



They are undermining our identity! Effect of demographic shift on negative reactions toward refugees: the mediator role of identity undermining

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Abstract

Demographic changes around the world via immigration provide a unique context for how high-powered (majority) groups respond to new circumstances. Previous studies indicated that impending demographic shift is detrimental to intergroup relations. In the present study, we present evidence of a novel mediator to explain the negative reactions of the majority group members to the impending demographic shift in a non-WEIRD (Türkiye) context. Accordingly, we conducted an experimental study ($N=274$) in which participants showed a current demographic structure, future Turkish majority, and future Turkish minority via ostensibly a real newspaper article to examine the mediation role of identity undermining between impending demographic shift and outgroup tolerance and collective angst. Results of the mediation analysis showed that the significant indirect effect of demographic shift on shift on collective angst, but not on outgroup tolerance, via identity undermining emerged for the difference between the participants presented the current distribution of Türkiye and participants presented a future where Turkish citizens would no longer constitute a majority. Thus, we demonstrate that an experimentally manipulated impending demographic shift threatens the way of life (identity undermining) among majority group members, subsequently increasing their collective angst. This finding underscores the importance of identity undermining as a potential danger for majority-minority relations and highlights the need for strategies to mitigate these tensions.

Keywords Demographic shift · Identity undermining · Collective angst · Outgroup tolerance

The Syrian civil war has triggered a large-scale migration of millions of refugees to neighboring countries. Türkiye is at the forefront of those countries affected by this migration wave. According to the United Nations Refugee Agency (UNHCR, 2023), Türkiye hosts 3.7 million -officially registered- refugees, but according to the Migrants' Presence Monitoring (MPM), currently, there are more than 5.1 million foreign reside in Türkiye (MPM, 2024). In any case, Türkiye certainly has the highest number of refugees in the world (UNHCR, 2023) and this dramatic increase

in the refugee population is perceived to have economic, political, and social consequences. A growing body of work unpacks the detrimental effects of demographic shift anticipation for intergroup relations. The perception of a demographic shift can lead to concerns about the potential loss of privileged positions and is often viewed as a status threat, which is perceived as detrimental to majority-minority (e.g., White people-immigrant) relations. (Bai & Federico, 2021; Stefaniak & Wohl, 2022). For instance, the anticipated demographic shift leads to the emergence of anger toward and fear of minorities (Outten et al., 2012; Stefaniak et al., 2020). Supporting this evidence, recent public opinion research in Türkiye showed that hatred is the most frequently expressed emotion toward refugees (Optimar, 2022), which is also related to the high perception of threat (Çalışkan, 2019). This finding aligns with broader social psychology research conducted in Türkiye, which reveals that negative attitudes toward Syrian refugees are

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often driven by perceived economic, cultural, and identity threats (e.g., Bageci et al., 2023a; Çirakoğlu et al., 2021; Yitmen & Verkuyten, 2018). For example, studies have found that perceived cultural incompatibility, such as differences in language, religion, and lifestyle, often leads to increased social distance and negative attitudes toward Syrian refugees (Şafak-Ayvazoğlu et al., 2021). Additionally, concerns over competition for economic resources, particularly in the labor market, have been shown to amplify threat perceptions and hostility (Morgül & Savaşkan, 2021). The perception of threat and negative emotions may also lead to support for anti-refugee policies. A recent study has associated the perception of demographic shift with increased support for far-right parties, driven by existential fears (Bai & Federico, 2021). Evidence for this perception-based reaction is found in the political context of Türkiye, where the far-right party (Zafer Partisi), founded in 2021, built its political agenda on anti-refugee policies and gained visibility through social media. Similarly, the main opposition party promised to ‘send refugees home, peacefully’ in the last national election in Türkiye.

Perceived changes in the ethnic distribution of the population may also affect the concepts that determine who we are. Broadly, national identities are typically shaped by dominant groups, which represent the largest group within a nation (e.g., White Americans, see Devos & Banaji, 2005). Groups desire to reflect their unique characteristic to the superordinate (e.g., national) identity by being prototypical (Wenzel et al., 2007). The perception of an increasing refugee population raises concerns about the majority group’s representation of the superordinate category (Bai & Federico, 2021) which, in turn, leads to the expectation of non-dominant groups (e.g., immigrants) to be assimilated by the majority group’s culture (Danbold & Huo, 2022). For instance, these concerns are often associated with supporting nativist policies (Danbold et al., 2023). If the groups perceived a negative impact on their own group’s identity (way of life) within a superordinate category, this induces negative attitudes towards superordinate identity (Sindic & Reicher, 2009). These findings indicated that the anticipated demographic shift is associated with the defending ingroup’s identity and representation of the ingroup’s identity of the superordinate category.

There is a growing body of studies examining the perceived negative psychological consequences of demographic shifts (e.g., Craig & Richeson, 2015; Outten et al., 2012), yet few studies have attempted to investigate its underlying mechanisms (e.g., Bai & Federico, 2021; Verkuyten & Martinovic, 2017). We argue that the perception of an increasing refugee population (anticipated demographic shift) can elicit negative attitudes toward refugees (outgroup intolerance and collective angst) via identity

undermining. In other words, we propose that demographic shift is not only attached to existential threat (Bai & Federico, 2021) but also associated with the defending ingroup lifestyle (norms, values, culture, etc.). Moreover, studies examining demographic shifts have primarily focused on the reactions of White Americans toward different ethnic minorities (e.g., Bai & Federico, 2021; Craig & Richeson, 2015; Outten et al., 2012). Furthermore, to our knowledge, studies regarding the perception of demographic shift have been predominantly conducted in WEIRD (Western, Educated, Industrialized, Rich, and Democratic) countries (Henrich et al., 2010). We aim to replicate and extend prior research in this area by exploring these dynamics in a non-WEIRD country (Türkiye).

