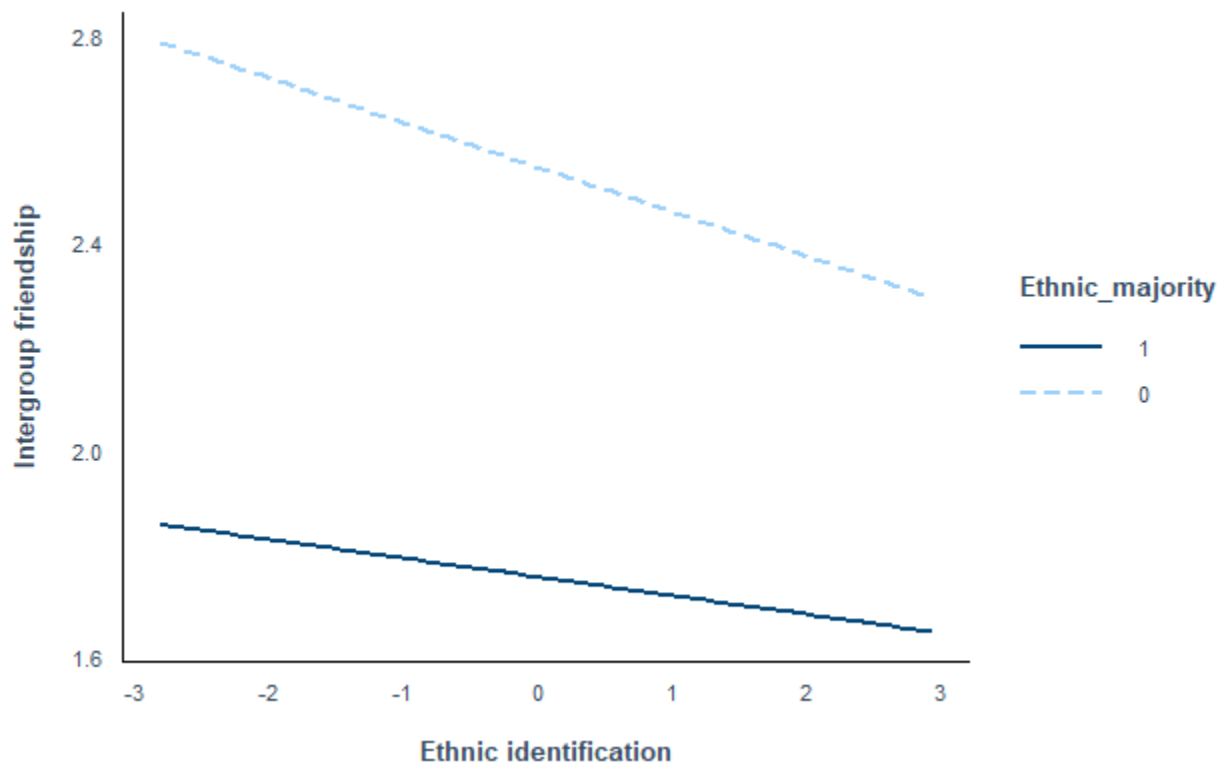
A significant interaction emerged between Level 1 high (vs. low) perceived local norms and Level 1 ethnic group membership, b = 0.107, p = .033. As illustrated in Figure 26, individuals with a greater-than-average perception that their local area is a place where people from different backgrounds get along well (vs. don't get along well) reported

significantly fewer interethnic friendships, b = - 0.119, p = .003. This negative association was significantly stronger for ethnic minorities, b = - 0.080, p = .030, but was not significant for members of the ethnic majority group, b = - 0.040, p = .023.
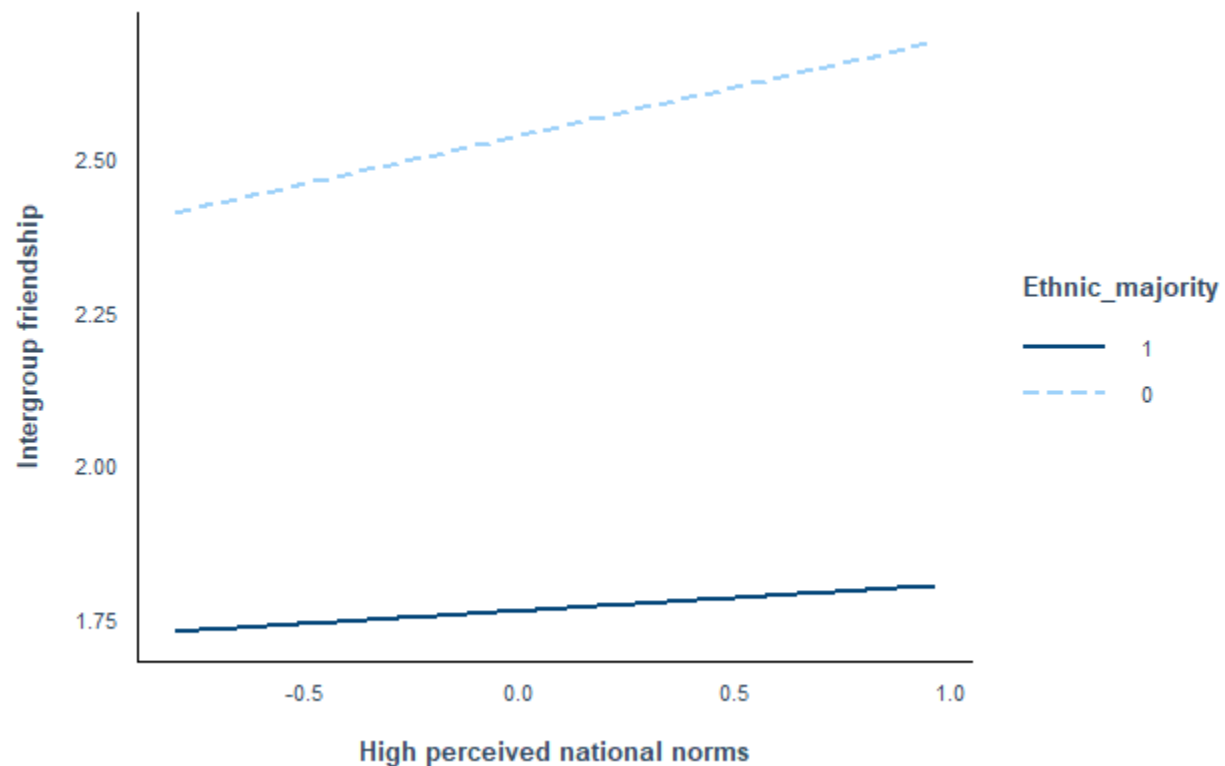
Figure 26

Interaction Between Level 1 High Perceived Local Norms and Level 1 Ethnic Group Membership
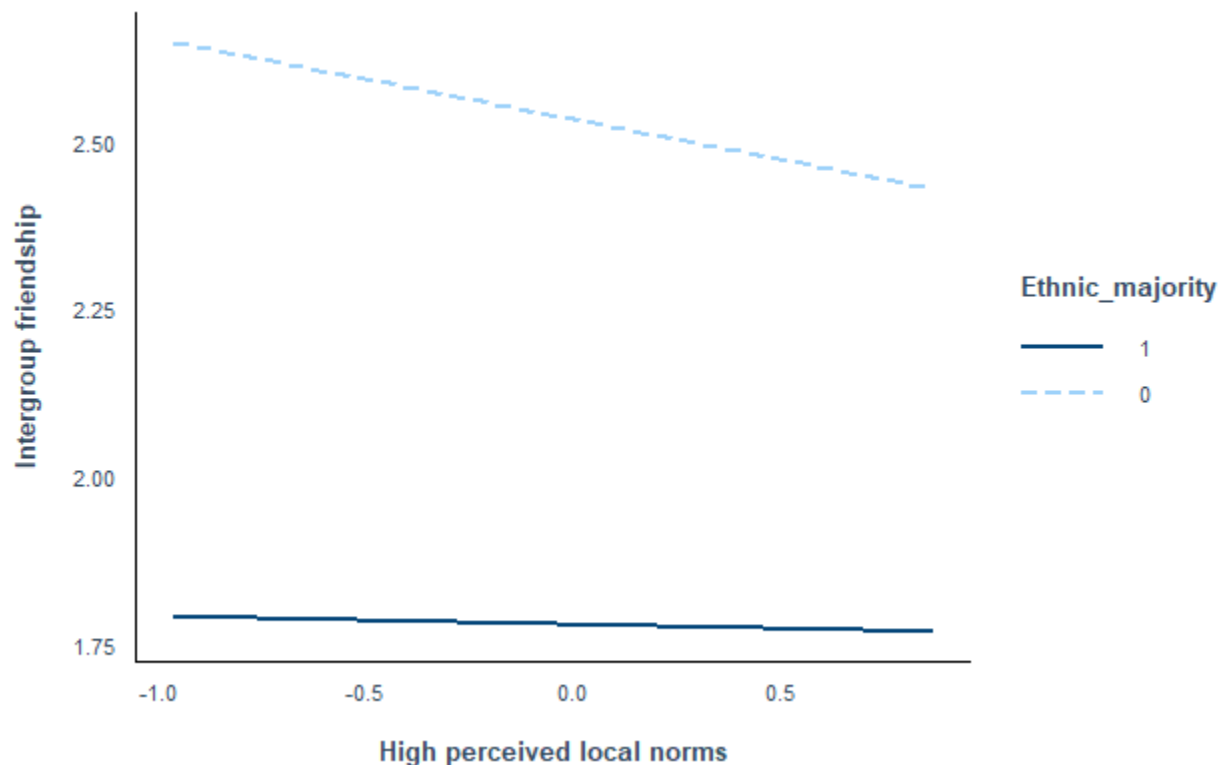
The interaction between Level 1 high (vs. low) perceived national norms and intergroup friendship was also significant, b = - 0.115, p = .009. As illustrated in Figure 27, individuals with a greater-than-average belief that racial prejudice in Britain had decreased in the past five years reported significantly more interethnic friends, b = 0.158, p < .001. This association was significantly stronger for ethnic minorities, b = 0.090, p = .010, but was not significant for members of the ethnic majority group, b = 0.060, p = .110.
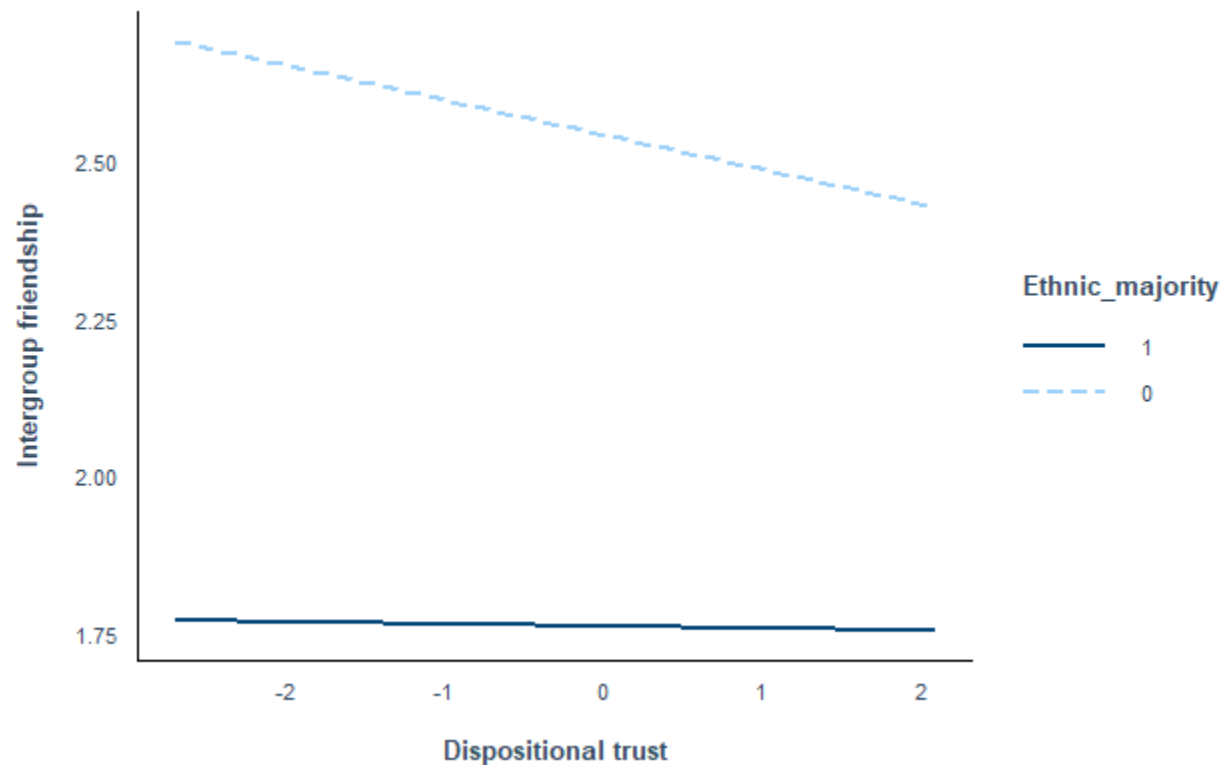
Figure 27

Interaction Between Level 1 High Perceived National Norms and Level 1 Ethnic Group Membership

A significant interaction was found between Level 1 dispositional trust and Level 1 ethnic group membership, $b = 0.052$, $p = .021$. As illustrated in Figure 28, individuals with a greater-than-average belief that people in their neighbourhood are trustworthy had significantly less interethnic friends, $b = - 0.055$, $p < .001$. This association was significantly stronger for ethnic minorities, $b = - 0.030$, $p = .030$, but was not significant for members of the ethnic majority group, $b = - 0.000$, $p = .960$.

Figure 28

Interaction Between Level 1 Dispositional Trust and Level 1 Ethnic Group Membership

Finally, a significant interaction emerged between Level 1 high (vs. low) support for multiculturalism and Level 1 ethnic group membership, b = 0.103, p = .022. As illustrated by Figure 29, for majority group members, the relationship between high (vs. low) support for multiculturalism and intergroup friendship was positive. White British individuals with a greater-than-average belief that it was possible to fully belong to Britain while maintaining a separate cultural identity had significantly more interethnic friends, b = 0.060, p = .020. In contrast, for minority group members, the relationship between high (vs. low) support for multiculturalism and intergroup friendship was negative but not significant, b = - 0.010, p = .830.

Figure 29

Interaction Between Level 1 High Support for Multiculturalism and Level 1 Ethnic Group
*Membership*
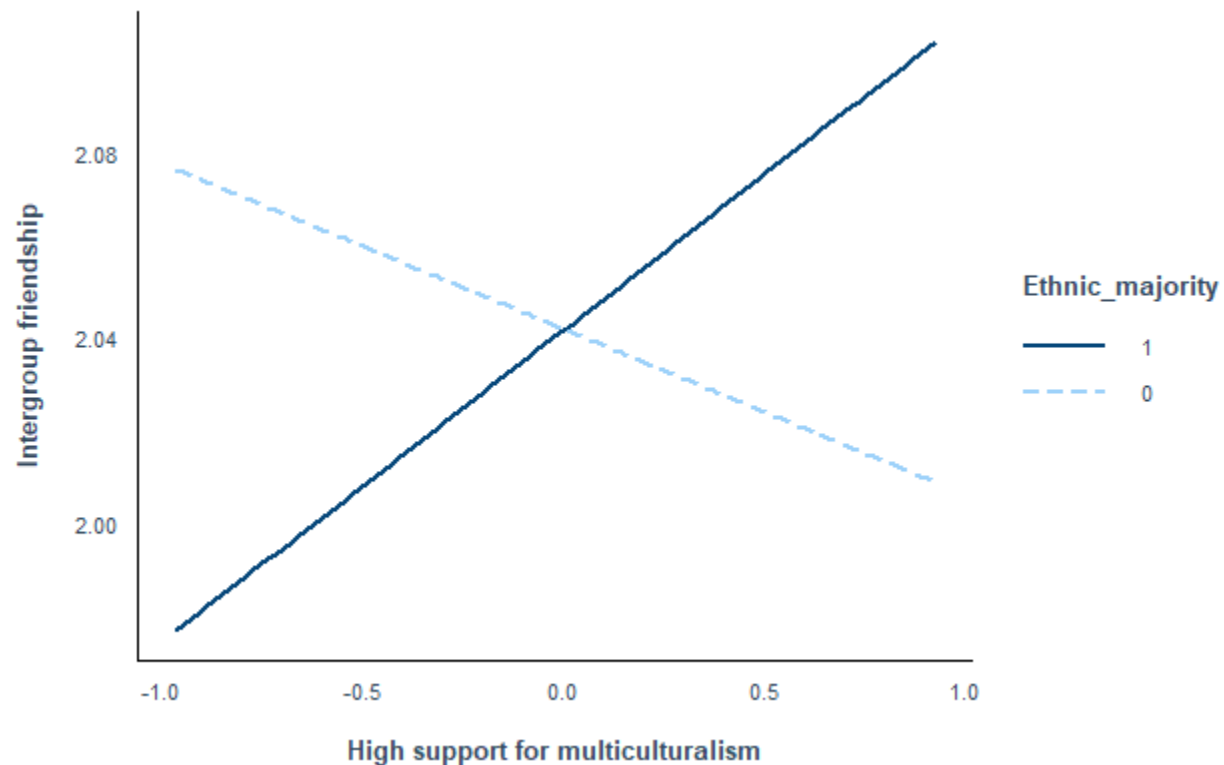
Cross-level interactions

Cross-level interactions were tested to determine when and for whom actual ethnic diversity facilitates the formation of intergroup friendships. First, the moderating effect of Level 1 ethnic group membership on the relationship between Level 2 actual ethnic diversity and intergroup friendship was examined. Additionally, random slopes for Level 1 ethnic group membership were included to account for the potential variability across PCU's (Heisig & Schaeffer, 2019). The interaction between Level 2 actual ethnic diversity and Level 1 ethnic group membership was significant, $b = 0.194$, $p < .001$. As illustrated by Figure 30, when the proportion of ethnic minorities within a PSU was greater than average, ethnic majority group members reported having more ethnic minority friends, b

= 0.090, *p* < .001, whereas ethnic minority group members reported fewer friends from other ethnic groups, *b* = - 0.120, *p* < .001.

