

RESEARCH ARTICLE

The pathogen paradox: Evidence that perceived COVID-19 threat is associated with both pro- and anti-immigrant attitudes

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The COVID-19 pandemic, as a global threat to humanity, is likely to instigate a variety of collective responses in the society. We examined, for the first time, whether the COVID-19 threat perception is related to attitudes towards Syrian refugees in Turkey, theorizing a dual pathway whereby pandemic-induced threat would relate to both pro- and anti-immigrant feelings. Drawing upon integrated threat theory and models of collective-threat regulation, we expected that pandemic threat would lead to more exclusionary outgroup attitudes through increased immigrant threat, whereas we argued that perceived COVID-19 threat would promote inclusionary attitudes through creating a common ingroup in the face of a global threat. Using online search volume data at the province level (Study 1, $N = 81$) and self-reporting measures at the individual level (Study 2, $N = 294$), we found that the COVID-19 threat was directly associated with more positive attitudes towards refugees (Study 1 and 2). Study 2 further revealed indirect positive (through a sense of common identity) and negative (through perceptions of immigrant threat) links between COVID-19 threat perception and outgroup attitudes. These results highlight the importance of integrating threat regulation and social identity perspectives when assessing the implications of pathogen-related threats.

Keywords: COVID-19; threat; attitudes; pandemic; common ingroup; refugees

Introduction

Social psychological research has established that threatening events, either at the personal or collective level, can significantly affect individuals' cognitions and behaviors (e.g., Xu & Mc Gregor, 2018). As such, natural catastrophes (e.g., earthquakes), man-made disasters (e.g., nuclear accidents), and violent conflicts (e.g., terror attacks) often generate some 'compensatory responses' (Jonas et al., 2014) such as attitudinal and behavioral shifts on domains that are not directly related to the immediate situation. For example, research shows that individuals are likely to stereotype outgroups more after reminders of one's mortality (see Castano et al., 2002). Hence, although this mostly right-shift movement as a response to societal threat to safety and perceived control often serves as a psychological mechanism that provides individuals with some adaptive functions and helps in the reduction of anxiety and uncertainty (e.g., Mirisola et al., 2014), it may undermine tolerant attitudes towards outgroups such as immigrants and refugees (Van Bavel et al., 2020).

However, external threats may not unconditionally lead to derogatory behaviors towards outgroups; when faced with collective danger and threat, people also show a natural tendency to seek affiliation and proximity, express mutual aid, and act collaboratively, suggesting that one possible collective response to destructive societal events such as pandemics may also be *alliance* under threat (Mawson, 2005; Moreno, 2018; Van Bavel et al., 2020). Due to its unexpected nature, lethality, and global spread, we argue that the current pandemic of COVID-19 – a novel coronavirus-induced disease (WHO, 2020) – is likely to stand as powerful threat that can elicit a variety of responses to outgroups. Across two studies, we tested whether and how the perception of COVID-19 threat was associated with outgroup attitudes and behavioral tendencies, focusing on the context of Syrian refugees, who have been increasingly seen as a social and economic burden to local communities in Turkey (e.g., Özden, 2013).

Intergroup behaviors during pandemics

During pandemics, people are not only physically affected, but they also tend to experience a variety of changes in their social behavior, since pandemics, even among the non-affected ones, create various negative emotional responses such as fear and anxiety (e.g., Ornell et al., 2020; Reardon, 2015). Such a sense of collective

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fear and anxiety due to the spread of COVID-19 is likely to affect a range of attitudes and behaviors that also pertain to intergroup relationships (Van Bavel et al., 2020). As such, recent empirical research has provided evidence for a link between the fear of the pandemic and xenophobic attitudes. For instance, cross-sectional studies in the US have documented moderate positive correlations between perceived COVID-19 threat and anti-Asian prejudice (Huo, 2020), which also extend to preferences for discriminatory policies (Croucher et al., 2020; Reny et al., 2020). Similar relationships were observed in the UK regarding attitudes towards Chinese people (Alston et al., 2020). The effects of concern about the virus on attitudes towards Asians even increases drastically when news about the pandemic is framed with extensive emphasis on SARS-COV-2's geographical provenance (see Dhanani et al., 2021). While these studies demonstrate the COVID-19 threat leads to a negative perception of the outgroups who are directly involved in the spread of the disease, less is known about whether and how the COVID-19 threat would impact existing intergroup relationships and particularly shape attitudes and behavioral tendencies towards vulnerable outgroups such as refugees.

So far, only a few empirical studies have revealed a variety of response patterns regarding outgroup attitudes and behaviors, indicating the COVID-19 pandemic (and its threat) has negative, null, as well as potentially positive (Rigoli, 2020) associations with outgroup attitudes and behaviors. For example, there was no evidence for increased xenophobic attitudes (avoidance tendencies towards foreigners in general) in Japan (Yamagata et al., 2020) or any pandemic-induced change in attitudes towards diversity and minorities in Germany (Drouhot et al., 2020), whereas in the UK, individual differences in disgust sensitivity were associated with greater distancing from ethnic minorities, but only in areas with a high number of COVID-19 cases (Meleady et al., 2021). A further comparative study drawing on community samples both in the UK and the US found evidence of a *reduction* in patriotism and xenophobia particularly among liberal participants (Rigoli, 2020). In fact, some researchers suggested that public attention to the pandemic could counter-intuitively drain public focus on issues related to immigration and thus lead to a reduction of prejudice (see Dennison et al., 2020), providing a mixed picture of how intergroup relationships function in various social contexts during the pandemic.

We aimed to extend this growing research literature on the social-psychological implications of COVID-19 threat, by arguing that the perception of threat induced by the pandemic would be related to attitudes towards refugees through two opposite pathways; while the perspective of Integrated Threat Theory (including the more general threat regulation framework, see Stephan et al., 2000; Jonas et al., 2014) would predict that a pandemic like COVID-19 should increase anti-immigrant attitudes, a Common Ingroup Identity Model (CIIM, Gaertner & Dovidio, 2000) approach would predict the opposite, due to a sense of belonging to a common group facing a global pandemic. Using a mixed-methods approach (Google

trends analysis in Study 1 and correlational data in Study 2, see Campbell et al., 1959; Nisbett, 2018), we investigated the extent to which Turkish natives' perception of COVID-19 threat would undermine or promote their attitudinal and behavioral responses to Syrian refugees.