Detrimental psychological effects of demographic shift

According to the Social Identity Theory (Tajfel, 1974), the fundamental mechanism for determining the values of groups is achieved through social comparison with relevant other groups. For instance, social status only becomes meaningful for group members when compared with relevant other groups in a particular context (Tajfel, 1974). The group’s relative size is an important basis for comparison because often perceived as a prominent indicator of higher group status. Even though group size is neither a necessary nor a sufficient condition for gaining or holding power, there is a tendency to associate power and group size (Kamans et al., 2011). A group’s desire for higher status is understandable since historically powerful groups (majorities) often have an advantage in accessing economic, social, and political resources. Power is also perceived a substantial resource for *collective autonomy*. Those who feel that their group holds power have the sense that their group can freely express their identities without being pressured or manipulated by other groups (Kachanoff et al., 2022). Therefore, it is argued that, when the dominant position of the majority is threatened by the minority, in turn, this can lead to the emergence of negative attitudes as a defensive reaction. Feeling threatened by an outgroup due to perceived instability in group status can lead to psychological reactions (Shelton et al., 2006) as well as physiological responses such as stress (Scheepers & Knight, 2020).

Several factors have an amplifying role in negative reactions toward anticipated demographic shift. White Americans who perceive their group’s position as legitimate tend to exhibit greater negative feelings toward minorities and experience heightened intergroup threat (Outten et al., 2018). Besides legitimated higher status, people’s economic beliefs also have an enhancing role on negative reactions.

In addition to perceptions of legitimacy, economic beliefs also play a role in enhancing negative reactions; those who believe in a competitive economic system often feel more threatened by immigrants (Perkins et al., 2022). In other words, the perception that the numerical increase of immigrants will create a disadvantageous situation for the host in-group contributes to the emergence of hostility towards refugees. Accordingly, individuals who more strongly hold a zero-sum belief— that one group’s gain would be another’s loss—, are more likely to exhibit negative emotions towards disadvantaged groups (Stefaniak et al., 2020). The demographic shift is not only associated with perceived existential problems (Bai & Federico, 2021) but also poses an perceived identity threat to the majority group. According to Hirschberger et al. (2016), the demographic shift may raise concerns for the ingroup about the loss of their unique identity and values (*symbolic collective annihilation*), which can be detrimental to intergroup relations. As a defense of their identity, members of the majority group may expect members of the minority group to adopt (i.e., assimilate) their culture (Zagefka et al., 2023).

Identity undermining as a potential mediator

The link between demographic shift and negative defensive reaction towards minority groups is well-established in the literature. For example, anticipated demographic shift is associated with increased discrimination (Krosch et al., 2022) and prejudice (Craig & Richeson, 2015; Outten et al., 2012) against ethnic minorities. Despite this established link, few studies have attempted to investigate the mechanisms driving negative reactions against demographic shift. One of the sources of negative reactions has been indicated as a collective existential threat (Bai & Federico, 2021). Whites who perceive that their ingroup’s existence is threatened by minority growth are more likely to exhibit racial bias and political conservatism (Bai & Federico, 2020). Moreover, the defensive reaction is found to be much stronger among the ingroup members who hold strong zero-sum beliefs. Besides the existential threat, individuals may feel collective ownership of their country (Verkuyten & Martinovic, 2017) and any perceived threat to this ownership can trigger a defensive response. For instance, for Dutch natives, framing Türkiye’s accession to the European Union (EU) is associated with opposition to Türkiye’s affiliation due to possible migration inflows (Nijs et al., 2022). To sum up, the threat of what our group has (e.g., identity, sense of ownership) can lead to negative reaction toward relevant outgroups.

In addition to existential threat, symbolic threat, a well-established construct in intergroup relations literature, refers to the perception that an outgroup poses a challenge to the cultural values, norms, and traditions of the ingroup (Stephan et al., 2015). This framework is particularly relevant in refugee contexts, where perceived differences in language and lifestyle often amplify cultural incompatibility and foster negative attitudes toward refugees (Morgül & Savaşkan, 2021; Şafak-Ayvazoğlu et al., 2021). In Türkiye, symbolic threat has been shown to shape host community attitudes, as mass-mediated contact often leads to dehumanization, reduced support for refugee rights, and challenges to cultural integrity (Bagci et al., 2023a). For instance, Turks have perceived Syrian refugees as a threat to the nation’s social cohesion and modernity (Topal et al., 2017), a perception frequently reinforced by negative media portrayals. These negative representations contribute to increased social distance and anti-refugee sentiment (Gönültaş & Mulvey, 2023). While symbolic threat primarily focuses on cultural dimensions, demographic shifts introduce additional complexities that extend beyond cultural challenges. Specifically, demographic changes are often perceived as direct challenges to political power, triggering concerns about the majority’s ability to maintain control over societal structures and decision-making. In Türkiye, for example, public debates have raised fears that the growing refugee population could lead to political shifts, such as the establishment of refugee-dominated political parties or alterations to voting dynamics. These concerns emphasize that demographic shifts are not solely about cultural incompatibility but also about the redistribution of political influence, making them a distinct yet related concept. This dual focus on cultural and political dimensions highlights the need to examine demographic shifts as a broader phenomenon tied to societal power dynamics.

Sindic and Reicher (2009) yield an alternative explanation for the identity threat. Their perspective focused on social reality and whether one’s group maintains its lifestyle (norm, values, culture, etc.) along with other groups under the same roof (e.g., different ethnic groups within a nation). Accordingly, the threat to a group’s lifestyle is the primary source of the defensive reaction. However, groups have the desire to control their own group’s values, norms, and other similar phenomena in a way that is designed to create a sense of *collective self-realization*. Thus, while holding control over their lifestyle is experienced as positive, while losing it is viewed negatively (Haslam & Reicher, 2006). Türkiye is a hierarchical society, but, according to Hofstede Insight (2023), the power distance is lower than in many Middle East countries (e.g., Syria, Qatar). Additionally, although Türkiye and Syria share a common religion, significant differences exist in lifestyle, including religious

practices and daily activities. In furtherance, the results of a study conducted by Morgül and Savaşkan (2021) indicated that a shared religion is not enough to inhibit anti-refugee sentiment in Türkiye. A field study revealed that many Turkish individuals perceived substantial cultural differences between themselves and Syrian refugees (Özden, 2013). Also, the results of a study conducted by Şafak-Ayvazoğlu et al. (2021) indicated that there are negative factors (e.g., prejudice) that impair refugees' psychological and socio-cultural adaptation. Consequently, we argue that a significant increase in the refugee population may undermine the perceived control over identity among the Turkish population, largely due to these cultural differences.