Figure 30

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 Ethnic Group Membership
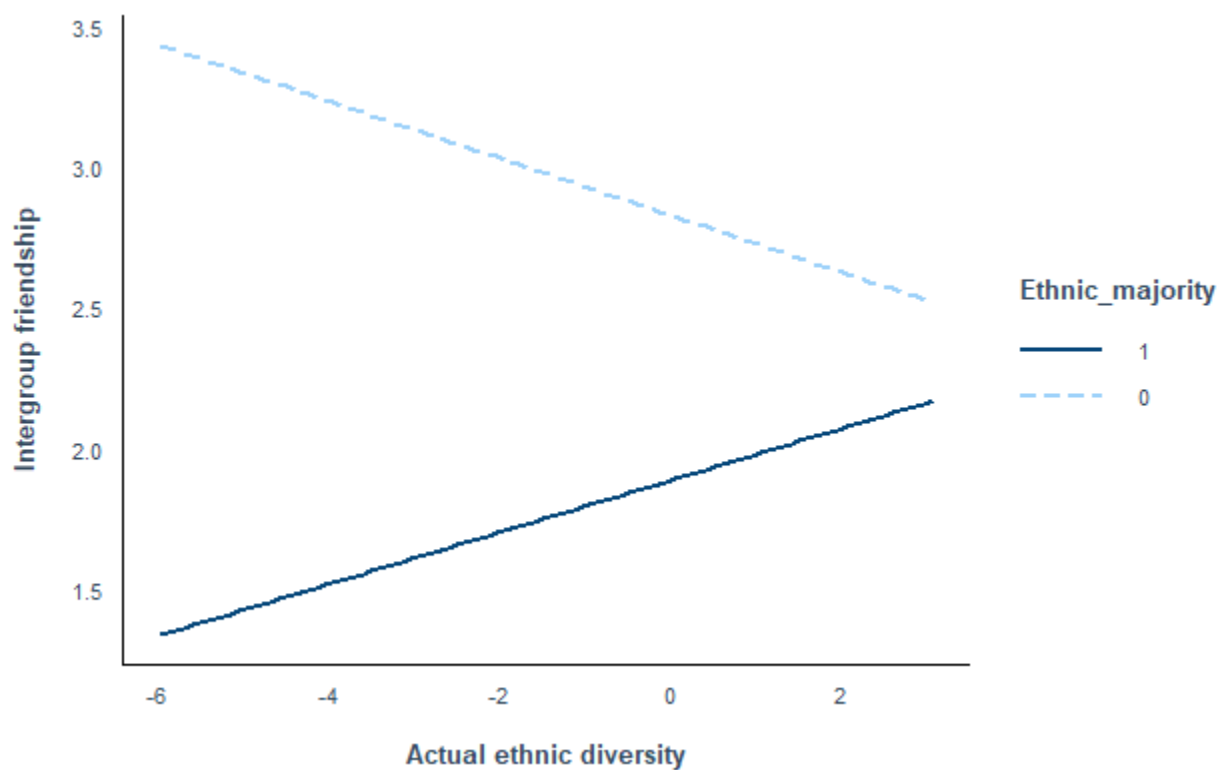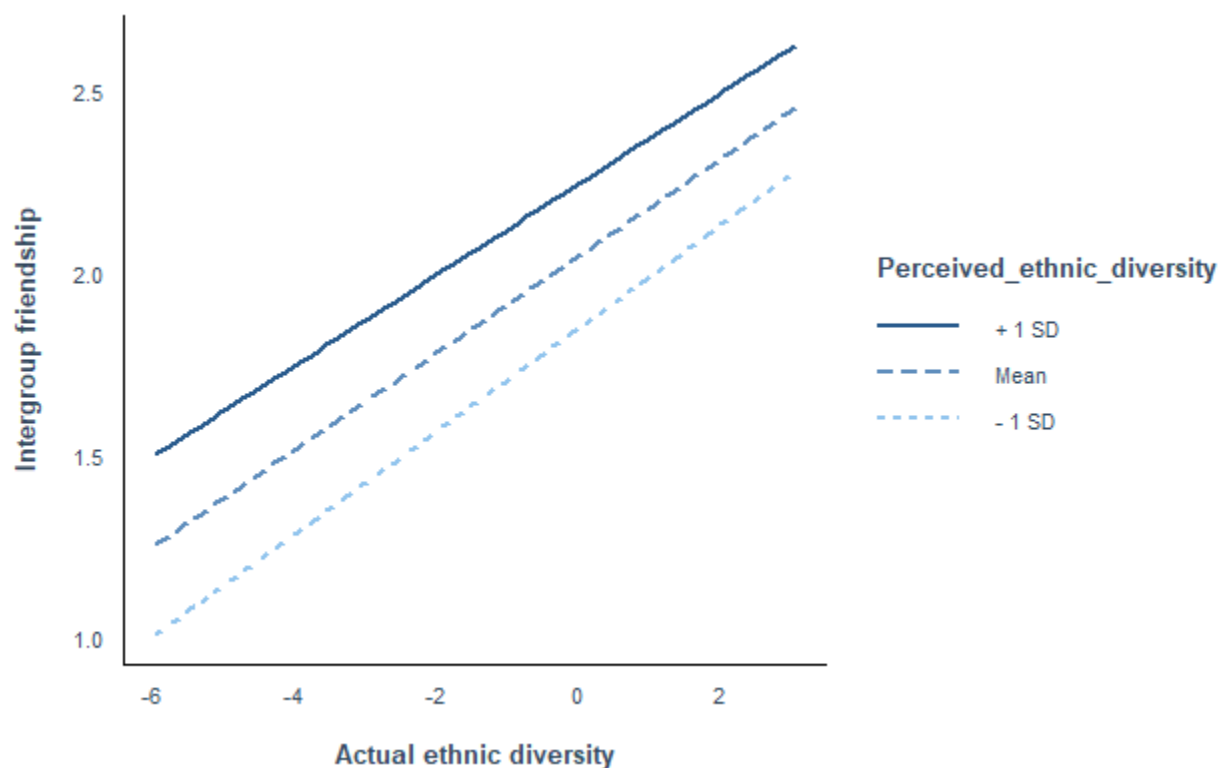

The interaction between Level 2 actual ethnic diversity and Level 1 perceived ethnic diversity was also significant, *b* = - 0.012, *p* = .011. As illustrated by Figure 31, when actual contact opportunities with ethnic minorities were greater than average, individuals whose subjective perception of contact opportunities was higher than average (1 SD above their PSU mean) reported having significantly more interethnic friends, *b* = 0.110, *p* < .001, compared to those with an average perception of diversity (at their PSU

mean), $b = 0.140$, $p < .001$, and lower than average (1 SD below their PSU mean) perception of diversity, $b = 0.160$, $p < .001$.
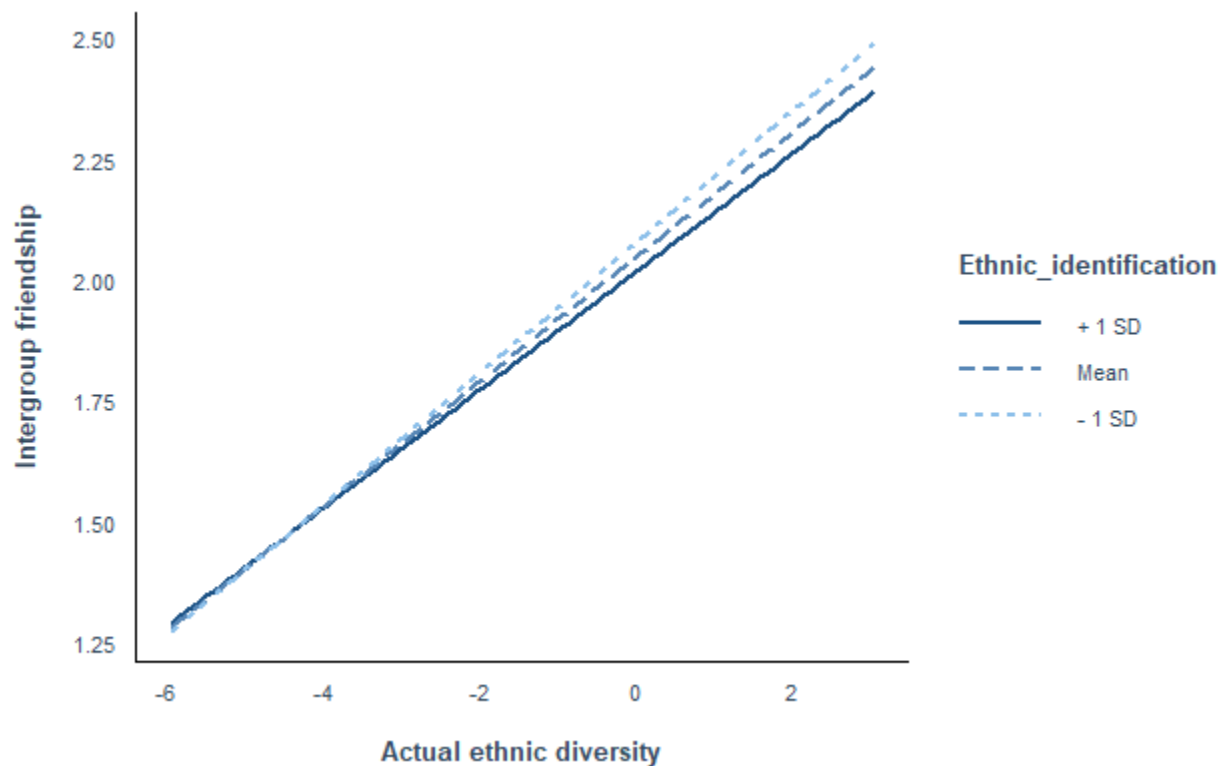
Figure 31

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 Perceived Ethnic Diversity

Furthermore, the interaction between Level 2 actual ethnic diversity and Level 1 ethnic identification was significant, $b = -0.008$, $p = .021$. As illustrated by Figure 32, when the proportion of ethnic minorities within a PSU was greater than average, individuals with a lower-than-average ethnic identification (1 SD below their PSU mean) reported having significantly more interethnic friends, $b = 0.140$, $p < .001$, compared to those with an average ethnic identification (at their PSU mean), $b = 0.130$, $p < .001$, and higher-than-average ethnic identification (1 SD above their PSU mean) $b = 0.120$, $p < .001$.

Figure 32

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 Ethnic Identification

The interaction between Level 2 actual ethnic diversity and Level 1 dispositional trust was significant, b = - 0.012, p = .005. As Figure 33 illustrates, when the proportion of ethnic minorities within a PSU was greater than average, individuals with a lower-than-average belief that people in their neighbourhood are trustworthy (1 SD below their PSU mean) reported having significantly more interethnic friends, *b* = 0.140, *p* < .001, compared to those with an average trust (at their PSU mean), *b* = 0.130, *p* < .001, and higher-than-average trust (1 SD above their PSU mean) *b* = 0.120, *p* < .001.

Figure 33

Cross-Level Interaction Between Level 2 Actual Ethnic Diversity and Level 1 Dispositional Trust
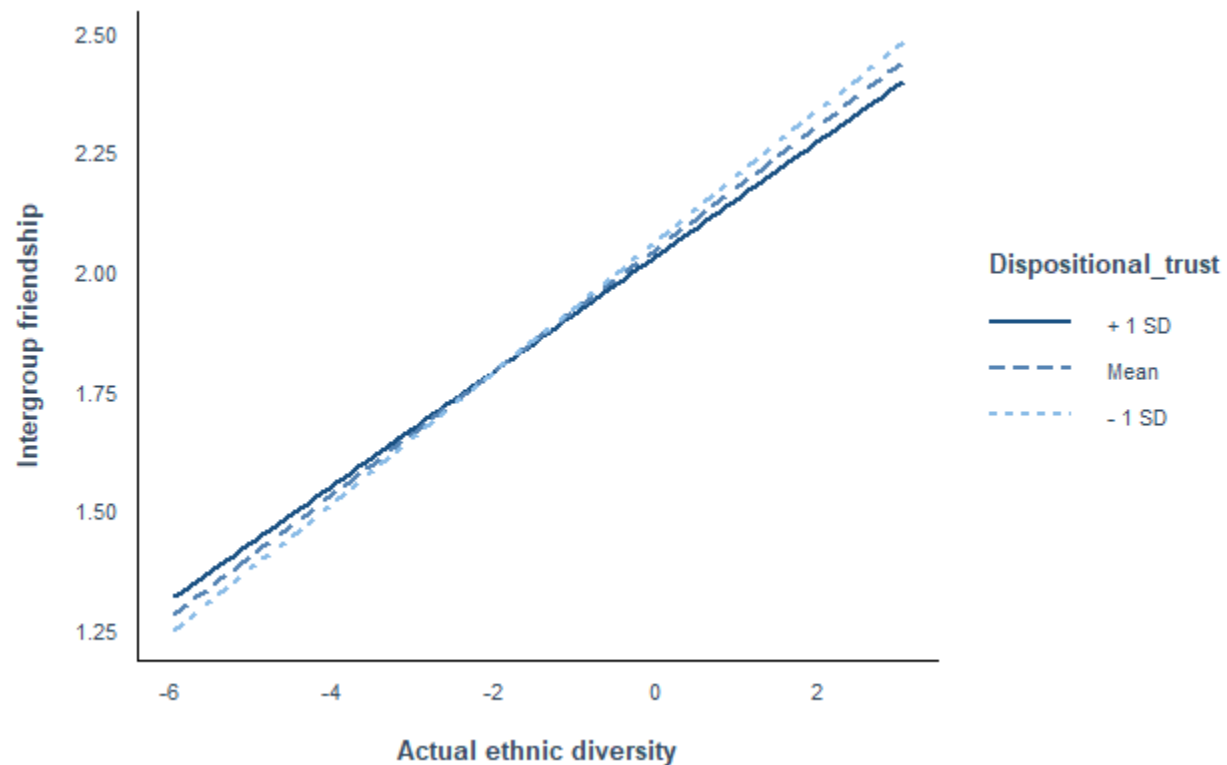

This finding is intriguing, as one might naturally expect the opposite effect. Previous analyses showed that dispositional trust was positively associated with contact engagement; however, it showed a non-significant negative relationship with intergroup friendship. Furthermore, dispositional trust predicted significantly less intergroup friends for ethnic minorities. Therefore, it is possible that the effect of Level 2 actual diversity on intergroup friendship is stronger for individuals with lower dispositional trust as dispositional trust may primarily reflect the attitudes of ethnic majority group members. This hypothesis was tested using multilevel moderated moderation analysis in which a three-way interaction between Level 2 actual ethnic diversity, Level 1 dispositional trust and Level 1 ethnic group membership was examined. The results supported this hypothesis, showing that for majority group members, higher-than-average actual ethnic

diversity predicted significantly more intergroup friendships, particularly when dispositional trust was low, $b = 0.100$, $p < .001$. In contrast, for minority group members, higher-than-average actual diversity predicted significantly fewer intergroup friendships, especially when dispositional trust was high, $b = -0.150$, $p < .001$ (see Figure 34).

