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Conditional Love: Threat and Attitudinal Perceptions of Immigrants Depend on Their Instrumentality to Locals' Basic Psychological Needs

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Abstract

Although threat perceptions are commonly used to explain attitudes toward immigrants, the psychological factors underlying threat are surprisingly understudied. Drawing from goal pursuit and self-determination theory, we examined the perceived instrumentality of immigrants as an antecedent of locals' threat and attitudinal perceptions. Through four studies (N = 1,372) with different configurations of local population segments and target immigrant groups, we investigated the impact of immigrants' instrumentality in terms of hindrances to locals' autonomy, belonging, and competence needs. Including hindrances to our proposed model of threats and attitudes led to an improvement in the overall fit with the data, allowed for a better specification of the threats-to-attitudes pathways, and elucidated the complexity and downstream consequences (endorsement of pro-immigration policies) of attitudes. The present findings underscore the utility of goal-driven approaches to studying intergroup conflicts, and implications for understanding and improving locals' attitudes toward immigrants are discussed.

Keywords

realistic and symbolic threats, attitudes toward immigrants, goals and instrumentality, self-determination theory, basic psychological needs

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> "History in its broadest aspect is a record of man's migrations from one environment to another."
>
> —Ellsworth Huntington

As globalization, employment opportunities, population imbalances, and war shuttle the entrepreneurial and the unfortunate alike to all corners of the world (Faist, 2000), the unavoidability of immigration raises the need for a better understanding of anti-immigrant sentiments (Quillian, 1995; Wilkinson & Bingham, 2016). Although intergroup threats are a widely accepted cause of negative attitudes toward immigrants (Stephan & Stephan, 1996), threat-based models are often vague about the psychological basis of threat perceptions (Riek et al., 2006). To address this gap, the current research examined the *instrumentality* of immigrants as an important yet overlooked antecedent of threat and attitudinal perceptions. Drawing from goal pursuit and self-determination theory (SDT), we argue that threat perceptions vary as a function of immigrants' perceived capacity to hinder the satisfaction of locals' psychological needs for autonomy, belonging, and competence (Ryan & Deci, 2002). In so doing, we contribute a psychologically grounded approach to understand how threat perceptions and attitudes toward immigrants arise.

Perceived Threats as Predictors of Attitudes

Researchers have studied attitudes toward immigrants using diverse approaches. Some have implicated individual difference factors such as openness to experience (Flynn, 2005) or having schemas of the social world as dangerous or competitive (Perry et al., 2013), while others emphasize situational factors such as political powerlessness (Wilkinson & Bingham, 2016) and lack of contact with immigrants (Crisp & Turner, 2009). Among these perspectives, perceived threat has emerged as one of the most popular explanations for

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intergroup attitudes (Stephan & Stephan, 1996). Threat-based accounts argue that because immigrants as outgroup individuals are potentially harmful, negative attitudes serve a self-protective function by making people wary about such threats and increase their readiness to engage in defensive responses (Fischer et al., 2018).

Early theories emphasized tangible, *realistic* threat as a cause of prejudice and hostility. Such threats are derived from direct harms to well-being that may arise from contact or interactions with outgroup individuals, such as fear that a particular immigrant group may behave maliciously and compromise safety (Wildschut et al., 2004) or that scarce resources such as education or job opportunities will be lost to competitive foreigners (Esses et al., 2001). Indeed, studies show that citizens view immigrants more negatively as economic conditions worsen and resources become limited (McLaren, 2003; Quillian, 1995). Likewise, when Canadian and American participants were led to believe that immigrants threatened to steal their jobs, their attitudes toward immigrants turned hostile (Esses et al., 2001).

Further research observed that people may feel threatened even when tangible resources or direct harms are not at stake. The experience of threat, and subsequently the formation of negative attitudes, can occur when immigrants are perceived as conflicting with and thus violating of locals' values or beliefs (Esses et al., 1993). For instance, locals can feel negative toward foreigners who disregard local customs because such behaviors may erode the fundamental values of the local culture. Such threats to abstract group values are termed *symbolic*. Consistent with this view, when American Whites perceived Blacks' values as against theirs, they evaluated Blacks more negatively (Biernat et al., 1996). Similarly, Chileans' negativity toward outgroups grew as a function of the perceived gap between ingroup and outgroup values (Dunbar et al., 2000).

Integrated threat theory (ITT) unifies these two forms of threats to argue that negative attitudes can arise from realistic harms and competition, violation of symbolic values, or both (Esses et al., 1993; Stephan & Stephan, 1996). In turn, negative attitudes prompt behaviors to counteract the potential harms wrought by outgroup individuals (Fischer et al., 2018). ITT has intuitive appeal and explanatory utility as it can address the emergence of negative attitudes with a range of threat-based factors. Despite its popularity, some shortcomings exist. Because symbolic threats can explain negative attitudes when tangible harms are absent, they can become a convenient catch-all account for negative attitudes not readily explained by realistic threats. Due to such *post hoc* adjustments to the conceptual model of ITT, "research on intergroup threat was somewhat disparate" and disjointed (Riek et al., 2006; p. 340). For example, negative stereotypes were once conceptualized as a threat in some models of ITT (Stephan & Stephan, 1996), but later research found that negative stereotyping served better as an antecedent of realistic and symbolic threats rather than as a threat itself (Stephan et al., 2002). These issues suggest that more rigor is needed to better specify the factors that drive threats and attitudes (Stephan et al., 2008).

Although studies have tried to address these gaps by considering antecedents like ingroup identification (Esses et al., 2001) and status inequalities (Morrison et al., 2009), the psychological basis of threat perceptions continues to be vague as "the precise underlying reasons for why ethnic and civic representations differently affect attitudes toward immigrants remain rather general in current theoretical discussions" (Verkuyten, 2018, p. 227). For example, although status inequality has been suggested to precede intergroup threat (Morrison et al., 2009), how such status disparities translate into concerns about the harmfulness of immigrants remains poorly specified. Moreover, studies that introduce new constructs without due understanding of their fundamental processes risk contributing to the problem of construct proliferation when they offer little incremental utility over extant constructs that already robustly predict threats and attitudes (cf. Smillie et al., 2018). Hence, to delineate the psychological antecedents of threat and enhance ITT as a predictive model, we draw from a growing body of research that regards instrumentality as an important basis of social perception.

Goal Pursuit and Instrumentality

While the ITT literature does not explicitly mention instrumentality, its threat-based account of attitudes is consistent with a goal pursuit view of instrumentality and attitude formation. People's evaluations of objects in the social environment have long been linked to how they conditionally support or impede goal pursuit (Lewin, 1935). Specifically, individuals deemed instrumental to our goals (e.g., needs, objectives; Orehek & Weaverling, 2017) will be evaluated positively, whereas those perceived as obstructing are evaluated negatively. Such attitudinal shifts play an important functional role in motivating people to approach individuals who offer benefits and avoid those who do not. Consistent with this perspective, people with the goal of maintaining an active lifestyle evaluated positively those who endorsed (and thus were more instrumental for) having active lifestyles and drew closer to them (Fitzsimons & Shah, 2008). Similarly, students who were motivated to do well in school held more favorable views toward peers who could help them academically (Fitzsimons & Fishbach, 2010). Conversely, people evaluated social targets more negatively when they were seen as unsupportive or hindering (Fischer et al., 2018), and the perceived thwarting of important goals has been shown to be a basis of anxiety and feelings of threat (Lewthwaite, 1990).

Accordingly, we submit that threats and negative attitudes emerge against immigrant outgroups when locals view them as a hindrance to their goals or needs. This conceptualization is important and viable for two reasons. First, it follows from research that has utilized instrumentality-based arguments in

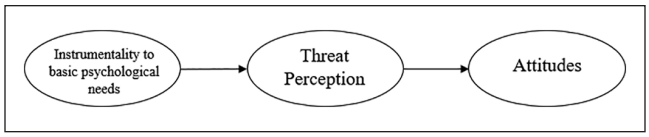


Figure 1. Instrumentality as a novel antecedent to the threats-to-attitudes process.

intergroup contexts. For instance, Kauff and Wagner (2012) demonstrated that people who appreciate social diversity were less discriminatory toward immigrants because the presence of outgroup individuals reaffirmed what they valued. Similarly, intergroup perceptions were found to improve when groups regarded each other as complementary in their strivings (Esses et al., 2001). Second, with the goal-driven approach, the psychological process underlying threat perception can be outlined more precisely by specifying the prominent goal contexts that are relevant to how locals perceive immigrants.

Basic Psychological Needs as Fundamental Goals

What sort of goals could immigrants hinder, leading to heightened feelings of threat and negativity? According to SDT, humans strive to satisfy three fundamental psychological needs: autonomy, belonging, and competence (Ryan & Deci, 2002). *Autonomy* relates to making choices according to one's free will; *belonging* relates to feeling connected to others; and *competence* relates to effectiveness and mastery. SDT contends that people achieve an optimal state of being when these basic needs are met. While SDT has been increasingly utilized to understand intergroup phenomena such as dehumanization and violence (Moller & Deci, 2010), the regulation of prejudice (Legault et al., 2007), and the role of autonomy in social tolerance (Legault & Amiot, 2014), our study pursues a novel direction by assessing the three needs simultaneously as a basis for symbolic and realistic threats and attitudes toward immigrants (see Figure 1).

