

Motivated prejudice: The effect of need for closure on anti-immigrant attitudes in the United States and Italy and the mediating role of binding moral foundations

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ARTICLE INFO

Keywords:

Need for closure
Moral foundations
Immigration
Culture

ABSTRACT

Why do people have anti-immigrant attitudes? We proposed that individuals' need for cognitive closure—an epistemic motivation associated with an aversion to change in established environments—is predictive of a dislike of immigrants through increased binding to powerful groups. In four studies, collected in both Italy (Study 1) and the United States (Studies 2–4), we found that there were effects of need for cognitive closure on anti-immigrant attitudes, as well as indirect effects through binding. These results were significant controlling for participants' political orientation (Studies 2–4), when either dispositional measure (Studies 1–3) or an experimental induction (Study 4) of need for cognitive closure was used, and when both general attitudes toward immigrants (Studies 1, 2, 4) and attitudes toward immigrants' economic impact (Studies 3 and 4) were assessed.

Immigration, and extreme reactions against it, has a nearly constant presence in the 24-hour news cycle. When discussing immigration from Mexico into the U.S., President Donald Trump infamously claimed “they’re sending people that have lots of problems, and they’re bringing those problems to us. They’re bringing drugs. They’re bringing crime. They’re rapists” (Kopan, 2016). Anti-immigration attitudes are not merely limited to rhetoric: for instance, in November 2016 news agencies reported that several Arabic women wearing hijabs were assaulted shortly after the presidential election (Jenkins, 2016). Nor are these issues limited to the United States: during 2015–2018 there were waves of anti-immigrant rallies across Europe. In Italy, the far-right political movement CasaPound has led anti-immigration rallies through the streets of Rome. CasaPound leader Gianluca Iannone stated, during a May 2016 rally, that “we want a strong state to take care of our citizens and our children [...] we want priority for the Italian people, and we are against uncontrolled immigration”¹ (Il lungo sabato di Roma, 2016).

Although wild statements by politicians, violence, and rallies get a substantial share of media attention, it is also clear that “normal” people—those who do not participate in violence or seek political office—also have negative views toward immigration and immigrants. Most of the extant research on this question has focused on the role that immigrants are perceived to play in changing, for the worse, the economy and dominant culture (e.g., Harell, Soroka, & Iyengar, 2016). Other research has focused on the role of individual differences—in particular, we are interested in the role of the dispositional need for cognitive closure (NFC), or the individual's chronic desire for epistemic certainty.

We extended this line of research in this series of studies by testing the indirect role of chronic and acute NFC of natives on negative attitudes toward immigrants. We propose that natives with a high NFC dislike changes in their established environments and

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¹ Translated from Italian by the first author.

consequently seek out—and bind to—strong groups, which serve as secure sources of knowledge. These individuals are thus more likely to take a dim view toward immigrants, as large-scale immigration is an agent of change that could potentially upset the sources to which they turn for secure knowledge. As far as we are aware, this is the first research to test this possibility, and it furthers our understanding of the reasons behind anti-immigrant attitudes.

Need for cognitive closure and attitudes toward immigrants

Need for cognitive closure can be described as an individual's quest for epistemic certainty—that is, their search for beliefs that they can know with certainty (Kruglanski, 1989; Kruglanski, Pierro, Mannetti, & De Grada, 2006). This quest can be divided into two phases. In the urgency, or “seizing,” phase, individuals are motivated to find an answer that can provide stable knowledge. In the permanence, or “freezing,” phase, individuals are motivated to hold onto their existing knowledge, even in the face of more accurate knowledge. Individuals with NFC tend to prefer stable environments insofar as these environments can provide a stable foundation for secure knowledge (Kruglanski, Shah, Pierro, & Mannetti, 2002); in the same vein, these individuals tend to dislike change that upsets their stable environments (Kruglanski, Pierro, Higgins, & Capozza, 2007, Study 2; Livi, Kruglanski, Pierro, Mannetti, & Kenny, 2015).

That NFC is associated with a negative view of immigrants has been suggested by research on attitudes toward Romanian immigrants in Italy (Brizi, Mannetti, & Kruglanski, 2016). Immigrants, from the perspective of natives, are agents of change. People who wonder if an immigrant will “steal” their job, if their neighborhood will be filled with people who speak a strange language, or if their familiar culture will become unrecognizable, are all faced with important questions that lack certain answers (e.g., “Will I still have a job a year from now?”). Consequentially, individuals with a high NFC will be more likely to have negative attitudes toward immigrants, as they represent change that prevents them from having secure knowledge. We expect that this relationship can be at least partially explained by individuals' attitudes toward strong groups (e.g., a national culture), as these can serve as sources of stable knowledge.

The moral foundations and the link with attitudes toward immigrants

Individuals' attitudes toward groups, and toward individuals, can be conceived of within the *Moral Foundations Theory* (Haidt & Graham, 2007), or the perspective that moral attitudes are reflected by attitudes toward individuals' rights, as well as by the rights of large groups. The latter attitudes are conceived of as the *binding moral foundations* (i.e., the concern for groups and their maintenance) whereas the former attitudes are conceived of as the *individualizing moral foundations* (i.e., the concern for the rights of individuals per se, and not merely as members of a group). There is debate over the precise nature of the moral foundations (Gray & Schein, 2012; Gray, Schein, & Ward, 2014); however, they can reflect the relative importance that individuals grant toward individual and group rights (e.g., Giacomantonio, Pierro, Baldner, & Kruglanski, 2017).

There are key differences between the binding and individualizing foundations. On a perhaps more superficial level, in the United States political liberals have disproportionately higher scores on the individualizing foundations whereas conservatives have disproportionately higher scores on the binding foundations (Graham, Haidt, & Nosek, 2009). Indeed, the binding foundations are associated with policy positions that tend to be favored by political conservatives, at least in research conducted in the United States and Italy (Giacomantonio et al., 2017; Koleva, Graham, Iyer, Ditto, & Haidt, 2012).

However, the binding and individualizing moral foundations cannot be simply mapped on to Western conservative and liberal political attitudes. Although there are correlations between the moral foundations and political orientation, these correlations are not necessarily strong (Federico, Deason, & Fisher, 2012) and consequently it is not difficult to find counterexamples. As one example, conservatives who score highly on the binding foundations are unlikely to support a strong group that supports liberal political policies. Perhaps more interestingly, liberals with a high NFC can score similarly to conservatives on the binding foundations (Baldner, Pierro, Chernikova, & Kruglanski, 2018). Instead, individuals who are characterized by the binding foundations should conceptually tend to favor strong groups over the rights of individuals, including group members. They should also tend to support their group even when some individuals are harmed, providing that they perceive this group to be useful or necessary. On the other hand, individuals who are characterized by the individualizing foundations should be much less willing to make these sacrifices, and should instead tend to favor the individual over the group.