Figure 34

Three-Way Interaction Between Level 2 Actual Ethnic Diversity, Level 1 Dispositional Trust and Level 1 Ethnic Group Membership
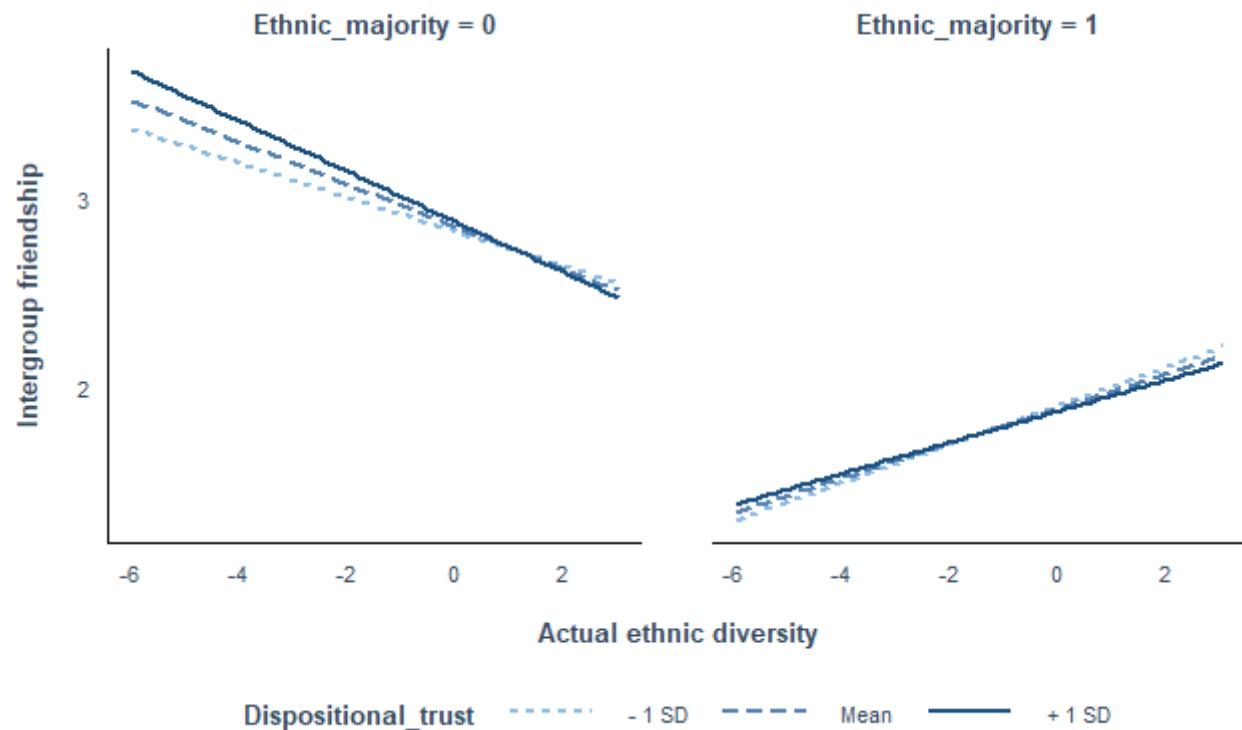
Finally, non-significant interaction effects were found between Level 2 actual ethnic diversity and Level 1 high (vs. low) perceived local norms, $b = -0.007$, $p = .399$; Level 1 high (vs. low) perceived national norms, $b = 0.009$, $p = .284$; ; Level 1 moderate (vs. low) perceived national norms, $b = 0.004$, $p = .447$; and Level 1 high (vs. low) support for multiculturalism, $b = -0.012$, $p = .060$.

Discussion

Study 3 examined psychological and structural antecedents of interethnic contact and friendship, as well as their interplay at both the individual (Level 1) and neighbourhood (Level 2) levels. Results indicated that ethnic group membership was not significantly associated with the frequency of intergroup contact; however, it was a significant predictor of intergroup friendships. Specifically, members of the ethnic majority group (White individuals) reported significantly fewer friends from different ethnic backgrounds than members of ethnic minority groups (Mixed, Asian, Black, Chinese, and Other Ethnic groups). This suggests that while there was no significant difference in the frequency of intergroup interactions between ethnic majority and ethnic minority group members, individuals belonging to an ethnic minority group tended to form more friendships across ethnic lines. However, it is important to remember that, for ethnic minority group members, both the contact and friendship measures captured interactions not only with ethnic majority group members but also with individuals from other minority groups. Therefore, this finding should not be interpreted as evidence that ethnic minority group members are more likely to befriend ethnic majority group members. Rather, it suggests that they tend to have more friendships with individuals from diverse ethnic backgrounds.

A key finding is that both individuals' perceived ethnic diversity (Level 1) and neighbourhood-level actual diversity (Level 2) were positively associated with both interethnic contact and friendships. Consistent with some prior findings in the contact literature, both greater subjective perceptions as well as objective opportunities for contact predicted more frequent interethnic contact (Schmid et al., 2014). Critics have argued that contextual-level diversity measures often fail to capture opportunities for intergroup contact at the local level where actual cross-group interactions occur (Pettigrew, 1998). Study 3 directly addressed this issue by measuring ethnic diversity at the neighbourhood level. However, it was noted that the ethnic diversity measure assessed the proportion of ethnic minority households in a PSU, therefore its meaning differed for the two ethnic groups. For ethnic majority group members, higher-than-

average opportunities to interact with ethnic minorities were associated with more frequent outgroup contact and a greater number of interethnic friends. This supports the view that greater neighbourhood diversity encourages majority group members to engage with diverse others (Schmid et al., 2014). A unique finding of this study is that this relationship extends beyond intergroup contact to intergroup friendships. Opportunities to interact with ethnic outgroup members not only translated to more frequent cross-group interactions, but they also encouraged members of the ethnic majority group to develop positive and meaningful relationships with members of ethnic minority groups. In contrast, for ethnic minority group members, the associations between neighbourhood diversity and both interethnic contact and friendships were negative, suggesting that less opportunities to interact with ethnic majority group members were associated with less frequent outgroup contact and fewer interethnic friends.

Study 3 also offers further insights into the psychological characteristics of individuals who are most likely to benefit from living in an ethnically diverse environment. Greater objective contact opportunities were associated with significantly more frequent interethnic contact for members of the ethnic majority group, individuals who perceived higher levels of ethnic diversity, had a stronger perception of national norms, expressed greater trust in people in their neighbourhood and showed higher support for multiculturalism. Additionally, greater objective contact opportunities predicted a higher number of interethnic friends for members of the ethnic majority group, those who perceived greater ethnic diversity, had lower ethnic identification and exhibited lower trust in people in their neighbourhood, however, the latter effect was observed only among ethnic majority group members. Similarly, greater subjective contact opportunities were associated with increased interethnic contact and a higher number of interethnic friendships. While ethnic majority group members reported fewer interethnic friends overall, greater subjective contact opportunities had a stronger effect on the frequency of their interactions with ethnic minorities but a weaker effect on the number of friendships they formed with minority group members.

Furthermore, while ethnic identification was not significantly associated with interethnic contact, it showed a significant negative relationship with interethnic friendships. Individuals who identified more strongly with their ethnic background reported significantly fewer interethnic friends. Although this pattern was observed for both ethnic groups, the effect was stronger among ethnic minority group members than among the ethnic majority. This finding is intriguing and contradicts the expected outcome predicted by H_2. While Study 1 found a positive association between social identification and intergroup contact, it measured national identification rather than ethnic identification. Furthermore, the literature suggests that disadvantaged group members may be more motivated than advantaged group members to engage in contact as a means of enhancing the value of their social identity (Ellemers et al., 2002). However, our findings indicate the opposite effect. In the British context, stronger ethnic identification was associated with fewer interethnic friends, especially for individuals from Mixed, Asian, Black, Chinese, and Muslim backgrounds.

Perceived local norms were positively associated with interethnic contact as individuals with a higher perception that people in their area get along engaged in more frequent interethnic contact. This aligns with prior studies suggesting that inclusive social norms foster both greater intentions for intergroup contact (Meleady, 2021; Tropp et al., 2014) and actual contact engagement (Boss et al., 2023; Green et al., 2020). While perceived local norms did not have a main effect on intergroup friendship, high (vs. low) perceived local norms predicted fewer interethnic friends for ethnic minority individuals, but not for the ethnic majority. This suggests that while supportive local norms may increase the quantity of contact among ethnic group members, they do not necessarily enhance the quality of these interactions in a way that fosters meaningful relationships with diverse others. Furthermore, for ethnic minority group members, stronger perceived local norms may even discourage individuals to form interethnic friendships. In contrast, high (vs. low) perceptions of national norms were associated with both the quantity and quality of interethnic contact. Furthermore, for ethnic minority (but not majority) group members, high perceived national norms predicted significantly more interethnic friends. Individuals who believed that racial prejudice in Britain had decreased in the last five

years reported more interethnic contact as well as more interethnic friends. This aligns with prior literature; however, Study 3 uniquely demonstrated that the beneficial impact of the perceived normative environment extends beyond increasing the frequency of cross-group interactions to also fostering positive and meaningful relationships with ethnic outgroup members. Additionally, these findings highlight that subjective perceptions of national norms may be particularly important for ethnic minority group members, influencing both their engagement in interethnic contact and their tendency to form interethnic friendships.

Furthermore, dispositional trust was positively associated with interethnic contact but not with interethnic friendships. Individuals who perceived people in their neighbourhood as more trustworthy engaged in more frequent interethnic contact; however, this positive effect did not extend to interethnic friendships. Additionally, dispositional trust predicted more frequent interethnic contact for ethnic minority group members but not for members of the ethnic majority group. Interestingly, greater trust was also associated with fewer interethnic friendships for minority but not for majority individuals. The literature presents mixed evidence on the effect of trust on intergroup contact, with a general consensus that higher trust predicts greater intentions to engage with outgroup members (Turner et al., 2013). However, research suggests that ethnic minorities tend to be less influenced by trust than ethnic majorities (Schmid et al., 2014). The present findings contradict these predictions, demonstrating that trust can play an important role in shaping minority group members' contact behaviour, encouraging them to engage in more frequent intergroup contact but not necessarily in intergroup friendships.

Finally, support for multiculturalism was positively associated with both interethnic contact and friendships. Individuals with a high (vs. low) agreement that it is possible to fully belong to Britain and maintain a separate cultural identity reported more frequent interactions with ethnic outgroup members as well as more friends from other ethnic groups. Interestingly, the relationship between high (vs. low) support for multiculturalism and interethnic friendship was positive for majority group members but negative for ethnic

minorities. Prior research has shown that when majority group members perceive ethnic minorities as willing to adopt the host culture, they are more likely to endorse multiculturalist values (Tip et al., 2012). Additionally, cultural humility has been linked to majority group members' intentions to engage in outgroup contact (Visintin et al., 2024). The present study builds on these findings by uniquely demonstrating that, for majority group members, stronger support for multiculturalism fosters not only the intention but also the actual engagement in interethnic contact as well as positive and meaningful interethnic relations. The effect observed for ethnic minorities is more challenging to interpret. Our results show that for ethnic minorities, stronger (vs. weaker) agreement that one can fully belong to Britain while maintaining a separate cultural identity is associated with having fewer interethnic friends. While greater support for multiculturalist values might be expected to encourage interethnic contact, the results suggest the opposite, indicating a complex relationship between support for multiculturalism and interethnic friendships for ethnic minorities. One possible explanation is that the shared experience of adapting to a host culture may reinforce in-group cohesion, encouraging ethnic minorities to prioritize friendships within their own ethnic group rather than seeking interethnic connections (Baerveldt et al., 2007; Colak, Praag, & Nicaise, 2019). Alternatively, it may reflect prior experiences of exclusion or perceived barriers to forming friendships with majority group members (Reynolds, 2007), despite their support for multiculturalist values. Additionally, ethnic minorities may experience multiculturalism differently from the majority group which may shape their social interactions and friendship networks in complex ways. Further research is needed to explore the underlying mechanisms driving this pattern, including factors such as perceived social acceptance and discrimination in friendship formation (Reynolds, 2007).

Chapter 6: General Discussion

This final chapter summarises the key themes of this thesis. It begins with a brief review of the theoretical background that informed the research aims, followed by an overview of the main empirical findings. The chapter then discusses the limitations that may affect the validity of the conclusions. Furthermore, it explores the theoretical contributions to intergroup contact theory and the practical implications of the findings. Finally, the chapter concludes with recommendations for future research.

Theoretical Background and Aims

Intergroup contact is an effective strategy for reducing prejudice and fostering positive intergroup relations (Pettigrew & Tropp, 2006). Although multicultural societies offer abundant opportunities for cross-group interactions, contact between members of different social groups occurs less often than expected (Paolini et al., 2018). Many individuals are reluctant to engage with people from different ethnic backgrounds, often preferring to self-segregate or deliberately avoid intergroup contact. Consequently, they miss out on the significant social and psychological benefits associated with positive intergroup contact (Kauff et al., 2020; Paolini et al., 2018).

Understanding the factors that motivate individuals to seek or avoid intergroup contact is increasingly urgent. The presidency of Donald Trump in the United States, Brexit in the United Kingdom and the growing influence of far-right parties across Europe illustrate a global surge in ethnocentrism and xenophobia (Joppke, 2021). While much of the contact literature has traditionally focused on the outcomes of intergroup contact, less attention has been paid to the factors that precede it (Kauff et al., 2020; Paolini et al., 2018; Ron et al., 2017). Emerging evidence suggests that both individual-level characteristics (e.g., attitudes, ideology, personality traits) and group-level influences (e.g., contextual diversity, social norms) may shape intergroup behaviour (Ron et al., 2017). Furthermore, research indicates that the relationship between psychological

predictors and contact engagement may vary for majority and minority groups (Prati et al., 2022; Stolle et al., 2013), yet this has not been thoroughly investigated.

This thesis addressed these crucial gaps in the literature by exploring the psychological and structural antecedents of intergroup contact. While prior research has examined the antecedents of intergroup contact in isolation, the present work adopted a multilevel and multivariate approach, considering individual and contextual factors simultaneously to capture the complexity of everyday interactions (Dixon et al., 2005). Furthermore, this thesis examined the antecedents of intergroup friendships, deepening our understanding on the factors that drive people to form positive and meaningful intergroup relationships. It also integrated both majority and minority perspectives, investigating how group status moderates the relationship between psychological antecedents and intergroup contact as well as intergroup friendships. Finally, this thesis examined when and for whom contextual diversity translates into more frequent contact engagement, offering further insights into the psychological characteristics of individuals who are most likely to benefit from living in a diverse environment.

Summary of Findings

One of the key findings is that greater opportunities to engage with diversity predict more frequent contact engagement. Prior research suggests that demographic diversity measured at a more localized level better captures opportunities for intergroup contact, as actual cross-group interactions occur within neighbourhoods (Pettigrew, 1998). In the ESS survey, demographic diversity was measured at the national level, while the Eurobarometer survey distinguished between national and regional diversity. Neither study found a significant relationship between diversity and contact. However, when demographic diversity was measured at the neighbourhood level in the BCS study, a significant positive relationship emerged, demonstrating that more ethnically diverse environments foster greater interethnic contact. A unique contribution of this thesis is its demonstration that this positive association also extends to intergroup friendships, showing that greater opportunities to interact with ethnic outgroup members can

effectively promote positive and meaningful intergroup relationships. The main results and findings across the three studies are summarised in Table 32.

Demographic diversity had a significant impact on the contact behaviour of both ethnic majority and minority group members. For majority group members, greater opportunities to engage with ethnic minorities were associated with more frequent interethnic contact and more interethnic friendships. Conversely, for ethnic minority group members, fewer opportunities to interact with the ethnic majority were linked to lower levels of interethnic contact and fewer interethnic friendships. Our findings align with previous research showing that, for majority group members, greater neighbourhood diversity predicts increased intergroup contact engagement (Brune et al., 2016). While previous studies have suggested that neighbourhood diversity has no effect on the intergroup contact behaviour of minority group members (Prati et al., 2022), our findings indicate the opposite, showing that fewer opportunities to interact with majority group members are associated with lower levels of contact engagement. Unfortunately, in the present work, diversity was measured using a single index which reflected intergroup contact opportunities slightly differently for each group. More research is needed to explore group dynamics in this context, using separate diversity measures for majority and minority groups, where possible. In sum, these findings demonstrate that overall, greater neighbourhood diversity fosters more frequent, positive, and meaningful intergroup relations. This adds to the growing body of research highlighting the significant benefits of living in an ethnically diverse environment for intergroup relations (Brune et al., 2016; Prati et al., 2022; Schmid et al., 2014).