Three central premises of SDT guided our conceptualization. First, people are sensitive to extrinsic factors that influence how well they think they can satisfy their basic needs (Deci & Ryan, 1985). Likewise, we argue that immigrants in the social environment are an extrinsic factor that will impact locals' perceptions and attitudes. Second, the satisfaction of basic needs produces pertinent outcomes. The hindrance of employees' needs, for example, is associated with poorer employee attitudes and performance (Kristof-Brown et al., 2005). Accordingly, we suggest that how locals' needs are affected influences their threat perceptions and attitudes—when immigrants hinder locals' needs, locals will perceive them as threatening and view them unfavorably. Finally, Van den Broeck et al.'s (2016) meta-analysis found that the three needs do not correlate redundantly, thus indicating that aggregating them into an overall needs satisfaction measure would be inappropriate. Similarly, the unique predictability of each need's hindrance by immigrants on realistic or symbolic threat should be examined.

Although the complex relationships between immigrants, locals, and the social context introduce considerable variations to the links between instrumentality and threats, some specific predictions are possible. As symbolic threats have been argued to arise from abstract concerns such as freedom and social integrity (Esses et al., 1993), we expected that immigrants' autonomy and belonging instrumentalities would predict locals' symbolic threat perceptions. Conversely, because competence is linked to work effectiveness and practical prospects such as employability (Louvet, 2007), we expected that immigrants' competence instrumentality would predict locals' realistic threat perceptions. We left the predictions for the other instrumentality–threat links open.

The Current Research

We operationalized immigrants' instrumentality as their perceived capacity to hinder locals' pursuit of basic psychological needs. Although instrumentality can be either facilitative or hindering (Fitzsimons & Shah, 2008), we focused on hindrance because of our interest in threat perceptions, which arise when individuals feel that their interests or welfare is compromised. We utilized participant samples from Singapore, a country that, having a population made up of approximately 30% non-locals, is well-acquainted with immigration issues (Yang et al., 2017). Moreover, Singapore has a diverse immigrant population with social statuses that range widely from low (e.g., Bangladeshi) to high (e.g., Caucasian), which is unique from most Western countries where minority groups tend to have lower status.

Using students' perceptions of immigrants in general in Study 1 and the general population's perceptions of a specific immigrant group in Study 2, we examined whether a model that included hindrances to predict attitudes as mediated by threat perceptions would fit the data better than one that excluded hindrances. Studies 1 and 2 also examined the specific predictabilities of hindrances on threats and attitudes. Next, Studies 3 and 4 tested how attitudes toward different groups of immigrants vary according to the distinct threats associated with their unique hindrances. Study 3 examined a student sample's judgments of two distinct immigrant groups (Caucasian versus Bangladeshi), while Study 4 employed two demographically distinct participant samples (students versus working adults) to examine how their evaluations of a particular immigrant group (Chinese immigrants) vary. To further probe the specificity of our predicted pathways, we included additional attitudinal dimensions (warmth and competence) in Studies 3 and 4. Finally,

Study 4 examined participants' endorsement of pro-immigration policies as a downstream consequence of our model.

A power analysis based on the average effect size in social and personality psychology ($r \approx .20$; Richard et al., 2003) and four covariates (based on five key predictors: autonomy hindrance, belonging hindrance, competence hindrance, realistic threat, and symbolic threat) determined that a minimum sample size of 314 is recommended (G*power; Faul et al., 2009; linear multiple regression, 80% power). All our study samples except for Study 2 were above the estimated minimum size. Research materials, data, and syntax are shared at https://osf.io/9dmfb/.

Study 1

We assessed undergraduate students' perceptions of immigrants' hindrance to basic psychological needs, the symbolic and realistic threat posed by immigrants, and general attitude toward immigrants. We expected that symbolic and realistic threats would mediate the relationship between immigrants' instrumentality and locals' attitudes, and that the inclusion of instrumentality as an antecedent to the threats–attitudes link would produce a better fit with the data. The data also allowed for a preliminary exploration of the specific instrumentality–threat pathways, namely that autonomy and belonging hindrances would relate to symbolic threat whereas competence hindrance would relate to realistic threat.

In line with principles of incremental science (Hofstee, 2003), we additionally tested the vulnerability of our model to confounding by other known predictors of attitudes toward immigrants. People's attitudes have been shown to be influenced by their *national identification* (Roccas et al., 2008), which affects how much they value their ingroup status and regard foreigners as outgroup individuals, and *zero-sum beliefs* (Różycka-Tran et al., 2015), which influence people's tendency to have an antagonistic view of social relations—that one person's gain can happen only at the expense of others. Thus, we controlled for national identification and zero-sum beliefs to ascertain whether instrumentality predicts threats and attitudes independently of other known attitudinal factors.

Method

Participants. Undergraduates were recruited and 506 participants took part for partial course credit or S$10 (approximately US$7). After excluding 24 non-Singaporeans and 15 participants who failed attention checks, 467 participants remained ($M_{age} = 20.90$, $SD = 1.67$, 21.6% males).

Materials. Participants completed a survey on their impression of the general immigrant population in Singapore. We measured participants' perceptions of immigrants' hindrances, perceptions of realistic threat and symbolic threat posed by immigrants, and general attitude toward immigrants.

Hindrance. Following Ryan and Deci (2002), we measured participants' perceptions of immigrants' hindrances to autonomy (e.g., "Because of the presence of immigrants, I feel like I am less free to decide for myself how to live my life"; $\alpha = .82$), belonging (e.g., "I feel more like an outsider in Singapore because of the immigrants in Singapore"; $\alpha = .87$), and competence (e.g., "I often feel less competent when I compare myself to immigrants"; $\alpha = .72$). Participants responded to three items for each psychological need using a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*).

Symbolic and realistic threat. Adapted from past studies (e.g., Stephan et al., 2002; Stephan & Stephan, 1996) to suit the local context, we used nine items to measure symbolic threat (e.g., "Immigrants are disrespectful to Singaporeans' norms and practices"; $\alpha = .84$) and seven items for realistic threat (e.g., "Immigrants make entering local educational institutions more challenging for locals"; $\alpha = .88$). Participants stated their agreement from 1 (*strongly disagree*) to 7 (*strongly agree*).

General attitude toward immigrants. We measured participants' general favorableness toward immigrants using the feeling thermometer (Alwin, 1997): "If you were to rate immigrants on a numerical scale from 0 to 100, where 0 is very unfavorable and 100 is very favorable, what would your rating be?"

Control variables. Participants' zero-sum beliefs (Różycka-Tran et al., 2015; e.g., "Life is so devised that when somebody gains, others have to lose"; $\alpha = .84$) and national identification (Roccas et al., 2008; e.g., "It is important to me that I view myself as a Singaporean"; $\alpha = .92$) were measured using 5-point (1 = *strongly disagree* to 5 = *strongly agree*) and 7-point (1 = *strongly disagree* to 7 = *strongly agree*) scales, respectively, and included as covariates.

Results

Correlations are reported in Table 1. The data were analyzed in accordance with Anderson and Gerbing's (1988) two-step approach. Confirmatory factor analysis (CFA) was first used to test the measurement model followed by structural equation modeling (SEM) to compare the proposed mediation model with alternative models. When testing specific path and mediation effects, we leveraged the predictive power of path analysis (Ledgerwood & Shrout, 2011).

Structural equation modeling. First, CFA revealed that the measurement model showed a good fit, $\chi^2(282) = 709.66$, $p < .001$, RMSEA = .06, CFI = .93, SRMR = .05. Next, SEM showed that our proposed model (Figure 2) fit the data well, $\chi^2(283) = 713.45$, $p < .001$, RMSEA = .06, CFI = .93, SRMR = .05, and accounted for 23.1% of the variance in attitude toward immigrants.[1]

Table 1. Correlations Between Variables for Study 1.

	1	2	3	4	5	6	7
1. Autonomy hindrance							
2. Belonging hindrance	.52***						
3. Competence hindrance	.64***	.47***					
4. Symbolic threat	.57***	.60***	.53***				
5. Realistic threat	.64***	.62***	.62***	.62***			
6. General attitude	−.29***	−.37***	−.26***	−.42***	−.37***		
7. Zero-sum belief	.33***	.39***	.35***	.40***	.40***	−.16***	
8. National attachment	−.03	−.20***	−.01	−.01	−.04	.06	−.02

