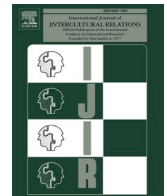




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Addressing the effect of concern with COVID-19 threat on prejudice towards immigrants: The sequential mediating role of need for cognitive closure and desire for cultural tightness

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ABSTRACT

The link between threat and anti-immigrant prejudice is well-established. Relatedly, recent research has also shown that situational threats (such as concern with COVID-19 threat) increase anti-immigrant prejudice through the mediating role of desire for cultural tightness. This study aims to further our understanding of the psychological processes underlying the relation between concern with COVID-19 threat and increased negative attitudes towards immigrants by considering the mediational role of an individual epistemic motivation (i.e., the need for cognitive closure). A study was conducted on a large sample of Italian respondents covering all the Italian regions. Findings revealed that high concern with COVID-19 threat led to increased negative attitudes towards immigrants through the sequential mediating role of higher need for cognitive closure, leading in turn to higher desire for cultural tightness. Implications of these findings for a timely contextualized study of anti-immigrant prejudice will be highlighted.

Immigrants represent a crucial issue for governments and society ([International Organization for Migration, 2022](#)). Wars, economic crises, and political or ethnic persecutions continuously lead people to move outside their country of origin. In the last decades, Western societies witnessed a worldwide call to establish barriers against “foreigners” and defend our nations against immigrants ([Annan, 2006](#)). Even more recently, during the last two years, there have been several global crises: the recent worldwide economic and resources crisis, as well as the pandemic related to the Coronavirus disease (COVID-19), have been perceived as global situational threats leading people to experience concern and uncertainty ([Mula et al., 2022](#)). Such experiences might turn into individuals’ need to stick to their cognitions, to restrict intergroup boundaries, and display prejudicial attitudes ([Jackson et al., 2019](#); [Mula et al., 2022](#)) towards salient outgroups such as immigrants, who represent the most numerous subgroup in many Western and European Countries ([International Organization for Migration, 2022](#); [ISTAT, 2022](#)).

In this respect, [Mula et al. \(2022\)](#) recently examined in a large cross-national study whether the perceived threat of COVID-19 catalyzes negative attitudes towards immigrants, triggering individuals’ higher desire for cultural tightness ([Gelfand et al., 2011](#)). Going beyond this novel evidence, the current study was conducted on a national basis with a large sample covering all the Italian

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regions and aimed to further our understanding of the process underlying the relation between individual's concern with COVID-19, increased desire for cultural tightness (Gelfand et al., 2011), and enhanced negative attitudes towards immigrants.

Concern with COVID-19 threat and desire for cultural tightness

The 2019 COVID-19 outbreak has undermined people's certainties about the future, increasing fear and worry (Gelfand et al., 2021; Mula et al., 2022). As the pandemic poses a destabilizing threat to entire societies worldwide, individuals are theorized to desire tighter norms (Gelfand et al., 2011; Jackson et al., 2019). That is, the more people *perceive* a natural event such as the COVID-19 pandemic as a threat, the more they are expected to desire cultural tightness since, when a society faces such a threat, tight social norms might promote coordination and cooperation (Gelfand, 2018; Harrington & Gelfand, 2014) necessary to challenge the spread of the virus. Indeed, cultural tightness reflects "the strength of social norms, or how clear and pervasive norms are within societies, and the strength of sanctioning, or how much tolerance there is for deviance from norms within societies" (Gelfand et al., 2011, p. 1226). Thus, tight cultures have stronger social norms and greater sanctioning of deviant behavior, whereas loose cultures have weaker social norms and little sanctioning of deviant behavior (Gelfand et al., 2011). Notably, such differences in tightness–looseness often arise from differences in ecological and historical conditions: Tight countries historically experienced more ecological threats (i.e., resource scarcity, higher disease prevalence, territorial invasions and conflicts, high population density, environmental threats) compared to loose countries (Gelfand et al., 2011; Harrington & Gelfand, 2014). For cultures that face many threats, tight social norms are adaptive as they promote the coordination necessary for survival (Gelfand, 2018; Harrington & Gelfand, 2014). This has been confirmed by field, laboratory, and computational models showing that groups that experience heightened collective threat (e.g., disasters, pathogen outbreaks, resource scarcity, invasions) develop stricter rules to help coordinate social action (Gelfand et al., 2011; Roos et al., 2015).