A further research aim was to identify the psychological characteristics of individuals most likely to benefit from living in an ethnically diverse environment. This was tested with a series of multilevel moderation analyses, summarised in Table 33. Results demonstrated that greater ethnic diversity predicts more frequent cross-group interactions among individuals with a higher subjective perception of diversity, stronger perception of national norms, greater trust in their neighbourhood, and greater support for multiculturalism. Additionally, diversity predicted a higher number of interethnic

Table 32

Summary of Main Findings

Predictor Variable	Study 1	Study 2	Study 3	
	DV: Frequency of contact	DV: Frequency of contact	DV: Frequency of contact	DV: Friendship
Actual diversity	✗	✗	✓	✓
Perceived diversity	✓	✓	✓	✓
Prejudice	✓	✓	N/A	N/A
Ingroup identity	✓	N/A	✗	✓
Perceived local norms	N/A	✓	✓	✗
Perceived national norms	N/A	✗	✓	✓
Attitudes towards immigration	N/A	✓	N/A	N/A
Perceived threat	N/A	✓	N/A	N/A
Political orientation	N/A	✓	N/A	N/A
Dispositional trust	N/A	N/A	✓	✗
Support for multiculturalism	N/A	N/A	✓	✓

Notes. Check marks represent significant associations, whereas cross marks refer to non-significant associations between the predictor and outcome variables.

Table 33

Summary of Interaction Effects

Level 1 interactions

IV	Moderator			DV
	Ethnic group membership			
	Ethnic majority		Ethnic minority	
Perceived diversity	$\oplus$	<	$\oplus$	Frequency of contact
Perceived diversity	$\oplus$	<	$\oplus$	Friendship
Dispositional trust	×		$\oplus$	Frequency of contact
Dispositional trust	×		$\ominus$	Friendship
Support for multiculturalism	$\oplus$		×	Friendship
Ethnic identity	$\ominus$	>	$\ominus$	Friendship
Perceived local norms	×		$\ominus$	Friendship
Perceived national norms	×		$\oplus$	Friendship

Cross-level interactions

IV	Moderator		DV
Actual diversity	Ethnic majority $\oplus$	Ethnic minority $\ominus$	Frequency of contact
Actual diversity	Ethnic majority $\oplus$	Ethnic minority $\ominus$	Friendship

Actual diversity	Perceived national norms high ⊕	>	Perceived national norms low ⊕			Frequency of contact
Actual diversity	Support for multiculturalism high ⊕	>	Support for multiculturalism low ⊕			Frequency of contact
Actual diversity	Immigration seen as an opportunity ⊕	>	Immigration neither a problem nor an opportunity ⊕			Frequency of contact
Actual diversity	Rightist political views ⊕	<	Leftist political views ⊕			Frequency of contact
Actual diversity	Perceived diversity high ⊕	>	Perceived diversity average ⊕	>	Perceived diversity low ⊕	Frequency of contact
Actual diversity	Perceived diversity high ⊕	>	Perceived diversity average ⊕	>	Perceived diversity low ⊕	Friendship
Actual diversity	Dispositional trust high ⊕	>	Dispositional trust average ⊕	>	Dispositional trust low ⊕	Frequency of contact
Actual diversity	Ethnic identification high ⊕	<	Ethnic identification average ⊕	<	Ethnic identification low ⊕	Friendship
Actual diversity	Perceived threat high ×	<	Perceived threat average ⊕	<	Perceived threat low ⊕	Frequency of contact

Notes. ⊕ refers to a positive moderating effect, ⊖ refers to a negative moderating effect, while × refers to no moderating effect. < and > signs show under which condition the IV predicted more frequent intergroup contact or intergroup friendship.

friendships for those with a higher subjective perception of diversity, lower ethnic identification, and lower dispositional trust, though this effect was observed only among ethnic majority group members. These findings are unique as no prior research has simultaneously examined these psychological factors or their combined impact on both intergroup contact and intergroup friendships. Using large-scale data from the European and British contexts, this thesis provides new insights into the types of individuals most likely to benefit from ethnic diversity.

Similarly, greater subjective contact opportunities were associated with increased interethnic contact across all three studies, and with a higher number of interethnic friendships in Study 3. While previous research has shown that individuals' subjective perception of diversity can significantly influence their contact behaviour (Semoyonov et al., 2004; Schmid et al., 2014), this thesis further demonstrates that perceptions of diversity not only predict contact engagement but also shape intergroup friendships. Additionally, it uniquely shows that this relationship can vary by ethnic group membership. While ethnic majority group members reported fewer interethnic friends overall, greater subjective contact opportunities had a stronger effect on the frequency of their interactions with ethnic minorities but a weaker effect on the number of friendships they formed with minority group members. This suggests that while diverse environments encourage majority group members to engage more frequently with ethnic outgroup members, these interactions may remain superficial and not necessarily lead to the formation of closer bonds. Future research should further explore these dynamics and identify the underlying mechanisms driving these effects.

An intriguing finding was the negative association between ethnic identification and interethnic friendships. While in Study 1, national identification was positively related to intergroup contact, Study 3 showed that stronger identification with one's ethnic background predicted fewer interethnic friends. While this applied to both ethnic groups, the effect was significantly stronger for ethnic minorities. The literature suggests that disadvantaged group members can be more motivated than advantaged group members to engage in intergroup contact to enhance the value of their social identity (Ellemers et

al., 2002). They also tend to be more preoccupied with their group membership and motivated to improve their social status (Simon, 2004). Therefore, minority group members with higher ethnic identification were expected to interact more often with the ethnic majority and report more interethnic friends. Contrary to these expectations, a negative relationship was found, suggesting that highly identified ethnic minorities befriended less individuals from other ethnic groups. Some evidence suggests that marginalized group members tend to have fewer cross-ethnic friendships and more same-ethnic friendships as these networks foster a sense of community and group cohesion. Same-ethnic friendships can serve as a protective support system, helping to buffer against the detrimental effects of social exclusion and discrimination (Parker & Song, 2006). Another explanation may be the way minority individuals utilize friendship networks to construct their ethnic identity. Research indicates that friendships provide valuable social capital, particularly for young people. Ethnic minority individuals often rely on "bonding" social capital to form same-ethnic friendships and "bridging" social capital to establish cross-ethnic connections (Reynolds, 2007). Bonding social capital strengthens ties within a group, while bridging social capital facilitates relationships between different groups. However, maintaining friendships across social and ethnic boundaries may be challenging for minority individuals due to the complexities of navigating status inequalities within these relationships (Reynolds, 2007). More research is needed to explore how ethnic identity shapes intergroup relations, particularly from the perspective of ethnic minority groups.

Perceived local norms were examined in both Study 2 and 3 and were found to have a positive association with intergroup contact. In the European context (Study 2), individuals who believed that most immigrants in their area had successfully integrated interacted more frequently with immigrants with a non-EU background. In the British context (Study 3), individuals with a higher perception that people in their area got along engaged in more frequent interethnic contact. This aligns with previous studies showing that inclusive social norms have a positive impact on intergroup relations (Green at al., 2020; Meleady, 2021; Tropp et al., 2014). However, supportive local norms did not increase interethnic friendships. On the contrary, for ethnic minorities, stronger perceived

local norms discouraged them from befriending individuals from other ethnic groups. There could be several explanations for this. As noted above, ethnic minority individuals may perceive supportive environments as an opportunity to strengthen their ethnic identities and build a stronger community which could ultimately protect them from the harmful effects of social exclusion in wider society (Parker & Song, 2006). Having more ingroup than outgroup friends may also be preferable as a shared sense of belonging may provide greater emotional support, mutual understanding, and trust (Reynolds, 2007). Research suggests that people generally prefer to interact with those who share similar cultural values, traditions and experiences (McPherson et al., 2001). This may be even more relevant for ethnic minorities who must navigate the challenges of adapting to a host culture. This shared experience can heighten their awareness of differences rather than similarities between their own and the host culture, ultimately strengthening group boundaries and reinforcing ingroup cohesion (Baerveldt et al., 2007). A similar pattern was observed in relation to another psychological antecedent, support for multiculturalism. While stronger support for multiculturalism encouraged greater contact and more interethnic friendships among majority group members, the opposite was true for ethnic minority individuals. Together, these findings suggest that ethnic minorities approach interethnic contact differently from majority group members and their motivations and experiences may be influenced by distinct psychological factors. Future research should further explore these mechanisms, particularly the role of ingroup identity in predicting minority group members' intergroup behaviour.

Perceived national norms were not significantly related to intergroup contact in Study 2 but showed a positive association with both interethnic contact and friendships in Study 3 (see Table 32). Moreover, high (vs. low) national norms predicted significantly more interethnic friendships for ethnic minorities, whereas they did not meaningfully predict outgroup friendships for majority group members. At first glance, this finding may seem to contradict previous observations that showed a negative relationship between social norms and intergroup friendships for ethnic minorities. However, a closer look at how perceived national norms were conceptualized in each study may clarify this. In Study 2, national norms referred to individuals' perceptions of how well immigrants were

integrated into their country, whereas in Study 3, they reflected perceptions of racial prejudice in Britain. While both relate to national-level perceptions of outgroups, immigrant integration is a somewhat broader concept, whereas racial prejudice more directly reflects the normative climate. Supportive normative environments where one is less exposed to prejudicial attitudes may be especially important for ethnic minorities as becoming the target of prejudice is often a concern that influences their expectations and experiences of contact (Plant, 2004). In alignment with this, it was found that ethnic minority (but not majority) individuals who believed that racial prejudice had decreased over the past five years reported significantly more interethnic friendships.

In Study 2, attitudes towards immigration and prejudice emerged as significant predictors of intergroup contact. Individuals with an open, unprejudiced attitude towards diversity engaged in more frequent intergroup contact, while those with prejudiced views interacted less with diverse others. This is line with prior literature emphasizing the bidirectional relationship between prejudice and contact (Pettigrew, 1997). However, the present thesis further demonstrates that the negative influence of prejudice on intergroup contact is broadly generalizable across European cultures. Finally, perceived threat was negatively associated with intergroup contact. Individuals who perceived immigrants as threatening to their country's welfare reported less frequent cross-group interactions. Intergroup threat is a key mediator of contact effects (Tausch et al., 2007), however its role in predicting contact behaviour is less well documented. Only a handful of studies have examined intergroup threat as an antecedent of intergroup contact, showing that heightened threat perceptions generally predict less frequent cross-group interactions (Dixon et al., 2020, Van Acker et al., 2014). Our finding aligns with these observations and uniquely demonstrate that the negative impact of perceived threat on contact behaviour is widely generalizable across European countries. Notably, perceived threat also significantly moderated the relationship between demographic diversity and contact. Specifically, greater diversity was significantly more likely to increase intergroup contact frequency among individuals with low threat perceptions.

Theoretical and Practical Implications

Informal segregation and contact avoidance remain persistent challenges in contemporary societies, raising important questions for social psychologists. The contact hypothesis (Allport, 1954) suggests that positive interactions between members of different social groups can reduce prejudicial attitudes, particularly when certain optimal conditions are met. Intergroup contact theory further demonstrates that cross-group interactions can be beneficial even without these ideal circumstances (Brown & Hewstone, 2005). However, despite today's highly connected and multicultural world, contact between individuals from different ethnic backgrounds occurs less often than expected (Paolini et al., 2018). A central question of this thesis was how to facilitate meaningful interactions between ethnic groups. To address this, it examined both psychological (micro-level) and structural (macro-level) factors that can motivate individuals to seek out or avoid intergroup contact. By doing so, this thesis contributes to a new wave of research that shifts focus from the consequences of contact to the factors that precede it.

This thesis advances the contact literature by identifying a broad range of psychological and structural factors that predict intergroup contact and intergroup friendships across several European countries and Britain. It demonstrates that living in a diverse environment facilitates interethnic contact and encourages individuals to form interethnic friendships. Beyond the objective availability of contact opportunities, individuals' subjective perception of diversity plays a crucial role in shaping intergroup behaviour. Prejudice and threat perceptions reduce contact, whereas an open and positive attitude toward diversity and multiculturalism encourages individuals to engage in more frequent cross-group interactions. Supportive ingroup norms at both local and national levels also can foster greater contact engagement. However, the influence of social identification on intergroup contact engagement shows a more complex picture. Finally, conservative political views predict less frequent intergroup contact, while dispositional trust promotes greater engagement with ethnically diverse others.

Another key question this thesis aimed to answer was whether the effects of psychological and structural antecedents on intergroup contact differ among majority and minority individuals. To explore this, a series of multilevel moderation analyses were conducted, using both interethnic contact and interethnic friendship as outcome variables. Prior research has primarily examined the antecedents of contact from the majority perspective, leaving the experiences of minority individuals understudied (Kauff et al., 2020). This thesis addresses this crucial gap by demonstrating that, for ethnic minority group members, trusting people in their neighbourhood predicts more frequent contact with ethnic outgroup members, while the greater perceived availability of contact opportunities is linked to more interethnic friendships. Some of the most intriguing findings reveal that, among minority group members, supportive local norms and greater support for multiculturalism were associated with fewer interethnic friendships. Additionally, minority individuals with a stronger ethnic identity reported having fewer interethnic friends. However, national norms perceived as inclusive encouraged them to form positive and meaningful bonds with ethnically diverse others. In contrast, for majority group members, dispositional trust, perceived local norms and perceived national norms did not influence intergroup contact behaviour. However, higher perceptions of diversity predicted more frequent intergroup contact, while stronger support for multiculturalism was linked to having more intergroup friends. Together, these findings highlight that the psychological factors shaping intergroup behaviour can differ for majority and minority individuals. Consequently, future research should examine these dynamics separately to better understand the distinct mechanisms at play.

Last but not least, this thesis contributes to the debate on whether greater contact opportunities necessarily facilitate greater contact engagement. Previous research suggests that majority group members living in ethnically diverse neighbourhoods may become less trusting of minority groups and disengage from community life (Putnam, 2007). However, when individuals actively engage with diversity, particularly through intergroup friendships and intimate relationships, intergroup relations can improve significantly (Stolle et al., 2013). While this thesis found that in general, diverse environments promote both interethnic contact and interethnic friendships, the present

work adds to the contact literature by also identifying the psychological characteristics of individuals who are most likely to benefit from being exposed to diversity. It was demonstrated that greater contact opportunities translated to more frequent interethnic contact for ethnic majority group members, those with a greater subjective perception of diversity, higher perception of national norms, greater trust in people in their neighbourhood and greater support for multiculturalism. Additionally, greater ethnic diversity predicted more interethnic friends for ethnic majority group members, those with greater perceived ethnic diversity, lower identification with their ethnic background and lower dispositional trust, however the latter effect only applied to ethnic majority group members. In contrast, greater ethnic diversity translated to less interethnic contact as well as fewer interethnic friends for ethnic minority individuals. These findings align with research suggesting that diversity is not inherently positive, nor does it automatically foster more harmonious intergroup relations. Instead, its impact depends on whether it facilitates meaningful intergroup contact (Stolle et al., 2013).

The findings of this thesis have important implications for large organisations such as businesses, civil services and the NHS. The NHS is one of the largest and most diverse workforces in the UK, employing over 1.3 million people from which approximately 74.3% identifies as White and 25.7% as being from an ethnic minority background (not including White minority groups, UK Government, 2022). This thesis showed that greater opportunities to engage with diversity predicts more frequent contact engagement and a greater number of intergroup friendships. Furthermore, beyond the objective availability of contact opportunities, greater subjective perceptions of diversity were also associated with more frequent cross-group interactions and a higher number of interethnic friends. Large organisations can apply these findings by making intergroup contact opportunities more psychologically salient in the workplace. Employees' awareness of contact opportunities can be enhanced by drawing attention to the diversity of the workforce in terms of race, ethnicity and nationality, alongside the core values that unite all staff. This can be achieved by emphasising shared goals across racial and ethnic groups, promoting the benefits of diversity and fostering a culture of cooperation and trust (The NHS Constitution for England, 2009).