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

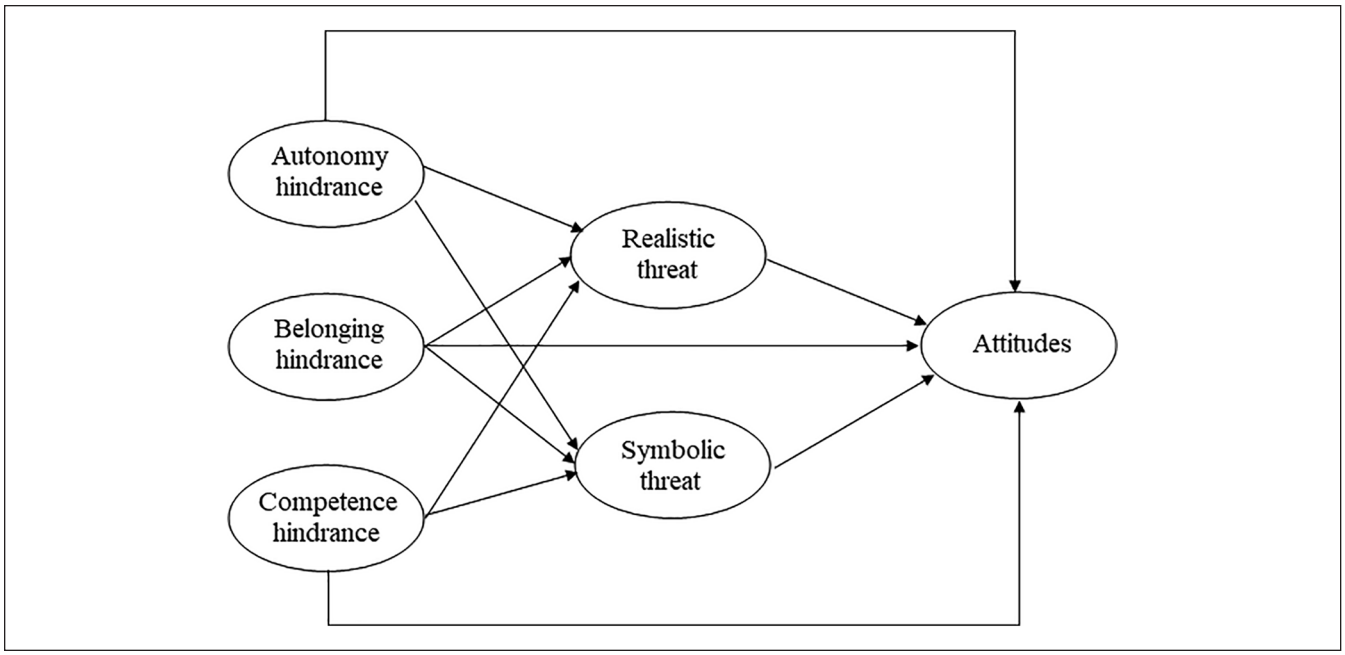


Figure 2. Proposed SEM model.
Note. SEM = structural equation modeling.

We then tested two alternative models, each nested within the proposed model. The first model, which excluded the paths from hindrance to threat perceptions and attitudes and thus included only the paths from threats to attitudes, had a poor fit, $\chi^2(292) = 1{,}402.17$, $p < .001$, RMSEA = .09, CFI = .83, SRMR = .28. The second model, which excluded the paths from hindrance to threats and only allowed hindrance to directly predict general attitude toward immigrants, also fit poorly, $\chi^2(289) = 1{,}392.72$, $p < .001$, RMSEA = .09, CFI = .83, SRMR = .28. Model comparison analyses showed that alternative models were inferior to the proposed model, first model: $\Delta\chi(9) = 688.72$, $p < .001$, ΔCFI = −.10; second model: $\Delta\chi(6) = 679.28$, $p < .001$, ΔCFI = −.10.

Path analyses. We conducted path analyses to test the effects within our proposed model with zero-sum beliefs and national identification as covariates.[2] Results showed that symbolic threat was positively predicted by hindrances to autonomy, $B = 0.18$, $SE = 0.04$, $p < .001$, 95% confidence interval (CI) [0.11, 0.25], belonging, $B = 0.24$, $SE = 0.03$, $p < .001$, 95% CI [0.18, 0.29], and competence, $B = 0.14$, $SE = 0.04$, $p < .001$, 95% CI [0.07, 0.21]. Moreover, realistic threat was positively predicted by hindrances to autonomy, $B = 0.24$, $SE = 0.04$, $p < .001$, 95% CI [0.17, 0.32], belonging, $B = 0.24$, $SE = 0.03$, $p < .001$, 95% CI [0.18, 0.29], and competence, $B = 0.26$, $SE = 0.04$, $p < .001$, 95% CI [0.18, 0.34]. In turn, attitudes were negatively predicted by symbolic threat, $B = -0.50$, $SE = 0.11$, $p < .001$, 95% CI [−0.50, −0.28], and realistic threat, $B = -0.23$, $SE = 0.10$, $p = .024$, 95% CI [−0.43, −0.03]. After controlling for threat perceptions, only belonging hindrance had a direct negative relationship with attitudes, $B = -0.16$, $SE = 0.07$, $p = .021$, 95% CI [−0.29, −0.02]. Detailed results are presented in Table 2.

Table 2. Path Coefficients of the Path Analytic Model for Study 1.

	B (*SE*)	β	*p*
Symbolic threat			
Autonomy hindrance	0.18 (0.04)	0.23	<.001
Belonging hindrance	0.24 (0.03)	0.37	<.001
Competence hindrance	0.14 (0.04)	0.17	<.001
Zero-sum beliefs	0.16 (0.05)	0.12	.001
National attachment	0.08 (0.04)	0.07	.042
Realistic threat			
Autonomy hindrance	0.24 (0.04)	0.27	<.001
Belonging hindrance	0.24 (0.03)	0.32	<.001
Competence hindrance	0.26 (0.04)	0.27	<.001
Zero-sum beliefs	0.14 (0.05)	0.09	.008
National attachment	0.04 (0.04)	0.03	.357
General attitude			
Symbolic threat	−0.50 (0.11)	−0.28	<.001
Realistic threat	−0.23 (0.10)	−0.15	.024
Autonomy hindrance	0.00 (0.09)	0.00	.995
Belonging hindrance	−0.16 (0.07)	−0.14	.021
Competence hindrance	0.03 (0.09)	0.02	.701
Zero-sum beliefs	0.13 (0.12)	0.05	.274
National attachment	0.05 (0.08)	0.03	.558

Bias-corrected bootstrap procedures ($N = 10{,}000$) were employed to test for indirect effects. Results revealed significant indirect effects of hindrances to autonomy, $B = -0.09$, $SE = 0.03$, 95% CI [−0.16, −0.04], belonging, $B = -0.12$, $SE = 0.03$, 95% CI [−0.19, −0.06], and competence, $B = -0.07$, $SE = 0.03$, 95% CI [−0.13, −0.03], on general attitude as mediated by symbolic threat. Moreover, results revealed significant indirect effects of hindrances to autonomy, $B = -0.06$, $SE = 0.03$, 95% CI [−0.12, −0.01], belonging, $B = -0.05$, $SE = 0.03$, 95% CI [−0.12, −0.004], and competence, $B = -0.06$, $SE = 0.03$, 95% CI [−0.13, −0.01], on general attitude as mediated by realistic threat.

Discussion

The proposed mediation model fit the data better than models that excluded instrumentality or the indirect effects of instrumentality, thus validating instrumentality as a key antecedent of threats and attitudes. Furthermore, both realistic and symbolic threats mediated the relationship between instrumentality and attitudes such that autonomy, belonging, and competence hindrances were all linked to more symbolic and realistic threats and negative attitudes. These findings held despite controlling for other known predictors of intergroup attitudes.

Although the results broadly support our predictions, some non-predicted paths emerged. In particular, we observed a significant relationship between competence hindrance and symbolic threat and a significant relationship between autonomy hindrance and realistic threat. These results could be due to our instruction for participants to evaluate immigrants as a generic group, which might have obscured the specific roles that different immigrants play in society and rendered their perceived threat abstract and all-encompassing.

Study 2

To address the potential issue with Study 1, we tested the proposed mediation model with Malaysian immigrants as a specific target group. Malaysians are ethnically similar to Singaporeans and form the majority of immigrants in Singapore. Despite their ethnic similarities, Singaporeans and Malaysians strongly emphasize their national differences and see each other as culturally distinct (Tee, 2012). A pilot study conducted on 80 Singaporean participants ($M_{age} = 28.66$, $SD = 9.59$, 43.8% males) supported this distinction as they rated themselves as culturally more similar to other Singaporeans ($M = 2.11$, $SD = 0.83$) than to Malaysians ($M = 0.83$, $SD = 1.46$), $t(79) = -6.93$, $p < .001$, $d = -0.77$. We also conducted our survey on the general public to see whether the model would generalize beyond student participants. Once more, we predicted that autonomy and belonging hindrances would be associated with attitudes through symbolic threat while competence hindrance would be associated with attitudes through realistic threat. The other instrumentality–threat associations were left open.

Method

Participants. We recruited 254 adults from the general population who completed the study online for S$10. After excluding five non-Singaporeans and seven participants

Table 3. Correlations Between Variables for Study 2.

	1	2	3	4	5
1. Autonomy hindrance					
2. Belonging hindrance	.72				
3. Competence hindrance	.69	.68			
4. Symbolic threat	.72	.65	.57		
5. Realistic threat	.60	.64	.61	.58	
6. General attitude	−.43	−.43	−.25	−.54	−.38

Note. All correlations are significant at $p < .001$.

who failed attention checks, 242 participants remained ($M_{age} = 36.89$, $SD = 10.35$, 33.1% males).

Materials. Participants evaluated Malaysian immigrants with similar measures in Study 1, except that the immigrant group was specified (e.g., "Malaysian immigrants make entering local educational institutions more challenging for locals"). Participants' perceptions of Malaysian immigrants' hindrances to autonomy ($\alpha = .96$), belonging ($\alpha = .91$), and competence ($\alpha = .75$); perceptions of Malaysian immigrants' realistic threat ($\alpha = .94$) and symbolic threat ($\alpha = .92$); and general attitude toward Malaysian immigrants via the feeling thermometer were measured.

Results

Correlations are presented in Table 3. Like Study 1, we subjected our data to SEM and path analyses.

Structural equation modeling. Using CFA, the measurement model had a good fit with the data, $\chi^2(282) = 677.59$, $p < .001$, RMSEA = .08, CFI = .94, SRMR = .05. Next, SEM analyses revealed that our proposed model again fit the data well, $\chi^2(283) = 681.05$, $p < .001$, RMSEA = .08, CFI = .93, SRMR = .05, and accounted for 38.3% of the variance in attitudes.