Besides this, while strengthening social norms in response to threats serves as an adaptive mechanism that helps individuals coordinate to survive (Gelfand et al., 2011; Roos et al., 2015), it can also lead to intolerant attitudes towards outgroups (e.g., immigrants, homosexuals; Inbar et al., 2016; Jackson et al., 2019; Sorokowski et al., 2020). Previous studies showed that *perceived* threat was associated with greater intolerance and punitiveness towards outgroups (Feldman & Stenner, 1997; Jackson et al., 2019; Marcus et al., 1995), as well as higher ethnocentrism (Schaller & Neuberg, 2012). Along this line, Albarello et al. (2019) showed that the activation of intergroup threat (Albarello & Rubini, 2018; Stephan & Stephan, 2000) led individuals project negatively stereotyped minority immigrant outgroups (e.g., Roma) onto larger, partially overlapping immigrant outgroups (e.g., Romanians), thus extending negative attitudes from an outgroup onto another. Similarly, Albarello and Rubini (2022) also showed that intergroup threat enhances the denial of human rights to the stigmatized outgroup of migrants via increasing perceived relative deprivation of the ingroup of natives. The link between threat and prejudice (e.g., Rios et al., 2019; Stephan & Stephan, 2000) is thus well-established. Nonetheless, Mula et al. (2022) recently provided the first cross-national evidence on the relation between a worldwide situational threat (i.e., concern with COVID-19 threat) and enhanced negative attitudes towards immigrants through the mediating role of enhanced *desire for cultural tightness*.

In this respect, it is worth underlining that the degree to which individuals desire that their country be tight can vary from person to person regardless of country-level tightness. However, the desire for cultural tightness is not the same as living in a tight society (Jackson et al., 2019) because a person may endorse a culture that is different from the one in which they live. For instance, it has been shown that the relevance of a threat increases the desire for tight social norms even for participants from loose cultures (Jackson et al., 2019; see also Gelfand et al., 2017). Specifically, Jackson and colleagues (2019; see also Mula et al., 2021, 2022) found that perceived societal and ecological threats predicted people's desire for greater cultural tightness. This, in turn, was associated with prejudiced attitudes towards outgroups (e.g., opposition to having a person from a different religion, race, or sexual orientation as a neighbor; less favorable attitudes towards homosexuals; acceptability of violence towards people in other societies; feelings of cultural superiority) – which were assessed both explicitly and implicitly (e.g., through the Implicit Association Test; IAT; Greenwald et al., 1998) – and xenophobic political preferences (i.e., intentions to vote for nationalist politicians).

Drawing on this (limited) available evidence, in this article, we aimed to look at some factors that can potentially trigger desired cultural tightness as a consequence of the perceived threat of COVID-19 in order to further our understanding of the relation between such a threat, desire for cultural tightness, and negative attitudes towards immigrants, as has been recently highlighted by Mula et al. (2022). Nevertheless, Mula et al.'s study was not collected at a national basis, thus a larger and more complete sampling of participants from all the Italian regions should be considered, given that they might vary in terms of cultural tightness (cf. Gelfand et al., 2011), as well as in terms of the perceptions of COVID-19 threat due to the different number of cases and deaths due to COVID-19, or by the type of restrictions in force in the specific 20 Italian regions during the pandemic. If Di Santo et al. (2022) recently showed that binding moral foundations (i.e., the group-focused moral foundations of authority, loyalty to the ingroup, and purity; Graham et al., 2011) might predict people's enhanced desire for their country to be tight, no evidence is available on whether further individual level epistemic motivations might have a similar effect. In order to tackle this neglected issue, we considered an individual-level motivation that might be increased by perceived societal/ecological threats such as COVID-19, and might predict an enhanced desire for cultural tightness, that is, the *need for cognitive closure* (Kruglanski, 1989), since it is regarded as a particularly relevant factor to understanding responses to (situational) uncertainty (Kruglanski, 2004; Roets et al., 2015), as the one elicited by COVID-19 threat.

The need for cognitive closure and anti-immigrant attitudes

The need for cognitive closure (Kruglanski, 1989; Kruglanski et al., 2006; for a review, see Roets et al., 2015) has been defined as the individual's quest for epistemic certainty and aversion to ambiguity (Webster & Kruglanski, 1994); thus, it reflects how individuals

approach new knowledge (Baldner et al., 2019). The epistemic quest starts when individuals are confronted with a question they do not have an answer and stops when the answer is found. In this respect, two phases of this quest have been highlighted: the seizing phase, in which individuals are motivated to find an answer that can provide stable knowledge in the present and future, and the freezing phase, when they are instead motivated to defend their existing knowledge. Relatedly, the need for cognitive closure helps explain how individuals can react differently to new pieces of knowledge. When a person is in the seizing phase, he/she can be open to new ideas; conversely, in the freezing phase, he/she should resist losing the stability of the available crystallized knowledge that he/she holds.