The present work also demonstrated that demographic diversity translates to more frequent interethnic contact for individuals with certain psychological characteristics. Specifically, it showed that those with a higher subjective perception of diversity, stronger perception of social norms, greater dispositional trust and greater support for multiculturalism are more likely to engage in cross-group interactions. Large organisations, such as the NHS could apply these insights in several key ways. Firstly, by fostering a normative environment in which all employees regardless of racial or ethnic background feel valued and respected. At the organisational level, this involves implementing policies that reflect a clear commitment to equality, diversity, and inclusion (EDI). At the individual level, it requires leadership that actively models positive intergroup behaviour. Secondly, by boosting employees understanding and support of multicultural values as well as their trust in colleagues and the organisation. This can be achieved through diversity training which can include various intervention strategies designed to address bias (Kalev et al., 2006). Although evidence suggests that diversity training can be effective in reducing racial and ethnic bias in the workplace (King, Gulick, & Avery, 2010), research also indicates that its impact tends to be short-lived unless it is implemented repeatedly and integrated into a broader, sustained inclusion strategy (Bezrukova et al., 2016). Therefore, diversity training aimed at fostering trust and appreciation of multicultural values is likely to be most effective in increasing intergroup contact when employees participate regularly, rather than treating it as a one-off intervention (Bezrukova et al., 2016).

Another key finding was that high (vs. low) subjective threat perceptions were associated with less frequent intergroup contact. Additionally, perceived threat significantly moderated the relationship between demographic diversity and contact engagement, with greater diversity predicting more frequent intergroup contact among individuals with low (vs. high) threat perceptions. Large organizations can apply these insights by reducing perceived intergroup threat in the workplace through social events and activities. Such initiatives provide opportunities for employees to interact outside the formal work environment and develop more personal connections. This can increase employees' knowledge of and empathy toward colleagues from different racial and ethnic

groups, thereby reducing intergroup anxiety and perceived threat (Brown & Hewstone, 2005). Prejudice was also negatively associated with intergroup contact as individuals with greater prejudicial attitudes reported less frequent cross-group interactions. This suggest that interventions aiming to reduce prejudice could increase intergroup contact in the workplace. However, the evidence on the effectiveness of prejudice-reducing interventions is mixed. The literature identifies several prejudice-reducing techniques, such as imagining positive interactions with outgroup members, challenging negative stereotypes to enhance cross-cultural understanding, encouraging people to rethink group boundaries by focusing on shared identities with specific outgroups, as well as diversity training and cooperative learning (Paluck et al., 2021; Tropp et al., 2022). A recent meta-analytic review pointed out that on average, the effects of prejudice-reducing interventions are small, and the long-term impact of these techniques is unclear (Paluck et al., 2021). Therefore, focusing solely on prejudice reduction may not be the most feasible way to increase intergroup contact in the workplace, and simultaneously targeting other psychological factors such as individuals' subjective perception of diversity, perceived threat and social norms could be more effective.

Finally, the present thesis showed that majority and minority group members' contact behaviour is shaped by distinct psychological factors. For example, greater support for multiculturalism was associated with greater number of interethnic friends for members of the ethnic majority group, however it was not related to either interethnic contact or interethnic friendships for ethnic minorities. Meanwhile, higher dispositional trust predicted more frequent interethnic contact for members of the ethnic minority group, but not for the ethnic majority. Furthermore, inclusive social norms were associated with more interethnic friendships for ethnic minorities, but not for members of the ethnic majority group. These findings suggest that interventions aiming to increase intergroup contact in the workplace should target distinct psychological mechanisms for majority and minority group members, tailoring strategies to the specific needs of each group. For example, cultural awareness training may be an effective strategy to foster intergroup contact among majority group members because learning about other cultures may increase majority group members' support for multicultural values. In contrast, dialogue

interventions could be more beneficial for minority group members because sharing thoughts and experiences can help build trust with their contact partners. This is in alignment with previous research suggesting that the effectiveness of intergroup contact interventions can vary depending on group status. Interventions that emphasize maintaining a positive group image may be more effective for advantaged group members, whereas those that address intergroup emotions may be better suited for members of disadvantaged groups (Čehajić-Clancy et al., 2011).

It is also important to acknowledge that there are non-psychological routes for potential interventions aiming to increase intergroup contact. For example, in this thesis education consistently showed a strong positive relationship with contact, demonstrating that individuals with higher levels of education interact more often with diverse others and have more friends from other ethnic groups. This suggests that boosting educational achievement can lead to more frequent and higher quality contact engagement between members of ethnic and racial groups. Furthermore, in Study 1, material deprivation was negatively associated with intergroup contact, with greater deprivation predicting less frequent contact engagement. Consequently, reducing material deprivation - by improving access to basic goods, services, housing, and healthcare – may encourage more frequent, positive social interactions between members of racial and ethnic groups. Taken together, these findings indicate that contact between racial and ethnic communities is influenced not only by individuals' psychological characteristics but also by wider societal factors, highlighting the need for more comprehensive, structural solutions.

Structural interventions can involve improving educational attainment and the overall quality of education by increasing funding and support for both schools and students (Hassan et al., 2022). For schools, this includes investing in infrastructure, renovations, laboratory resources, furniture, and teaching aids. Meanwhile for students, it may involve cash transfers, scholarships, free school meals and transportation, all of which can help alleviate the economic pressures that often prevent families from prioritizing education (Zickafoose et al., 2024). Research shows that children from deprived backgrounds are more likely to attend under-resourced schools, experience

irregular attendance due to financial hardship, and lack the material and emotional support necessary for academic success (Gorard & Siddiqui, 2019). These conditions perpetuate a cycle in which socioeconomic disadvantage undermines educational attainment, which in turn reinforces patterns of inequality across generations (Kaye, 2018). Despite various governmental efforts to raise educational standards in the UK, such as the London Challenge project and the No Excuses campaign, education spending fell by 14% between 2010 and 2018 (Belfield et al., 2018). This decline is likely to further widen the gap between students from poorer backgrounds and their more affluent peers, who have greater access to extracurricular activities, private tutoring and other forms of academic support (Kaye, 2024).

Addressing these challenges requires adequate resources and collaboration between authorities, communities and policymakers to tackle systemic barriers effectively (Ball, 2021). Scholars argue that the enduring socioeconomic attainment gaps reflect a social policy issue as governments often focusing only on school-based interventions while neglecting the deeper structural inequalities embedded in society (Ball, 2021). While this thesis acknowledges the positive impact of education on intergroup behaviour, it is clear that structural interventions require substantial time, resources, and coordinated action across multiple levels of society. Consequently, psychological interventions present a more cost-effective alternative and more immediate means of promoting positive intergroup behaviour.

Limitations and Future Research

While this thesis has several strengths, it is also important to acknowledge its limitations. One limitation is the use of cross-sectional data which prevents the researcher to make causal inferences. Cross-sectional studies capture observations at a single point in time, providing a "snapshot" of a subset of the population (Howitt & Cramer, 2008). These studies typically aim to explain one variable in relation to others by assigning one as the dependent (criterion) variable and the others as independent (predictor) variables. However, because cross-sectional designs measure variables at only one time point, they

cannot establish the sequence of effects. A well-known methodological issue in cross-sectional research is the *"causal sequence problem".* This issue arises because correlations between variables do not indicate the direction of influence, meaning that an observed association could reflect the researcher's proposed direction, the reverse, or even a bidirectional relationship (Pettigrew & Tropp, 2006). One of the most comprehensive investigations of this issue comes from Pettigrew and Tropp (2006) who reviewed over 500 studies examining the relationship between intergroup contact and prejudice. They aimed to determine whether contact reduces prejudice as commonly assumed, or whether the causal direction might be reversed whereby people with lower prejudice are more likely to seek out intergroup contact, while those with higher prejudice avoid it. Pettigrew and Tropp (2006) focused on studies where individuals had limited personal choice over the contact situation to reduce the likelihood of initial prejudice levels influencing contact effects. Their findings indicated that although both causal directions occur, the path from contact to reduced prejudice was stronger than the path from prejudice to contact (Pettigrew & Tropp, 2006). In the present thesis, variables were examined as predictors of intergroup contact. However, as the causal sequence problem demonstrates, it is possible that associations between antecedents and contact engagement also operate in the reverse direction, an aspect that was not tested in this study.

In contrast, longitudinal studies collect data at multiple time points, allowing for a better understanding of the direction of relationships between variables by assessing the relative strengths of different causal pathways (Goodwin & Goodwin, 2016). A particularly robust approach within longitudinal research is the cross-lagged panel design which enables researchers to test whether prejudice at Time 1 influences contact at Time 2 while accounting for the stability of both variables over time (i.e., autoregressive paths) and their cross-sectional associations (including the relationship between contact at Time 1 and prejudice at Time 2). One of the most extensive studies investigating these longitudinal effects followed 2,000 American students over five years (Levin, Van Laar, & Sidanius, 2003). Levin and colleagues (2003) examined how initial ethnic attitudes influenced the development of ingroup and outgroup friendships among White, Asian

American, Latino, and Black undergraduate students, as well as how these friendships, in turn, shaped attitudes over time. Their findings indicated that students who showed greater ingroup bias and higher intergroup anxiety at the end of their first year of university were more likely to have fewer outgroup friends and more ingroup friends in their second and third years, even after controlling for pre-university friendships and other background factors. Conversely, students with more outgroup friendships and fewer ingroup friendships in their second and third years showed reduced ingroup bias and intergroup anxiety by the end of university, again controlling for prior attitudes, pre-university friendships, and background variables. In contrast, a Dutch study using a cross-lagged panel design found no significant longitudinal effect of prejudice on intergroup contact. However, contact at Time 1 reliably predicted reduced prejudice at Time 2 towards immigrants (Dhont, Van Hiel, Bolle, & Roets, 2012). Since longitudinal designs can assess whether changes in attitudes are significantly linked to changes in intergroup contact over time, they offer greater reliability than cross-sectional methods (Goodwin & Goodwin, 2016). Therefore, where possible, future research should prioritize longitudinal designs, however such data were not available for this thesis.

Another limitation of this thesis is the use of secondary survey data which required the researcher to work with the variables available in the dataset. While large-scale secondary data offer the advantage of capturing a broad subset of the population, the way questions are framed can sometimes limit their applicability. Some items aligned well with the research objectives, whereas others were conceptualized in a way that encompassed multiple constructs. For example, the national identity measure in Study 1 reflected both nationalism and constructive patriotism (ESS, 2017). While national identity is typically divided into these two distinct concepts, they also share similarities with the ethnic and civic conceptions of the nation which are usually measured using different items (ESS, 2017). Similarly, the actual diversity measure in Study 3 assessed structural opportunities for contact differently for each group (BCS, 2011). For ethnic majority group members, it represented greater opportunities for contact with ethnic minorities, whereas for ethnic minority group members, it indicated fewer opportunities to interact with the

ethnic majority. Ideally, separate measures should have been used for the two groups; however, this was not possible with the available data.

Future research should aim to work with secondary or primary data that separately measure attitudes and contact experiences for each group. As this thesis has demonstrated, the contact experiences of majority and minority group members can be shaped by distinct psychological factors. Designing survey questions specifically for each group would enable researchers to conduct multigroup analyses, providing a clearer understanding of the different mechanisms that drive individuals to seek or avoid contact. For example, Saguy and Dovidio (2013) found that high- and low-status groups have different expectations regarding intergroup contact. While high-status groups tend to focus on commonalities during interactions, low-status groups are more inclined to address status differences (see also Hässler et al., 2020). Future studies should explore these and other psychological as well as structural factors by asking targeted questions to both high-status and low-status group members, as well as tailoring questions to high-status group members about their contact experiences with a specific low-status group, and vice versa.

Another promising avenue for future research could be to simultaneously examine the effects of individuals' attitudes or perceptions and those of their broader social environment on intergroup contact engagement. One way to achieve this is by aggregating individual-level variables to a higher level. For example, Study 1 assessed individuals' perceptions of diversity alongside a country-level indicator of actual diversity, with the aim of determining whether perceived opportunities for contact or actual opportunities play a stronger role in predicting contact engagement with racial and ethnic outgroups. However, as some scholars pointed out, the ethnic fractionalisation index used to measure actual diversity was somewhat outdated (Drazanova, 2020). By aggregating individual-level perceptions of diversity to the country level, future research could instead explore the extent to which collective perceptions of diversity may predict intergroup contact. Importantly, this approach would shift the research question slightly, focusing on

how collective perceived diversity or the broader diversity climate may shape individuals' engagement with outgroup members.

A similar approach could be applied to the social norm measures in Study 2 by aggregating them to the regional and national levels. This would enable researchers to capture broader, context-level norms surrounding intergroup contact, in other words, the normative climate toward immigrants. Previous studies have employed similar methods. For example, Wagner and colleagues (2006) measured context-level frequency of intergroup contact by aggregating native Germans' contact engagement with foreigners to the neighbourhood level. They found that greater contact engagement at the neighbourhood level predicted more frequent contact and more cross-group friends at the individual level, which in turn was associated with lower levels of prejudice at the individual level (Wagner et al., 2006). Similarly, future studies could explore whether the normative climate surrounding intergroup contact at the neighbourhood and national levels predicts the frequency of contact and the formation of friendships between majority and minority group members.

Another example is Christ and colleagues' study (2014) who investigated the contextual effects of positive intergroup contact on prejudice. Across seven large-scale surveys using multilevel analysis, they showed that intergroup contact at the social context-level (regions, districts, and neighbourhoods) had a significantly stronger effect on reducing prejudice than individual-level contact. Further analyses revealed that this contextual effect of intergroup contact was mediated by social norms. Specifically, living in a neighbourhood where positive contact with outgroup members is common was associated with lower levels of prejudice, even beyond one's own contact experiences, due to the influence of social norms that promote diversity. (Christ et al., 2014). These results were further supported using longitudinal data. Multilevel cross-lagged panel analysis demonstrated that the effect of neighbourhood-level intergroup contact on prejudice (the between-level effect) was significantly larger over time than the effect of individual-level contact (the within-level effect), even when controlling for autoregressive effects (i.e., the stability of measures over time). However, the mediational effect of social

norms was only marginally significant ($p = 0.086$), suggesting that changes in social norms over time can only partially account for the longitudinal contextual effects of intergroup contact (Christ et al., 2014).

Although the present thesis did not examine contextual effects, we encourage future research to investigate them further, particularly whether the between-level effect of social norms (i.e. the normative climate surrounding intergroup contact) measured at different context levels (e.g., neighbourhood, country) may have a stronger influence on intergroup contact and on the formation of friendships between ethnic majority and minority group members than the within-level effect (i.e. individuals' subjective perception of social norms). With other words, whether living in a neighbourhood where most people are supportive (or unsupportive) of interacting with individuals from a different racial or ethnic background could encourage intergroup contact and friendship formation even more than individuals' own personal beliefs. This should be investigated in a longitudinal design to clarify a potential causal direction from context-level social norms to contact. However, as noted above, exploring these relationships would allow researchers to address related but distinct research questions that was beyond the scope of the current thesis.

This thesis used data that measured the frequency of contact experiences and interethnic friendships. Since friendships inherently imply positive contact, this allowed the researcher to assess meaningful interethnic interactions. However, in real-world settings, intergroup contact is not always positive. Contact between different groups can be positive, negative or a mix of both (Dixon et al., 2005). The contact literature has long emphasized the importance of distinguishing between positive and negative contact experiences as they are associated with different attitudinal outcomes. However, research on the antecedents of intergroup contact has largely overlooked the role of contact valence (Kauff et al., 2020). A notable exception is Kotzur and Wagner's (2021) study, which examined the dynamics of intergroup contact opportunities, the frequency of positive and negative contact experiences, and prejudicial attitudes. Across two longitudinal studies, they found that greater intergroup contact opportunities were

associated with both more positive AND more negative intergroup interactions, ultimately increasing prejudice toward migrants (Kotzur & Wagner, 2021). Future research should place greater emphasis on the valence of contact experiences and explore whether certain predictors of contact engagement are specific to positive intergroup contact, while others may be more strongly linked to negative contact (Kauff et al., 2020).

Finally, it is important to acknowledge the social context surrounding the periods of data collection. The British Citizenship Survey (BCS) was conducted in 2011, the European Social Survey (ESS) in 2014, and the Eurobarometer in 2017. Because these datasets are now several years old, it is necessary to consider how the findings of this thesis relate to contemporary society. For instance, the BCS (2011) reflects British people's attitudes toward diversity before the EU Referendum and Brexit. In 2016, the United Kingdom voted to leave the European Union and officially departed on 31 January 2020. Research shows that the Brexit vote was strongly influenced by anti-immigrant and xenophobic sentiments (Golec de Zavala, Guerra, & Simao, 2017) and was followed by a 41% increase in hate crimes against ethnic and racial minorities in Britain (Williams et al., 2022). Across Europe, anti-immigrant attitudes have also intensified. Since the 2015 refugee crisis, xenophobia has risen, with the 2019 Eurobarometer reporting that one-third of Europeans consider immigration the most important issue facing the EU (European Commission, 2019). This surge in anti-immigrant sentiment is closely tied to the electoral success of the far right in recent years, marked by populist and nationalist rhetorics and the implementation of exclusionary policies (Kopyciok & Silver, 2021).