The same alternative models to those used in Study 1 were tested. The first model, which excluded the paths from hindrance to threat perceptions and attitudes, had a poor fit, $\chi^2(282) = 1{,}055.39$, $p < .001$, RMSEA = .10, CFI = .87, SRMR = .36. The second model, which excluded the paths from hindrance to threats, also fit poorly, $\chi^2(289) = 1{,}045.57$, $p < .001$, RMSEA = .10, CFI = .88, SRMR = .36. Indeed, both alternative models were inferior to the proposed model, first model: $\Delta\chi(9) = 374.34$, $p < .001$, ΔCFI = .06; second model: $\Delta\chi(6) = 364.53$, $p < .001$, ΔCFI = −.05.

Path analyses. Path analyses showed that symbolic threat was positively predicted by hindrances to autonomy, $B = 0.40$, $SE = 0.06$, $p < .001$, 95% CI [0.29, 0.51], and belonging, $B = 0.19$, $SE = 0.05$, $p < .001$, 95% CI [0.10, 0.29], but not competence hindrance, $p = .366$. Realistic threat was positively predicted by hindrances to autonomy, $B = 0.18$, $SE = 0.07$, $p = .013$, 95% CI [0.04, 0.32], belonging, $B = 0.32$, $SE = 0.07$, $p < .001$, 95% CI [0.19, 0.45], and competence, $B = 0.30$, $SE = 0.08$, $p < .001$, 95% CI [0.14, 0.45]. In turn, general attitude was negatively predicted by symbolic threat, $B = -0.77$, $SE = 0.14$, $p < .001$, 95% CI [−1.05, −0.50], but not realistic threat, $p = .092$. After controlling for threat perceptions, general attitude was positively predicted by competence hindrance, $B = 0.43$, $SE = 0.13$, $p = .001$, 95% CI [0.17, 0.69]. These results are summarized in Table 4.

Table 4. Path Coefficients of Path Analytic Model for Study 2.

	B (SE)	β	p
Symbolic threat			
Autonomy hindrance	0.40 (0.06)	0.49	<.001
Belonging hindrance	0.19 (0.05)	0.26	<.001
Competence hindrance	0.06 (0.06)	0.06	.366
Realistic threat			
Autonomy hindrance	0.18 (0.07)	0.18	.013
Belonging hindrance	0.32 (0.07)	0.34	<.001
Competence hindrance	0.30 (0.08)	0.26	<.001
General attitude			
Symbolic threat	−0.77 (0.14)	−0.44	<.001
Realistic threat	−0.18 (0.11)	−0.13	.092
Autonomy hindrance	−0.14 (0.13)	−0.10	.291
Belonging hindrance	−0.22 (0.12)	−0.17	.055
Competence hindrance	0.43 (0.13)	0.26	.001

Significant indirect effects were found for hindrances to autonomy, $B = -0.31$, $SE = 0.08$, 95% CI [−0.50, −0.18], and belonging, $B = -0.15$, $SE = 0.06$, 95% CI [−0.28, −0.06], on general attitude as mediated by symbolic threat. Furthermore, we found significant indirect effects of hindrances to belonging, $B = -0.06$, $SE = 0.03$, 95% CI [−0.14, −0.004], and competence, $B = -0.05$, $SE = 0.04$, 95% CI [−0.14, −0.002], on general attitude as mediated by realistic threat.

Discussion

The superiority of the proposed model was replicated using a different sample of participants and a specific immigrant group. The results also support some of our expectations of the specific pathways. On the one hand, Malaysian

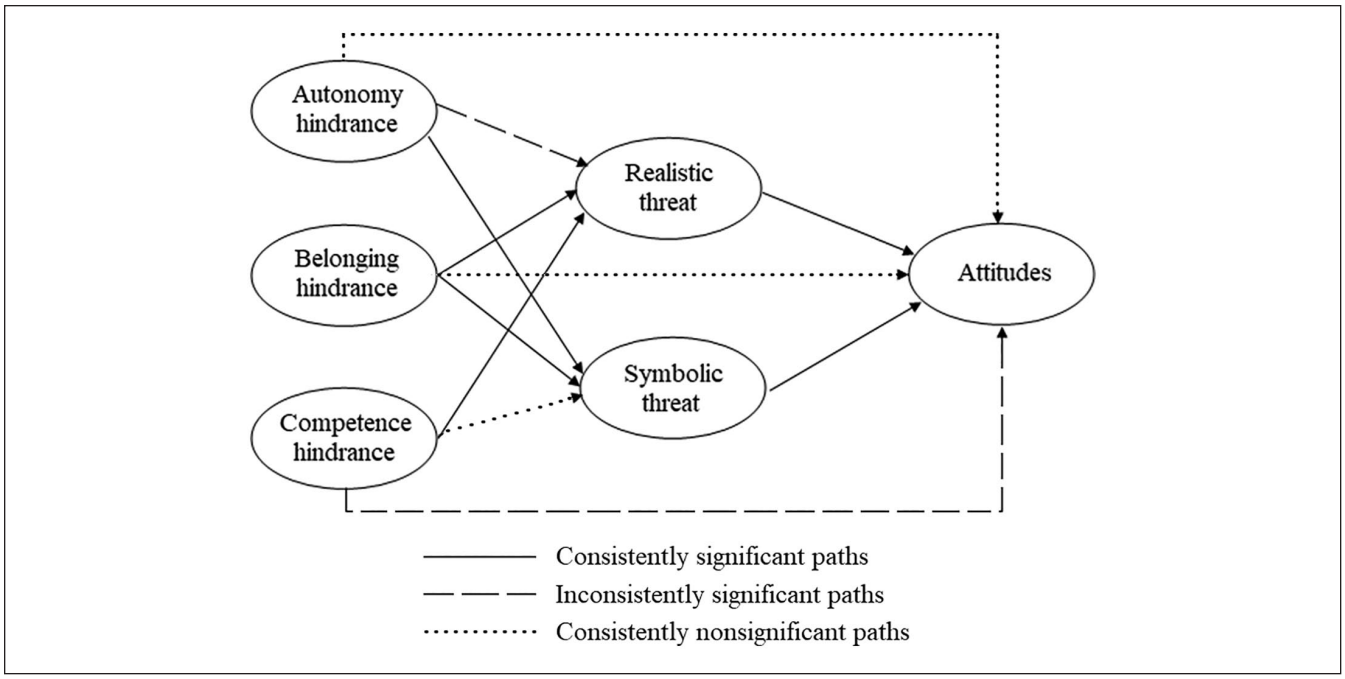


Figure 3. Overview of findings across studies that used specific target immigrant groups (i.e., Studies 2–4).
Note. Attitudes include general attitude, perceived warmth, and perceived competence.

immigrants' hindrances to autonomy and belonging predicted more symbolic threat and negative attitudes, while competence hindrance did not predict symbolic threat. On the other hand, Malaysian immigrants' hindrances to belonging and competence predicted more realistic threat and negative attitudes. In addition, a non-predicted relationship between belonging hindrance and realistic threat was found once more (this will be discussed in the General Discussion). Studying a specific immigrant group thus revealed a more nuanced relationship between instrumentality and threat perceptions, a pattern we would continue to observe in subsequent studies (see Figure 3 and Table 5 for an overview of findings).

Interestingly, a direct positive relationship between competence hindrance and general attitude was found. That is, competence hindrance predicted negative attitudes *only* in the context of realistic threat; otherwise, the capacity to make others feel less competent, which also signals capability and is therefore in some sense a positive trait, was associated with viewing Malaysian immigrants favorably. Hence, our model allowed us to uncover a suppression effect (MacKinnon et al., 2000), whereby the opposing directions in direct and indirect effects illuminate the complexity of attitude formation and demonstrate that attitudes toward immigrants are highly nuanced (Fiske et al., 2002).

Study 3

Having achieved confidence in our proposed model, we next examined the model's ability to predict attitudes toward different groups of immigrants as a function of variations in immigrants' instrumentalities. To do so, we chose Caucasians and Bangladeshis as target immigrant groups because of how they are differently perceived (Cottrell & Neuberg, 2005). In Singapore, Caucasians are associated with professional expertise (e.g., white-collar work) and higher status, whereas Bangladeshis are associated with manual labor (e.g., construction) and lower status (Ye, 2013). Hence, we expected their hindrances to differ, and if our model works, these differences should predict variations in locals' threat perceptions of and attitudes toward them.

In addition, we studied how these pathways extend to specific attitude dimensions. The stereotype content model (Fiske et al., 2002) suggests that people can be viewed favorably because they are seen as either warm (i.e., friendly, kind) or competent (i.e., talented, capable). Thus, we examined not only the prediction that autonomy and belonging hindrances would explain attitudes through symbolic threat while competence hindrance would explain attitudes through realistic threat, but also how these distinct paths relate to perceived warmth and perceived competence. In so doing, we expand our assessment of general attitude, which tends to manifest similarly as warmth (Wojciszke, 1994), and further tested our model's ability to make nuanced, dimension-specific attitudinal predictions.

Method

Participants. We recruited 361 undergraduates who completed the study for either partial course credit or SGD$5. After excluding four non-Singaporeans and seven participants who failed attention checks, 350 participants remained (M_{age} = 20.87, SD = 1.69, 22.6% males).

Table 5. Summary of Supported Mediation Pathways Across Studies Using Specific Target Immigrant Groups (i.e., Studies 2–4) and the Specific Attitudinal Dimension That Was Supported.

	Study supported		
Pathways	2	3	4
Predicted			
Autonomy hindrance → Symbolic threat → Attitude	G	G, W	G, W
Belonging hindrance → Symbolic threat → Attitude	G	G, W	G, W
Competence hindrance → Realistic threat → Attitude	G	C	G, C
Non-predicted			
Competence hindrance → Symbolic threat → Attitude	—	—	—
Autonomy hindrance → Realistic threat → Attitude	—	—	G, C
Belonging hindrance → Realistic threat → Attitude	G	C	G, C

Note. G = general attitude; W = perceived warmth; C = perceived competence.