Covid-19 from a threat-regulation perspective

A first approach to explore intergroup responses to perturbing events like a pandemic relies on threat-regulation processes, because pandemics are likely to generate feelings of threat, uncertainty, and fear (Van Bavel et al., 2020). In realistic terms, COVID-19 is a disease that spread from China to the whole world through population fluxes (e.g., international tourism, see Farzanegan et al., 2020) and thereby it is likely that individuals associate perceptions of infection risk with Asian outgroups as the source of the disease, but also with other outgroups coming from foreign countries (thus immigrants or refugees; Yamagata et al., 2020). Besides physical health issues, the spread of COVID-19 implies economic threats to the countries, with governmental actions aimed at preventing the pandemic being responsible for a global recession (Sardokie et al., 2020). Hence, previous research has shown that perceptions of economic threats (targeting one's income, employment and the future of one's offspring and country) are likely to increase the negative evaluation of minority groups and decisions regarding immigration policies, through a sense of relative deprivation, increased resource scarcity, as well as stronger hierarchy-based ideologies such as social dominance orientation (Anier et al., 2016; Duckitt & Fisher, 2003; Goldstein & Peters, 2014; Guimond et al., 2002; Pettigrew et al., 2008; Urbanska et al., 2018).

The COVID-19 pandemic may also encompass worries that reflect more symbolic and power-related threats. In a number of – mostly Western – countries, a wave of protests emerged as a reaction to lockdowns and other preventive measures enforced by governments (e.g., wearing masks in public, Schradie, 2020). In the US, for instance, non-compliance with COVID-19 preventive measures were more likely to occur in areas with higher cultural emphasis on individual freedom (Bazzi et al., 2020). In addition to symbolic threats to freedom and individualistic values, other protests emerged as a consequence of threatened fairness and justice-related values (see Bartusevicius et al., 2020; Duque-Franco et al., 2020) due to the pandemic's effect as an amplifier of socio-economic inequalities (Davidai et al., 2020). COVID-19 spread – due to its foreign origin – may also activate elements of 'ownership threat', whereby one's group rights to decide about their own country, cultural values, and local policies are felt to be taken away (Nijs et al., 2021). As such, while there is a potential that individuals' focus on immigration issues has decreased with the emergence of a more *immediate* threat (Dennison et al., 2020), the socio-political dimension of the pandemic is likely to exacerbate the negativities related to existing intergroup relationships, overall suggesting that the perceived COVID-19 threat should be associated with an increased perception of outgroup threat.

In turn, the perception of threat from outgroups is one of the strongest predictors of prejudice against minorities such as immigrants and refugees, across a wide range of countries, cultures, and political systems (e.g., Cowling et al., 2019; Mummendey et al., 2001; Riek et al., 2006; Verkuyten, 2004). According to integrative models of collective threats, attitudes towards immigrants (and minority outgroups in general; see Sidanius et al., 2004) become more negative to the extent that these groups are perceived to endanger the majority group in symbolic (e.g., way of life, values, identity; Luders et al., 2016; Rios et al., 2018; Schmuck et al., 2017), realistic (e.g., resource allocation, physical harm) or power-related terms (e.g., maintenance of group-based hierarchies, Verkuyten & Martinovic, 2015; see also Stephan et al., 2000; Tausch et al., 2009; Velasco et al., 2008). This is especially true in times of war, economic crisis, or pandemics because adverse collective events also endanger perceptions of individual control over the situation (i.e., the individual ability to deal with the event), which triggers increased coordination, affiliation, and identification to one's ingroup as a way to gain a sense of collective mastery of the situation (see Fritsche et al., 2011; 2013). Thus, threatening contexts are likely to fuel outgroup prejudice as an additional 'side-effect' of increased ingroup bonding (especially under threats perceived to endanger the group's future, Duckitt & Fisher, 2003; see also Wohl et al., 2010).

The above evidence suggests that COVID-19 threat perception might be associated with more negative outgroup attitudes directly and indirectly through strengthening anti-immigrant threat. Nonetheless, COVID-19 is a *global* pandemic, which has spread to different continents and affected a variety of nations and races. Hence, taking into account this global nature of the pandemic and in addition to the collective threat hypothesis stated above, we argued that a common ingroup identity perspective to COVID-19 would suggest the opposite; the pandemic could foster positive outgroup attitudes through a sense of belonging to a more inclusive group whereby sub-groups – both natives and refugees – are likely to experience a common fate.

COVID-19 from a common ingroup identity perspective

Research on Social Identity Theory (Tajfel & Turner, 1979) has extensively investigated how identification with various social groups shape perceptions of group boundaries that affect prejudice and intergroup attitudes. When individuals identify themselves as part of a common ingroup through a higher level of self-categorization (Turner et al., 1987), previous ingroup-outgroup boundaries change, resulting in the reduction of negative intergroup attitudes (Brewer, 2010). Accordingly, the Common Ingroup Identity Model (CIIM, Gaertner & Dovidio, 2000) posits that, when individuals from different groups identify themselves as part of a common, superordinate group, previous biases due to distinctive intergroup boundaries disappear and intergroup relationships become more harmonious. This hypothesis is supported by decades of empirical

research using observational, experimental, and longitudinal designs (see Gaertner et al., 2016 for a review).

Although studied less extensively, tragic societal events such as naturally occurring disasters, wars, as well as pandemics might have the power of creating opportunities for reconciliatory actions between and within governments and communities (Van Bavel et al., 2020). In fact, the induction of a 'common threat' has been previously found to generate spontaneous decategorization in various intergroup contexts (Flade et al., 2019). Hence, according to CIIM, perceiving one's ingroup and the outgroup in the 'same boat' during an external threat is likely to reduce perceived differences and induce similarities between the two groups and therefore improve intergroup attitudes and behaviors (e.g., Gaertner & Dovidio, 2009). Such a common ingroup identification, in turn, is likely to predict less outgroup devaluation and ingroup favoritism (e.g., Gaertner & Dovidio, 2000), as well as more intergroup helping (Levine et al., 2005).