These political developments in the UK and Europe fostered a normative climate that encouraged prejudice towards various groups, including religious and ethnic minorities and migrants (Crandall, Miller, & White, 2018). Evidence shows that the rise in racial hate crimes and hostility in the UK was closely tied to the Brexit vote, which normalised and legitimised prejudiced views. Prejudice against minority groups became more socially acceptable and tolerated (Creighton & Jamal, 2022). However, this shift in perceived norms did not affect everyone in the same way. While it encouraged some to express prejudice more openly, it prompted others to distance themselves from such

behaviour and reject the negative portrayal of minority groups. This pattern is also shown in recent research, suggesting that the referendum's impact on implicit prejudice was shaped by political identity (Olsson, 2024). Rather than producing an overall rise in implicit or explicit prejudice, the referendum generated substantial polarisation: individuals identifying as right-wing became significantly more prejudiced, whereas those identifying as left-wing became less prejudiced (Olsson, 2024). Therefore, it is entirely plausible that the current polarised social climate could lead to mixed findings in future research, with political ideology emerging as a stronger predictor of intergroup contact now compared to when the ESS, BSC and Eurobarometer data were collected, and a significant moderator of prejudice effects.

Similarly, social-political changes across Europe and the UK are likely to have also shifted attitudes towards immigration. This thesis found that majority group members who viewed immigration as an opportunity engaged in more frequent intergroup contact, while those who saw immigration as a problem interacted less frequently with outgroup members. These effects may be even stronger now than at the time the ESS, BSC and Eurobarometer data were collected. Lastly, it would be valuable for future research to explore the extent to which recent political events may have influenced perceptions of social norms surrounding intergroup contact and its impact on intergroup contact experiences. The current thesis found that perceived local and national norms supportive of diversity were associated with more frequent intergroup contact. These findings align with previous research showing that perceived ingroup norms in social contexts where positive contact with outgroups is more commonplace are more tolerant, supporting positive interactions with outgroup members (Christ et al., 2014). Therefore, an important direction for future research could be to examine whether the relationship between perceived social norms and intergroup contact may have strengthened in contemporary societies, where social norms around immigration have become less supportive, and expressing prejudiced views toward minorities more socially acceptable (Creighton & Jamal, 2022). It is expected that future studies may find a stronger relationship between perceived social norms and intergroup contact, with less supportive norms predicting less frequent intergroup contact now than a decade ago, whereas positive social norms

continue to predict more frequent contact engagement between members of racial and ethnic groups.

Conclusion

The aim of this thesis was to examine the psychological and structural antecedents of intergroup contact and identify when and for whom greater intergroup contact opportunities translate into greater contact engagement. It was argued that living in a diverse environment encourages the frequency of contact between different ethnic groups and promotes the formation of interethnic friendships. In addition, subjective perceptions of diversity, prejudice, attitudes toward immigration and multiculturalism, ethnic identification, local and national norms and political orientation emerged as key psychological factors shaping intergroup contact and/or interethnic friendships. The moderating role of group status was also explored, demonstrating that greater ethnic diversity predicts more interethnic friendships for ethnic majority group members, while it is associated with fewer interethnic friends for ethnic minority individuals. This thesis contributes to a new generation of contact research that studies the antecedents of intergroup contact rather than its consequences, to better understand how to encourage contact engagement among members of different social groups. This issue is particularly pressing in contemporary societies where members of different communities often live parallel lives. By identifying predictors of intergroup contact at multiple levels of social life, including both the micro- and macro-environments, this thesis adds valuable insights to the contact literature as well as future social policies aiming to increase contact between various social groups.

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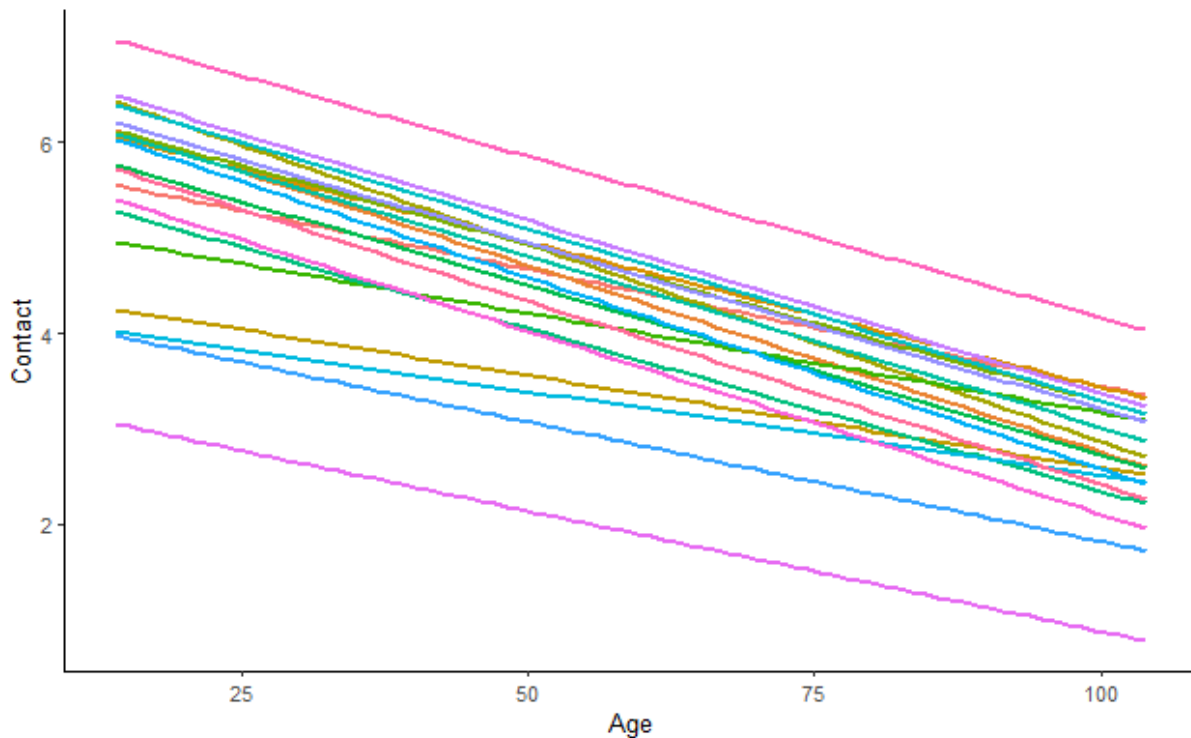
Appendices

Appendix A

Assumption checks ESS

1. **The relationship between predictor variables and the outcome variable is linear**

This assumption was checked by plotting each predictor variable (15 in total) against the outcome variable. All predictor variables showed a linear relationship with the outcome variable. The below example shows the predictor variable 'Age' plotted against 'Frequency of contact', grouped by respective countries.

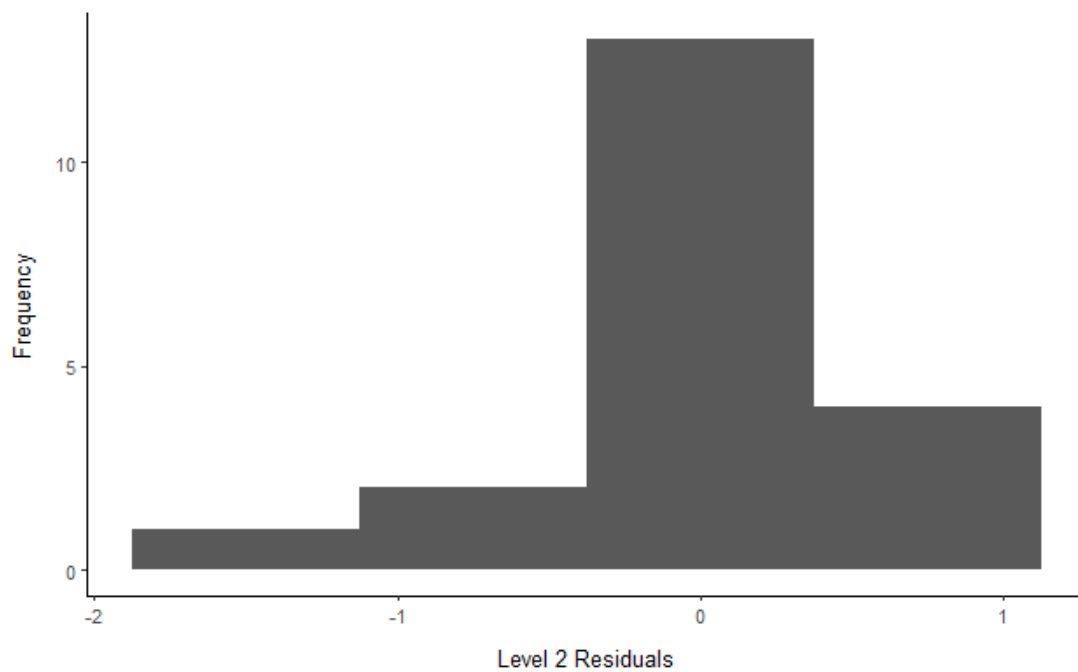## 2. Level 1 residuals are independent of Level 1 predictors within the same cluster

This assumption was tested by examining the correlation between Level 1 residuals and Level 1 predictor variables. All correlations were close to 0, suggesting that Level 1 residuals and Level 1 predictor variables were uncorrelated.
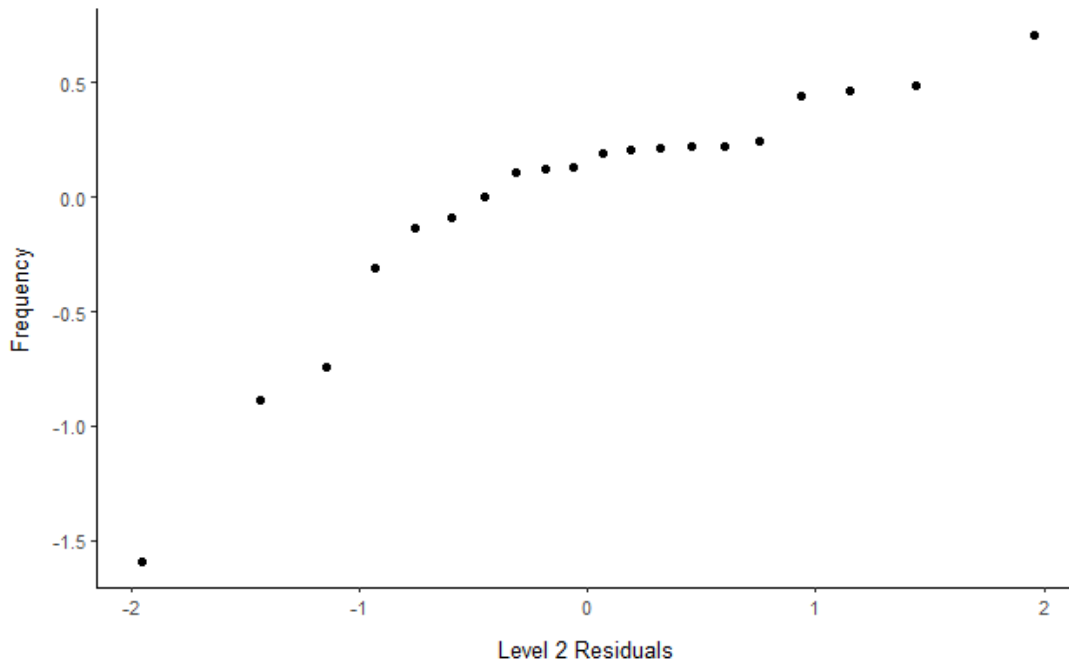
Correlations Between Level 1 Residuals and Level 1 Predictor Variables

Age	- 0.016
Male (Ref. Female)	- 0.002
Education	0.001
Urban (Ref. Rural)	0.004
High perceived diversity (Ref. Low)	0.007
Moderate perceived diversity	0.004
Prejudice	< 0.001
National identification	- 0.008
Openness to change	0.009
Conservation	- 0.007
Self-Transcendence	- 0.003
Self-Enhancement	< - 0.001

3. Level 1 residuals are normally distributed

This assumption was checked by examining the frequency distribution of Level 1 residuals. As the below histogram and QQ-Plot demonstrate, Level 1 residuals were normally distributed.

4. Level 2 residuals are independent from Level 2 predictor variables

This assumption was assessed by examining the correlation between Level 2 residuals and Level 2 predictor variables. All correlations were close to 0, suggesting that Level 2 residuals and Level 2 predictor variables were uncorrelated.

Correlations Between Level 2 Residuals and Level 2 Predictor Variables

Actual diversity	- 0.004
Population size	0.064
Material and social deprivation	0.031

5. Level 2 residuals are normally distributed

This assumption was tested by examining the frequency distribution of Level 2 residuals. As the below histogram and QQ-Plot demonstrate, Level 2 residuals were normally distributed.

6. Level 1 and Level 2 residuals are not related to each other

This assumption was assessed by examining the correlation between Level 1 and Level 2 residuals. The correlation was – 0.005, suggesting that Level 1 and Level 2 residuals were uncorrelated.

7. Predictors at one level are not related to residuals at another level

This assumption was checked by examining the correlation between Level 1 predictor variables and Level 2 residuals, as well as Level 2 predictor variables and Level 1 residuals. All correlations were close to 0, indicating that predictor variables at one level were independent of residuals at another level.

Correlations Between Level 1 Predictor Variables and Level 2 Residuals

Age	0.016
Male (Ref. Female)	0.014

Education	- 0.008
Urban (Ref. Rural)	- 0.021
High perceived diversity (Ref. Low)	0.069
Moderate perceived diversity	0.074
Prejudice	0.004
National identification	0.003
Openness to change	0.101
Conservation	- 0.110
Self-Transcendence	0.061
Self-Enhancement	- 0.039

Correlations Between Level 2 Predictor Variables and Level 1 Residuals

Actual diversity	0.001
Population size	- 0.002
Material and social deprivation	- 0.006

Appendix B

The Theory of Basic Values (Schwartz, 2012) describes 10 human values that are culturally universal. These are stimulation, self-direction, universalism, benevolence, conformity, tradition, security, power, achievement, and hedonism. Each value expresses an underlying goal or motivation with a different level of importance to the individual. Some values share the same or similar underlying goals and therefore are congruent, whereas other values may be in conflict with each other. The theory describes the nature of these dynamic relationships and presents a method to measure the basic values with The Portrait Values Questionnaire (Schwartz, 2012).

Values with a shared motivational basis are organised into four overarching groups or dimensions. The first dimension is Self-Transcendence which includes values that emphasise people's concern for the welfare and interests of others (universalism, benevolence). The second dimension is Self-Enhancement, emphasising pursuit of one's own interests and dominance over others (power, achievement). The Openness to Change dimension includes values that indicate independence of thought and readiness for change (self-direction, stimulation). Finally, Conservation values highlight order, self-restriction, and resistance to change (security, conformity, tradition). Hedonism shares elements with both Openness to Change and Self-Enhancement. Because of its underlying motivation of promoting gain rather than loss, hedonism was included into the Openness to Change dimension (Schwartz, 2012).
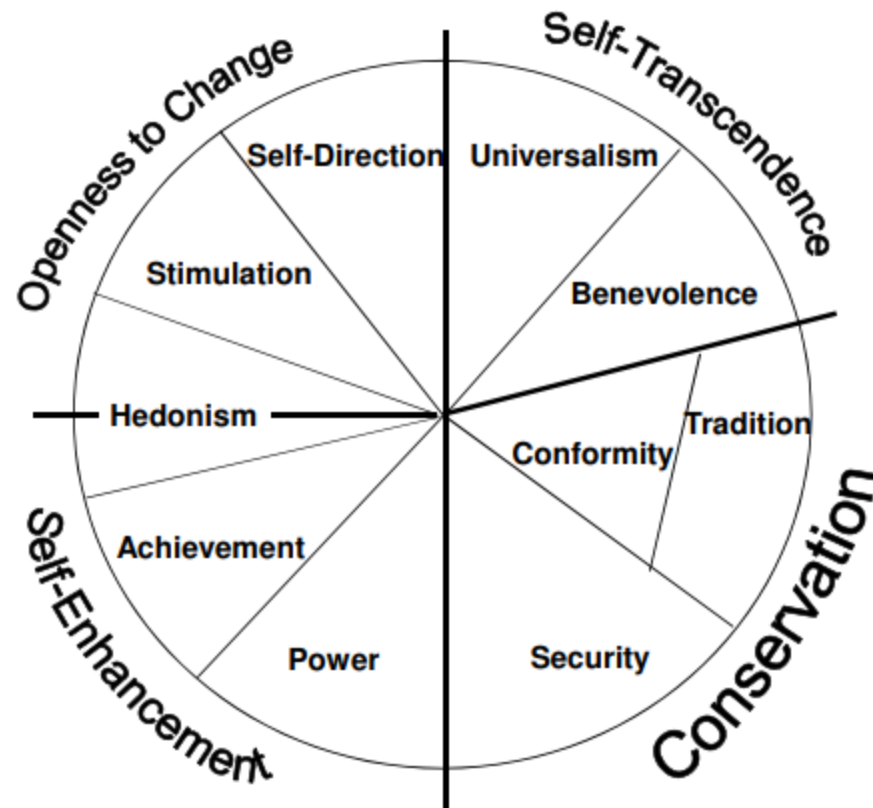
The Portrait Values Questionnaire (PVQ) includes short verbal portraits of 40 different people (21 in the shorter version), gender-matched with the respondent. Each portrait describes a person's goal representing a specific value. For example, *"Thinking up new ideas and being creative is important to him. He likes to do things in his own original way"* describes a person for whom self-direction is important, tapping into the dimension of Openness to Change (6 items in total). *"It is important to him/her to be rich. He/She wants to have a lot of money and expensive things"* describes a person who values power, tapping into the dimension of Self-Enhancement (4 items). Further examples include *"It is important to him/her to live in secure surroundings. He/she avoids anything that might endanger his/her safety"*, measuring the value security within the dimension of Conservation (6 items). *"It's very important to him/her to help the people around him/her. He/she wants to care for their well-being"* measuring the value benevolence within the dimension of Self-Transcendence (5 items).