Table 6. Descriptive Statistics of Variables for Study 3.

	Bangladeshi immigrants		Caucasian immigrants	
	M	*SD*	*M*	*SD*
Autonomy hindrance	2.37	1.15	2.76	1.26
Belonging hindrance	2.49	1.24	2.70	1.17
Competence hindrance	2.29	0.90	3.33	1.09
Symbolic threat	2.97	0.94	3.40	0.96
Realistic threat	2.35	0.88	3.57	1.09
General attitude	6.19	1.58	6.77	1.31
Perceived warmth	3.01	0.85	3.39	0.75
Perceived competence	2.42	0.67	4.02	0.50

Materials. Participants evaluated Caucasian and Bangladeshi immigrants in Singapore, with measurement items rephrased to specify relevant groups (e.g., "[Caucasian/Bangladeshi] immigrants make entering local educational institutions more challenging for locals"). For each target group, we measured participants' perceptions of their hindrances to autonomy ($\alpha_{Bangladeshi} = .90$; $\alpha_{Caucasian} = .91$), belonging ($\alpha_{Bangladeshi} = .86$; $\alpha_{Caucasian} = .86$), and competence ($\alpha_{Bangladeshi} = .80$; $\alpha_{Caucasian} = .72$); perceptions of their realistic threat ($\alpha_{Bangladeshi} = .90$; $\alpha_{Caucasian} = .88$) and symbolic threat ($\alpha_{Bangladeshi} = .85$; $\alpha_{Caucasian} = .84$); and general attitude toward them.

Perceived warmth and competence. Participants' perceptions of Caucasian and Bangladeshi immigrants' warmth (e.g., "As viewed by society, how warm are [Caucasian/Bangladeshi] immigrants?"; $\alpha_{Bangladeshi} = .88$; $\alpha_{Caucasian} = .81$) and competence (e.g., "As viewed by society, how competent are [Caucasian/Bangladeshi] immigrants?"; $\alpha_{Bangladeshi} = .76$; $\alpha_{Caucasian} = .58$) were measured using three adapted questions each. Participants responded on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

The presentation of measures for each immigrant group was counterbalanced to minimize carry-offer effects.

Results

Preliminary analyses. Compared with Bangladeshi immigrants, Caucasian immigrants were perceived as warmer, $t(349) = 6.75$, $p < .001$, $d = 0.36$, more competent, $t(349) = 34.64$, $p < .001$, $d = 1.85$, and more favorable in general, $t(349) = 7.01$, $p < .001$, $d = 0.37$. Participants perceived greater symbolic threat, $t(349) = 8.95$, $p < .001$, $d = 0.48$, and realistic threat, $t(349) = 21.48$, $p < .001$, $d = 1.15$, from Caucasian immigrants than from Bangladeshi immigrants. We report the descriptive statistics in Table 6 and correlations in Table 7.

Within-subjects path analyses. We used a path analytic framework (Montoya & Hayes, 2017) to examine how differences in hindrances predict differences between Caucasian and Bangladeshi immigrants in symbolic and realistic threats followed by differences in perceived warmth, perceived competence, and general attitude toward them. Difference scores were obtained by subtracting Bangladeshi immigrants' scores from Caucasian immigrants' scores. Hence, a positive (negative) score would indicate that Caucasians scored higher (lower) than Bangladeshis. The path coefficients at each section of the model are reported in Table 8.

Table 7. Correlations Between Variables for Study 3.

	1	2	3	4	5	6	7	8
1. Autonomy hindrance	—	.63***	.57***	.63***	.63***	−.17**	−.02	.39***
2. Belonging hindrance	.64***	—	.48***	.64***	.56***	−.14**	−.08	−.45***
3. Competence hindrance	.60***	.49***	—	.38***	.67***	.03	.20***	−.17**
4. Symbolic threat	.62***	.66***	.56***	—	.58***	−.27***	−.11*	−.49***
5. Realistic threat	.53***	.63***	.61***	.56***	—	−.11*	.18***	−.30***
6. Perceived warmth	−.24***	−.21***	−.13*	−.32***	−.14**	—	.38***	.40***
7. Perceived competence	−.02	−.10*	.20***	−.03	.09	.18***	—	.18***
8. General attitude	−.29***	−.41***	−.18***	−.41***	−.29***	.35***	.18***	—

Note. Correlations below the diagonal refer to Caucasian immigrants, while correlations above the diagonal refer to Bangladeshi immigrants.
*$p < .05$. **$p < .01$. ***$p < .001$.

Hindrance. Caucasian immigrants were perceived as posing greater hindrances to autonomy, $B = 0.39$, $SE = 0.06$, $p < .001$, 95% CI [0.27, 0.51], belonging, $B = 0.21$, $SE = 0.06$, $p < .001$, 95% CI [0.09, 0.32], and competence, $B = 1.04$, $SE = 0.06$, $p < .001$, 95% CI [0.92, 1.16], than Bangladeshi immigrants.

Symbolic and realistic threats. Difference in symbolic threat between Caucasian and Bangladeshi immigrants was positively predicted by their differences in hindrances to autonomy, $B = 0.16$, $SE = 0.04$, $p < .001$, 95% CI [0.08, 0.23], and belonging, $B = 0.40$, $SE = 0.04$, $p < .001$, 95% CI [0.32, 0.48], but was unrelated to difference in competence hindrance, $p = .639$. Conversely, difference in realistic threat was positively predicted by differences in hindrances to belonging, $B = 0.24$, $SE = 0.05$, $p < .001$, 95% CI [0.15, 0.33], and competence, $B = 0.40$, $SE = 0.04$, $p < .001$, 95% CI [0.32, 0.49], but was unrelated to difference in autonomy hindrance, $p = .152$. After controlling for hindrance variables, Caucasian immigrants were seen as a greater symbolic threat, $B = 0.28$, $SE = 0.05$, $p < .001$, 95% CI [0.17, 0.38], and realistic threat, $B = 0.73$, $SE = 0.06$, $p < .001$, 95% CI [0.61, 0.85], than Bangladeshi immigrants.

Perceived warmth. Difference in perceived warmth between Caucasian and Bangladeshi immigrants was negatively predicted by their difference in symbolic threat, $B = -0.41$, $SE = 0.07$, $p < .001$, 95% CI [−0.55, −0.28], but was unrelated to difference in realistic threat, $p = .288$. Two indirect effects of immigrant group on perceived warmth as mediated by hindrance and symbolic threat were found. Caucasians (vs. Bangladeshis) posed greater autonomy and belonging hindrances and each, through greater symbolic threat, predicted lower warmth perceptions toward them, $B_{\text{autonomy}} = -0.03$, $SE_{\text{autonomy}} = 0.01$, 95% CI [−0.05, −0.01]; $B_{\text{belonging}} = -0.03$, $SE_{\text{belonging}} = 0.01$, 95% CI [−0.07, −0.02]. After controlling for all indirect effects, Caucasians (vs. Bangladeshis) were perceived as warmer, $B = 0.51$, $SE = 0.08$, $p < .001$, 95% CI [0.35, 0.67].

Perceived competence. Difference in perceived competence between Caucasian and Bangladeshi immigrants was positively predicted by their difference in realistic threat, $B = 0.17$, $SE = 0.05$, $p = .001$, 95% CI [0.07, 0.27], but was unrelated to difference in symbolic threat, $p = .913$. Again, two indirect pathways were observed. Caucasians (vs. Bangladeshis) had greater belonging and competence hindrances, each of which predicted higher perceived competence through realistic threat, $B_{autonomy} = 0.01$, $SE_{autonomy} = 0.01$, 95% CI [0.002, 0.02]; $B_{\text{competence}} = 0.07$, $SE_{\text{competence}} = 0.03$, 95% CI [0.03, 0.13]. After controlling for indirect effects, Caucasians (vs. Bangladeshis) were perceived as more competent, $B = 1.24$, $SE = 0.07$, $p < .001$, 95% CI [1.10, 1.37].

General attitude toward immigrants. Similar to warmth, difference in general attitude toward Caucasian and Bangladeshi immigrants was negatively predicted by their difference in symbolic threat, $B = -0.54$, $SE = 0.10$, $p < .001$, 95% CI [−0.74, −0.35], but was unrelated to difference in realistic threat, $p = .166$. The same two indirect effects were observed. Caucasians (vs. Bangladeshis) posed greater autonomy and belonging hindrances and each, through greater symbolic threat, predicted less favorable attitudes, $B_{\text{autonomy}} = -0.03$, $SE_{\text{autonomy}} = 0.01$, 95% CI [−0.07, −0.01]; $B_{\text{belonging}} = -0.05$, $SE_{\text{belonging}} = 0.02$, 95% CI [−0.09, −0.02]. After controlling for indirect effects, Caucasians (vs. Bangladeshi) were perceived more favorably, $B = 0.76$, $SE = 0.12$, $p < .001$, 95% CI [0.54, 0.99].

Discussion

Despite adopting a different analytical approach from Studies 1 and 2, the results continued to underscore the importance of instrumentalities in threat and attitudinal perceptions. Differences in Caucasian and Bangladeshi immigrants' perceived instrumentalities explained differences in locals' threat perceptions and subsequent attitudes, and the predicted instrumentality–threat links were mostly observed.

Table 8. Path Coefficients of the Within-Subject Path Analytic Model for Study 3.