Sindic and Reicher (2009) identify two key concepts - incompatibility and powerlessness - that predict the undermining of identity. Accordingly, incompatibility refers to a sense of difficulty in groups expressing themselves under the same roof with other groups. In some contexts, different groups may be complementary in terms of their values, norms, etc. (Deschamps & Brown, 1983), while in others, groups' differences may be too much to allow the true expression of their identities (Reicher & Hopkins, 2001). Powerlessness, on the other hand, is defined as the phenomenon in which a group lacks the capacity to impose its lifestyle on their group. We argue that both concepts are particularly relevant in the context of Türkiye. The cultural differences between host communities and refugees signify incompatibility, while an increasing refugee population can diminish the power dynamics within society, leading to feelings of powerlessness.

Some refugees in Türkiye have already gained citizenship, while others possess residence permits and anticipate citizenship in the near future. This perspective has augmented the expectation that multiple groups, including the host nation and refugees, will be nested within a shared superordinate category. Therefore, it is important to consider how these groups, both majority and minority, perceive each other within this category. Typically, majority group members are inclined to see themselves as prototypical of the superordinate identity (Wenzel et al., 2007). Perceived threats to this prototypicality can result in negative emotions (e.g., fear) and prejudice (Kessler et al., 2010). Additionally, research has shown that when identity differences prevent groups from expressing their lifestyles under a single superordinate identity, intergroup relations are negatively affected (Sindic & Reicher, 2009). If groups are perceived as incompatible, they may view one another as threats to their cultural lifestyles. We argue that the growing number of refugees can psychologically influence the perceived balance of power between groups, leading to feelings of powerlessness among the majority. This perceived loss of control is closely linked to emotional reactions, particularly

collective angst, which reflects fears and concerns about the future stability of the majority group in the context of demographic shifts (Stefaniak & Wohl, 2022). We argue that identity undermining might serve as a mediator in this relationship, amplifying perceptions of incompatibility and powerlessness, which in turn heighten collective angst and reduce tolerance toward refugees. These negative emotional and attitudinal outcomes are central to understanding the impact of demographic shifts on intergroup relations. The present study aims to explain the mechanisms underlying these outcomes, hypothesizing that demographic shifts increase identity undermining, which subsequently leads to greater collective angst and reduced tolerance. Furthermore, existing studies on demographic shifts have primarily focused on reactions from White Americans. In this research, we seek to examine these dynamics in Türkiye, a non-WEIRD context.

Method

Participants

We recruited 393 participants who were mostly private university students (91%) located in Türkiye through an online data collection software Qualtrics between 2022-05-13 and 2022-12-15. We also used snowball sampling and distributed the survey via social media platforms such as Facebook and X. We took deliberate steps to ensure that only individuals identifying themselves as Turkish could participate in the study. This was clearly stated in our call for participants and reiterated at the start of the survey. Participants were explicitly asked if they identified as Turkish before proceeding, and only those who responded affirmatively were allowed to continue. Therefore, all participants included in the study self-identified as members of the Turkish majority ethnicity in Türkiye. A total of 119 participants were excluded from the study for failing the attention check question (73) and manipulation check questions (46). The final sample consisted of 274 participants (241 female, 33 males) whose ages ranged from 18 to 61 with a mean of 21.97 ($SD=4.21$). The vast majority of participants (55.5%) indicated their income level as moderate, while 28.8% specified it as upper-middle, 10.2% as lower-middle, 2.9% as low, and 2.6% as high. In addition, we performed post-hoc power analysis to determine achieved power using G*Power 3.1 (Faul et al., 2009). According to the results, 274 participants were sufficient to detect a medium effect size ($f=0.25$) of the experimental design of the current study (3 level IV and 2 covariates). The achieved power is 0.96 which is higher than the threshold value of the power (0.80). We also conducted a power analysis using the pwr2ppl package in R to determine the

statistical power of the mediation analysis. Based on a sample size of 274 participants, the relationship between variables considering the Bonferroni corrected alpha (0.025) and the power to detect a significant indirect effect was calculated. The analysis revealed a power of 0.94, which is well above the conventional threshold of 0.80. This suggests that our sample size was more than sufficient to detect the indirect effect with high confidence.

Procedure

The experiment in this study was approved by the ethics committee of the first author's affiliated institution. The respondents participated in the study online using the link generated by Qualtrics. Before the experiment, participants were informed that the study aimed to investigate the attitudes of Turkish people toward refugees. First, we provided participants with a form to give consent and to provide demographic information about their age, gender, and household income. Next, they were randomly assigned to one of the three experimental conditions, which were presented through manipulation, ostensibly a real newspaper article, about either demographic distribution for Türkiye's future in 2060, or about current ethnic demographic distribution in Türkiye. For all manipulations, the most common ethnic minorities in Türkiye were included in the pie charts: respectively refugees, Kurds, Circassians, Bosnians, and others, to increase the plausibility of the manipulations. We used a modified version of demographic shift manipulations used by previous studies (Craig & Richeson, 2015; see also Stefaniak & Wohl, 2022). In the current Turkish majority condition, the article contained a current ethnic demographic pie chart for 2022 in which native Turkish people comprised 73% of the population and other ethnic minorities comprised 27%. However, in the future Turkish majority condition, the pie chart indicated that in 2060, Turkish people would still comprise the majority, although reduced to 64%, whereas ethnic minorities would comprise 36%. In the future Turkish minority condition, the pie chart showed that in 2060, Turkish people would account for 49%, and other ethnic minorities would account for 51%, implying that the native Turkish population would become a minority. Next, participants completed a recall two-question test about the article's content that served as a manipulation check. After recall tests, participants completed measures of dependent variables such as collective angst and tolerance towards Syrians. They were subsequently debriefed. For the manipulations, see the Open Science Framework (OSF) at <https://osf.io/qbgr9/>.