Drawing on the CIIM, other research has shown that feelings of 'inclusive victimhood', where different group members identify with a single, unique, inclusive victim consciousness, is likely to produce a perception of similarity across groups, which consequently brings more collective action, intergroup assistance, and solidarity (Vollhardt, 2015; Vollhardt & Bilali, 2014). Experimental research confirms such theoretical accounts, demonstrating common victim identification to lead to a decreased perception of intergroup competition (Shnabel et al., 2013) and a focus on shared humanity to improve intergroup attitudes in conflictual settings (Wohl & Branscombe, 2005). Among the few empirical studies conducted in the context of disasters, Vezzali et al. (2015) tested the CIIM in Italy after powerful earthquakes in 2012 and found that perceived earthquake threat among Italian children led to an increased perception of belonging to a common ingroup including both Italian and immigrant children, thereby resulting in more positive intergroup attitudes and helping behavior.

Because of its global nature, COVID-19 is a prototypical example of a collective threat that is likely to trigger identification with an inclusive common ingroup (see also Jetten et al., 2020; Van Bavel et al., 2020), typically at the national and humanitarian level (e.g., war-like slogans, public health messages emphasizing the common national ingroup, rituals in support for healthcare workers, see Flade et al., 2019). Real-life examples illustrating the collaborative nature of COVID-19 include international cooperation acts between various countries donating surpluses, medical care, and equipment to each other. In fact, the UN Department of Economic and Social Affairs published briefs that consider COVID-19 as a transformative event that can reduce social inequalities, especially through expanding systems for the universal provision of quality public services and encouraging the sharing of knowledge and science across the world (UN/DESA, 2020), overall implying a call for international and national unification while fighting with the pandemic.

Lately, other theoretical work has also drawn attention to the importance of investigating COVID-19 from a social

identity approach, focusing on a shared group membership emerging from pandemics (Cruwys et al., 2020; Drury et al., 2020; Templeton et al., 2020), in line with previous theoretical accounts such as The Social Identity Model of Collective Resilience, which highlights the formation of novel shared identities as a response to mass emergencies (Drury et al., 2009). Hence, from the perspective of CIIM, we expected that the perception of the COVID-19 threat would be associated with decreased negative attitudes towards outgroups, through creating a common ingroup identity of experiencing COVID-19 as a pandemic that influences both natives and refugees.

The current study

The current study aimed to investigate the associations between the perception of the COVID-19 threat and attitudes towards refugees, through two studies using an analysis of Google Trends data linking perceived and real COVID-19 threat to anti-immigrant attitudes (Study 1) and correlational data examining the role of perceived COVID-19 threat on attitudes, support for pro-immigration policies, as well as helping intentions towards refugees via increased refugee threat and common ingroup identification (Study 2). More specifically, these studies were carried out to test that perceived COVID-19 threat could be *positively* linked with anti-immigrant attitudes directly or through increased immigrant threat (H1) and at the same time *negatively* linked with such attitudes through increased common ingroup identification (H2). Study 1 focused on testing direct effects related to H1, while the second study tested indirect effects related to H2 as well.

We investigated our research questions in Turkey, in relation to attitudes towards Syrian refugees. The influx of Syrians to Turkey began after the civil war in Syria in 2011 and has gradually increased to over 3.5 million Syrians living in Turkey (UNHCR, 2020). While Turkish people have shown initial empathy and hospitality towards Syrian refugees, accompanied with humanitarian concerns supporting ‘Muslim Brothers’ (Lazarev & Sharma, 2017; Yitmen & Verkuyten, 2018), perceptions of threat and unease with the presence of Syrian refugees has increased gradually in recent years (Erdoğan, 2014; Yitmen & Verkuyten, 2018).

While Turkey has been a prominent country affected by COVID-19, the Syrian refugee population in Turkey stands as one of the most affected groups by the pandemic, due to their insufficient means to reach adequate healthcare services and their compulsion to continue to work (Dailysabah, 2020). Hence, social exclusion and discriminatory attitudes and particularly intergroup violence-related behaviors towards vulnerable groups such as immigrants and refugees may constitute potent risk factors that exacerbate the negative physical and mental health conditions of these minority groups (Celebi et al., 2017; Haslam et al., 2018; Troian et al., 2019). This suggests that the investigation of perceived COVID-19 threat in relation to attitudes towards refugees is of paramount importance for host societies such as Turkey, where violence towards Syrians is highly prevalent (Wringe et al., 2019) and refugee adaptation is partly shaped by natives’ attitudes and expectations (Şafak-Ayvazoğlu et al., 2021).

Ethical and transparency statement

The two studies were conducted in accordance with the 1964 Helsinki declaration (World Medical Organization, 1964) and its later amendments, the Turkish and French legislation on research involving human participants, the ethical principles of the French Code of Ethics for Psychologists (Commission Nationale Consultative de Déontologie des Psychologues, 2012), and the 2016 APA Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 2017). Study 2 was approved by an IRB at Sabanci University (n° FASS-2020-26). No participant data were suppressed from raw database. The raw data underlying our findings are openly accessible at https://osf.io/6ycxk/?view_only=0bcdcd35838d4ec687ebadd3d932f81f.

Study 1

In Study 1, we tested two alternative assumptions suggesting either a positive association between the COVID-19 threat and anti-immigrant attitudes (‘immigrant threat’ hypothesis) or a negative association between the two constructs (‘common ingroup identity’ hypothesis).

Method

Materials and procedure

Study 1 assessed the existence of a link between COVID-19 threat and attitudes towards minorities at the province level. Turkey is divided into 81 provinces – the equivalent of counties – together comprising an administrative capitol. Therefore, we had available data on actual COVID-19 cases in each province, which allowed for conducting an archival study ($N = 81$). All data were extracted as of April 23, 2020.