What, precisely, are these “groups” that are favored by individuals characterized by the binding foundations? In one sense they can be conceived of as cultures—the different conceptual worlds in which people live (see, Geertz, 1973, p. 24), and which includes the group specific understanding of the modes of expression that are used to interpret reality. In the terminology of Hardin and Higgins (1996), this conceptual world is reflected in individuals' “shared reality”—that is, individuals' shared understanding of their social world. Cultures, or shared realities, can take shape in innumerable forms, for instance in national cultures and those of ethnic groups, professional associations, families, etc. As immigrants come from outside these cultures, but bring with them the possibility that they will change, individuals characterized by the binding foundations should be more likely to take a dim view of immigrants and of immigration in general.

The link between epistemic certainty and the moral foundations

We propose that the binding moral foundations can not only help explain attitudes toward immigrants, but that they can also mediate the effect of need for cognitive closure. In order to understand the association between NFC and the binding foundations, it is helpful to think of these foundations in terms of knowledge acquisition. The strong groups, cultures, or shared realities that are preferred by individuals characterized by the binding foundations can, among other things, serve as knowledge providers, and should

be particularly attractive to individuals with an NFC. More specifically, if I want an answer to a question I think is important (e.g., is immigration good or bad?), I can turn to my shared reality for an answer. If I have a high NFC then I should be more likely to accept this answer (e.g., Livi et al., 2015). Ideally, this shared reality should have substantial control over the knowledge it releases, so that I can quickly select an answer without the clutter of competing answers.

Although a specific person can be characterized by both NFC and the individualizing foundations, the theoretical link between these constructs should be less strong, if it even exists. It is not that individuals cannot be knowledge sources, but that, by considering the rights of many different individuals, we open ourselves to the possibility of many different competing answers. In other words, the individualizing foundations do not serve the same goals as does the NFC. Indeed, recent research (Federico, Ekstrom, Tagar, & Williams, 2016, Tables 2–4) has found an association between NFC and the binding, but not individualizing, foundations. Although some recent research (Giacomantonio et al., 2017) has found a weak connection between the NFC and the individualizing foundations, this association was significantly weaker than the association between the NFC and the binding foundations.

The current research

Our research can be thought of as a novel combination of two lines of research—on the association between NFC and anti-immigrant attitudes (Brizi et al., 2016) and on the association between NFC and the binding foundations (Federico et al., 2016)—in order to better understand anti-immigrant attitudes. Although there are situations in which NFC leads to support of an out-group—which we will consider in the discussion—natives with a high NFC should be more likely to bind to, and support, their own culture (i.e., with fellow natives), and consequentially be more likely to disapprove of immigrants.

We thus hypothesize that NFC will be associated with negative attitudes toward immigrants and that the binding foundations will mediate the association between NFC and negative attitudes toward immigrants. We tested these hypotheses in four studies, with samples collected in both Italy (Study 1) and the United States (Studies 2–4)—two cultures in which large-scale immigration is a popular issue, using both chronic (Studies 1–3) and experimentally induced NFC (Study 4). Demographic variables were included as covariates in each study; covariates that had low significance ($p > .20$) on each leg of the mediation were removed, and the analyses re-run.

Study 1: Attitudes toward immigrants in Italy

Method

Participants

One hundred and fifty-nine Italian citizens ($M_{\text{age}} = 41.72$; $SD_{\text{age}} = 16.25$) recruited from communities in Central-South Italy took part in this study. Data was collected, via paper questionnaires, by a research assistant with personal and professional ties to these communities. This area of Italy not only receives a relatively large share of immigrants, but there is also an apparent negative economic impact potentially caused by a large proportion of immigrants who are not able to utilize their skills (Bratti & Conti, 2013). The majority of participants were women (55.3%); 57.2% were high school graduates, 31.4% were university graduates, and 11.3% were middle school graduates.

Need for cognitive closure

Participants responded to the Italian version of the Revised Need for Closure Scale (Rev NfCS, Pierro & Kruglanski, 2005). This scale is a brief 14-item self-report instrument designed to assess stable individual differences in the NFC (e.g., “Any solution to a problem is better than remaining in a state of uncertainty”). Data collected by Pierro and Kruglanski in the United States and Italy suggest that this short scale has excellent psychometric properties, showing relatively high reliability ($\alpha = .81$, in the United States; $\alpha = .79$, in Italy) and strong disattenuated correlations with the original 42-item scale ($r = .92$, in the United States; $r = .93$, in Italy). The scale has been successfully used in recent published work as well (Pierro & Kruglanski, 2008). Participants responded to the items on a 6-point Likert scale from one (“Strongly disagree”) to six (“Strongly agree”). Internal reliability was high in this sample ($\alpha = .82$).

Moral foundations

Participants responded to the Italian version (Bobbio, Nencini, & Sarrica, 2011) of the 30-item Moral Foundations Questionnaire (MFQ-30; Graham, Haidt, & Nosek, 2008). This questionnaire measures the five dimensions of morality that were proposed by Moral Foundations Theory: Harm/Care (e.g., “Compassion for those who are suffering is the most crucial virtue”), Fairness/Reciprocity (e.g., “When the government makes laws, the number one principle should be ensuring that everyone is treated fairly”), Ingroup/Loyalty (e.g., “It is more important to be a team player than to express oneself”), Respect/Authority (e.g., “Respect for authority is something all children need to learn”), and Purity/Sanctity (e.g., “I would call some acts wrong on the grounds that they are unnatural”). The Harm/Care and Fairness/Reciprocity foundations reflect *individualizing* foundations; the In-group/Loyalty, Authority/Respect, and Purity/Sanctity foundations reflect *binding* foundations.

The MFQ-30 consists of two parts. In Part 1, participants respond to fifteen items that measured the perceived relevance of different kinds of information for making moral judgments (e.g., “Whether or not someone suffered emotionally”). Participants responded to the items on a 6-point Likert scale from zero (“Not at all relevant”) to five (“Extremely relevant”). In Part 2, participants responded to an additional fifteen items that measured agreement with statements about morality (e.g., “Compassion for those who are suffering is the most crucial virtue”). Participants responded to the items on a 6-point Likert scale from zero (“Strongly disagree”) to five (“Strongly agree”). Both Parts 1 and 2 measure each of the five moral foundations; a score for the binding and individualizing

Table 1
Bivariate correlations and descriptive statistics, Study 1 (Italy) ($n = 159$).