Measures

Manipulation and attention check After manipulations, participants answered multiple-choice questions in which they were asked to recall the percentages of Turkish and other ethnic minorities predicted to comprise the population in 2060 and basic knowledge about the article content. Two manipulation check questions were used for each condition. For the *current Turkish majority* and *future Turkish majority conditions*, we used the same questions (e.g., “According to the article, what percentage of the population do (would) refugees account for now (in 2060)?”; “What is the name of the institution that collects data to determine demographic structure?”). However, for the future Turkish minority conditions we used 2 different questions to make sure that participants fully understood the demographic shift “Which of the following best summarizes the point emphasized by the experts in the article?”; “What do experts suggest is the reason for the demographic shift in Türkiye?” (see Outten et al., 2018). The primary aim of these questions was to ensure that participants fully understood the demographic information provided in the vignettes. We argue that recalling this information is crucial for ensuring the effectiveness of the manipulation, as the key experimental conditions rely on participants' comprehension of demographic shifts presented in the scenarios. This recall test allowed us to verify that participants had engaged with and accurately processed the content. Participants who failed to recall the key demographic details (failed to provide a correct answer to one or both manipulation check questions) were excluded from the analysis, as their failure to comprehend the manipulation may have compromised their responses on the dependent variables. Additionally, we included one attention check question (*please select 7-totally agree with this question*) in the outgroup tolerance scale to make sure that participants paid their attention till the end of the study.

Identity undermining We used four items adapted from Sindic and Reicher (2009) to measure the extent to which Turkish people perceive Syrian refugees as an undermining factor for their national identity (e.g., “Syrians being part of the Türkiye will destroy the Turkish way of life.”) using a 7-Point Likert scale (1=strongly disagree, 7=strongly agree). Cronbach's alpha for the scale was 0.94. Four items loaded on a single component (79.1%, KMO=0.83; Bartlett's test of sphericity: $\chi^2(6)=997, p<.001$) and item loadings ranged from 0.84 to 0.93. The researchers translated the scales into Turkish and an independent expert translated the scales without seeing the original ones. Finally, a

non-expert checked the final version. The same process was applied to the collective anxiety scale.

Collective angst We measured collective angst using five items adapted from Jetten and Wohl (2012). Participants were asked about the extent to which they were concerned about the future existence of Türkiye (e.g., “I am concerned about Türkiye’s future”) using a 7-point Likert scale (1 = completely disagree, 7 = completely agree). We used a composite score after recoding three reverse-scored items. Cronbach’s alpha was 0.85. Five items loaded on a single component (55.9%, KMO=0.78; Bartlett’s test of sphericity: $\chi^2(10)=732, p<.001$) and item loadings ranged from 0.55 to 0.87.

Outgroup tolerance We used eight items modified from Bağcı et al. (2023b) to measure the extent to which participants were supportive of Syrian’s political and social rights (e.g., “Syrian refugees should have the same right as native Turkish people to protest against the authorities when feeling ill-treated”, 1 = completely disagree, 7 = completely agree). After recoding two reverse-scored items, a composite score was calculated. Cronbach’s alpha was 0.87. Eight items loaded on a single component (47.9%, KMO=0.83; Bartlett’s test of sphericity: $\chi^2(28)=1153, p<.001$) and item loadings ranged from 0.60 to 0.75.

Results

Statistical analysis

The IBM SPSS Statistics 25 was used for descriptive statistics and ANCOVAs to detect differences between demographic shift conditions on the variables of interest. We tested hypotheses using Hayes’ PROCESS (model 4). We ran two simple mediation models separately for collective angst and outgroup tolerance as dependent variables (Y), identity undermining as a mediating variable (M), and demographic shift as a categorical indicator with three levels (i.e., current Turkish majority as X_1 , future Turkish majority as X_2 , and future Turkish minority as X_3). Gender and age were included in the analysis as covariates.

Table 1 Correlations between variables

Variables	1.	2.	3.	4.
1. Age	-			
2. Identity undermining	0.03	-		
3. Collective angst	0.02	0.47***	-	
4. Outgroup tolerance	-0.08	-0.62***	-0.27***	-

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

We examined the indirect effect of identity undermining on the relationship between demographic shift, collective angst, and outgroup tolerance with a bootstrapping, based on 5,000 samples with 95% bias-corrected confidence intervals. As the missing values are less than 5%, no imputation was conducted.

Descriptive statistics

We employed the Pearson correlation coefficient to detect associations between variables (see Table 1). According to the results, age was not significantly correlated to any variable. Identity undermining was positively correlated with collective angst ($r=.47, p<.001$), and negatively associated with outgroup tolerance ($r=-.62, p<.001$). Collective angst and outgroup tolerance were found to be negatively correlated ($r=-.27, p<.001$).

Effects of demographics shift conditions on dependent measures

We conducted ANCOVAs with demographic shift manipulations as a between-group variable on collective angst and outgroup tolerance. As we conducted multiple ANCOVAs, we used Bonferroni correction and adjusted p-values as 0.025 for each analysis in order to control Type I error. Gender and age were covariates in the analysis. Means and standard deviations can be seen in Table 2.