Individuals with a high need for cognitive closure tend to prefer stable environments insofar as these environments can provide a stable foundation for secure knowledge (Kruglanski et al., 2002); in the same vein, these individuals tend to dislike change that upsets their stable environments (Kruglanski et al., 2007; Livi et al., 2015). Since individuals with a need for cognitive closure might be attracted by any information source that can provide secure knowledge (Baldner et al., 2019), a link between intergroup biases, prejudice, and stereotypes has been demonstrated (e.g., Dijksterhuis et al., 1996; Kovic et al., 2012; Kruglanski et al., 2002). From the perspective of natives, immigrants are agents of change as they can threaten both natives' realistic or symbolic resources (Stephan & Stephan, 2000). Consequentially, individuals with a high need for cognitive closure will be more likely to have negative attitudes toward immigrants, as they represent the change that prevents them from having secure knowledge.

Moreover, besides being conceived as a disposition, the need for cognitive closure can also be a feature of environments (Kruglanski & Webster, 1996) and consequently, it can be raised or lowered. In this vein, threatening societal/ecological conditions, such as the recent COVID-19 pandemic, might elicit such a need as it causes uncertainty (Vos, 2021). Since uncertainty is an unpleasant state that individuals want to quickly resolve and prevent from recurring, in uncertain situations individuals might struggle to understand what is happening (as during the initial phases of COVID-19 pandemic) trying to gather a coherent interpretation of their reality (Chater, 2020). In this vein, the need for cognitive closure may increase under uncertain situational conditions (cf. Bianco et al., 2021). In turn, enhanced need for cognitive closure might elicit a higher desire for rules in one's society in order to efficiently coordinate and face the threat at hand. In this vein, a situational threat such as COVID-19 might lead people with high need for cognitive closure to also desire that their society endorse high cultural tightness through stricter definitions of allowed and forbidden behaviors in order to fight the spread of the virus (cf. Harrington & Gelfand, 2014) since this might help reduce the uncertainty elicited by the threat at hand.

This, in turn, might lead to increased negative attitudes towards outgroup members (see Mula et al., 2022) who – as in the case of immigrants – may be perceived as disturbing the social order (Jackson et al., 2019) or competing with the ingroup of natives in terms of access to resources (cf. Baldner et al., 2019; Scheepers et al., 2002; Stephan & Stephan, 2000). Initial evidence on the relation between situational uncertainty and prejudice towards immigrants was provided in a cross-cultural research comparing two rather small Maltese and Italian samples by Bianco et al. (2021), who showed that the effects of concern with COVID-19 threat on prejudice against the outgroup of migrants was mediated by the need for cognitive closure, which in turn led to an increased endorsement of another cultural motivation, that is, binding moral foundations (Baldner & Pierro, 2019; Graham et al., 2009). Notwithstanding this initial findings, further investigations are needed to tackle more thoroughly the neglected relation between situational uncertainty elicited by the COVID-19 threat expressed in terms of individual's concern for COVID-19 threat, individuals' epistemic motivation (i.e., need for cognitive closure) and cultural motivation (i.e., desire for cultural tightness) on increased negative attitudes towards immigrants.

The present research

A study was conducted on a national basis with a large sample covering all the Italian regions.² We hypothesized that people's concern with COVID-19 threat would be associated with an individual's higher need for cognitive closure as a reaction to the threatening situation. In turn, the need for cognitive closure would enhance respondents' desire for tight rules (i.e., cultural tightness) and, consequently, increase their negative attitudes towards immigrants. Accordingly, the current study aimed to investigate the effect of concern with COVID-19 threat on individual's need for cognitive closure as an antecedent of enhanced desire for cultural tightness and increased negative attitudes towards immigrants. The indirect effect of concern with COVID-19 threat on negative attitudes towards immigrants via desire for cultural tightness was also examined. Further, respondent's political orientation was entered in the model as a covariate.

Method

Participants and procedure

To test the above-mentioned hypothesis, we enrolled 4217 Italian adults in a cross-sectional design. Given the nature of our research, we excluded from the analyses participants that indicated that they did not live ($n = 16$) or were not a resident ($n = 31$) in Italy, and those who indicated to be immigrants ($n = 145$). Furthermore, only participants with data for all the study's main variables

² Compared to other European Countries, Italy has only a recent history of immigration, which spans approximately 30 years, after the Albanian crisis in 1990 s. Since then, political discourse and media portrayed the issue of immigrants in terms of a perpetual 'state of emergency' and the image of the immigrant has become the social metaphor of the invader (Bergamaschi, 2013). For these reasons, assessing anti-immigrant prejudice in Italy during the COVID-19 pandemic seemed a suitable situation to address whether situational threats increase prejudice towards groups that are already stigmatized and targeted by prejudice (Jackson et al., 2019).

were selected. The final sample resulted in 3817 participants (61.2% female; $M_{\text{age}} = 32.57$; $SD_{\text{age}} = 13.36$; range from 18 up to 78 years), coming from all 20 Italian regions. The 3817 participants were equally distributed among Northern Italy ($n = 1153$), Central Italy ($n = 1597$), and Southern Italy ($n = 1013$). In our sample, 44.4% of participants were students, 44.8% workers, and 10.8% reported to have other occupations. Moreover, 0.1% completed primary school, 4% middle school, 48.2% high school, 24.8% reported to have a bachelor's degree, 21.4% a master's degree, and the 1.6% had a Ph.D. Thirty-nine-point three percent of our sample was recruited through a paid procedure provided by Prolific, while the rest of participants gave their answers through Google Forms and were not paid for their participation. Participants were recruited between February 2021 and December 2021 during the COVID-19 pandemic.