	1	2	3	4	5	6	<i>M (SD)</i>
1. NFC	(.82)						3.52 (.81)
2. Individualizing	.13	(.64)					3.93 (.51)
3. Binding	.42**	.36**	(.77)				3.07 (.61)
4. Attitudes	.27**	-.10	.22**	(.88)			2.67 (.94)
5. Gender	-.04	.15*	-.09	-.10	–		–
6. Age	.42**	.31**	.29**	-.003	-.01	–	41.7 (16.2)
7. Education	-.22**	-.03	-.11	-.13†	.03	-.07	–

Note: Gender (Male 1; Female 0); Cronbach's alpha on diagonal.

† $p < .10$.

* $p < .05$.

** $p < .001$.

foundation can be computed by taking the mean of items across both parts. The internal reliabilities for individualizing ($\alpha = .64$) and binding foundations ($\alpha = .77$) were adequate.

Attitudes toward immigrants

Participants responded to three semantic differential scales to assess their attitudes toward immigrants. Ratings were recorded on a 5-point scale ranging from 1 (*hostile, cold, unfavorable*) to 5 (*friendly, warm, favorable*). Items were coded such that higher scores represented less favorable attitudes toward immigrants. The internal reliability of this index was adequate ($\alpha = .88$).

Results

Bivariate correlations and descriptive statistics are in Table 1.

Consistent with our hypothesis, NFC was correlated significantly and positively with the binding foundations and (negative) attitudes toward immigrants. That is, individuals who had a higher NFC were more likely to endorse binding, and less likely to hold favorable views toward immigrants. The binding foundations were likewise correlated significantly and positively with negative attitudes to immigrants; individuals who endorsed the binding foundations were less likely to hold a favorable view of immigrants. The binding and individualizing foundations were also intercorrelated.

Indirect effect of NFC through moral foundations

We then assessed the mediation of the individualizing and binding moral foundations—entered simultaneously—on the relationship between NFC and negative attitudes toward immigrants. We initially controlled for gender (dummy coded: Male = 1; Female = 0), age, and education level (higher score represents more education). However, we found that education level had little effect on either mediator or dependent variable ($ps > .35$). Consequentially, we re-ran the model without education level as a covariate. Mediation was tested through the SPSS PROCESS macro (Hayes, 2013) with 1000 bootstrapped samples. Results are summarized in Table 2 and Fig. 1.

As can be seen, the binding foundations, but not the individualizing foundations, were significantly predicted by NFC. However, both the binding and the individualizing foundations were predictive (in the opposite direction) of negative attitudes toward immigrants. Finally, in addition to a total positive effect of NFC, there was also an indirect effect of NFC on attitudes toward immigrants through the binding foundations (Effect = 0.08, $SE = 0.04$, 95% CI [0.01, 0.19]); there was not an indirect effect through the individualizing foundations (Effect = -0.0009 , $SE = 0.01$, 95% CI [-0.04 , 0.02]). The power to find a mediation effect through the binding foundations was .72 (Kenny, 2017).

Table 2
Negative immigrant attitudes regressed on NFC and moral foundations, Study 1 (Italy).

	Individualizing			Binding			Neg. Imm. Att.		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Age	0.010	0.002	< .001	0.005	0.089	.068	–0.006	0.005	.171
Gender	0.167	0.077	.031	–0.09	0.089	.312	–0.102	0.146	.486
Need for closure	0.002	0.052	.956	0.272	0.060	< .001	0.297	0.103	.004
Individualizing	–	–	–	–	–	–	–0.302	0.157	.056
Binding	–	–	–	–	–	–	0.313	0.137	.023

Gender (Male 1; Female 0).

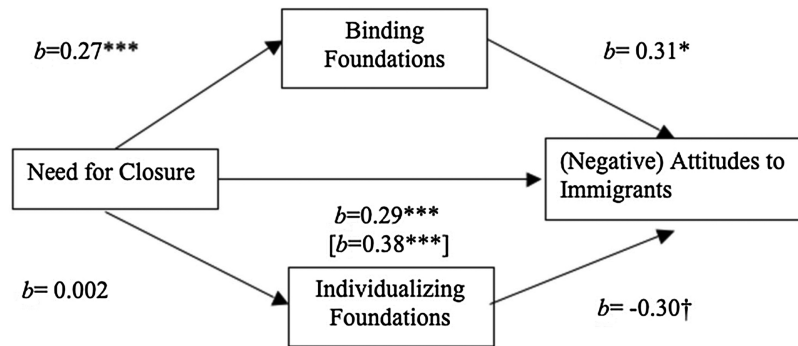


Fig. 1. The indirect effect of need for cognitive closure on negative attitudes toward immigrants, through the binding and individualizing foundations in Italy (Study 1). Gender and were controlled for. The total effect of NFC is in brackets.

† $p = .056$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Discussion

Based on this data we can preliminarily conclude that individuals with a high NFC have a less favorable attitude toward immigrants, in part because of their support for the binding foundations. However, we do not have evidence that this relationship generalizes to populations outside Italy. Additionally, political conservatives are more likely to have NFC (Jost, Glaser, Kruglanski, & Sulloway, 2003) and to support the binding foundations (Graham et al., 2009); moreover, anti-immigrant policies in Western cultures are typically associated with conservative political movements. Thus, it is possible that individuals generally report having NFC, support the binding foundations, and have negative attitudes toward immigrants as a result of their support for conservative policies. In order to respond to these limitations, we replicated our findings in a sample collected in the United States that also included a measure of political orientation.

Study 2: Attitudes toward immigrants in the United States

Method

Participants

Two hundred seventy-nine American, non-immigrant workers ($M_{\text{age}} = 36.7$; $SD_{\text{age}} = 12.6$), recruited from Amazon Mechanical Turk, took part in the study. The majority of participants identified as female (56.6%). Seventy-two point four percent identified as White, 15.8% as Asian, 6.1% as African-American, 1.8% as Hispanic/Latino, and 2.2% as “Other” or as some combination of these categories. Additionally, 5 participants (1.8%) did not indicate their ethnicity. Seventy-two point eight percent had completed at least some university, and 27.2% had completed the equivalent of High School or less. All participants resided in the United States. Since immigrants could presumably have positive attitudes toward other immigrants, we excluded immigrants from participation. In order to ascertain if participants were immigrants, we asked a yes/no question (“Do you consider yourself to be an immigrant?”) followed by two open-ended questions on their country of origin and the amount of time that they resided in the United States. Any participant who indicated that they were an immigrant was immediately disqualified and not counted amongst our sample. Thirty-two individuals were excluded for this reason and were not included in the final sample ($n = 279$). All questions regarding immigration were asked at the end of data collection.