	B	*SE*	β	*p*
Δ Autonomy hindrance				
Δ Immigrant group	0.39	0.06	0.35	<.001
Δ Belonging hindrance				
Δ Immigrant group	0.21	0.06	0.19	<.001
Δ Competence hindrance				
Δ Immigrant group	1.04	0.06	0.91	<.001
Δ Symbolic threat				
Δ Autonomy hindrance	0.16	0.04	0.19	<.001
Δ Belonging hindrance	0.40	0.04	0.47	<.001
Δ Competence hindrance	0.02	0.04	0.02	.638
Δ Immigrant group	0.28	0.05	0.30	<.001
Δ Realistic threat				
Δ Autonomy hindrance	0.07	0.05	0.07	.152
Δ Belonging hindrance	0.24	0.05	0.25	<.001
Δ Competence hindrance	0.40	0.04	0.43	<.001
Δ Immigrant group	0.73	0.06	0.69	<.001
Δ General attitude				
Δ Symbolic threat	−0.54	0.10	−0.32	<.001
Δ Realistic threat	0.12	0.08	0.08	.166
Δ Autonomy hindrance	−0.13	0.07	−0.10	.067
Δ Belonging hindrance	−0.31	0.08	−0.22	<.001
Δ Competence hindrance	0.02	0.08	0.02	.767
Δ Immigrant group	0.76	0.12	0.50	<.001
Δ Perceived warmth				
Δ Symbolic threat	−0.41	0.07	−0.36	<.001
Δ Realistic threat	0.07	0.06	0.07	.288
Δ Autonomy hindrance	−0.11	0.05	−0.12	.029
Δ Belonging hindrance	0.05	0.06	0.06	.375
Δ Competence hindrance	0.00	0.05	0.00	.955
Δ Immigrant group	0.51	0.08	0.49	<.001
Δ Perceived competence				
Δ Symbolic threat	0.01	0.06	0.01	.913
Δ Realistic threat	0.17	0.05	0.21	.001
Δ Autonomy hindrance	−0.04	0.04	−0.05	.360
Δ Belonging hindrance	−0.11	0.05	−0.13	.033
Δ Competence hindrance	0.18	0.05	0.24	<.001
Δ Immigrant group	1.24	0.07	1.43	<.001

Note. Differences in scores (Δ) were obtained by subtracting Caucasian immigrants' scores with Bangladeshi immigrants' scores.

Compared with Bangladeshis, Caucasians were a greater hindrance to autonomy and belonging, which was associated with being more symbolically threatening, as well as a greater hindrance to competence, which was associated with being more realistically threatening. Beyond what we expected, belonging hindrance also predicted realistic threat, which we explore further in the General Discussion.

Through threat perceptions, differences in instrumentality explained differences in an expanded set of attitudes toward immigrants. The greater symbolic threat of Caucasians (vs. Bangladeshis) predicted less warm and less favorable perceptions of them, and interestingly, difference in realistic threat no longer predicted differences in general attitude or perceived warmth. Conversely, the greater realistic threat of Caucasians (vs. Bangladeshis) predicted only higher perceived competence. This outcome could be due to the competence component being parsed out from general attitude, which echoes past research showing that general attitude shares greater similarity with perceived warmth than with perceived competence (Fiske et al., 2002).

Our analyses again demonstrated a suppression effect (MacKinnon et al., 2000) and revealed the complex and often contradictory foundations of attitude formation. On the one hand, the mediation pathways showed that Caucasian immigrants posed greater hindrances to locals' basic psychological needs and were more threatening and less warm and likable than Bangladeshi immigrants. On the other hand, controlling for indirect effects resulted in Caucasian

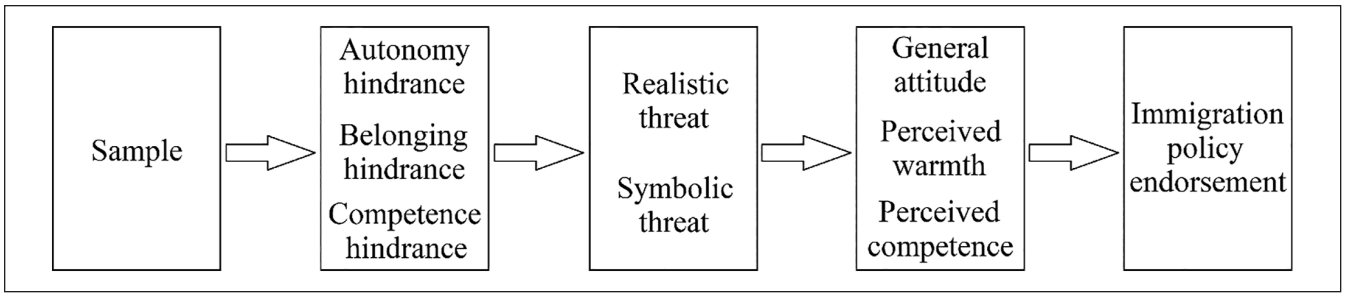


Figure 4. Proposed relationship between attitudinal predictors and endorsement of immigration policies.

immigrants being evaluated more positively than Bangladeshis in terms of warmth and general attitude. Therefore, opposing direct and indirect pathways simultaneously existed for particular immigrant groups to predict attitudes. By probing the psychological pathways related to instrumentalities, we were able to uncover these tensions beneath people's attitudes toward immigrants.

Study 4

While Study 3 demonstrated how the *same* group of locals held different attitudes toward distinct immigrant groups, Study 4 aimed to show how attitudinal perceptions of the same immigrant group would vary according to their distinct instrumentalities to *different* groups of locals. We assessed attitudes toward immigrants from China using two distinct local population samples: first-year undergraduate students versus employed adults. As Chinese immigrants migrate to Singapore primarily to seek employment (Yeoh & Lin, 2013), they have greater implications for working adults than for students, especially freshmen who have not undergone internships. We also assessed whether locals' attitudes toward immigrants relate to endorsement of Singapore's immigration policies (Figure 4), which have tended to be liberal and accepting of foreigners (Lian, 2015). Finally, to rule out the possibility that our findings might be due to generational effects (e.g., age differences in political attitudes; Tilley & Evans, 2014), we included age as a covariate.

Method

Participants. We recruited 155 undergraduate students and 190 employed adults who completed the study online for partial course credit (only available to students) or SGD$5. After excluding 10 non-Singaporeans, six non-freshmen, and 16 participants who failed attention checks, a final sample of 139 undergraduates (M_{age} = 19.26, SD = 0.80, 18.0% males) and 174 employed adults (M_{age} = 36.15, SD = 9.78, 37.4% males) remained.

Materials. We measured participants' perceptions of Chinese immigrants' hindrances to autonomy (α = .92), belonging (α = .91), and competence (α = .70); realistic threat (α = .93) and symbolic threat (α = .89); perceived warmth (α = .88) and perceived competence (α = .77); and general attitude using the feeling thermometer.

Participants' endorsement of Singapore's immigration policies was assessed with a feeling thermometer: "If you were to describe your general views of Singapore's immigration policies on a numerical scale from 0 to 100, where 0 is very unfavorable and 100 is very favorable, what would your rating be?"

Results

Preliminary analyses. When compared with undergraduates, employed adults perceived Chinese immigrants as less warm, $t(311) = -1.94$, $p = .053$, $d = -0.22$, less competent, $t(311) = -3.72$, $p < .001$, $d = -0.42$, and less favorable, $t(310.66) = -5.29$, $p < .001$, $d = -0.60$. Employed adults (vs. undergraduates) also perceived greater symbolic threat, $t(311) = 8.33$, $p < .001$, $d = 0.94$, and realistic threat, $t(311) = 5.26$, $p < .001$, $d = 0.60$. Finally, employed adults held less favorable attitudes than did undergraduates toward Singapore's immigration policies, $t(299.28) = -5.74$, $p < .001$, $d = -0.64$. We report the descriptive statistics in Table 9 and correlations in Table 10.

Path analyses. Differences between the two samples (undergraduate students = 0, employed adults = 1) were examined with path analyses, and the path coefficients at each section of the model are reported in Table 11. Age was included as a covariate to control for generational differences between our participant samples (see Note 2).

Hindrance. Compared with undergraduates, employed adults saw Chinese immigrants as a greater hindrance to autonomy, $B = 1.32$, $SE = 0.14$, $p < .001$, 95% CI [0.85, 1.78], belonging, $B = 1.66$, $SE = 0.28$, $p < .001$, 95% CI [1.12, 2.21], and competence, $B = 0.53$, $SE = 0.20$, $p = .010$, 95% CI [0.13, 0.93].

Symbolic and realistic threats. Symbolic threat was positively predicted by hindrances to autonomy, $B = 0.28$, $SE = 0.05$, $p < .001$, 95% CI [0.19, 0.37], and belonging, $B = 0.32$, $SE = 0.03$, $p < .001$, 95% CI [0.26, 0.39], but was unrelated to competence hindrance, $p = .672$.

Realistic threat was positively predicted by hindrances to autonomy, $B = 0.27$, $SE = 0.05$, $p < .001$, 95% CI [0.17,

Table 9. Descriptive Statistics of Variables for Study 4.