Once participants gave their informed consent, they were requested to indicate their demographic information (i.e., age, gender, educational level, occupations, place of residence, and place of living). Subsequently, participants filled out a questionnaire aimed to collect the research measures of interest (as listed below). All the items were administered in Italian. In the Measures Section examples of those items translated in English are provided. The last part of the questionnaire thanked and carefully debriefed participants.

Measures

Concern with COVID-19 threat

We used four items – derived from the work by Conway, Woodard, & Zubrod, (2020) and previously employed by Baldner et al. (2022) – to measure concern with COVID-19 threat by asking participants to what extent they were 'afraid of getting sick with COVID-19', 'afraid of the COVID-19 pandemic', and worried that themselves or the people they love would 'become sick from COVID-19'. They were also asked to what extent thinking about the COVID-19 made them 'feel threatened'. Participants gave their answers on a 7-point Likert scale ranged from '1' = 'not at all' to '7' = 'very much'. Reliability was excellent (Cronbach's $\alpha = 0.91$).

Need for cognitive closure

The need for cognitive closure was assessed using the Italian version of the Revised Need for Closure Scale (Rev NfCS; Pierro & Kruglanski, 2005). Participants answered on a 6-point Likert scale where '1' (the lowest score) indicated 'strong disagreement' and '6' (the highest score) indicated 'strong agreement'. Example items are the following: 'when I am uncertain, I prefer to make fast decisions, whatever they are' 'I prefer engage activities where is clear what I have to do and how I have to do it'. The reliability was good (Cronbach's $\alpha = 0.81$).

Desire for cultural tightness

Desire for cultural tightness was measured by asking participants if their place of residence should have 'loose' versus 'tight' characteristics (Baldner et al., 2022; Mula et al., 2021). Specifically, they responded to five questions on a scale anchored from '1' to '9', where high scores indicated high desire for cultural tightness. Example items are: "My place of residence should... '1' = 'Have flexible social norms' versus '9' = 'Have rigid social norms'; '1' = 'Be tolerant of people who violate the rules' versus '9' = 'Be intransigent with people who violate the rules'. The reliability was good (Cronbach's $\alpha = 0.88$).

Attitudes towards immigrants

Four items measured participants' negative evaluation of immigrants. In this case, answers were given on a 5-point Likert scale through which participants had to indicate if, for example, their attitudes towards immigrants were '1' = 'friendly' versus '5' = 'hostile'. The reliability was highly satisfactory (Cronbach's $\alpha = 0.91$).

Eight items, previously used in a recent study (Di Santo et al., 2022), were employed to explicitly measure participants' perception of immigrants as threats. Here, answers were given on a 6-point Likert scale, where '1' = 'I totally disagree' and '6' = 'I totally agree' (e.g., 'Immigrants steal work from Italians'). Internal reliability was high (Cronbach's $\alpha = 0.93$).

Covariates

In all analyses, we controlled for respondents' political orientation. They indicated their political orientation on a 7-point Likert scale, where '1' stood for an extremely left-wing orientation and '7' for an extremely right-wing orientation.

Analytical strategy

Our predictions were tested using structural equation modeling (SEM) models that treated participants as nested within regions. Group-centered variables were used to account for between-person variation within regions (Enders & Tofighi, 2007). Specifically, we tested the mediational roles of need for cognitive closure and desire for cultural tightness in the relationship between concern with COVID-19 threat and attitudes towards immigrants using Mplus version 8.2 (Muthén & Muthén, 1998–2017). Data were clustered by participants' regions. The model parameters were estimated using the maximum likelihood with robust standard errors (MLR) estimation. To examine the indirect effects, we used the default method in Mplus (i.e., delta method standard errors for the indirect

effects).

Results

Descriptive statistics and bivariate correlations among variables are displayed on Table 1. Descriptive statistics for study variables (concern with COVID-19 threat, need for cognitive closure, desire for cultural tightness, attitudes towards immigrants, and political orientation) for each region are presented in Table 2, along with participants' distribution in the Italian regions.