Need for cognitive closure

Participants responded to the English version of the same 14-item measure used in Study 1. Internal reliability was high in this sample ($\alpha = .84$).

Moral foundations

Participants responded to the original English version of the same 30-item Moral Foundations Questionnaire used in Study 1. The internal reliabilities for the individualizing ($\alpha = .75$) and binding foundations ($\alpha = .90$) were adequate.

Political orientation

Participants responded to a single item (i.e., “How would you describe your political views?”) to assess their political orientation. They responded on a 7-point Likert scale from one (“Very liberal”) to seven (“Very conservative”). This item was previously used by Koleva and colleagues (Koleva et al., 2012). The average score in this sample was 3.44, $SD = 1.59$ (i.e., slightly liberal).

Attitudes toward immigrants

Participants responded to the same 3-item measure of attitudes toward immigrants used in Study 1; unlike Study 1, answers were responded to on a scale from one to seven. Higher scores represented less favorable attitudes toward immigrants. The internal reliability ($\alpha = .87$) was adequate.

Table 3
Bivariate correlations and descriptive statistics, Study 2 (United States) ($n = 279$).

	1	2	3	4	5	6	7	<i>M (SD)</i>
1. NFC	(.84)							3.49 (.73)
2. Individualizing	.08	(.75)						3.15 (.62)
3. Binding	.31**	.30**	(.90)					2.70 (.89)
4. Attitudes	.21**	-.25**	.21**	(.87)				3.11 (1.35)
5. Gender	-.10†	.07	-.05	-.07	–			–
6. Age	.07	.11*	.05	.01	.10†	–		36.7 (12.6)
7. Education	.007	-.08	-.09	-.03	-.09	.07		–
8. Political orientation	-.03	-.13*	.30**	.20**	.01	-.03	-.05	3.44 (1.59)

Note: Gender (Male 1; Female 0); Cronbach's alpha on diagonal.

† $p < .10$.

* $p < .05$.

** $p < .001$.

Results

Bivariate correlations and descriptive statistics are in Table 3.

NFC was positively correlated with the binding foundations and with (negative) attitudes toward immigrants. As with the results from Study 1, negative attitudes toward immigrants was positively associated with the binding foundations. On the other hand, the individualizing foundations were negatively correlated with these attitudes (i.e., it was related to positive attitudes toward immigrants). Political orientation was negatively correlated with the individualizing foundations and positively with attitudes toward immigrants and with the binding foundations. That is, conservatives were more likely to endorse the binding foundations, less likely to endorse the individualizing foundations, and tended to have more unfavorable attitudes toward immigrants.

Indirect effect of NFC through individualizing and binding moral foundations

As in Study 1, we then assessed the mediation of the individualizing and binding moral foundations on the relationship between NFC and attitudes toward immigrants. We initially controlled for gender (dummy coded: Male = 1; Female = 0), age, political orientation, and education level. However, we found that gender had little effect on either mediator or dependent variable ($ps > .31$). Consequentially, we re-ran the model without gender as a covariate. Mediation was tested through the SPSS PROCESS macro (Hayes, 2013) with 1000 bootstrapped samples. Results are presented in Table 4 and Fig. 2.

As can be seen, the binding foundations, but not the individualizing foundations were significantly predicted by NFC. However, both the binding and the individualizing foundations were predictive (in the opposite direction) of negative attitudes toward immigrants. Finally, in addition to a total positive effect of NFC, there was also an indirect effect of NFC on attitudes toward immigrants through the binding foundations (Effect = 0.13, $SE = 0.04$, 95% CI [0.05, 0.25]); the indirect effect through the individualizing foundations was not significant (Effect = -0.04, $SE = 0.03$, 95% CI [-0.12, 0.02]). The power to find a mediation effect through the binding foundations was .97 (Kenny, 2017).

Discussion

From our results of Studies 1 and 2 we can conclude with more strength that there is an indirect effect of NFC through binding on attitudes toward immigrants. Moreover, we also have no evidence that our results are merely due to our participants' political orientations. However, our dependent variable was *general* attitudes toward immigrants. There are two potential issues with this approach. First, *general* and *economic* attitudes toward immigrants are not necessarily strongly related. It is possible that natives could favor individual immigrants, or even immigrants as a collective group, while still having an unfavorable toward their economic impact, which could personally and directly effect natives. Second, our general measure did not specify whether immigrants had a

Table 4
Negative immigrant attitudes regressed on NFC and moral foundations, Study 2 (United States).

	Individualizing			Binding			Neg. Imm. Att.		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Age	0.005	0.002	.050	0.003	0.003	.374	0.003	0.005	.531
Education	-0.056	0.033	.097	-0.067	0.044	.128	-0.043	0.068	.529
Politics	-0.053	0.023	.021	0.172	0.030	< .001	0.077	0.050	.130
Need for closure	0.060	0.050	.230	0.384	0.065	< .001	0.308	0.106	.004
Individualizing	–	–	–	–	–	–	-0.727	0.129	< .001
Binding	–	–	–	–	–	–	0.358	0.099	< .001

Gender (Male 0; Female 1).

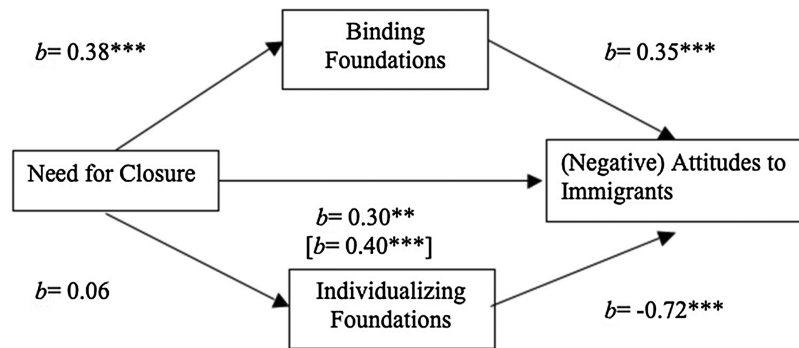


Fig. 2. The indirect effect of need for cognitive closure on negative attitudes toward immigrants, through the binding and individualizing foundations in the U.S. (Study 2). Age, education, and political orientation were controlled for. The total effect of NFC is in brackets.

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

legal or illegal origin. Immigration of a specifically illegal origin can be a very salient political topic, as seen, for instance, by President Trump's proposals from 2016 to 2019 to build a wall between the United States and Mexico (Cohn, 2019). However, we do not expect that there will be a difference between attitudes toward legal and illegal immigrants: if immigrants threaten the native culture, it is doubtful that immigrants' legal status will be important to natives. However, and consistent with Koleva and colleagues (2012), we collected a third sample in which we assessed participants' attitudes toward immigrants' economic impact.