COVID-19 threat

We used two different measures of the COVID-19 threat. First, we used the actual numbers of COVID-19 cases per province as of as a measure of real (objective) threat (total $n = 58,685$). In addition, we computed an index of online searches (Google Trends) for COVID-19-related content to obtain a measure of perceived (subjective) threat. Briefly, Google Trends provides for the frequency at which search terms are typed across geographical areas (Google, 2017). These data are publicly available, and search entries derived from Google Trends are predictive of real-life phenomena (e.g., stock market fluctuations, Preis et al., 2010; suicide rates, Adam-Troian & Arciszewski, 2020; for more information regarding the inner workings and applications of Google Trends data see also Jun et al., 2018). This means that online searches would allow us to assess *spontaneous* population-level exposure to COVID-19-related information, hence, providing an ecological measure of threat related to the pandemic.

Therefore, we extracted all search frequencies for ‘korona’, ‘koronavirüs’ (Turkish terms for the disease), ‘coronavirus’ (English term frequently used in Turkish media) and ‘covid-19’ (generic scientific term also widely used in public communications surrounding the pandemic). All these were averaged and sum-scored to create an index of perceived COVID-19 threat.

Anti-immigrant attitudes

Online search data also allowed us to create a proxy measure for anti-immigrant attitudes, which are hard to capture in the absence of official count statistics (e.g., number of hate crimes or complaints for discrimination counted by relevant institutions and/or branches of the State). For example, prior research has demonstrated that the frequency of racial insults from Google Trends could be a good proxy for racial bias and even predicted decreased votes for Barack Obama (compared to other democratic candidates, see Stephens-Davidowitz, 2014). Likewise, searches including the 'n-word' has been found to be a reliable predictor of preterm birth and lower birth weight among Black US citizens (Chae et al., 2018). Still, these indicators were not possible to transpose to another cultural, historical, and political context (Turkey).

To solve this problem, we drew upon research showing that search frequency for political movements predicted political behavior (e.g., Tea Party mobilization correlates highly with searches for the term 'tea-party' in the US; DiGrazia, 2015). Indeed, although many factors may underlie search engine use, extensive research has shown that search volume for a particular term (or terms) reflects the intensity of activity on that term or interest in it (DiGrazia, 2015; Jun et al., 2018). As such, search volume for terms associated with mental health symptoms predicts population-level mental health outcomes (see Ayers et al., 2013). Similarly, search frequency of terms related to cancer is a robust predictor of population cancer rates (Philips et al., 2018). Consumers of products from certain brands have increased online search behavior regarding the relevant brand (which is why online brand name searches predict product sales, see Dotson et al., 2017) and online searches for referendum options predict referendum outcomes better than poll data (Mavragani et al., 2016). Searches for political parties are highly predictive of attendance to events organized by these parties (e.g., DiGrazia, 2015). Therefore, if these types of associations between party name search term and party-related activity and support (for instance, voting) held in the Turkish cyberspace, then we could obtain a proxy for exclusionary attitudes by looking at search terms for nationalistic and anti-immigration parties.

We tested this assumption by looking at the relationship between searches for the two main far-right parties in Turkey (IYI Party and MHP) and vote shares during the 2018 Turkish parliamentary election. We created a province-level anti-immigrant attitude index by averaging the sum score of online searches for '*IYI parti*' and '*MHP*' (collected from 2004 to June 23, 2018; one day before the election; $N = 81$). The anti-immigrant attitude index was not related to votes for the main left-wing party (CHP, social democratic), $r(80) = 0.04$, $p = 0.67$ and only correlated slightly with the main right-wing party (AKP, conservative), $r(80) = 0.24$, $p = 0.03$. As expected, there was a strong positive association between anti-immigrant attitudes and total votes for far-right parties (IYI and MHP, respectively civic and ethnic nationalists), $r(80) = 0.61$, $p < 0.001$. In addition, our index of anti-immigrant attitudes negatively related to province-level votes for the main pro-minority party (HDP, far-left and Kurdish minorities), $r(80) = -0.41$, $p < -0.001$, which indicated that online searches for right-wing parties could constitute a reliable proxy for xenophobic votes, hence imply anti-immigrant attitudes.

Therefore, we extracted the frequency of online searches for '*IYI parti*' and '*MHP*' during the COVID-19 pandemic (from January 1, 2020, to April 23, 2020). We average-sum scored them to obtain our current measure of province-level anti-immigrant attitudes.

Covariates

To rule out potential confounds, we used the most up-to-date county-level GDP per capita ($M = \text{₺}28,992$ $SD = \text{₺}10,025$) and unemployment levels ($M = 9.95\%$, $SD = 5.08$) as covariates (2017). These were chosen because economic insecurity has been previously shown to be one of the main structural predictors of far-right votes (see Vlandas, & Halikiopoulou, 2019). In addition, we included 2018 voting shares (for the specified two parties) as a covariate to account the effect of the voting behavior.

Results

Correlation analyses

As can be seen from **Table 1**, the number of actual COVID-19 cases and perceived threat from COVID-19 were only slightly linked, $r(80) = 0.20$, $p = 0.08$, confirming that they

Table 1: Means, standard deviations and Pearson correlation coefficients for measures of COVID-19 objective (cases) and perceived (searches) threat, anti-immigrant attitudes, GDP per capita, unemployment, and 2018 xenophobic vote rates ($N = 81$).

	<i>Mean (SD)</i>	1	2	3	4	5	6
1. Objective COVID-19 threat	725 (4187)	–	0.20 [†]	–0.03	0.47***	0.09	–0.06
2. Perceived COVID-19 threat	72.5 (5.7)		–	–0.33**	0.02	0.15	–0.45***
3. Anti-immigrant attitudes	37.7 (15.5)			–	0.07	–0.47***	0.41***
4. GDP	–				–	–0.14	0.24*
5. Unemployment	9.95 (5.1)					–	–0.37***
6. 2018 xenophobic votes	21.8 (8.7)						–

Notes: [†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

are separate constructs. Findings demonstrated that, while the actual number of COVID-19 cases was not associated with our index of anti-immigrant attitudes, $r(80) = 0.03$, $p = 0.77$, such attitudes were negatively correlated with perceived COVID-19 threat, $r(80) = -0.33$, $p = 0.003$. Perceived threat was also strongly and negatively associated with 2018 xenophobic votes, $r(80) = -0.45$, $p < 0.001$, which was, in turn, positively linked with anti-immigrant attitudes, $r(80) = 0.41$, $p < 0.001$.