Afterwards, we examined direct and indirect effects of the predictor (i.e., concern with COVID-19) on the two mediators (i.e., need for cognitive closure and desire for cultural tightness) and outcome (i.e., attitudes towards immigrants), controlling for participants' political orientation. We calculated the measurement indicators for all significant latent variables of the tested model using an item parceling procedure (Kim & Hagtevt, 2003). The item parceling procedure consists in condensing the items of a scale into a smaller set of items in order to decrease the model's dimensionality and the number of parameters that need to be estimated. As a result, the measurement model is more parsimonious and the parameter estimates are more reliable (Little et al., 2002). More specifically, in this study, the item parcels for each latent variable, excepting the outcome, were made by splitting each scale's items into two parcels and averaging the item scores in each parcel. Indeed, with respect to the measurement of negative evaluation of immigrants and perception of immigrants as threats, given the high correlation between these two scales ($r = 0.70, p < .001$), we loaded them into a single latent variable that indicated the general attitudes toward immigrants.

The results of the model revealed an appropriate fit to the data, $\chi^2 = 119.327, df = 19, p < .001, CFI = 0.993, TLI = 0.986, RMSEA = 0.037$ [90% CI = 0.031, 0.044], SRMR = 0.017.³ Fig. 1 describes all the paths of the model. The results showed that greater need for cognitive closure was significantly and positively predicted by concern with COVID-19 threat ($b = 0.074, SE = 0.012, p < .001, 95\% CI = 0.044, -0.104$). The need for cognitive closure, for its part, positively and significantly predicted desired cultural tightness ($b = 0.341, SE = 0.044, p < .001, 95\% CI = 0.228, -0.455$), which, in turn, significantly and positively predicted (negative) attitudes towards immigrants ($b = 0.066, SE = 0.020, p = .001, 95\% CI = 0.015, -0.118$). Indirect effects are presented in Table 3. As can be noted, the specific indirect effect through need for cognitive closure was significant ($b = 0.025, SE = 0.006, p < .001, 95\% CI = 0.010, -0.041$), as well as the specific indirect effect through desire for cultural tightness ($b = 0.018, SE = 0.005, p = .001, 95\% CI = 0.004, -0.032$). Importantly, also the indirect effect, via, sequentially, the need for cognitive closure and the desired cultural tightness was found to be significant ($b = 0.002, SE = 0.001, p = .020, 95\% CI = -0.001, -0.004$). Thus, as expected, the total indirect effect (i.e., the sum of the specific indirect effects) of concern with COVID-19 threat on attitudes towards immigrants via our mediators was found to be significant ($b = 0.045, SE = 0.009, p < .001, 95\% CI = 0.022, -0.068$).

The total effect of concern with COVID-19 on negative attitudes was found to be significant ($b = 0.040, SE = 0.020, p = .043, 95\% CI = 0.011, -0.091$); conversely, a non-significant direct effect ($b = -0.006, SE = 0.019, p = .773, 95\% CI = -0.055, 0.044$) was found, thus indicating that the effect of COVID-19 threat on attitudes towards immigrants was totally mediated by the mediators considered.

Discussion

The main aim of this study was to address the antecedents of attitudes towards immigrants under a specific situational threat, the COVID-19 pandemic, a global health crisis that deeply affected various individuals' cognitive and motivational processes (cf. Gelfand et al., 2021). Drawing from available evidence (e.g., Bianco et al., 2021; Jackson et al., 2019; Mula et al., 2022) on the link between ecological threats and intergroup attitudes, the current study showed that desire for cultural tightness could be a mediator between perceived COVID-19 threat and negative attitudes towards immigrants. That is, under situational threats, people's desire for tight cultural norms increases (Gelfand et al., 2011, 2017) and elicits restriction of intergroup boundaries and rejection of different, potentially threatening, outgroups (Baldner et al., 2019; Inbar et al., 2016; Jackson et al., 2019; Sorokowski et al., 2020) such as immigrants.

To add to this evidence, and most importantly, the study considered an additional individual level motivation that can play a role in the relation between enhanced concern with COVID-19, desire for tighter cultural norms, and negative attitudes towards immigrants, that is, the individual's need for cognitive closure (Kruglanski et al., 2002; Webster & Kruglanski, 1994). As expected, the study's findings revealed that individuals with higher concern with COVID-19 threat were also those with higher need for cognitive closure (see also Bianco et al., 2021). This is coherent with available theorization on the need for cognitive closure, since we know that people high in need for cognitive closure prefer cognitive stability and quest for epistemic certainty (Baldner et al., 2019; Webster & Kruglanski, 1994). Ecological threats thus enhance the need to have certain knowledge, refusing ambiguity. Going beyond available evidence (e.g., Bianco et al., 2021), this study highlighted that a related consequence of such increase in individual's need for cognitive closure can be a higher desire for cultural control and coordination, as that provided by tight cultures (Gelfand et al., 2011), ending in more negative attitudes towards different others (Mula et al., 2022). Specifically, our findings supported the expected sequential indirect path through increased individual need for cognitive closure and, in turn, higher desired cultural tightness. Notably, the direct effect of concern with COVID-19 threat on attitudes towards immigrants was not significant, meaning that the indirect path that we hypothesized was the only one that accounted for variations in negative attitudes towards immigrants. Besides the cross-sectional

³ In view of the cross-sectional design of the study, an alternative model was run entering negative attitudes towards immigrants as the predictor of concern with COVID-19 threat. The results of the model revealed a worse fit to the data ($CFI = 0.823; TLI = 0.781; RMSEA = 0.088; SRMR = 0.113$).