Study 3: Attitudes toward immigrants' economic impact in the United States

Method

Participants

One hundred forty-eight American, non-immigrant workers ($M_{age} = 36.9$; $SD_{age} = 13.3$), recruited from Amazon Mechanical Turk, took part in the study. The majority of participants identified as female (58.1%). Seventy-eight point four percent identified as White, 10.1% as African-American, 5.4% as Hispanic/Latino, 2.7% as Asian, and 2.7% as "Other" or as some combination of these categories. Seventy-three percent had completed at least some university, and 27% had only completed the equivalent of High School or less. All participants resided in the United States. Since immigrants could presumably have positive attitudes toward other immigrants, as in Study 2 all participants who identified as immigrants were disqualified. Eight individuals were excluded for this reason and were not included in the final sample ($n = 148$). All questions regarding immigration were asked at the end of data collection.

Need for cognitive closure

Participants responded to the same scale as was used in Study 2. Internal reliability was high in this sample ($\alpha = .85$).

Moral foundations

Participants responded to the same 30-item Moral Foundations Questionnaire used in Study 2. The internal reliabilities for the individualizing ($\alpha = .79$) and binding foundations ($\alpha = .91$) were high.

Political orientation

Participants responded to the same single item as was used in Study 2. The average score in this sample was 3.57, $SD = 1.89$ (i.e., slightly liberal).

Attitudes toward immigrants (economic)

In order to assess *economic* attitudes toward immigrants, participants also responded to a single item on the perception of how illegal immigrants effect the economy. Participants chose the statement that best reflected their views: "Illegal immigrants do more to weaken the US economy overall because they do not all pay taxes but can use public services" (Coded 1) and "Illegal immigrants do more to strengthen the US economy overall because they provide low-cost labor and they spend money (Coded 0). Higher scores thus reflected less favorable attitudes toward illegal immigrants. This item was previously used by Koleva and colleagues (2012).

Results

Bivariate correlations and descriptive statistics are in Table 5.

Consistent with our hypothesis, and with our results from previous two studies, need for cognitive closure was positively correlated with the binding foundations and with negative economic attitudes toward immigrants. Consistent with our previous results,

Table 5Bivariate correlations and descriptive statistics, Study 3 (United States) ($n = 148$).

	1	2	3	4	5	6	7	<i>M (SD)</i>
1. NFC	(.85)							3.41 (.82)
2. Individualizing	-.006	(.79)						3.25 (.68)
3. Binding	.42**	.16*	(.91)					2.65 (.98)
4. Economic attitudes	.18*	-.07	.48**	–				.47 (.50)
5. Gender	.02	.33**	.12	.05	–			–
6. Age	.04	.25**	.21*	.24**	.12	–		36.9 (13.3)
7. Education	-.06	-.06	-.06	.07	-.04	.11	–	–
8. Political orientation	.33**	-.10	.62**	.59**	.05	.13	-.01	3.57 (1.89)

Note: Gender (Male 1; Female 0); Cronbach's alpha on diagonal.

[†] $p < .10$.

* $p < .05$.

** $p < .001$.

negative economic attitudes toward immigrants were positively associated with the binding foundations. In addition, political orientation was positively correlated with negative economic attitudes toward immigrants and with the binding foundations.

Indirect effect of NFC through moral foundations

As in Studies 1 and 2, we assessed the mediation of the individualizing and binding moral foundations—entered simultaneously—on the relationship between NFC and (economic) negative attitudes toward immigrants. We initially controlled for gender (dummy coded: Male = 1; Female = 0), age, political orientation, and education level. However, we found that education level had little effect on either mediator or dependent variable ($ps > .29$). Consequentially, we re-ran the model without education level as a covariate. Mediation was tested through the SPSS PROCESS macro (Hayes, 2013) with 1000 bootstrapped samples. As the dependent variable was binary, logistic regression was used within the PROCESS macro. Results are presented in Table 6 and Fig. 3.

As can be seen, the binding foundations, but not the individualizing foundations, were significantly predicted by NFC. However, both the binding and the individualizing foundations were at least marginally predictive (in the opposite direction) of negative attitudes toward immigrants. Finally, there was also an indirect effect of NFC on attitudes toward immigrants through the binding foundations (Effect = 0.27, $SE = 0.15$, 95% CI [0.007, 0.62]); there was not an indirect effect through the individualizing foundations (Effect = -0.01, $SE = 0.06$, 95% CI [-0.17, 0.07]). The power to find a mediation effect through the binding foundations was .64 (Kenny, 2017). Surprisingly, the total and direct effects of NFC were negative, albeit nonsignificant, even though the correlation was positive. We partially replicated this nonsignificant effect when we assessed the partial correlation, controlling for political orientation and the binding foundations ($r = -.08$, $p = .32$). It is possible that this strange result was due to a suppression effect.

Discussion

Although, unlike Studies 1 and 2, we did not find a direct effect of NFC, these results support our previous findings that (1) there is an indirect effect of NFC on negative attitudes toward immigrants through the binding, but not the individualizing, foundations (Studies 1 and 2), and (2) that this is not merely due to participants' political orientation (Study 2). However, this study went beyond the results of our previous studies by assessing attitudes toward illegal immigrants' negative (or positive) impact on the economy. However, each of these studies assessed dispositional NFC, and we would have more confidence in our results if we had experimental evidence of this relationship. We therefore collected a fourth sample in which participants reacted to an experimental manipulation of NFC.

Table 6

Negative immigrant attitudes regressed on NFC and moral foundations, Study 3 (United States).

	Individualizing			Binding			Neg. Imm. Att. (Eco.)			
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	O.R.	<i>p</i>
Age	0.012	0.003	.002	0.009	0.004	.052	0.039	0.017	1.040	.025
Gender	0.428	0.105	< .001	0.149	0.123	.227	0.134	0.475	1.144	.777
Politics	-.060	0.029	.041	0.269	0.034	< .001	0.641	0.160	1.899	< .001
Need for closure	0.026	0.060	.694	0.298	0.078	< .001	-.022	0.336	0.800	.507
Individualizing	–	–	–	–	–	–	-.0731	0.390	0.481	.061
Binding	–	–	–	–	–	–	0.914	0.360	2.496	.011

Gender (Male 0; Female 1).