Age and gender had no significant main effects on collective angst (respectively, $F(1,269)=0.206, p=.65, \eta^2p = 0.01$, $F(1,269)=0.094, p=.76, \eta^2p = 0.01$). Demographic shift had no significant main effect on collective angst, $F(2,269)=3.165, p=.044, \eta^2p = 0.02$. Tukey’s HSD comparison tests revealed that participants in the future Turkish minority condition ($M=5.45, SD=1.60$) were not

Table 2 Differences between groups on collective angst and outgroup tolerance

Measurement	Demographic Shift			F	η^2p	
		Current Turkish majority ($N=85$)	Future Turkish majority ($N=87$)			Future Turkish minority ($N=102$)
Collective angst	M	5.02	5.10	5.45	3.165	0.02
	SD	1.43	1.48	1.60		
OutgroupTolerance	M	3.10	3.28	3.33	0.794	0.01
	SD	1.46	1.51	1.63		

* $p<.025$

significantly more concerned about the future existence of Türkiye than those in the future Turkish majority condition ($M=5.02, SD=1.43$), $t(269)=2.33, p=.054$. There was also no significant difference between the current Turkish majority ($M=5.02, SD=1.43$) and the future Turkish majority condition ($M=5.10, SD=1.48$), $t(269) = -0.40, p=.917$. Likewise, the difference between the future Turkish majority ($M=5.10, SD=1.48$) and the future Turkish minority condition ($M=5.45, SD=1.60$) was not significant, $t(269) = -1.93, p=.133$.

For outgroup tolerance, there was no main effect of demographic shift after controlling for the effect of gender and age, $F(2,269)=0.79, p=.453, \eta^2p = 0.01$. According to Tukey’s HSD post-hocs, participants in the future Turkish minority condition ($M=3.33, SD=2.60$) were not significantly less tolerant than participants in the future Turkish majority condition ($M=3.28, SD=2.66$), $t(269)=0.23, p=.971$, and the participants in the current Turkish majority condition ($M=3.10, SD=2.48$), $t(269)=1.20, p=.452$. The difference between the current Turkish majority condition ($M=3.10, SD=2.48$) and the future Turkish majority was not significant ($M=3.28, SD=2.66$), $t(269) = -0.94, p=.614$.

The mediating role of identity undermining

As we conducted multiple pairwise comparisons, we made a Bonferroni correction for the multiple mediation analyses and set the significance level of the p-value to 0.025 for all paths. The indirect effects and confidence intervals for two separated simple mediation models are provided in Tables 3 and 4. Demographic shift did not predict identity

undermining when considering the difference between the current Turkish majority and the future Turkish minority condition ($X_{1v3} \rightarrow M$), a_1 path: $b=0.46, t(269)=2.12, p=.04$. The relationship between demographic shift and identity undermining was not significant for the difference between the current Turkish majority and the future Turkish majority condition ($X_{1v2} \rightarrow M$), a_2 path: $b=0.24, t(269)=1.04, p=.30$, and when considering the difference between the future Turkish majority and the future Turkish minority condition ($X_{2v3} \rightarrow M$), a_3 path: $b=0.23, t(269)=1.04, p=.30$. Identity undermining significantly predicted collective angst ($M \rightarrow Y$), b path: $b=0.38, t(268)=8.38, p=.01$. The total effect of demographic shift was significant on collective angst for the difference between the current Turkish majority and the future Turkish minority, c_1 path: ($X_{1v3} \rightarrow Y$), $b=0.43, t(269)=2.33, p=.02$, but not for the difference between the current Turkish majority to the future Turkish majority condition ($X_{1v2} \rightarrow Y$), c_2 path: $b=0.08, t(269)=0.40, p=.69$, or for the difference between the future Turkish majority and the future Turkish minority condition ($X_{2v3} \rightarrow Y$), c_3 path: $b=0.35, t(269)=1.93, p=.06$. After accounting for identity undermining, the effect of demographic shift became non-significant for the difference between the current Turkish majority and the future Turkish minority condition ($X_{1v3} \rightarrow M \rightarrow Y$), c'_1 path: $b=0.25, t(268)=1.52, p=.13$, between the current Turkish majority and the future Turkish majority ($X_{1v2} \rightarrow M \rightarrow Y$), c'_2 path: $b = -0.02, t(268) = -0.09, p=.93$, and also between the future Turkish majority and the future Turkish minority ($X_{2v3} \rightarrow M \rightarrow Y$), c'_3 path: $b=0.26, t(268)=1.63, p=.11$. However, the only significant indirect effect of demographic shift on collective angst via identity undermining emerged for the difference between the current

Table 3 The simple mediation model for the relationship between demographic shift and collective angst via identity undermining

Path	Standardized path coefficient	95% confidence interval	
		Lower	Upper
a. Total effect model			
CT _{maj} vs. FT _{min} → Collective Angst	.43	.07	.79
CT _{maj} vs. FT _{maj} → Collective Angst	.08	-.29	.45
FT _{maj} vs. FT _{min} → Collective Angst	.35	-.01	.71
b. Simple mediation model			
CT _{maj} vs. FT _{min} → Identity Undermining	.46*	.03	.89
CT _{maj} vs. FT _{maj} → Identity Undermining	.24	-.20	.68
FT _{maj} vs. FT _{min} → Identity Undermining	.23	-.20	.66
Identity Undermining → Collective Angst	.38***	.29	.47
CT _{maj} vs. FT _{min} → Collective Angst	.25	-.07	.57
CT _{maj} vs. FT _{maj} → Collective Angst	-.02	-.35	.32
FT _{maj} vs. FT _{min} → Collective Angst	.26	-.06	.59
c. Indirect effects			
CT _{maj} vs. FT _{min} → Identity Undermining → Collective Angst	.18*	.01	.36
CT _{maj} vs. FT _{maj} → Identity Undermining → Collective Angst	.09	-.08	.29
FT _{maj} vs. FT _{min} → Identity Undermining → Collective Angst	.09	-.08	.23

CT_{maj} = Current Turkish Majority, FT_{min} = Future Turkish Minority, FT_{maj} = Future Turkish Majority

* $p < .025$, ** $p < .01$, *** $p < .001$

Table 4 The simple mediation model for the relationship between demographic shift and outgroup tolerance via identity undermining