Table 1
Bivariate Correlations and Descriptive Statistics of Study's Variables.

	1	2	3	4	5	6	M (SD)
1. CONCOV	-($\alpha = 0.91$)						4.67 (1.51)
2. NfCC	0.130**	-($\alpha = 0.81$)					3.43 (0.76)
3. DCT	0.255**	0.215**	-($\alpha = 0.88$)				5.80 (1.67)
4. NEG_EVAL	-0.006	0.225**	0.165**	-($\alpha = 0.91$)			2.17 (0.90)
5. THREAT	0.051*	0.306**	0.219**	0.701**	-($\alpha = 0.93$)		2.20 (1.30)
6. POL	0.006	0.244**	0.233**	0.461**	0.524**	-	3.22 (1.45)

Note. N = 3817. CONCOV = Concern with Covid-19 threat; NfCC = Need for cognitive closure; DCT = Desire for cultural tightness; NEG_EVAL = Negative evaluation of immigrants (high scores indicate negative evaluation); THREAT = Perceptions of immigrants as a threat (high scores indicate high threat); POL = Political Orientation (high scores indicate Right-wing). Cronbach's Alphas are reported in brackets. * $p \leq .01$. ** $p \leq .001$.

Table 2
Descriptive Statistics for each Italian Region.

Italian region	N	POL M (SD)	CONCOV M (SD)	NfCC M (SD)	DCT M (SD)	NEG_EVAL M (SD)	THREAT M (SD)
1. Valle d'Aosta	34	3.50(1.67)	3.83(1.45)	3.13(0.72)	5.51(1.44)	2.18(1.04)	2.19(1.28)
2. Piemonte	193	2.97(1.14)	4.14(1.47)	3.31(0.68)	5.27(1.67)	2.12(0.77)	1.98(0.91)
3. Liguria	252	3.23(1.54)	4.52(1.46)	3.52(0.78)	5.96(1.60)	2.42(1.03)	2.51(1.34)
4. Lombardia	285	3.10(1.29)	4.23(1.40)	3.33(0.75)	5.29(1.66)	2.26(0.87)	2.16(1.11)
5. Trentino Alto-Adige	34	2.79(1.14)	4.47(1.28)	3.25(0.50)	5.10(1.37)	2.28(0.78)	1.92(0.87)
6. Veneto	137	2.96(1.43)	4.16(1.26)	3.28(0.61)	5.13(1.58)	2.35(0.97)	2.16(1.21)
7. Friuli-Venezia Giulia	43	3.16(1.13)	3.69(1.30)	3.29(0.76)	4.90(1.45)	2.35(0.89)	2.07(0.98)
8. Emilia Romagna	175	2.91(1.41)	4.63(1.42)	3.29(0.73)	5.61(1.62)	2.22(0.99)	2.23(1.24)
9. Toscana	361	3.55(1.50)	4.72(1.52)	3.64(0.77)	5.85(1.48)	2.40(0.95)	2.65(1.39)
10. Umbria	212	3.50(1.70)	5.12(1.39)	3.37(0.78)	5.92(1.70)	2.24(0.89)	2.52(1.40)
11. Marche	69	3.30(1.40)	4.49(1.54)	3.30(0.60)	5.31(1.43)	2.21(0.71)	2.23(1.03)
12. Lazio	816	3.28(1.48)	4.87(1.48)	3.46(0.74)	6.17(1.60)	2.15(0.91)	2.27(1.27)
13. Abruzzo	193	3.68(1.60)	5.10(1.55)	3.78(0.86)	5.98(1.63)	2.18(0.99)	2.63(1.49)
14. Molise	61	3.51(1.43)	5.25(1.49)	3.41(0.79)	6.34(1.76)	1.86(0.82)	2.02(1.13)
15. Campania	259	2.90(1.29)	4.90(1.53)	3.38(0.73)	6.12(1.72)	1.90(0.90)	1.97(0.99)
16. Puglia	81	3.32(1.35)	4.72(1.48)	3.46(0.58)	5.49(1.58)	2.05(0.69)	2.13(1.06)
17. Basilicata	149	3.23(1.39)	4.87(1.33)	3.69(0.82)	6.19(1.42)	2.16(0.89)	2.35(1.19)
18. Calabria	58	3.29(1.28)	4.53(1.51)	3.34(0.69)	6.24(1.45)	2.05(1.69)	2.14(1.06)
19. Sicilia	133	3.20(1.29)	4.75(1.57)	3.41(0.69)	6.14(1.78)	2.00(0.83)	2.10(1.13)
20. Sardegna	272	2.87(1.37)	4.44(1.57)	3.14(0.69)	5.13(1.68)	1.88(0.74)	1.76(0.83)