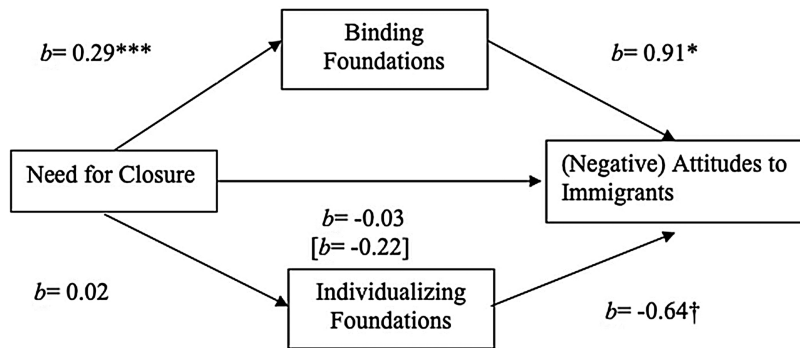


Fig. 3. The indirect effect of need for cognitive closure on negative economic attitudes toward immigrants, through the binding and individualizing foundations in the U.S. (Study 3). Age, gender, and political orientation were controlled for. The total effect of NFC is in brackets.

† $p = .061$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Study 4: Attitudes toward immigrants with experimentally induced need for cognitive closure

In order to experimentally assess the relationships we found in Studies 1–3, we presented participants with a manipulation of NFC, and then measured attitudes toward binding and immigrants. As with Study 3, we included a measure of participants' attitudes toward immigrants' economic impact, however we also used the general measure of attitudes toward immigrants that was used in Studies 1 and 2.

Method

Participants

One hundred thirteen workers ($M_{\text{age}} = 38.7$; $SD_{\text{age}} = 12.9$) recruited from Amazon Mechanical Turk took part in the study (the initial sample consisted of 120 participants, 7 of which however were excluded, as reported below, for failing to respond appropriately to instructions designated to experimentally induce need for closure). Participants were approximately evenly distributed across gender (51.3% women). Eighty-four point one percent identified as White, 6.2% as African-American, 3.5% as Asian-American, 2.7% as Hispanic/Latino, and 3.5% identified as "Other" or as some combination of these categories. Eighty-one point four percent had completed at least some university, and 18.6% had only completed High School (or an equivalent). All participants resided in the United States, and none were current university students. As in Studies 2 and 3, all participants who identified as immigrants were disqualified. Six individuals were excluded for this reason and were not included in the final sample ($n = 113$). All questions regarding immigration were asked at the end of data collection.

Need for cognitive closure

Participants were randomly assigned to either the high ($n = 57$) or low ($n = 56$) NFC groups. In both groups, participants were shown three prompts that should induce either a high or low need for closure. These prompts were based on items from the NFC scale (Webster & Kruglanski, 1994).

In the high NFC group, participants were prompted with "Think back to a time in which you felt uncomfortable because you didn't understand the reason why an event occurred in your life"; "Think back to a time in which you quickly became impatient and irritated when you did not find a solution to a problem immediately"; and "Think back to a time in which you felt irritated when one person disagreed with what everyone else in a group believed."

In the low NFC group, participants were prompted with "Think back to a time in which, even after you made up your mind about something, you were eager to consider a different opinion"; "Think back to a time in which, when thinking about a problem, you considered as many different options on the issues as possible"; and "Think back to a time in which you disliked the routine aspects of your work or studies."

For each of the situations mentioned, participants were asked to write about these memories. As reported above, seven participants who did not respond appropriately to the prompts (e.g., responding "bbbb") were removed before analysis. Participants also responded to the same NFC scale used in Studies 2 and 3, as a manipulation check. The internal reliability was good ($\alpha = .86$). Participants in high condition had an average score of 2.56, and participants in the low condition had an average score of 2.06; this difference was significant ($F(1,111) = 12.38$; $p = .001$); this effect remained even after controlling for political orientation. This manipulation check was presented to participants after they had completed all other measures.

Moral foundations

Participants responded to the same scale as in Studies 2 and 3. The internal reliabilities for the individualizing ($\alpha = .82$) and binding foundations ($\alpha = .93$) were good.

Table 7Bivariate correlations and descriptive statistics, Study 4 (United States) ($n = 113$).

	1	2	3	4	5	6	7	8	9	<i>M (SD)</i>
1. NFC (Check)	(.86)									3.31 (.79)
2. NFC (Cond.)	.31 [†]	–								–
3. Individualizing	–.001	–.04	(.82)							3.24 (.74)
4. Binding	.35 ^{**}	.24 ^{**}	.23 [†]	(.93)						2.64 (1.04)
5. Economic attitudes	.26 ^{**}	.15	–.17 [†]	.47 ^{**}	–					.45 (.50)
6. General attitudes	.21 [*]	.18 [*]	–.42 ^{**}	.29 ^{**}	.48 ^{**}	(.90)				2.84 (1.46)
7. Gender	.01	–.009	.12	.11	.10	–.06	–			–
8. Age	–.18 [†]	–.002	.18 [†]	.20 [†]	.02	–.09	.27 ^{**}	–		38.7 (12.9)
9. Education	–.05	.14	–.13	.03	.05	–.03	.01	.22 [*]	–	–
10. Political orientation	.24 ^{**}	.09	–.17 [†]	.52 ^{**}	.63 ^{**}	.52 ^{**}	.10	.008	–.03	3.42 (1.89)

Note: Gender (Male 1; Female 0); NFC (Low 0; High 1); Cronbach's alpha on diagonal.

[†] $p < .10$.

^{*} $p < .05$.

^{**} $p < .001$.

Political orientation

Participants responded to the same item as in Studies 2 and 3. The average score in this sample was 3.42, $SD = 1.89$ (i.e., slightly liberal).

Attitudes toward immigrants (general)

Participants responded to the same measure of attitudes toward immigrants as used in Studies 1 and 2. Higher scores represented less favorable attitudes toward immigrants. Internal reliability was excellent ($\alpha = .90$).

Attitudes toward immigrants (economic)

Participants responded to the same measure of attitudes toward immigrants as used in Study 3.

Results

Bivariate correlations and descriptive statistics are in Table 7.

Consistent with our hypothesis, and with our previous results, NFC condition was significantly associated with increased binding and negative general attitudes toward immigrants, and somewhat associated with negative economic attitudes toward immigrants. Additionally, negative attitudes toward immigrants—both general and economic—was at least marginally negatively associated with the individualizing foundations but positively with the binding foundations. Political orientation was also at least marginally correlated with both foundations and with both general and economic attitudes toward immigrants; conservatives tended to have more negative attitudes toward immigrants, and to have high endorsement of the binding foundations but a low endorsement of individualizing foundations. We were also interested in the relationships between the binding foundations and the two measures of attitudes toward immigrants; the correlation with economic attitudes ($r = .47$, $p < .001$) appeared to be much stronger than the correlation with general attitudes ($r = .29$, $p < .01$). Given the correlation between the two attitude measures ($r = .48$, $p < .001$), the significance of this difference was confirmed: $z = 2.06$, $p = .03$ (Steiger, 1980).