	Undergraduates		Employed adults	
	M	*SD*	*M*	*SD*
Autonomy hindrance	2.75	1.28	3.94	1.45
Belonging hindrance	3.26	1.58	4.61	1.65
Competence hindrance	3.26	1.11	3.66	1.23
Realistic threat	4.03	1.29	4.79	1.27
Symbolic threat	3.69	1.14	4.72	1.04
General attitude	5.01	1.96	3.72	2.37
Perceived warmth	2.23	0.69	2.06	0.82
Perceived competence	3.61	0.68	3.30	0.80
Endorsement of immigration policies	5.86	1.36	4.73	2.09

Table 10. Correlations Between Variables for Study 4.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1. Autonomy hindrance	—	.58***	.69***	.64***	.67***	−.20**	−.09	−.43***	−.23**
2. Belonging hindrance	.57***	—	.49***	.63***	.64***	−.30***	−.06	−.48***	−.38***
3. Competence hindrance	.65***	.50***	—	.39***	.51***	.06	.10	−.25***	−.15*
4. Symbolic threat	.56***	.69***	.51***	—	.71***	−.42***	−.05	−.62***	−.34***
5. Realistic threat	.62***	.71***	.66***	.77***	—	−.31***	.08	−.50***	−.36***
6. Perceived warmth	−.12	−.21*	−.15*	−.41***	−.28***	—	.27***	.55***	.29***
7. Perceived competence	−.01	.09	.27**	.07	.19*	.13	—	.12	.08
8. General attitude	−.28***	−.51***	−.39***	−.58***	−.59***	.47***	−.08	—	.45***
9. Immigration policy endorsement	−.25**	−.28***	−.20*	−.29***	−.37***	.12	−.06	.42***	—

Note. Correlations below the diagonal refer to undergraduates, while correlations above the diagonal refer to employed adults.
*$p < .05$. **$p < .01$. ***$p < .001$.

0.37], belonging, $B = 0.35$, $SE = 0.04$, $p < .001$, 95% CI [0.28, 0.42], and competence, $B = 0.19$, $SE = 0.06$, $p = .001$, 95% CI [0.08, 0.29]. After controlling for hindrances, employed adults actually perceived less realistic threat posed by Chinese immigrants than did undergraduates, $B = -0.37$, $SE = 0.15$, $p = .018$, 95% CI [−0.67, −0.06].

Perceived warmth. Perceived warmth was negatively predicted by symbolic threat, $B = -0.30$, $SE = 0.06$, $p < .001$, 95% CI [−0.41, −0.19], but was unrelated to realistic threat, $p = .157$. Two indirect effects of participant sample on perceived warmth through hindrances and symbolic threat were observed. Chinese immigrants were perceived as more of a hindrance to autonomy and belonging for employed adults than for undergraduates, which subsequently predicted greater symbolic threat and less perceived warmth, $B_{\text{autonomy}} = -0.11$, $SE_{\text{autonomy}} = 0.04$, 95% CI [−0.21, −0.06]; $B_{\text{belonging}} = -0.16$, $SE_{\text{belonging}} = 0.05$, 95% CI [−0.28, −0.09].

Perceived competence. Perceived competence was positively predicted by realistic threat, $B = 0.16$, $SE = 0.05$, $p = .003$, 95% CI [0.06, 0.27], but was unrelated to symbolic threat, $B = -0.06$, $SE = 0.06$, $p = .498$, 95% CI [−0.16, 0.08]. Analyses revealed three indirect effects of participant sample on perceived competence through hindrances and realistic threat. Employed adults perceived Chinese immigrants as a greater hindrance to autonomy, belonging, and competence than did undergraduates, which predicted more realistic threat and higher perceived competence; $B_{\text{autonomy}} = 0.06$, $SE_{\text{autonomy}} = 0.03$, 95% CI [0.02, 0.13]; $B_{\text{belonging}} = 0.09$, $SE_{\text{belonging}} = 0.04$, 95% CI [0.03, 0.18]; and $B_{\text{competence}} = 0.02$, $SE_{\text{competence}} = 0.01$, 95% CI [0.003, 0.05]. After controlling for indirect effects, employed adults perceived Chinese immigrants as less competent than did undergraduates, $B = -0.27$, $SE = 0.13$, $p = .045$, 95% CI [−0.53, −0.01].

General attitude. General attitude toward Chinese immigrants was negatively predicted by both symbolic threat, $B = -0.86$, $SE = 0.15$, $p < .001$, 95% CI [−1.14, −0.57], and realistic threat, $B = -0.30$, $SE = 0.13$, $p = .026$, 95% CI [−0.56, −0.04].

The effect of participant sample on general attitude toward Chinese immigrants was mediated by two hindrances through symbolic threat: autonomy hindrance and symbolic threat, $B = -0.32$, $SE = 0.10$, 95% CI [−0.58, −0.17], and belonging hindrance and symbolic threat, $B = -0.46$, $SE = 0.12$, 95% CI [−0.75, −0.26]. At the same time, the effect of participant

Table 11. Path Coefficients of the Within-Subject Path Analytic Model for Study 4.

	B	*SE*	β	*p*
Autonomy hindrance				
Sample	1.32	0.24	0.44	<.001
Age	−0.01	0.01	−0.06	.446
Belonging hindrance				
Sample	1.66	0.28	0.48	<.001
Age	−0.02	0.01	−0.12	.121
Competence hindrance				
Sample	0.53	0.20	0.22	.010
Age	−0.01	0.01	−0.08	.367
Symbolic threat				
Autonomy hindrance	0.28	0.05	0.35	<.001
Belonging hindrance	0.32	0.03	0.47	<.001
Competence hindrance	−0.02	0.05	−0.02	.672
Sample	0.11	0.14	0.04	.449
Age	0.10	0.01	0.09	.112
Realistic threat				
Autonomy hindrance	0.27	0.05	0.30	<.001
Belonging hindrance	0.35	0.04	0.45	<.001
Competence hindrance	0.19	0.06	0.17	.001
Sample	−0.37	0.15	−0.14	.018
Age	0.02	0.01	0.13	.014
General attitude				
Symbolic threat	−0.86	0.15	−0.45	<.001
Realistic threat	−0.30	0.13	−0.17	.026
Autonomy hindrance	0.11	0.11	0.07	.309
Belonging hindrance	−0.19	0.09	−0.14	.039
Competence hindrance	0.01	0.12	0.00	.950
Sample	0.15	0.33	0.03	.647
Age	−0.01	0.01	−0.06	.344
Perceived warmth				
Symbolic threat	−0.30	0.06	−0.47	<.001
Realistic threat	−0.07	0.05	−0.13	.157
Autonomy hindrance	0.02	0.04	0.03	.725
Belonging hindrance	−0.01	0.04	−0.02	.809
Competence hindrance	0.16	0.05	0.24	.001
Sample	0.02	0.13	0.01	.884
Age	0.01	0.01	0.09	.246
Perceived competence				
Symbolic threat	−0.04	0.06	−0.06	.498
Realistic threat	0.16	0.05	0.28	.003
Autonomy hindrance	−0.21	0.05	−0.41	<.001
Belonging hindrance	−0.04	0.04	−0.09	.260
Competence hindrance	0.21	0.05	0.33	<.001
Sample	−0.27	0.13	−0.17	.045
Age	0.01	0.01	0.08	.343
Immigration policy endorsement				
General attitude	0.04	0.15	0.02	.802
Perceived warmth	0.10	0.13	0.04	.447
Perceived competence	0.27	0.06	0.32	<.001
Symbolic threat	0.16	0.14	0.10	.266
Realistic threat	−0.21	0.12	−0.15	.098
Autonomy hindrance	−0.01	0.11	−0.01	.954
Belonging hindrance	−0.21	0.08	−0.19	.012
Competence hindrance	0.08	0.11	0.05	.481
Sample	0.19	0.30	0.05	.529
Age	−0.04	0.01	−0.24	.001

Note. Sample was coded as 0 for undergraduates and 1 for employed adults.

sample on attitude was mediated via all three hindrances through realistic threat: autonomy hindrance and realistic threat, $B = -0.11$, $SE = 0.07$, 95% CI [−0.28, −0.01], belonging hindrance and realistic threat, $B = -0.17$, $SE = 0.10$, 95% CI [−0.40, −0.003], and competence hindrance and realistic threat, $B = -0.03$, $SE = 0.02$, 95% CI [−0.11, −0.003].

Again, general attitude was more similar to perceived warmth than perceived competence. More specifically, autonomy and belonging hindrances negatively predicted general attitude and perceived warmth through symbolic threat, whereas competence hindrance was related to both general attitude and perceived competence through realistic threat but in opposing directions.

Endorsement of immigration policies. Endorsement of immigration policies was positively predicted by general attitude, $B = 0.27$, $SE = 0.06$, $p < .001$, 95% CI [0.16, 0.36], but was unrelated to perceived warmth or competence, $ps > .76$. All indirect effects of participant sample on general attitude through hindrances and threats subsequently offered unique predictability on locals' endorsement of immigration policy.

Discussion

Study 4 demonstrated that different groups of locals perceived the same group of immigrants differently along distinct instrumentality–threat pathways. More specifically, we found support for our expected pathways as well as two nonexpected ones, in particular realistic threat being predicted by belonging and autonomy hindrances. Like Study 3, our results delineated attitudes along warmth and competence dimensions. As predicted by the stereotype content model, general attitude behaved more similarly to perceived warmth than to perceived competence, and these differences emerged through distinct threat pathways. Finally, as working adults perceived Chinese immigrants as posing greater hindrances than did undergraduates, they also perceived Chinese immigrants as more threatening and less likable, and subsequently endorsed Singapore's liberal immigration policies less. These findings held despite controlling for age. In sum, the psychological antecedents of the perceived threats posed by immigrants have implications not only for the relationship between locals and immigrants but also for the prospects of immigrants.