Note. CONCOV = Concern with Covid-19 threat; NfCC=Need for cognitive closure; DCT = Desire for cultural tightness; NEG_EVAL = Negative evaluation of immigrants (high scores indicate negative evaluation); THREAT = Perceptions of immigrants as a threat (high scores indicate high threat); POL = Political Orientation (high scores indicate Right-wing).

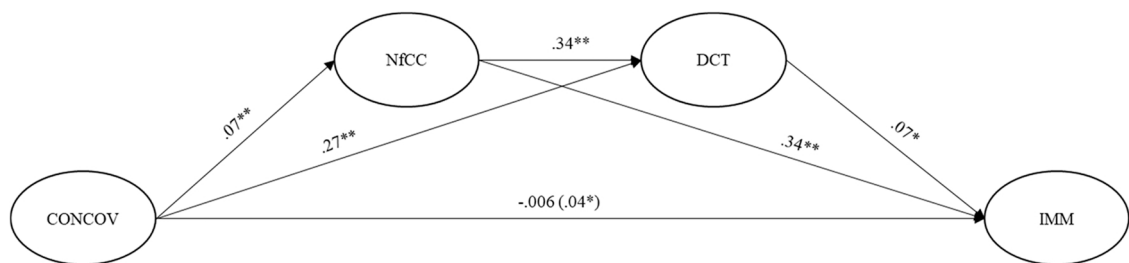


Fig. 1. Results from SEM analysis about the model hypothesizing the mediating roles of need for cognitive closure and desire for cultural tightness in the relationship between concern with COVID-19 threat and attitudes towards immigrants. All coefficients are unstandardized. The total effect is displayed in parentheses. All effects were obtained controlling for political orientation. The covariates are not included. We also re-ran the analysis including age and gender as covariates, to exclude any possible influence on the tested relationships. Results remain unchanged. CONCOV = Concern about Covid-19 threat; NfCC = Need for cognitive closure; DCT = Desire for cultural tightness; IMM = Attitudes towards immigrants (high scores indicate negative attitudes). * $p \leq .01$. ** $p \leq .001$.

nature of the study, it has to be stressed that the alternative model conducted entering anti-immigrant attitudes as a predictor of concern with COVID-19 threat fit the data worse, thus supporting our rationale that it is uncertainty that elicits high anti-immigrant prejudice via enhancing the need for cognitive closure and desire for cultural tightness. Importantly, such results were obtained clustering data by participants' region, thus controlling for eventual differences due to the region of respondents, which might differ across several dimensions (e.g., cultural tightness; concern for COVID-19 threat, etc.).

Table 3
Indirect Effects of Concern with COVID-19 Threat on Attitudes Towards Migrants.

	Coefficient (b)	BootSE	p-value	Bootstrap 95% CIs
CONCOV → NfCC → IMM	0.025	0.006	< 0.001	[0.010, 0.041]
CONCOV → DCT → IMM	0.018	0.005	0.001	[0.004, 0.032]
CONCOV → NfC → DCT → IMM	0.002	0.001	0.020	[0.001, 0.004]
TOTAL INDIRECT	0.045	0.009	< 0.001	[0.022, 0.068]

Note. CONCOV = Concern with Covid-19 threat; NfCC = Need for cognitive closure; DCT = Desire for cultural tightness; IMM = Italians' attitudes towards immigrants (high scores indicate negative attitudes); CIs = Confidence Intervals.

This study thus deepens our understanding of the processes underlying negative attitudes towards immigrants or members of stigmatized outgroups by highlighting the motivational psychological roots through which situational threats enhance anti-immigrant prejudice and increase individual's rejection of different others, with all it might entail in terms of reduction of social inclusiveness within society. In this vein, it complements the available evidence that concern for a situational threat indirectly affects prejudice towards a stigmatized outgroup (migrants) via the sequential mediational role of increased need for cognitive closure and binding moral foundations (Bianco et al., 2021). In this respect, the evidence of this study is also noteworthy since it relies on a larger sample of Italians from all the 20 regions. Thus, this study provides reliable evidence that is generalizable to the whole Italian population.