Path	Standardized path coefficient	95% confidence interval	
		Lower	Upper
a. Total effect model			
CT _{maj} vs. FT _{min} → Outgroup Tolerance	.22	-.14	.59
CT _{maj} vs. FT _{maj} → Outgroup Tolerance	.18	-.20	.56
FT _{maj} vs. FT _{min} → Outgroup Tolerance	.04	-.32	.41
b. Simple mediation model			
CT _{maj} vs. FT _{min} → Identity Undermining	.46	.03	.89
CT _{maj} vs. FT _{maj} → Identity Undermining	.24	-.20	.68
FT _{maj} vs. FT _{min} → Identity Undermining	.23	-.20	.66
Identity Undermining → Outgroup Tolerance	-.54 ^{***}	-.62	-.42
CT _{maj} vs. FT _{min} → Outgroup Tolerance	.48 ^{**}	.19	.76
CT _{maj} vs. FT _{maj} → Outgroup Tolerance	.31 [*]	.02	.60
FT _{maj} vs. FT _{min} → Outgroup Tolerance	.23	-.20	.66
c. Indirect effects			
CT _{maj} vs. FT _{min} → Identity Undermining → Outgroup Tolerance	-.25	-.49	-.01
CT _{maj} vs. FT _{maj} → Identity Undermining → Outgroup Tolerance	-.13	-.39	.12
FT _{maj} vs. FT _{min} → Identity Undermining → Outgroup Tolerance	-.12	-.34	.10

CT_{maj}: Current Turkish Majority, FT_{min}: Future Turkish Minority, FT_{maj}: Future Turkish Majority

* $p < .025$, ** $p < .01$, *** $p < .001$

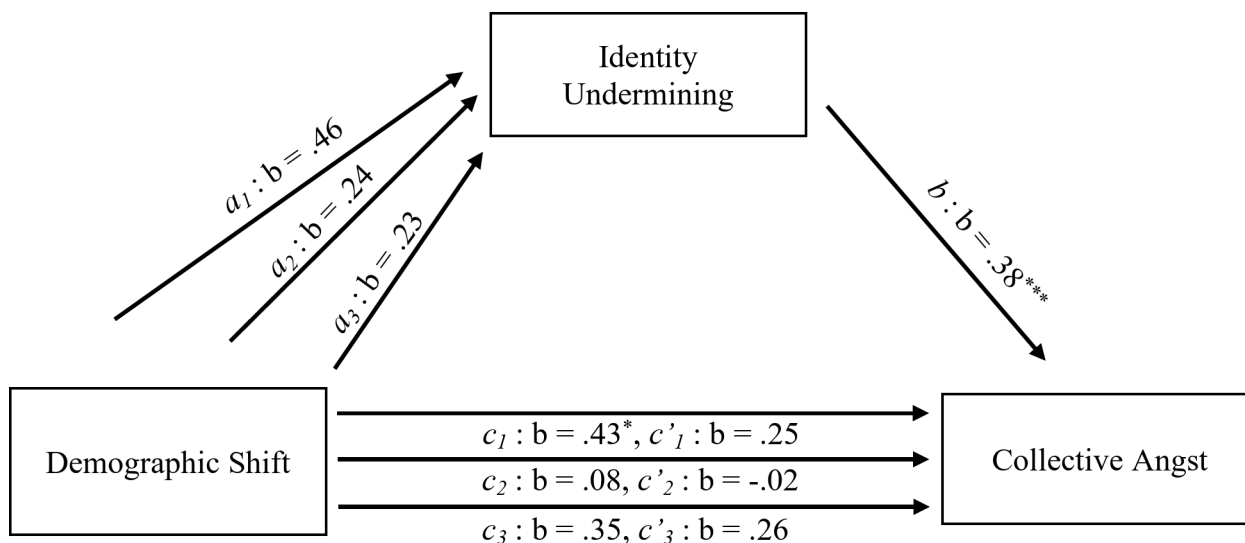


Fig. 1 The simple mediation effect of identity undermining in the relation between demographic shift and collective angst. * $p < .025$, ** $p < .01$, *** $p < .001$

Turkish majority and the future Turkish minority condition, $b = 0.18$, $SE = 0.09$, 95% CI [0.01, 0.36]. These results provide evidence that identity undermining fully mediated the relationship between demographic shift and collective angst only in the case of the difference between the current Turkish majority and the future Turkish minority conditions (Fig. 1).

For outgroup tolerance, a paths were inherently identical, as in common with the relationship between demographic shift and collective angst. Identity undermining significantly predicted outgroup tolerance ($M \rightarrow Y$), b path: $b = -0.54$, $t(268) = -13.60$, $p = .01$. There was no significant

total effect of demographic shift on outgroup tolerance for the difference between the current Turkish majority and the future Turkish minority condition ($X_{1v3} \rightarrow Y$), c_1 path: $b = 0.22$, $t(269) = 1.20$, $p = .23$, and for the difference between the current Turkish majority and the future Turkish majority ($X_{1v2} \rightarrow Y$), c_2 path: $b = 0.18$, $t(269) = 0.94$, $p = .35$, and for the difference between the future Turkish majority and the future Turkish minority condition ($X_{2v3} \rightarrow Y$), c_3 path: $b = 0.04$, $t(269) = 0.23$, $p = .82$. After accounting for identity undermining, the effect of demographic shift decreased for the following differences: between the current Turkish majority and the future Turkish minority ($X_{1v3} \rightarrow M \rightarrow Y$),