Regression analyses

To assess the impact of potential confounds of the relationship between perceived COVID-19 threat and anti-immigrant attitudes, we conducted stepwise OLS regression models, with inclusion of covariates at each step. As can be seen in **Table 2**, the link between COVID-19 threat and anti-immigrant attitudes was of $b = -0.89$, 95% CI $[-1.48, -0.32]$, $p = 0.003$ and remained largely unchanged, even when controlling for economic factors, $b = -0.72$, 95% CI $[-1.25, -0.19]$, $p = 0.009$. However, the introduction of 2018 xenophobic votes substantially decreased the size of this association to $b = -0.50$, 95% CI $[-1.09, 0.09]$, $p = 0.097$, although it remained of comparable strength to the link between 2018 xenophobic votes and (2020) anti-immigrant attitudes, $b = 0.35$, 95% CI $[-0.06, 0.77]$, $p = 0.096$.

Discussion

Overall, Study 1 provided evidence in favor of a potential link between perceived COVID-19 threat and outgroup attitudes, suggesting perceived threat (i.e., the extent to which individuals expose themselves to COVID-19 related content), rather than objective threat (i.e., number of COVID-19 cases), to predict lower anti-immigrant attitudes. This replicates typical patterns from the literature which highlights the weight of threat perceptions in shaping xenophobic attitudes (e.g., romaphobia, see Ljujic, Vedder, & Dekker, 2012). Findings also confirm previous

research showing the relative importance of a more subjective perception of threat over objective threat (in the context of perceived diversity, e.g., Celikkol et al., 2016).

Interestingly, introducing 2018 votes for xenophobic parties in the models reduced the strength of the relationship between perceived COVID-19 threat and anti-immigrant attitudes ($p = .097$). This is probably due to a relatively heavier weight of historical patterns of anti-immigrant resentment as indicated by previous electoral scores for xenophobic parties, compared to the pandemic's recent effect. Moreover, long-term trends in county-level political tendencies may in and of themselves be the product of historical pathogen prevalence, which are likely to shape current county population's perceived threat from novel pandemics (see O'Shea et al., 2021). Being able to still detect an – even moderate – association between perceived COVID-19 threat and xenophobic attitudes in presence of proxies for heavy historical trends and in a context of limited sample ($n = 81$) was thus encouraging.

Nonetheless, although archival investigations can be informative, their results need replication using validated measures for the different constructs being investigated. It should be noted that results obtained on province-level data might not also hold at an individual level of analysis (i.e., ecological fallacy). Furthermore, in Study 1, we could only predict attitudinal responses to refugees from perceived COVID-19 threat, whereas a further investigation of a variety of indices of outgroup behavioral tendencies such as helping intentions and support for pro-immigrant policies may provide a better understanding of reactions towards refugees. In addition, although these first results could be seen as a necessary pre-requisite for the immigrant threat hypothesis, the attitudinal measure used did not tap into perceptions of immigrants as threatening. Relatedly, and most importantly, Study 1 was unable to show any explanatory mechanism in the association between perceived COVID-19 threat and anti-immigrant attitudes, therefore requiring a further study

Table 2: Regression models of the link between COVID-19 perceived threat and anti-immigrant attitudes successively adjusting for GDP/unemployment (economic factors) and 2018 xenophobic votes ($N = 81$).

	<i>B</i>	<i>SE</i>	<i>95%CI</i>	<i>t</i>	<i>F(Df)</i>	<i>r</i> ² _{adjusted}	<i>P</i>	Δr^2
Step 1					9.49(1,79)	0.10	0.003	
P. COVID-19 threat	-0.89	0.29	[-1.48, -0.32]	3.08			0.003	
Step 2					10.29(3,77)	.26	<0.001	0.18***
P. COVID-19 threat	-0.72	0.27	[-1.25, -0.19]	2.70			0.009	
Unemployment	-1.30	0.30	[-1.90, -0.70]	4.33			<0.001	
GDP	-0.01	0.01	[-0.01, 0.01]	0.15			0.88	
Step 3					8.61(4,76)	0.28	<0.001	0.03†
P. COVID-19 threat	-0.50	0.30	[-1.09, 0.09]	1.68			0.097	
Unemployment	-1.13	0.31	[-1.76, -0.51]	3.62			<0.001	
GDP	-0.01	0.01	[-.01, 0.01]	0.27			0.79	
2018 Xen. Votes	0.35	0.21	[-0.06, 0.77]	1.69			0.096	

Notes: † $p < 0.10$, *** $p < .001$. P. COVID-19 threat = Perceived COVID-Threat (search volume).

that disentangles the drivers of the associations obtained in Study 1, using outgroup threat and common ingroup identification as potential mediators.

Study 2

Study 2 tested a more extensive pathway from perceived COVID-19 threat to attitudes towards refugees, helping intentions, as well as support for pro-immigrant policies and examined two specific pathways from perceived COVID-19 threat to outgroup outcomes: 1) the exclusionary pathway occurring via increased immigrant threat (H1) and 2) the inclusionary pathway occurring via increased common ingroup identification (H2). These hypotheses were tested across three outcomes and were thus specified for outgroup attitudes (H1–2a), outgroup helping intentions (H1–2b), and support for pro-immigration policies (H1–2c).

Participants and procedure

We aimed to recruit at least 250 participants to obtain reliable and stable estimates (see Schönbrodt, & Perugini, 2013). A total of 294 participants (184 female, 109 male, 1 other; $M_{age} = 22.68$, $SD = 3.97$) were recruited through the research participation scheme at a private university in Istanbul and through convenience sampling via the help of research assistants (during the first two weeks of May 2020). This sample size would allow us to obtain 80% power at $\alpha = 0.05$ for effect sizes down to $r = 0.16$ (or $r\text{-squared} = 0.03$), which we deemed sufficient for the type of effects under investigation. The majority of participants reported to have a Turkish ethnic background (91.8%), while the rest described their background as 'Other'. None of the participants reported being personally infected by COVID-19. The mean self-reported income level ranging from 1 (*very low*) to 7 (*very high*) was 5.00 ($SD = 0.91$). Political orientation assessed by a single item ('How would you describe your political orientation?', ranging from 1 = *left* to 7 = *right*) was slightly left ($M = 3.16$, $SD = 1.55$).