For each portrait, respondents are asked the question "How much like you is this person?". Answers can range from 1 = very much like me to 6 = not like me at all. The questionnaire is designed to measure people's value priorities, the importance of one value relative to the other values. The reason for this is because attitudes and behaviour can be influenced by more than one value, and behaviour is often a trade-off among relevant values. To measure value priorities accurately, Schwartz recommends converting the ratings into relative importance scores (Schwartz, 2012). First, responses were reverse coded so that higher scores represented greater importance attributed to a value. Then, mean scores for each value dimension were computed. An overall mean score was also computed including all four value dimensions. To capture people's value priorities, the overall mean score was subtracted from each dimension-specific mean. This converted the ratings into relative importance scores and allowed the researchers to measure value priorities rather than the importance of any one dimension only.

Appendix C

Assumption checks Eurobarometer

1. **The relationship between predictor variables and the outcome variable is linear**

This assumption was checked by plotting each predictor variable (20 in total) against the outcome variable. All predictor variables showed a linear relationship with the outcome variable. The below example shows the predictor variable 'Age' plotted against 'Frequency of contact', grouped by respective countries.

2. **Level 1 residuals are independent of Level 1 predictors within the same cluster**

This assumption was tested by examining the correlation between Level 1 residuals and Level 1 predictor variables. All correlations were close to 0, suggesting that Level 1 residuals and Level 1 predictor variables were uncorrelated.

Correlations Between Level 1 Residuals and Level 1 Predictor Variables

Age	- 0.011
Male (Ref. Female)	< 0.001
Urban (Ref. Rural)	0.002
High perceived diversity (Ref. Low)	0.005
Moderate perceived diversity	- 0.001
Attitudes towards immigration - Problem	- 0.003
Attitudes towards immigration - Opportunity	- 0.002
Attitudes towards immigration – equally P + O	0.005
Social distance	0.001
High perceived local norms (Ref. Low)	- 0.001
High perceived national norms (Ref. Low)	< - 0.001
Perceived threat	< - 0.001
Political orientation – Centrist (Ref. Leftist)	< - 0.001
Political orientation – Rightist	- 0.003

3. Level 1 residuals are normally distributed

This assumption was assessed by examining the frequency distribution of Level 1 residuals. As the below histogram and QQ-Plot demonstrate, Level 1 residuals were normally distributed.

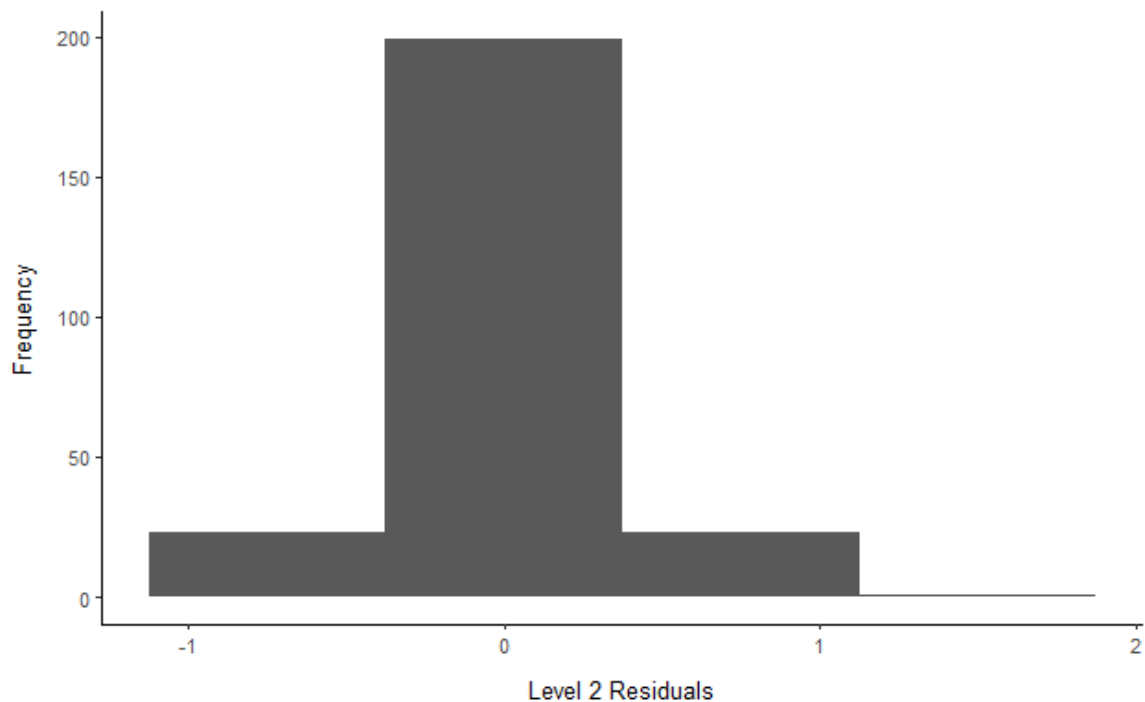## 4. Level 2 residuals are independent from Level 2 predictor variables

This assumption was checked by examining the correlation between Level 2 residuals and Level 2 predictor variables. All correlations were close to 0, suggesting that Level 2 residuals and Level 2 predictor variables were uncorrelated.
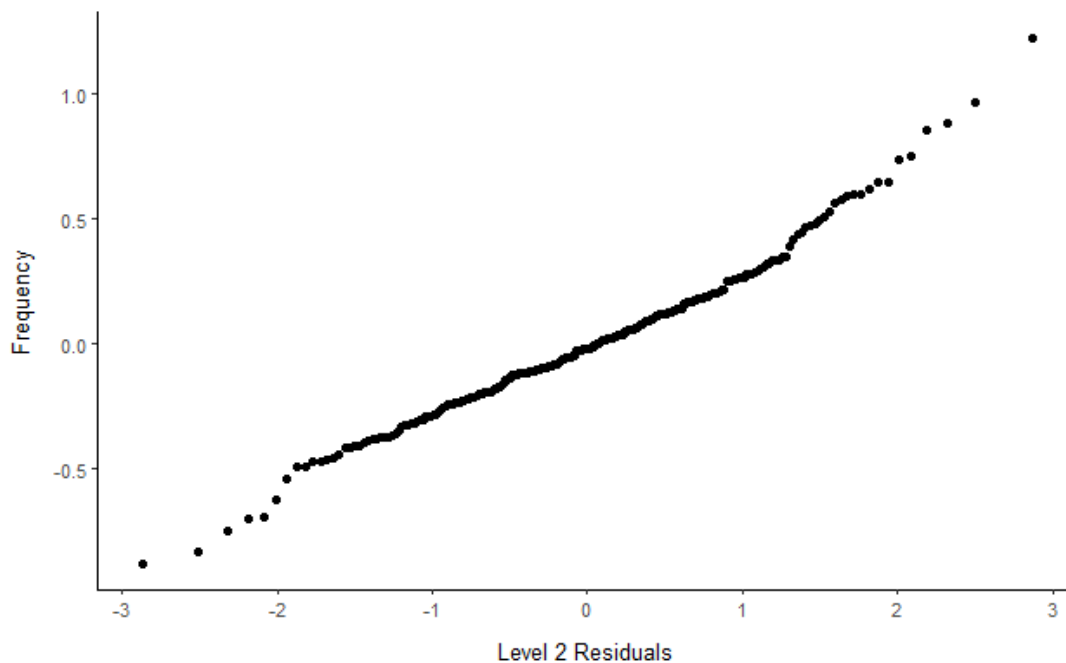
Correlations Between Level 2 Residuals and Level 2 Predictor Variables

Actual regional diversity	0.076
Population size	- 0.048

5. Level 2 residuals are normally distributed

This assumption was assessed by examining the frequency distribution of Level 2 residuals. As the below histogram and QQ-Plot demonstrate, Level 2 residuals were normally distributed.

Level 2 Residuals

6. Level 1 and Level 2 residuals are not related to each other

This assumption was tested by examining the correlation between Level 1 and Level 2 residuals. The correlation was 0.019, suggesting that Level 1 and Level 2 residuals were uncorrelated.

7. Level 1 predictor variables are unrelated to Level 2 residuals, and Level 2 predictor variables are unrelated to Level 1 residuals

This assumption was checked by examining the correlation between Level 1 predictor variables and Level 2 residuals, as well as Level 2 predictor variables and Level 1 residuals. All correlations were close to 0, indicating that predictor variables at one level were independent of residuals at another level.

Correlations Between Level 1 Predictor Variables and Level 2 Residuals

Age	0.012
Male (Ref. Female)	- 0.003
Urban (Ref. Rural)	0.001
High perceived diversity (Ref. Low)	- 0.003
Moderate perceived diversity	- 0.002
Attitudes towards immigration - Problem	0.003
Attitudes towards immigration - Opportunity	- 0.010
Attitudes towards immigration – equally P + O	0.002
Social distance	0.001
High perceived local norms (Ref. Low)	- 0.010
High perceived national norms (Ref. Low)	- 0.009
Perceived threat	0.006
Political orientation – Centrist (Ref. Leftist)	- 0.003
Political orientation – Rightist	- 0.002

Correlations Between Level 2 Predictor Variables and Level 1 Residuals

Actual regional diversity	0.005
Population size	0.004

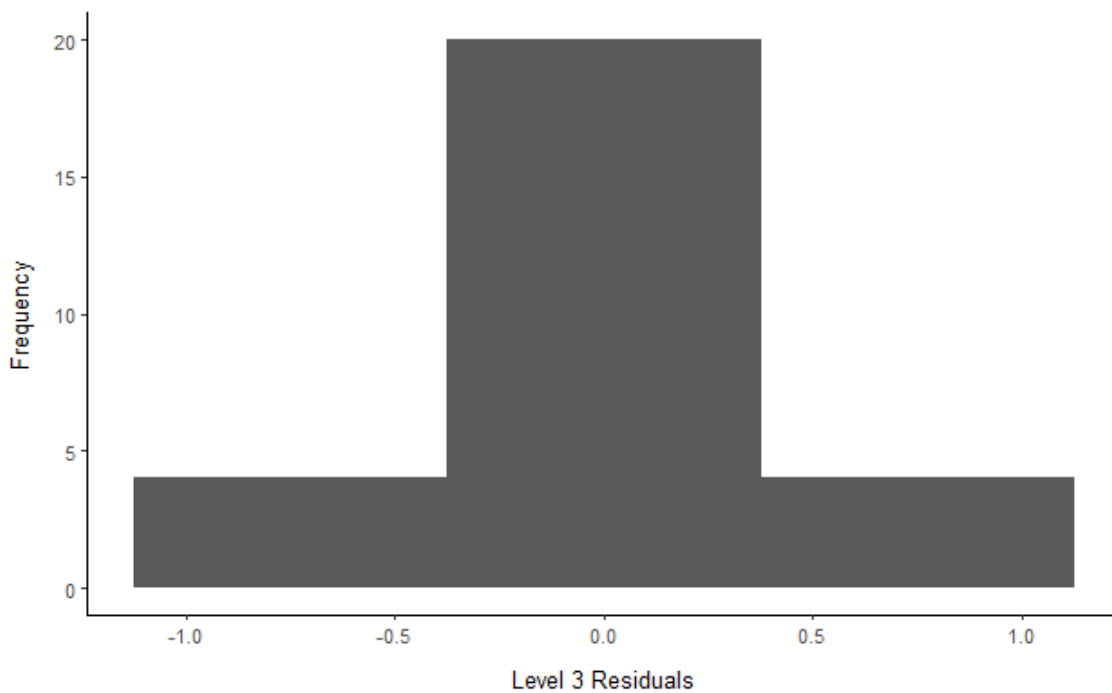8. **Level 3 residuals are independent from Level 3 predictor variables**

This assumption was tested by examining the correlation between Level 3 residuals and Level 3 predictor variables. All correlations were close to 0, suggesting that Level 3 residuals and Level 3 predictor variables were uncorrelated.

Correlations Between Level 3 Residuals and Level 3 Predictor Variables

Actual national diversity	0.058
Material and social deprivation	- 0.049
Actual national norms	0.078

9. Level 3 residuals are normally distributed

This assumption was assessed by examining the frequency distribution of Level 3 residuals. As the below histogram and QQ-Plot demonstrate, Level 3 residuals were normally distributed.
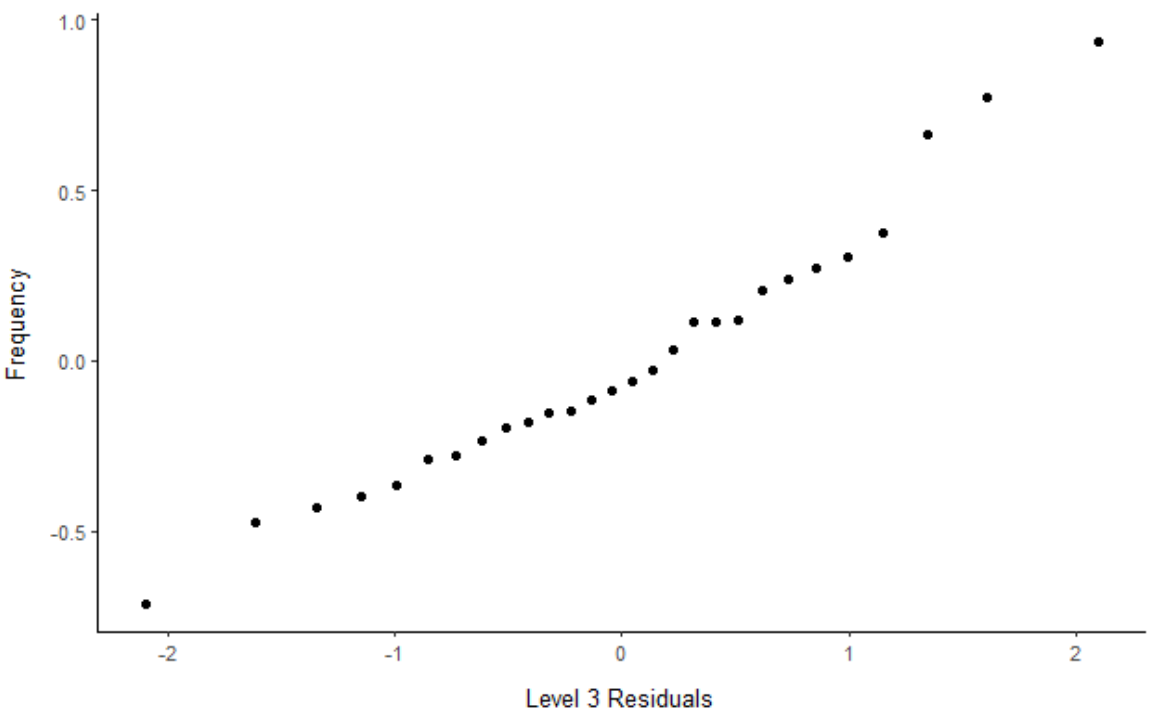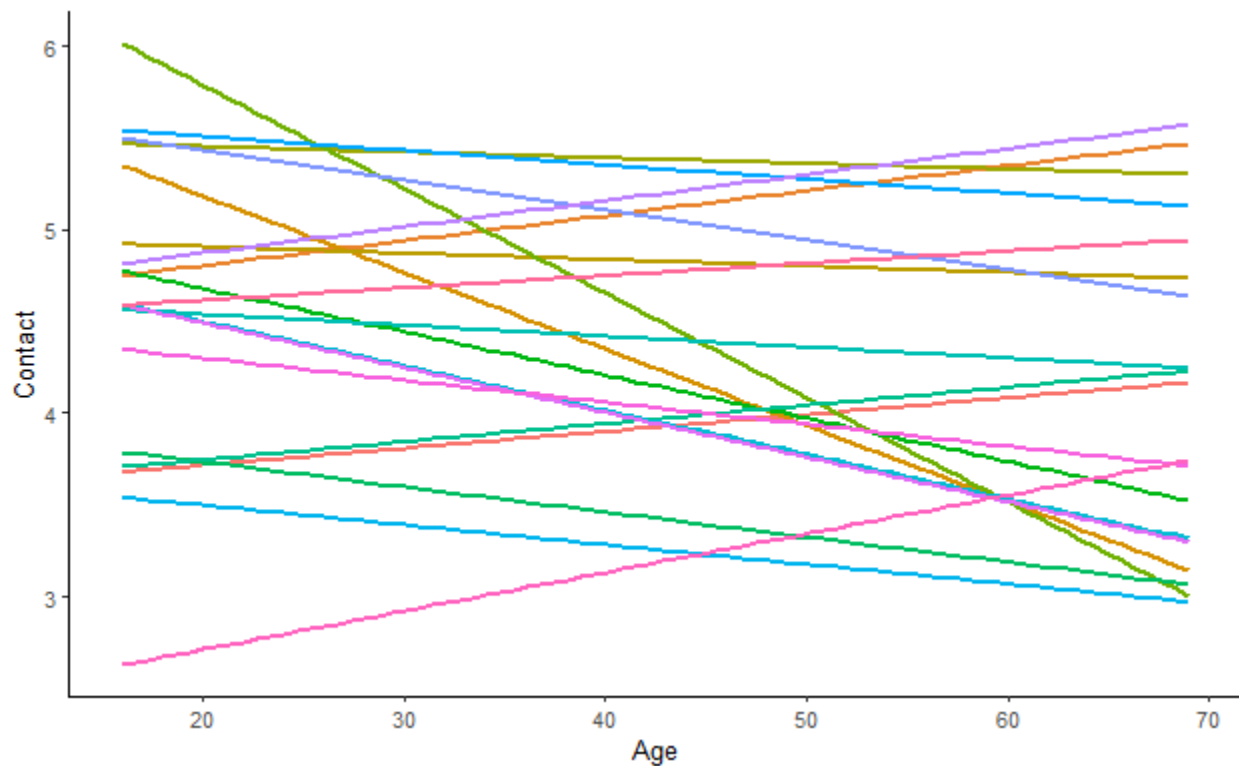
Appendix D