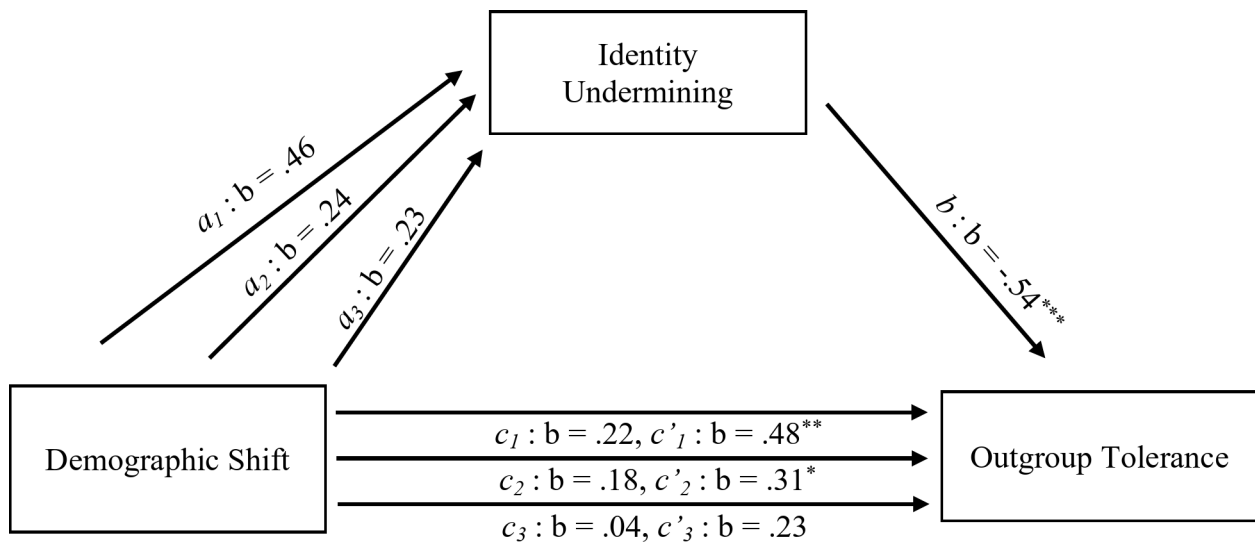


Fig. 2 The simple mediation effect of identity undermining in the relation between demographic shift and outgroup tolerance. $^*p < .025$, $^{**}p < .01$, $^{***}p < .001$

c'_1 path: $b = 0.48$, $t(268) = 3.29$, $p = .01$, between the current Turkish majority and the future Turkish majority condition ($X_{1v2} \rightarrow M \rightarrow Y$), c'_2 path: $b = 0.31$, $t(268) = 2.08$, $p = .04$, and between the future Turkish majority and the future Turkish minority condition ($X_{2v3} \rightarrow M \rightarrow Y$), c'_3 path: $b = 0.04$, $t(268) = 0.23$, $p = .82$. There was no significant indirect effect for the difference between the current Turkish majority and the future Turkish majority condition, $b = -0.12$, $SE = 0.13$, 95% CI $[-0.39, 0.12]$, and between the future Turkish majority and the future Turkish minority condition, $b = -0.12$, $SE = 0.11$, 95% CI $[-0.34, 0.10]$. The only significant indirect effect of demographic shift on outgroup tolerance via identity undermining emerged for the difference between the current Turkish majority and the future Turkish minority, $b = -0.25$, $SE = 0.12$, 95% CI $[-0.49, -0.01]$. Even though the results indicated a significant mediation effect of identity undermining for outgroup tolerance, we did not have enough evidence for the indirect effect of demographic shift due to the insignificant total effect on outgroup tolerance. Therefore, there was no support for the mediating effect of identity undermining between demographic shift and outgroup tolerance (Fig. 2).

Discussion

There were 108.4 million forcibly displaced people in the world by the end of 2022, and 35.3 million of this population were refugees (UNHCR, 2023). In the case of Syria, the civil war led to the mandatory displacement of large numbers of people. However, in the near future, particularly in the context of global warming, there may be a rapid increase in immigration to countries that have relatively abundant

water resources. Therefore, new circumstances offer novel contexts, and it is crucial to consider how the majority group members who hold power would react to that novelty. In the current study, we tested the role of identity undermining in the association between impending demographic shifts and negative reactions toward refugees. According to the results, there is no significant main effect of demographic shift on both collective angst and outgroup tolerance. However, our analysis shows that identity undermining significantly mediates the relationship between demographic shifts and collective angst. In other words, we showed that one of the sources of collective angst is the perception of potential identity undermining. This effect only emerged as significant for the difference between the current Turkish majority and the future Turkish minority conditions for collective angst. Those who were presented a newspaper article in which their group was depicted as becoming a numerical minority reported a greater sense of identity undermining, heightening their concerns regarding the future dynamics of social identity in Türkiye. The results of our study are in line with previous studies demonstrating that those who anticipated being in a disadvantaged position due to the numerical increase of relevant outgroups in the near future tend to perceive identity threat (Bai & Federico, 2021; Craig & Richeson, 2014; Perkins et al., 2022), and additionally, we provide evidence that the effect of demographic shifts on collective angst may emerge through the mechanism of identity undermining.

The mediation analysis reveals that identity undermining serves as a mediator between demographic shifts and collective angst, particularly for the current Turkish majority and future Turkish minority conditions. However, this mediation effect was not significant in other scenarios,

challenging our initial expectations and suggesting the need for deeper investigation into the underlying dynamics. One potential explanation for the limited significance in other conditions could be the increasing trend of negative attitudes and discrimination towards refugees (Karataş, 2015). Previous studies have consistently shown that perceived threats play a crucial role in shaping intergroup attitudes. Research in the context of Türkiye indicates that Syrian refugees are often perceived as threats to cultural and economic stability, contributing to negative attitudes and defensive behaviors among the host population (Bacı et al., 2023a; Çirakoğlu et al., 2021). Economic concerns, such as job competition and strain on public resources, amplify threat perceptions and hostility (Morgül & Savaşkan, 2021). Additionally, cultural incompatibility, including differences in language, religion, and lifestyle, further exacerbates these perceptions, leading to increased social distance (Şafak-Ayvazoğlu et al., 2021). Our study extends these findings by demonstrating that identity undermining acts as a mechanism through which perceived demographic shifts evoke collective angst. This insight emphasizes that perceived cultural and economic threats can trigger deeper fears related to identity, which, in turn, heighten anxiety and defensive responses. By integrating these perspectives, the present study contributes to a more comprehensive understanding of the mechanisms through which demographic shifts and perceived threats influence collective angst, particularly in the non-WEIRD context of Türkiye.