Indirect effect of NFC through moral foundation

Consistent with our previous studies, we assessed the mediation of the individualizing and binding foundations on the relationship between manipulated NFC (Low NFC coded 0; High NFC coded 1) and both *general* and *economic* attitudes toward immigrants (one mediation model for each type of attitudes). We initially controlled for gender (dummy coded: Male = 1; Female = 0), age, political orientation, and education level. However, we found that gender had little effect on either mediator or dependent variable (General Attitudes: $ps > .27$; Economic Attitudes: $ps > .33$). Consequentially, we re-ran the model without gender as a covariate. Mediation was tested through the SPSS PROCESS macro (Hayes, 2013) with 1000 bootstrapped samples. Results are presented in Table 8 and Fig. 4.² As with Study 3, the effects on economic attitudes were analyzed with logistic regression.

Regarding the general attitudes toward immigrants, consistent with previous studies' results, the binding foundations, but not the individualizing foundations, were significantly predicted by NFC. Further, both the binding and the individualizing foundations were predictive (in the opposite direction) of attitudes toward immigrants. Moreover, there was an indirect effect of NFC on general attitudes toward immigrants through the binding foundations (Effect = 0.05, $SE = 0.03$, 95% CI [0.008, 0.17]), but not through the individualizing foundations (Effect = 0.002, $SE = 0.05$, 95% CI [–0.11, 0.10]). The power to find a mediation effect on general attitudes through the binding foundations was .55 (Kenny, 2017).

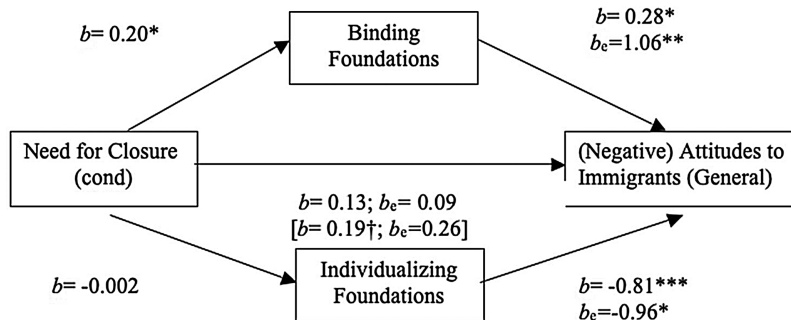
² We obtained the same results for both general and economic attitudes when we used the scores of the need for closure manipulation check (i.e., the NFC measure used in Studies 1–3).

Table 8

Negative immigrant attitudes regressed on NFC and moral foundations, Study 4 (United States).

	Individualizing			Binding			Neg. Imm. Att. (Gen.)			Neg. Imm. Att. (Eco.)			
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	O.R.	<i>p</i>
Age	0.012	0.005	.019	0.016	0.006	.011	−0.005	0.008	.515	−0.005	0.020	1.001	.781
Education	−0.133	0.067	.050	−0.018	0.080	.818	−0.122	0.107	.258	0.216	0.271	1.256	.795
Politics	−0.070	0.036	.053	0.279	0.043	< .001	0.260	0.071	< .001	0.752	0.191	2.148	< .001
NFC (cond).	−0.002	0.068	.967	0.204	0.082	.014	0.138	0.111	.214	0.099	0.270	1.454	.712
Individualizing	–	–	–	–	–	–	−0.811	0.162	< .001	−0.966	0.468	0.398	.039
Binding	–	–	–	–	–	–	0.287	0.136	.037	1.068	0.403	2.625	.008

Gender (Male 0; Female 1); NFC (Low 0; High 1).

**Fig. 4.** The indirect effect of experimentally manipulated need for cognitive closure on *general* negative attitudes toward immigrants, through the binding and individualizing foundations in the U.S. (Study 4). The coefficients for economic attitudes are labeled with the subscript _e. Age, education, and political orientation were controlled for. The total effect of NFC is in brackets.†*p* = .096; **p* < .05; ***p* < .01; ****p* < .001.

Regarding the *economic* attitudes toward immigrants, both the binding and the individualizing foundations were predictive (in the opposite direction) of economic attitudes toward immigrants. Moreover, there was an indirect effect of NFC on economic attitudes toward immigrants through the binding foundations (Effect = 0.21, *SE* = 0.14, 95% CI [0.03, 0.59]), but not through the individualizing foundations (Effect = 0.002, *SE* = 0.08, 95% CI [−0.20, 0.15]). The power to find a mediation effect on general attitudes through the binding foundations was .60 (Kenny, 2017).

Discussion

From these results we can conclude that there is strong evidence that NFC is indirectly predictive of negative attitudes toward immigrants—both general favorability and with regards to their economic impact. In addition, we have yet more evidence that these attitudes are not merely due to participants' political orientation. Interestingly, both the correlation between the binding foundations and *economic* attitudes, as well as the indirect effect of NFC on economic attitudes, appears to be much stronger than the respective relationships with *general* attitudes. This could suggest that immigrants' economic impact is perceived by natives as a particularly strong threat.

Combined sample analyses

Given our large sample size (*n* = 699) and relatively low power in each individual study, we then tested our hypotheses in the combined sample. This allowed us to increase our power, as well as to test the effect of nationality: Study 1 was collected in Italy whereas Studies 2–4 were collected in the United States. As only Study 4 used an experimental manipulation of NFC, we used the manipulation check as an NFC measure. As in Studies 1–4, mediation was assessed with PROCESS and with 1000 bootstrap samples, and all variables were standardized. We will briefly summarize these results.

We first assessed the indirect NFC on general attitudes toward the moral foundations in Studies 1, 2, and 4 (*n* = 551); this allowed us to control for nationality in a more powerful analysis. As political orientation was not included in Study 1, we could not include it as a covariate in this analysis. Age, education, and nationality were included as covariates; gender had a very weak effect on both mediators and the dependent variable in a preliminary analysis and was not ultimately included as a covariate. NFC positively predicted the binding foundations and negative attitudes, but not the individualizing foundations; negative attitudes were positively predicted by the binding foundations and negatively by the individualizing foundations. Ultimately, there was an indirect effect of NFC through the binding foundations (Effect = 0.08, *SE* = 0.01, 95% CI [0.05, 0.13]), but not through the individualizing

foundations (Effect = -0.02 , $SE = 0.01$, 95% CI [-0.05 , 0.009]). There was no effect for nationality in any step. The power to find a mediation effect through the binding foundations was .99 (Kenny, 2017).