Materials

Perceived COVID-19 threat was assessed by four items measuring the level of personal and societal level threat caused by COVID-19 pandemic (adapted from Green et al., 2010, 'To what extent are you worried about COVID-19?', 'To what extent do you think COVID-19 constitutes a potential threat in our country?', 'To what extent do you think COVID-19 will have destructive effects in our country?', and 'To what extent do you follow news concerning COVID-19 in the media?'). The response scale ranged from 1 (*not at all*) to 7 (*very much*). The reliability of the scale was good (Cronbach's Alpha = 0.73) and higher scores indicated greater perception of COVID-19 threat. A factor analysis with direct oblimin rotation indicated that all items loaded on a single factor (total variance explained: 57.96%), showing this scale to be unidimensional.

Immigrant threat was measured by six items adapted from previous outgroup threat measures (Gonzalez et al., 2008; Verkuyten, 2009) and including safety threat (e.g., 'The existence of Syrian refugees increases security problems in Turkey'), symbolic threat (e.g., 'Turkish norms and

values are being threatened because of the presence of Syrian refugees'), and realistic threats (e.g., 'Because of the presence of Syrian refugees, Turks have hard time to find jobs'). The response ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*). A factor analysis with direct oblimin rotation revealed that all items loaded on a single threat construct (total variance explained: 67.62%), confirming the unidimensional nature of this variable (Cronbach's Alpha = 0.90).

Common ingroup identification was assessed by a single item ('When you think about Syrian refugees, to what extent do you see them as victims of COVID-19 like your ingroup?') adapted from Eller and Abrams (2004). The response scale ranged from 1 (*not at all*) to 7 (*very much*) and higher scores indicated a greater identification under the superordinate COVID-19 victim identity.

Outgroup attitudes were measured by a feeling thermometer (Converse et al., 1980) asking participants to rate their warmth towards Syrian refugees from 0 degrees (*extremely unfavourable*) to 100 degrees (*extremely favourable*), higher scores indicating more positive outgroup attitudes.

We measured *outgroup helping intentions* with two items ('I would like to donate to Syrian refugees who are the victims of COVID-19' and 'I would like to support projects that help Syrian refugees who suffered from COVID-19', $r = 0.89$, $p < 0.001$). The response scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating greater willingness to help outgroup COVID-19 victims.

Support for pro-immigration policies was measured with a single item (Doosje et al., 2009) asking participants to indicate their level of agreement on Syrian refugee intake to Turkey ('Turkey should allow none/few/some/many Syrians to come and live here'), with higher scores indicating greater support for policies favoring Syrian refugee acceptance to Turkey.

Analytic strategy

Data were analyzed with MPlus Version 7 (Muthen & Muthen, 1998–2020) with maximum likelihood estimation. Wherever possible, we adopted a latent modelling approach.

For outgroup threat, we used item parceling combining items into two parcels randomly, each formed of the averaged three manifest items, following suggestions by Little et al. (2002). The fit of the models was assessed by the following cut-off values: $\chi^2/df < 3$, CFI ≥ 0.93 , RMSEA ≤ 0.07 , and SRMR ≤ 0.07 (Bagozzi & Yi, 2012; Marsh et al., 2004). Since the indirect effects are not normally distributed, we also bootstrapped with 1000 resamples to test the robustness of our findings at 95% confidence intervals.¹

Results

Means and standard deviations were presented on **Table 3**.

The measurement model with the latent variables demonstrated that the data fitted well, $\chi^2(17) = 38.01$, $\chi^2/df = 2.24$, CFI = 0.98, RMSEA = 0.07, SRMR = 0.04, with all items loading significantly on the associated latent

Table 3: Means, standard deviations and Pearson correlation coefficients for measures of COVID-19 threat, outgroup threat, common ingroup identity, positive attitudes, helping intentions and support for policies towards Syrian immigrants.

	Mean (SD)	1	2	3	4	5	6
1. COVID-19 threat	4.94 (1.16)	–	0.15**	0.18**	0.01	0.14*	–0.07
2. Outgroup threat	4.14 (1.51)		–	–0.13*	–0.62***	–0.49***	–0.52***
3. CIIM	4.77 (1.91)			–	0.25***	0.31***	0.15*
4. Positive Attitudes	44.27 (31.24)				–	0.62***	0.52***
5. Helping intentions	4.45 (1.98)					–	0.47***
6. Support for policies	1.73 (.88)						–

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

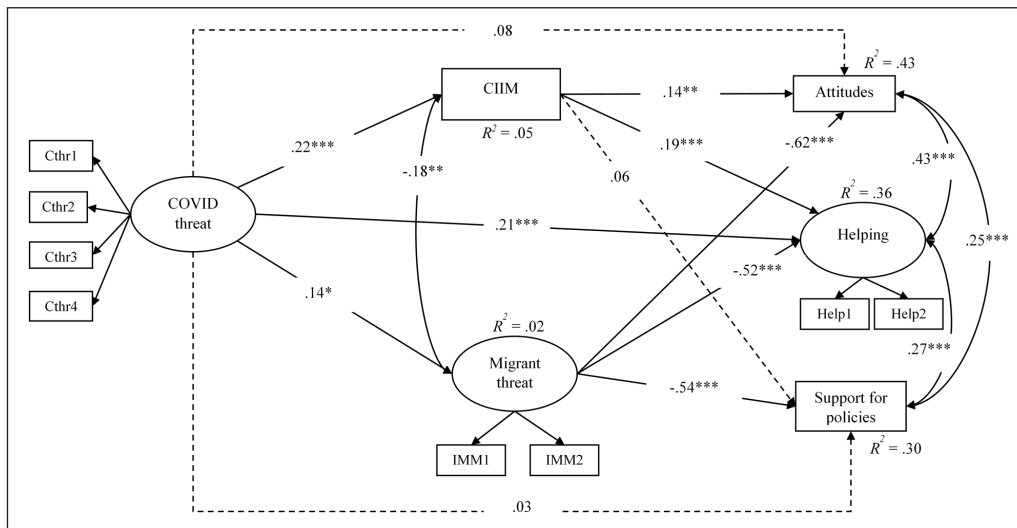


Figure 1: Final mediation from COVID-19 threat to attitudes, helping intentions and support for policies through common ingroup identification and immigrant threat. CIIM = common ingroup identification.