Identifying identity undermining as a novel mediator is an important step in understanding the negative reactions of majority group members to demographic shifts. Negative reactions may also stem from anticipated identity undermining associated with potential power shifts, along with perceived threats to their lifestyle resulting from demographic changes. Previous studies indicated that demographic shift could trigger collective existential threats (Bai & Federico, 2020, 2021). Although group members may not perceive an immediate threat to their group's physical existence, they may anticipate that their way of life could become vulnerable or diminished in the long term due to expected demographic shifts. Thus, our study suggests that demographic shifts do not simply trigger existential or status threats; rather, they may provoke fears of identity oppression by outgroups. Furthermore, identity undermining typically addresses the minority group's reactions to a superordinate identity (Putra, 2014; Sindic & Reicher, 2009). As a minority (e.g., Scottish people in Britain), groups might have a lack of control over the prototypicality of the common in-group, which creates a sense of identity undermining. The current study suggests that the majority groups may also experience identity undermining even in the absence of imminent demographic shifts. In addition, to our knowledge, this is the first study

considering the effect of impending demographic shift in the non-WEIRD context. Existing literature on the demographic shift is solely based on White Americans' reactions toward immigrants (e.g., Bai & Federico, 2021; Craig & Richeson, 2015; Outten et al., 2012). This study enhances the external validity of demographic shift research by being conducted in a non-WEIRD country, which hosts the world's largest refugee population.

It is important to note that while there is an increasing trend in collective angst following the demographic shift manipulation (but not in outgroup tolerance), there is no significant main effect of demographic shift on either outcome. A possible explanation for these results is the rising anti-refugee sentiments in Türkiye. The long-standing 'open door' policy may contribute to uncertainty regarding future the size of the refugee population. The government in power has shown strong support for Syrian refugees by encouraging the religious (Sunni Muslim) superordinate identity (Aydemir, 2023). In contrast, the main secular opposition party (Cumhuriyet Halk Partisi, CHP) expressed criticism to the government regarding their current refugee policy. In addition, some right-wing politicians are raising questions about the refugee population and potential demographic shift. As a result, perceptions of demographic shifts have been shaped in both positive and negative ways through various communication channels (e.g., social media). This uncertainty may elicit identity undermining even without a clear demographic shift. Participants may not have altered their tolerance toward refugees because they perceived their identities to be under potential threat, irrespective of any demographic changes. However, enhanced communication through official channels and the growing belief that there will be no imminent transfer of power could help alleviate collective anxiety and potential identity undermining. In addition, the perception of demographic shift can lead to support for conservative policies (Bai & Federico, 2020) which may jeopardize the effective implementation of integration policies. In summary, uncertainty surrounding demographic shifts creates a sense of threat to the way of life of host country members. Reduced support for integration policies hinders socio-cultural adaptation, ultimately adversely affecting intergroup relations.

The current study is not devoid of shortcomings. The majority of the participants reside in the western part of Türkiye and metropolises (İzmir and İstanbul). Historically, these cities are recognized for their greater cultural diversity and relatively liberal attitudes compared to other regions of the country, which might be a confounding variable. Future studies may consider the cultural distance between refugees and the host group members. If group members perceive relatively low cultural distance between the two, they might consider both groups compatible within the nation and,

therefore, perceive less threat to their way of life. Additionally, the current economic crisis may have affected people living in metropolises adversely more than in small towns. Perceived economic insecurity is associated with the anti-immigration sentiment (Kuntz et al., 2017). Consequently, the rising cost of living may have heightened perceptions of threat toward refugees. Second, our data mostly consist of university students, who may differ from the public in their attitudes toward refugees (Hanel & Vione, 2016). Thirdly, we didn't measure the contact experience and frequency of the participants with the refugees. The individuals who had positive contact with refugees might have felt that perceived cultural distance is relatively less than the individuals who had negative contact or no contact. Future studies may consider how contact experience is associated with the perception of identity undermining. Lastly, in this study, we utilized a manipulation check that assessed participants' recall of the key demographic information presented in the vignettes. This recall was essential to ensure that participants understood the scenarios depicting the current majority, future majority, and future minority conditions. We acknowledge that this method may not directly measure participants' personal beliefs or perceptions about becoming a minority. However, by confirming that participants accurately recalled the demographic shifts, we were able to verify their exposure to and engagement with the manipulation, which is crucial for interpreting their subsequent responses regarding collective angst and outgroup tolerance. While direct measures of belief in minority status could provide additional insights, the recall task served as a robust proxy to ensure that participants comprehended the information necessary for the manipulation to be effective. Future research could explore more nuanced approaches to measuring subjective beliefs alongside factual recall, thereby further enhancing manipulation checks in similar studies.

Although our study has limitations, it contributes to demographic shift literature by showing the mediator role of identity undermining between the demographic shift and collective angst. Our findings suggest that individuals anticipate impending demographic change with the influx of refugees might have felt that their lifestyle is under threat and this perception could lead to increased collective angst. We hope our findings will contribute to the formulation of integration policies and the establishment of positive intergroup relations by emphasizing the potential role of identity undermining.

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Data availability Fully anonymized data set and Qualtrics (.qsf) file that include all the measures and manipulation are available at the Open Science Framework (<https://osf.io/qbgr9/>).

Declarations

Conflict of interest The authors declare no conflicts of interest.

Ethics approval This paper was approved by the ethics committee of the corresponding author's university (ethics approval number: B.30.2.İEÜ.0.05.05-020-216). All procedures carried out in research involving human subjects followed the Helsinki declaration and its later revisions or corresponding ethical standards.

Consent to participants Written informed consent was obtained from all participants included in this study.

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