We then assessed the indirect effect of NFC on general attitudes in Studies 2 and 4; this allowed us to control for the effect of political orientation with a more powerful analysis. Age, education, and political orientation were included as covariates; gender had a weak effect on both mediators and the dependent variable in a preliminary analysis and was not ultimately included as a covariate. The overall pattern of results was identical to those of the previous analysis; consequentially, there was an indirect effect of NFC through the binding foundations (Effect = 0.06 , $SE = 0.01$, 95% CI [0.03 , 0.11]), but not through the individualizing foundations (Effect = -0.02 , $SE = 0.01$, 95% CI [-0.07 , 0.007]). The power to find a mediation effect through the binding foundations was .99 (Kenny, 2017).

Finally, we then assessed the indirect effect of NFC on economic attitudes in Studies 3 and 4 in a more powerful analysis, controlling for age, gender, education, and political orientation. NFC predicted the binding but not the individualizing foundations and, although NFC did not predict attitudes toward immigrants, there were significant effects, in the expected directions, on attitudes for both the binding and individualizing foundations. There was an indirect effect of NFC only through the binding foundations (Effect = 0.38 , $SE = 0.15$, 95% CI [0.11 , 0.71]). The power to find a mediation effect through the binding foundations was .92 (Kenny, 2017).

Discussion

From these results we have more confidence in our results, particularly given the low power in Studies 1–4. However, the combined analysis on general attitudes toward immigrants of Studies 1, 2, and 4 also allowed us to test for differences across the United States and Italy. Although we considered it a strength that we collected data in both nations, this strength also brought the possibility that our results would vary across nations. However, we observed that our model functions in essentially the same way in both nations. Of course, these conclusions should be somewhat tempered given the low internal reliability, particularly of the two individualizing foundations. Our results also could have been stronger had we used an experimental manipulation for both NFC and the moral foundations. Without this design it is not possible to determine if moral foundations mediates the effect on attitudes, or if instead attitudes mediate the effect on the moral foundations. Although past research has primed the five separate moral foundations (e.g., Day, Fiske, Downing, & Trail, 2014), these have not been extensively tested and, to our knowledge, there is not yet a method to experimentally manipulate the aggregate individualizing and binding foundations.

General discussion

Research on why people dislike immigrants has recently begun to assess the effect of individuals' need for cognitive closure—or their desire for secure beliefs—on individuals' aversion to change in their established environments, including changes brought on by immigration. To advance this literature, we can suggest that individuals who desire secure knowledge could fear the effects of immigration as it can be an agent of change that can upset the cultures, or shared realities, that maintain epistemic certainty. Consequentially, they could dislike immigrants regardless of their legal or illegal origin. These individuals do not need to be unaware that the process of immigration can be very taxing, and could even like individual immigrants. However, they are more likely to care more about the needs of their culture than about these outsiders. This effect held even after controlling for our participants' political orientations: even though liberals (vs. conservatives) tend to have relatively favorable attitudes toward immigrants, liberals with a high NFC were also more likely to endorse binding and negative attitudes toward immigrants.

With regard to the individualizing foundations, there was a significant relationship between these foundations and positive attitudes toward immigrants. This general pattern of results is consistent with what we know about the individualizing foundations: they are constituted by concerns with care and fairness for the individual. It is likely that individuals high in these foundations tend to care for immigrants as individuals, and are less likely to see them merely as representatives of their group, although this precise claim has yet to be tested. Although some past research (e.g., Giacomantonio et al., 2017) has found a very weak, albeit significant, association between NFC and these foundations, it is unlikely that a strong and stable relation exists, as the individualizing foundations and NFC are useful for very different goals.

Of course, there could be other mediators of the relationship between NFC and anti-immigrant attitudes besides the binding foundations. However, if these mediators are to be consistent with NFC, as the desire for epistemic certainty, then they should also in some way reflect attitudes toward new knowledge. Researchers who study NFC should keep in mind that it is an epistemic motivation. Although it can be associated with diverse phenomena, the conceptual explanation for these associations should be explained in terms of how it affects either their existing knowledge (when high NFC individuals are in the freezing phase) or how it can help them arrive at desired knowledge (when they are in the seizing phase).

Future directions and limitations

We can suggest some interesting future research based on our model. For instance, we found our results in samples collected in both Italy and the United States—two countries where immigration is likely a feature of natives' shared reality. It is possible that our model has a stronger effect in places where large-scale immigration is common. In such places immigrants could be more likely to be perceived as a threat to the culture, but this might not be the case in places where immigration is on a smaller scale, or where it is perceived as a positive force (e.g., immigration from relatively advantaged countries).

There are four limitations that should be explored in future research. First, our results would be stronger if we had manipulated both NFC and the moral foundations. In order for this research to proceed, there first needs to be more research on experimental manipulations of the moral foundations. Second, although we controlled for the effects of nationality in the combined sample analyses, it is possible that the effects of NFC would be stronger amongst individuals who more strongly identify with cultures who are perceived to be under threat by immigration. Third, we made the argument that the anti-immigrant attitudes of individuals with a high NFC are ultimately rooted in the dislike of change/preference for homogeneity. This argument is consistent with the NFC literature, however we did not explicitly test the role of change. Future research can do this, perhaps by assessing the roles of NFC and the binding foundations on anti-immigrant attitudes amongst individuals who have either experienced or not experienced major changes due to immigration. Fourth, our measure of economic attitudes had only two points. Although this allowed us to present easily interpretable results and was used in previous research, ideally attitude scales should have several response choices. In addition, as was pointed out by an anonymous reviewer, both options (immigrants use resources vs. immigrants provide low-cost labor) can be interpreted as negative; although our positive option was perhaps less negative, it is still based on the exploitation of cheap labor.

The (potential) positive side of NFC

Although these results paint a dire picture for NFC, it is possible that it could also lead to positive attitudes toward immigrants. In the introduction, we mentioned that there are situations in which high NFC individuals could be in favor of outgroup members. Echterhoff, Kopietz, & Higgins (2017) found that, although individuals usually form a shared reality with their own in-group, that they could form a shared reality with members of an outgroup when they are perceived to be epistemic authorities. In a similar vein, Kruglanski and colleagues (2006) argued that individuals with a need for cognitive closure are likely to adopt new viewpoints when there is a change in their shared reality. Although natives in both Italy and the United States (and in many other cultures) have readily-available shared realities that reflect poorly on immigrants (e.g., they are lazy, they “steal” jobs, they are criminals), these shared realities are not set in stone. The fascinating possibility is that, if natives were to adopt a shared reality in which immigrants were agents of positive change, then need for closure and binding could work in favor of immigrants. Although it is possible that these individuals will reject shared realities that disagree with their established attitudes, future research should investigate the effect of shifting shared realities.

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