variables (loadings > 0.60, all $p < 0.001$). The final structural model including direct paths from COVID-19 threat to all outcome variables, as well as *a priori* correlations between common ingroup identification and outgroup threat revealed good fit, $\chi^2(32) = 65.35$, $\chi^2/df = 2.04$, CFI = 0.98, RMSEA = 0.06, SRMR = 0.04 (see **Figure 1**). As expected, COVID-19 threat significantly predicted higher levels of immigrant threat ($\beta = 0.14$, $p = 0.03$), as well as common ingroup identification ($\beta = 0.19$, $p < 0.001$). In turn, immigrant threat predicted less positive outgroup attitudes ($\beta = -0.62$, $p < 0.001$), less helping intentions ($\beta = -0.52$, $p < 0.001$), and less support for pro-immigration policies ($\beta = -0.54$, $p < 0.001$). Common ingroup identification was associated with more positive outgroup attitudes ($\beta = 0.14$, $p = 0.002$) and more helping intentions ($\beta = 0.19$, $p < 0.001$), but not with support for policies ($\beta = 0.06$, $p = 0.22$). The direct paths from COVID-19 threat to outgroup attitudes ($\beta = 0.08$, $p = 0.13$) and support for policies ($\beta = 0.03$, $p = 0.62$) were not significant, whereas it was significant and positive in relation to helping intentions ($\beta = 0.21$, $p < 0.001$).

The indirect effects from COVID-19 threat to outgroup attitudes were significant via both immigrant threat

(IE = -0.09 , $SE = 0.04$, $p = 0.03$, 95% CI [-0.18 , -0.003]) and common ingroup identification (IE = 0.03 , $SE = 0.01$, $p = 0.02$, 95% CI [0.005 , 0.06]). Similarly, the association between COVID-19 threat and helping intentions was significantly mediated by outgroup threat (IE = -0.08 , $SE = 0.04$, $p = 0.04$, 95% CI [-0.15 , -0.001]) and common ingroup identification (IE = 0.04 , $SE = 0.02$, $p = 0.01$, 95% CI [0.007 , 0.08]), in opposite directions. COVID-19 threat also related to lower support for pro-immigrant policies through increased immigrant threat (IE = -0.08 , $SE = 0.04$, $p = 0.03$, 95% CI [-0.16 , -0.001]), but not through common ingroup identification (IE = 0.01 , $SE = 0.01$, $p = 0.25$, 95% CI [-0.01 , 0.04]).

Discussion

Study 2 provided evidence supporting both immigrant threat and common ingroup identity hypotheses. More specifically, in line with pandemic threats' exclusionary effects on outgroup attitudes (H1), we found that a higher level of COVID-19 threat perception was related to increased threat related to refugees, which was in turn strongly associated with less positive attitudes, lower helping intentions, as well as lower support for pro-immi-

gration policies (supporting H1a, b, and c). On the other hand, supporting our theoretical assumption about the unifying effect of COVID-19 threat (H2), we observed that the perception of threat caused by COVID-19 induced a common ingroup identification process under the more extensive 'COVID-19 victim' social category, which was, in turn, significantly associated with more positive outgroup attitudes and helping intentions (H2a and b only). The path from common ingroup identification to support for pro-immigrant policies was not significant, providing no evidence for H2c. Still, COVID-19 threat was also directly associated with greater outgroup helping intentions. This may indicate that a pandemic threat by itself may be sufficient to promote intergroup helping responses and cooperation across groups, but it may not provide policy support regarding Syrian refugees.

General Discussion

This series of studies investigated whether the perception of threat triggered by the current COVID-19 pandemic could be associated with attitudes towards Syrian refugees in Turkey. This investigation was carried out in the light of both threat regulation and social identity approaches to the social psychological implications of COVID-19 pandemic. Study 1 showed that perceived COVID-19 threat was *directly* associated with more favorable attitudes towards refugees. Study 2 provided further evidence that COVID-19 threat perception was *indirectly* linked with both negative and positive attitudes and intentions towards refugees, via two key mediating variables: immigrant threat perception and common ingroup identity.

First and foremost, our studies consistently showed some promising findings regarding the collaborative nature of the COVID-19 pandemic, such that the threat generated by the pandemic was related to a more positive view of refugees directly at the country level (Study 1), and both directly and indirectly at the individual level (Study 2). Contrary to the stereotypical notion that individuals solely panic, become selfish, and display xenophobic attitudes during crises such as pandemics (Drury et al., 2020), our results revealed that prosocial attitudes and behavioral intentions towards outgroups may also arise as a reaction, highlighting the pandemics' potential unifying effects through a newly emerging shared identity (Drury et al., 2020; Jetten et al., 2020). The pandemic could well be associated with an increase in prosociality among inhabitants of the same country – including refugees who form the same group of 'COVID-19 victims'. This is also consistent with the well-established finding that human reactions to threats typically involve increased prosocial behavior among communities (Dezecache, 2015). Thus, we argue that whenever possible, research investigations of societal threat effects (including pandemics) on intergroup attitudes should integrate insights from the social and common ingroup identity models.

Relatedly, Study 2 further revealed COVID-19's potential detrimental effects for intergroup relationships, whereby threat caused by COVID-19 generalized to outgroup threat, leading to more negative attitudinal and behavioral responses to immigrants. This is in line with previous

research on pathogen threat, suggesting external threat to stimulate negative responses to outgroups, mainly by shifting group members towards more rightist and anti-immigration ideologies (e.g., Green et al., 2010). In fact, the indirect paths through immigrant threat seemed to be stronger than the indirect paths via CIIM, because as previous research demonstrated, the extent to which individuals perceived threat regarding Syrian refugees is one of the strongest predictors of attitudes and behaviors towards this outgroup in Turkey (e.g., Yitmen & Verkuyten, 2019).