Assumption checks BCS

1. **The relationship between predictor variables and the outcome variable is linear**

This assumption was checked by plotting each predictor variable (14 in total) against the outcome variable. All predictor variables showed a linear relationship with the outcome variable. The below example shows the predictor variable 'Age' plotted against 'Frequency of contact', grouped by respective countries.

2. **Level 1 residuals are independent of Level 1 predictors within the same cluster**
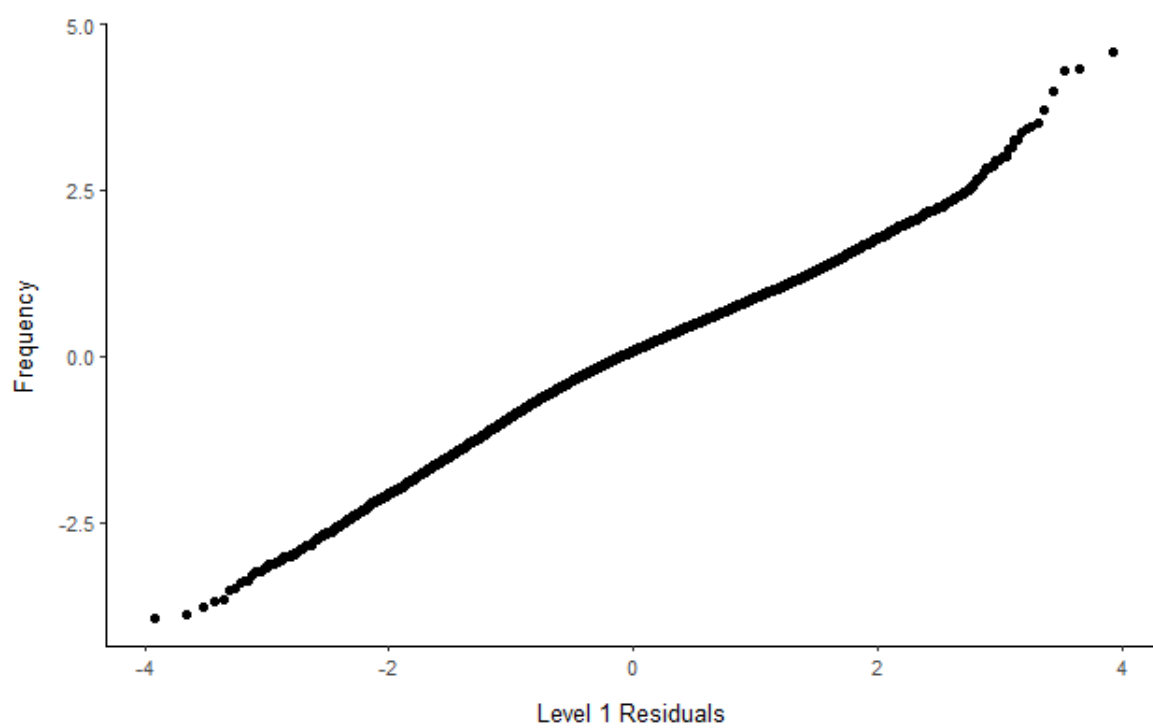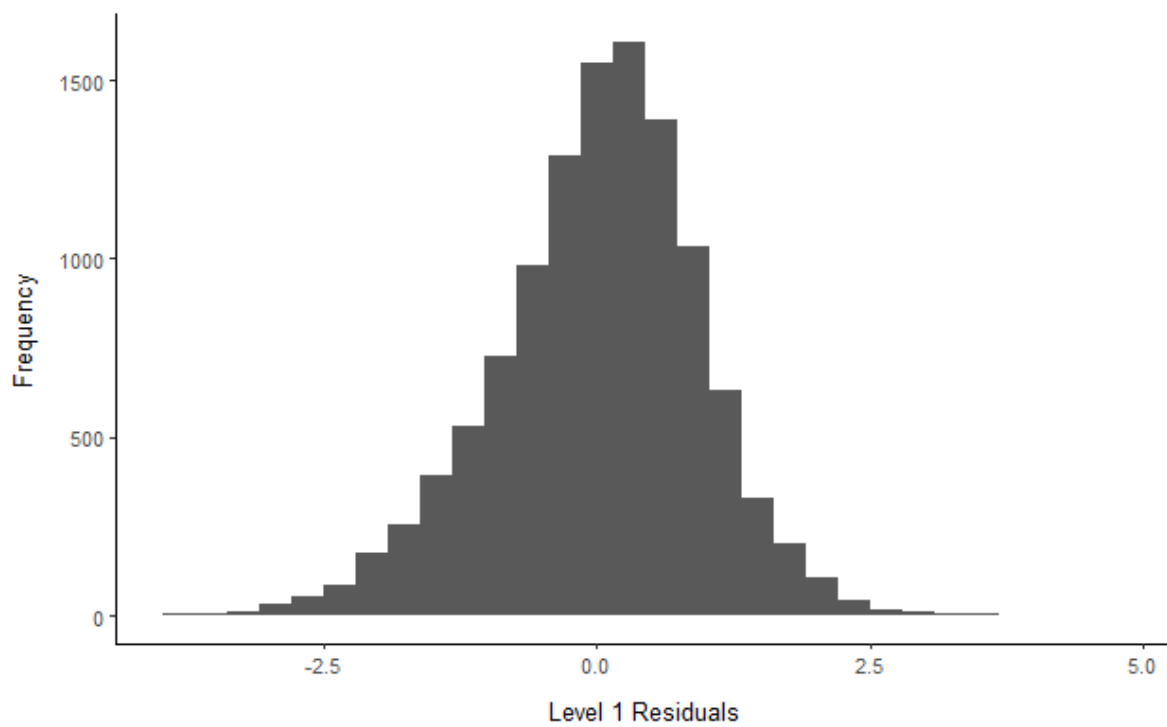
This assumption was tested by examining the correlation between Level 1 residuals and Level 1 predictor variables. All correlations were close to 0, suggesting that Level 1 residuals and Level 1 predictor variables were uncorrelated.

Correlations Between Level 1 Residuals and Level 1 Predictor Variables

Age	0.020
Male (Ref. Female)	0.004
High education (Ref. Low)	0.011
Moderate education	- 0.011
Urban (Ref. Rural)	0.004
Ethnic majority (Ref. Ethnic minority)	- 0.041
Perceived diversity	0.025
Ethnic identification	0.010
High perceived local norms (Ref Low)	0.004
High perceived national norms (Ref. Low)	0.005
Moderate perceived national norms	- 0.002
Dispositional trust	0.006
High support for multiculturalism (Ref. Low)	- 0.008

3. Level 1 residuals are normally distributed

This assumption was assessed by examining the frequency distribution of Level 1 residuals. As the below histogram and QQ-Plot demonstrate, Level 1 residuals were normally distributed.
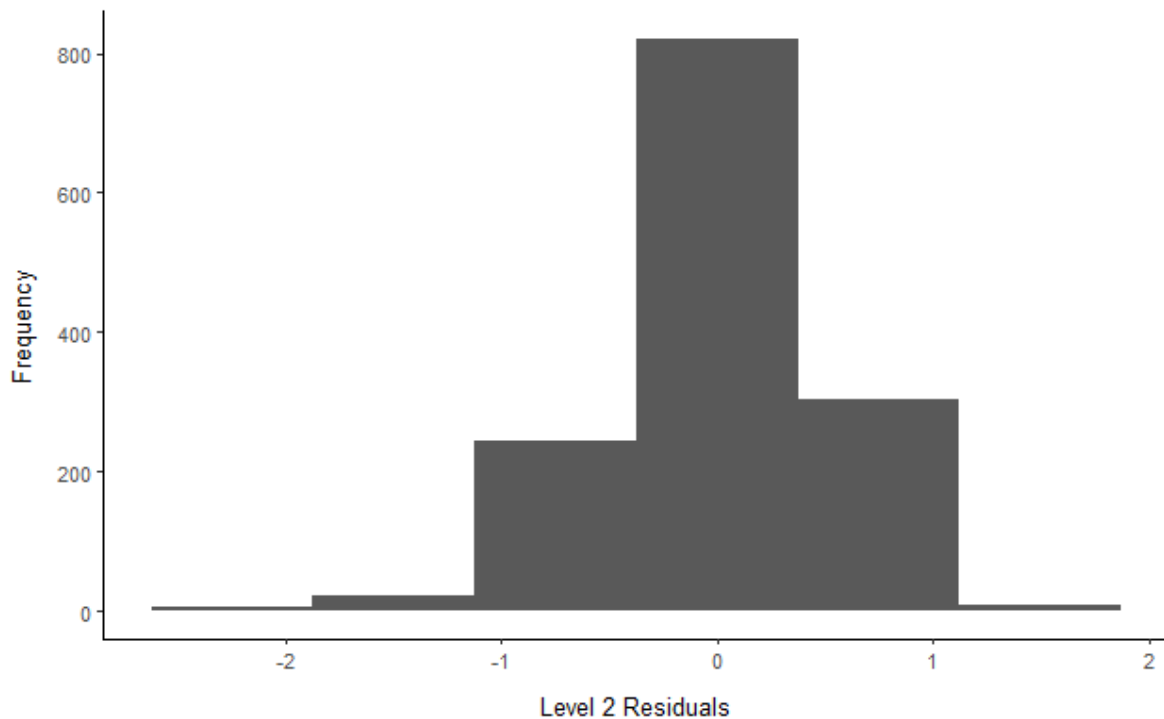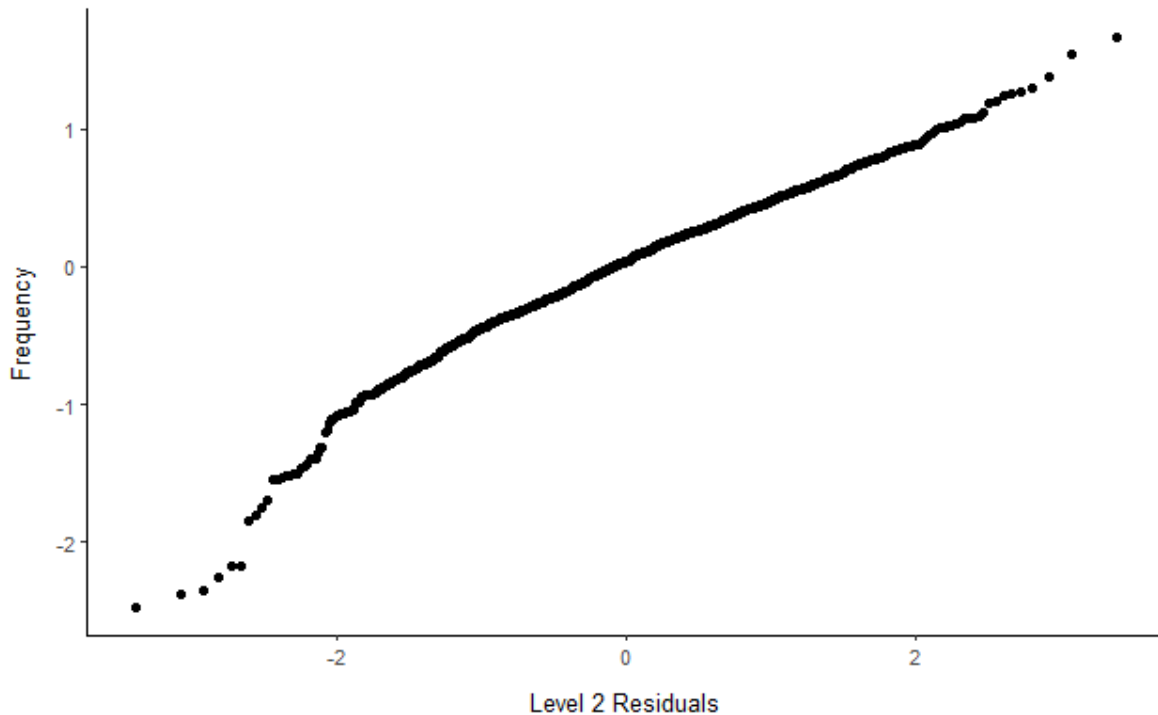
4. Level 2 residuals are independent from Level 2 predictor variables

This assumption was checked by examining the correlation between Level 2 residuals and the Level 2 predictor variable. The correlation was – 0.011, suggesting that Level 2 residuals and the Level 2 predictor variable were uncorrelated.

5. Level 2 residuals are normally distributed

This assumption was assessed by examining the frequency distribution of Level 2 residuals. As the below histogram and QQ-Plot demonstrate, Level 2 residuals were normally distributed.

6. Level 1 and Level 2 residuals are not related to each other

This assumption was tested by examining the correlation between Level 1 and Level 2 residuals. The correlation was 0.071, suggesting that Level 1 and Level 2 residuals were uncorrelated.

7. Predictors at one level are not related to residuals at another level

This assumption was checked by examining the correlation between Level 1 predictor variables and Level 2 residuals, as well as the Level 2 predictor variable and Level 1 residuals. All correlations were close to 0, indicating that predictor variables at one level were independent of residuals at another level.

Correlations Between Level 1 Predictor Variables and Level 2 Residuals

Age	0.002
Male (Ref. Female)	0.002

High education (Ref. Low)	0.011
Moderate education	- 0.009
Urban (Ref. Rural)	< 0.001
Ethnic majority (Ref. Ethnic minority)	- 0.004
Perceived diversity	- 0.001
Ethnic identification	- 0.004
High perceived local norms (Ref Low)	- 0.008
High perceived national norms (Ref. Low)	- 0.011
Moderate perceived national norms	0.009
Dispositional trust	0.007
High support for multiculturalism (Ref. Low)	- 0.002

Correlations Between the Level 2 Predictor Variable and Level 1 Residuals

Actual diversity	0.041