General Discussion

Despite the wide-ranging use of threat to understand outgroup attitudes, few studies have looked at the psychological basis of those threat perceptions. We addressed this gap by examining immigrants' instrumentality to locals' autonomy, belonging, and competence needs as a key antecedent of threat and attitudinal perceptions. Support was generally found across four studies. Studies 1 and 2 showed that the proposed model, which applied instrumentality as an antecedent to threats and attitudes, fit the data better than alternative models that excluded either instrumentality or the indirect effects of instrumentality. Furthermore, our model accounted for differences in attitudes based on distinct immigrant groups (Study 3) and distinct local groups (Study 4). As expected, we consistently found that symbolic threat was predicted by autonomy and belonging hindrances while realistic threat was predicted by competence hindrance. Beyond what was predicted, we also observed that realistic threat was predicted by belonging hindrance consistently (Studies 1–4) and autonomy hindrance occasionally (Studies 1 and 4).

Symbolic and realistic threats subsequently predicted general attitude (Studies 1–4) and perceived warmth and competence (Studies 3 and 4; see Figure 3 and Table 5 for a summary of findings). Notably, symbolic threat predicted perceived warmth while realistic threat predicted perceived competence. In addition, Study 4 showed that instrumentality, through threat and attitudinal paths, also predicted locals' support for existing immigration policy.

Identifying the effects of instrumentality highlighted the complexities of attitude formation. In Study 2, Malaysian immigrants' competence hindrance predicted both a direct positive attitude and an indirect negative attitude toward them. While Malaysians' competence hindrance was directly associated with favorable impressions (because they are perhaps viewed as capable), it also predicted negative attitudes through increased realistic threat. Likewise for Study 3, although the greater hindrances and threats from Caucasian immigrants indirectly predicted more negative attitudes, Caucasians were regarded more favorably than Bangladeshi immigrants through the direct path. Therefore, accounting for the complexities between instrumentality, threats, and attitudinal subdimensions allowed us to elucidate latent tensions in locals' evaluations and achieve a better understanding of attitude formation. Finally, our findings held despite controlling for known predictors of intergroup attitudes (Study 1) and age (Study 4), thus attesting to the incremental utility of the proposed model.

Contributions and Implications

The current investigation illuminated the psychological mechanisms that govern threat perceptions and derived greater precision over the variables associated with the two threats central to ITT. In particular, our model established boundaries on what constitutes symbolic threat. Instead of a catch-all variable when realistic threat fails (Stephan et al., 2008), we found symbolic threat to be consistently related to the hindering of needs related to autonomy and belonging but not competence, insofar as specific immigrant groups were concerned (Studies 2–4).

In contrast, there was greater variability between needs hindrances and realistic threat. While the predicted link between hindrance to need for competence and realistic

threat was consistently observed, two non-predicted results were also documented: realistic threat was consistently predicted by belonging hindrance and occasionally predicted by autonomy hindrance. One possibility is that autonomy and belonging may also tap into real or practical constraints beyond abstract issues (e.g., freedom, identity). For example, an influx of immigrants may cause locals to feel like they no longer belong in their own country, which may evoke realistic threat due to the possibility of alienation, social exclusion, and loss of valued social resources (MacDonald & Leary, 2005). While this explanation is admittedly speculative and post hoc, such unexpected outcomes underscore the subjective nature of realistic threat, which has been traditionally regarded as objective assessments of tangible resources (e.g., educational opportunities, jobs), and spell the need for further studies on the psychology behind threat perceptions.

Relatedly, we observed a dominance of symbolic over realistic threat in predicting negative attitudes. In Studies 1 and 2, realistic threat had smaller effects relative to symbolic threat. In Studies 3 and 4, when perceived competence was isolated from perceived warmth, realistic threat no longer predicted perceived warmth and only predicted general attitude inconsistently. Thus, our findings resonate with past observations that intergroup hostility originates primarily as conflicts in abstract values rather than in tangible resources. For example, Kinder and Sears (1981) found that symbolic threat (Whites' moralistic resentment of Blacks) wielded a stronger influence than realistic threat (the tangible threat that Blacks might pose to Whites' lives) on anti-Black behavior. Similarly, Jia et al. (2011) showed that building a mosque near 9/11 ground zero was vehemently opposed because it constituted a symbolic transgression rather than a realistic one (e.g., concerns for space).

The present investigation adds to an emerging literature that applies SDT to intergroup contexts. In contrast to simplistic ingroup-versus-outgroup accounts, we draw from preexisting work (e.g., Legault & Amiot, 2014; Legault et al., 2007; Moller & Deci, 2010) to highlight the role of fundamental motivations in people's intergroup perceptions. To our knowledge, we are the first to examine the three basic needs simultaneously and observe how realistic and symbolic threats systematically map onto those needs. Given the high conceptual similarity and empirical associations of the three needs hindrances, an alternative approach might arguably be to consider them as singular or unitary. However, past studies have shown the theoretical and empirical value of a multidimensional approach even for relatively "tight" constructs. For instance, much has been gained from treating the distinct subfactors underlying social identity as separate despite their strong semantic and empirical associations (e.g., Leach et al., 2008; Roccas et al., 2008). Similarly in the SDT literature, Van den Broeck et al.'s (2016) meta-analysis also stressed the importance of unique variances contributed by each psychological need. Indeed, we found that the three-factor instrumentality model achieved a better fit with the data than a single-factor model. By emphasizing the unique contributions of the three distinct needs, we are better able to generate precise predictions and delineate the psychological processes underlying threat perceptions. Together, the present research makes a significant contribution by advancing our understanding of ITT and validating the far-reaching applicability of SDT.

Limitations and Future Directions

Our focus on autonomy, belonging, and competence covers an important but nonetheless limited portion of the instrumentality approach. Other goals can be examined to increase the resolution of our model. For instance, from an evolutionary perspective, mate-seeking and parenting are important goals that are relevant to singles and married couples, respectively (Kenrick et al., 2003). Thus, immigrant groups that undermine mate-seeking goals are more likely to be disliked by singles than married couples, whereas immigrant groups that obstruct parenting goals are more likely to be disliked by married couples than singles. Systematic examinations of these and other factors that influence instrumentality perceptions will be a fruitful direction for future research.

As the correlational nature of our data limits causal inferences, future studies may also consider experimentally manipulating immigrants' autonomy, belonging, and competence instrumentalities to observe their effects on threat and attitudinal perceptions. However, the need to simultaneously manipulate at least three instrumentalities poses formidable challenges. Alternatively, carefully controlled longitudinal studies employing cross-lagged analyses (Selig & Little, 2012) may be more feasible. Regardless, systematic, large-scale investigations to ascertain the causal directions of the instrumentality–threat links will be an important research agenda.

Broad individual difference factors known to predict social attitudes, including worldviews (Perry et al., 2013) and openness to experience (Flynn, 2005), should also be taken into account in future work given their links with prejudice and the possibility of acting as confounding "third variables." Although seeing our results hold after adjusting for covariates increases confidence in the independence of instrumentality from other preexisting drivers of attitudes, basic individual characteristics may nonetheless still influence a range of other-regarding tendencies (Smillie et al., 2018). For instance, greater openness to experience may influence how people construe the instrumentality of social targets, such as by viewing others' competitiveness positively (e.g., as interesting or motivating) rather than negatively (i.e., as a threat). Indeed, our finding that competent immigrants could be viewed both positively and negatively speaks to subtleties that may be clarified by a consideration of individual differences. It would thus be valuable to determine not only whether our findings are independent of such factors but also how they can be integrated with the personality literature.

Our findings may depend to some extent on country-specific factors as attitudes toward immigrants can be influenced by specific local tensions along political, racial, or class-based lines (Berg, 2010). Nevertheless, our argument remains that considering how immigrants hinder locals' goals is important and may even allow us to account for why those country-specific tensions exist at all. The present work also extends research on immigrants to underexplored Eastern populations and leverages the heterogeneity of social status in immigrant groups that are often absent in Western cultures. While this is a step in the right direction, Singapore still represents an industrialized, wealthy, and democratic country. Thus, further studies should rely on more diverse samples to demonstrate the utility of instrumentality as an explanation for threats and attitudes.

Various interventions to manage threat perceptions and attitudes have been proposed and implemented with mixed efficacy (e.g., Dietz et al., 2015; Guerin, 2005). The current study suggests that interventions targeting immigrants' instrumentality to locals' needs might pay greater dividends, especially considering that instrumentality has both facilitative and obstructive aspects (Fitzsimons & Shah, 2008). Our emphasis on the perceived threat of immigrants led us to focus only on hindering or obstructive elements, but intervention studies may also benefit from considering the facilitative aspects of instrumentality. For example, raising awareness of the ways by which immigrants enable or satisfy locals' psychological needs and strivings may reduce their perceived threats and subsequently improve how they are evaluated.

Finally, although a sample size of 314 was recommended according to G*Power based on 80% power in a regression model with five predictors, Study 2 fell short of this recommendation and therefore may be insufficiently powered. While converging evidence from the multiple studies we employed boosted our confidence in the findings including that of Study 2, future studies should nevertheless strive to ensure the use of adequate samples.

Conclusion

The current study empirically demonstrated that locals' evaluations of immigrants are conditional on their perceived instrumentality. When immigrants are seen as hindering locals' fulfillment of basic psychological needs, they are more likely to be perceived as threatening and are therefore judged more negatively. The insights from this study offer food for thought for researchers and policymakers alike, particularly where the underlying psychological basis of attitudinal perceptions is concerned.

Authors' Note

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Supplemental Material

Supplemental material is available online with this article.

Notes

1. We also pitted our proposed model against (a) a model in which all needs hindrances were treated as one factor, and (b) a model where all needs hindrances and threats were treated as one factor. Our model fit the data. Results are reported in Appendix A of the Supplemental material.
2. Analyses without covariates in both Studies 1 and 4 yielded the same patterns of results and are reported in Appendix B of the Supplemental material.

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