The evidence for this dual pathway may also indicate the existence of important individual-level moderators. Such moderators could be personality related (Bacon, & Corr, 2020) or reflect the impact of other group-level processes. For instance, research suggests that the link between pathogen threat and xenophobic attitudes is moderated by collectivistic orientation such that unlike individualism, collectivism reduces xenophobic responses under threat (see Kim, Sherman, & Updegraff, 2016). This could partly occur because interdependent self-conceptions (which are promoted by collectivism) seem to protect individuals from perceiving pandemics as threatening due to an increased sense of safety (Salvador et al., 2020). This may also explain why among Turkish natives, who are in general more collectivist than individualist (Ayçiçeği-Dinn & Caldwell-Harris, 2011), showed more pro-immigrant attitudes and prosocial behavior as a response to COVID-19 threat. Other possible culturally relevant boundary conditions may include prevalent social norms among different groups, shaping the attitudes of individuals who increasingly identify with these groups in response to pathogen threat (Hogg & Reid, 2006). All these reasons warrant further investigation and indicate potentially fruitful lines for future research.

Apart from cultural factors, how COVID-19 pandemic is experienced at the individual level may also play an important role in shaping individuals' group-based responses. Lately, it has been found that COVID-19 pandemic has influences on the emergence of psychological symptoms such as depression and anxiety-related syndromes (e.g., Fiorillo & Gorwood, 2020; Huang & Zhao, 2020), as well as trust and well-being (Sibley et al., 2020), which may determine the extent to which COVID-19 threat is related to more or less positive outgroup attitudes. For example, individuals who experience these negative psychological impacts of the pandemic and who are personally frustrated may be more likely to displace COVID-related anxieties onto minority groups. Further research should also investigate a variety of target outgroups to draw more general conclusions about COVID-19 effects on general intergroup relationships, focusing on various intergroup emotions that may play a role on attitudinal responses (Cottrell & Neuberg, 2005). For example, although we considered Syrian refugees as a salient outgroup for Turks, whether Turks considered Syrians as a distant outgroup during the pandemic – and did not categorize them within a broader Muslim ingroup – may be examined in future research. Recent research also suggests that the extent to which a common identity is shaped in response to COVID-19 threat may depend – at least partly – on individuals'

uncertainty management strategies (Need for Closure, see Fuochi et al., 2021).

Finally, it is important to note that our results were obtained only when assessing perceived (subjective) rather than objective (real) threat. This has direct applied implications, because the present studies suggest that there should be some degree of malleability to COVID-19 threat perceptions, which could therefore be leveraged to shape intergroup attitudes downstream. Indeed, we believe perceived pathogen threat to be of utmost importance in the case of diseases like COVID-19 given the confinement context, the – relatively – low mortality (<3%) from COVID-19, and the proportion of asymptomatic COVID-19 positive individuals (e.g., Bai et al., 2020; compared to diseases like Ebola or Creutzfeld-Jakob). All these elements combined hint us that the majority of individuals are not likely to form direct threat estimates based on objective cues in their immediate environment, at least during the specific period when data were collected (e.g., sick individuals in the streets, relatives in hospitals, direct witnessing of corpses, and so on). In this context, the role of communication, through journals, online press, television programs, and government officials could have significant effects in promoting or inhibiting intergroup solidarity through a reduced or heightened sense of threat *independently* of the country's ability to manage the pandemic efficiently. This hypothesis could be investigated in future cross-country research to examine whether xenophobic attitudes could vary according to State communications (i.e., minimizing the threat) and efficacy of government action in protecting citizens (e.g., presence/absence of masks for healthcare workers and citizens; number of random PCR tests conducted among the population).

Among some of the caveats that bound the interpretations of the present results, we can obviously include the nature of our analyses, which, although constrained by careful theoretical considerations, warrants cautious causal interpretations. Relying on converging evidence from other countries and populations, as well as empirical studies from previous pandemic and disease research, we are confident that COVID-19 threat may affect anti-immigrant attitudes, but still our research does not refute the reverse causal path whereby people who are already prejudiced towards immigrants would be more vulnerable to uncertainty caused by COVID-19 and thereby feel more threat about the disease. It is also possible that third variables such as a personal disposition or sensitivity to external threats that may lead to stronger perceptions of any kind of threats in general.

In addition, we made the choice of measuring as many outcomes as possible in the second study to bypass potential stimulus sampling issues (Wells et al., 1999). This constrained us to choose relatively short measures for some of the constructs, including single-item ones (i.e., CIIM, support for pro-immigration policies). Thus, results from Study 2 should be interpreted within the boundaries imposed by the limitations of such items, and future studies should be conducted with more sophisticated measures. Moreover, our studies were conducted in a specific context (Turkey) where collectivism is prevalent, hence potentially inhibiting some of the negative effects

of COVID-19 threat on anti-immigrant attitudes (Salvador et al., 2020). In line with this, Syrian refugees in Turkey are mostly Muslim, which may facilitate the generation of common ingroup identities to the more inclusive 'Muslim' group. Further research in individualistic contexts with important divergences in native-immigrant populations on variables such as religion or ideology should be conducted to assess the generalizability of our findings.

In conclusion, our results from Study 1 obtained with province-level data and indirect behavioral measures (volume of online searches) were partly replicated in Study 2 with individual-level data using direct self-reported outcomes, providing evidence for the existence of COVID-19's paradoxical implications for intergroup attitudes. In addition to a direct association with prosocial behavioral tendencies towards Syrian refugees who are amongst the most vulnerable outgroups during the pandemic, we highlighted that the pandemic could also promote individuals' evaluation of Syrians as part of a common ingroup bonded together through the same collaborative threat experience. Of crucial interest for managing the intergroup consequences of COVID-19, we also suggest that future research should consider the perspectives of underrepresented minority groups such as ethnic minorities, immigrants, and refugees, with the aim of revealing how the pandemic impacted the perceived prevalence of discriminatory experiences minority groups receive during the pandemic. Practical recommendations on how to improve intergroup relationships under the pandemic threat and during its aftermath will be crucial in the coming months, especially to mitigate the potential consequences of a global economic crisis that may emerge in the future.

Note

- ¹ Since age, gender, socio-economic status and political orientation were not associated with the main outcome variables (or only correlated weakly), we did not include these variables in the model as covariates.

Competing Interests

The authors have no competing interests to declare.

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