Relatedly, this evidence can inform research on well-known social cognitive biases that rely on the motivation to protect the ingroup, such as the over-exclusion of potential ingroup members (i.e., ingroup over-exclusion effect; Leyens & Yzerbyt, 1992; Yzerbyt et al., 1995) or the rejection of different outgroup members as they belonged to the same outgroup (i.e., outgroup projection; Albarello et al., 2017, 2019; Albarello & Rubini, 2011) since it shows that considering individuals' concern with a specific threat, together with their epistemic (i.e., need for cognitive closure) and cultural (i.e., desired cultural tightness) motivations can help to go deeper inside the psychological mechanisms that lead to rejection of others under threatening situations. In view of our findings, we can argue that, even if it has been consistently investigated in the inherent literature (e.g., Rios et al., 2019), the connection between threat and anti-immigrant prejudice might still be fruitfully explored by furthering our understanding of the role played by such additional individual-level motivations beyond social-level ones (e.g., defense of the ingroup; Albarello et al., 2019; Albarello & Rubini, 2022). Addressing the relation between an epistemic motivation such as the need for cognitive closure and the desire for cultural tightness – that is, an individual's need for control and coordination within society (Jackson et al., 2019) – thus paves the way for a fruitful integration of such different perspectives.

Moreover, in this study, attitudes towards immigrants were assessed in terms of realistic threat (i.e., threats to the resources of the ingroup and to its well-being; Stephan & Stephan, 2000) posed by immigrants. Nonetheless, immigrants can also be perceived as threatening ingroup's values and culture (i.e., symbolic threat; Stephan & Stephan, 2000). In this vein, future contributions should also consider the relation between situational threats, the need for cognitive closure, the desire for cultural tightness, and the specific perception of symbolic intergroup threat due to immigrants as antecedents of anti-immigrant prejudice (cf. Pereira et al., 2009, 2010; Vala & Pereira, 2020).

Besides this, future studies should also address potential moderators of the relations underlined. For instance, going beyond available evidence (Jackson et al., 2019; Mula et al., 2022), it would be worthwhile to tackle whether second level data such as the actual percentage of immigrants' presence in each specific region, as an index of intergroup contact (Allport, 1954; Graf et al., 2014; Pettigrew & Tropp, 2006), reduces anti-immigrant prejudice or whether it increases it, as suggested by complementary perspectives stressing the role ethnic conflict or resource stress due to immigrants' presence (Esses et al., 2001; Scheepers et al., 2002). Relatedly, given that prejudice and negative attitudes towards outgroups do not need actual encounters with outgroup members to spread (Allport, 1954), it might be interesting to disentangle in future studies the role of actual and perceived percentage of immigrants in participants' own place of residence to analyze their specific relationships with situational/ecological threat and anti-immigrant attitudes.

As for the specific situational threat considered in this study, it should be highlighted that future contributions should profitably take into consideration further second level data that might inform on the effect of COVID-19 pandemic on intergroup attitudes. For instance, actual COVID-19 cases or the number of deaths or hospitalization in each specific region (cf. Gelfand et al., 2021) might be considered as factors enhancing individual's concern with the COVID-19 pandemic.

Besides this, it has to be stressed that the study controlled for political orientation of respondents, which can interfere with the issue of anti-immigrant prejudice (e.g., Duckitt, 2001). In this vein, the study provided a clear picture of the effects of the examined variables by showing that situational threats can augment intergroup negative attitudes and prejudice, net of political orientations of respondents. Further individual level psychological orientations – often underlined as related to individual's prejudicial attitudes – might also be considered as moderating variables, such as right-wing authoritarianism (Altemeyer, 1981) or social dominance orientation (Sidanius & Pratto, 2001).

Moreover, we considered attitudes towards immigrants as an outcome, as it often happens in social psychological research on intergroup relations (e.g., Albarello & Rubini, 2008, 2015, 2022; Crocetti et al., 2021). In our cross-sectional study, data better fit with the expected model that concern for COVID-19 threat affected negative attitudes towards immigrants than the reversed model (see Note 2). Nonetheless, there is also evidence that intergroup attitudes (e.g., anti-immigrant prejudice) affect other social cognitive intergroup outcomes (e.g., social inclusiveness; Albarello et al., 2020). In this vein, future studies might longitudinally examine whether negative attitudes towards immigrants enhance individuals' need for cognitive closure or desire for tighter cultures that help

coordinate social actions under ecological threats (Roos et al., 2015).

Conclusions

By considering timely antecedents of intergroup attitudes such as the individual's concern with the COVID-19 pandemic, this study contributes to furthering our understanding of the factors that can worsen natives' intergroup relations with immigrants. Moreover, by bridging the analysis of individual, cultural, and social psychological process involved in intergroup outcomes, this contribution paves the way for a fruitful integration of different theoretical approaches in tackling prejudice. In this vein, the findings of this study underline that is of utmost importance to timely acknowledge how contextual factors such as situational/ecological threats might challenge the settlement of harmonious intergroup relations. This would be crucial in order to design and implement policies to challenge such detrimental effects on attitudes towards immigrants and minority/stigmatized social groups.

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