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# Multiple categorization and intergroup bias: Examining the generalizability of three theories of intergroup relations

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**Abstract**

Research on intergroup bias usually focuses on a single dimension of social categorization. In real life, however, people are aware of others' multiple group memberships and use this information to form attitudes about them. The present research tests the predictive power of identification, perceived conflict, and perceived symbolic threat in explaining the strength of intergroup bias on various dimensions of social categorization in multiple categorization settings. We conduct a factorial survey experiment, manipulating nine dimensions of social categorization in diverse samples from four countries ($n$ = 12810 observations, 1281 participants representing 103 social groups). The dimensions studied are age, gender, ethnicity, religion, place of residence, education, occupation, income, and one country-specific dimension. This approach allows exploring the generalizability of three established determinants of bias across dimensions of categorization, contexts, and target groups. Identification and symbolic threat showed good generalizability across countries and categorization dimensions, but their effects varied as a function of participant and target groups' status. Identification predicted stronger bias mainly when the participant belonged to a higher status and the target belonged to a lower status group. Symbolic threat predicted stronger bias mainly when the target was a minority group member. Conflict predicted bias only in few cases, and not only the strength, but also the direction of the effects varied across countries, dimensions, and target and participant groups. These findings help to clarify the limits of generalizability of established determinants of intergroup bias and highlight the need for new explanations of social-cognitive processes among minority group members.

*Keywords:* intergroup bias, prejudice, multiple categorization, identity, threat

# Multiple Categorization and Intergroup Bias: Examining the Generalizability of Three Theories of Intergroup Relations

Intergroup bias, the preference for ingroup members over outgroup members, is one of the most studied phenomena in social psychology. This preference has been documented in emotions, attitudes, and behaviors across dimensions of social categorization and contexts (Hewstone et al., 2002). Three prominent theories explain intergroup bias. Social Identity Theory (SIT, Tajfel & Turner, 1979) attributes bias to the basic cognitive process of social categorization: membership groups become part of an individual's self-concept, and bias results from the motivation to see these groups in a positive light, compared to outgroups. Realistic Group Conflict Theory (RGCT; Campbell, 1965; Sherif et al., 1961) proposes that intergroup bias is based on conflicting interests of the involved parties, such as competition for limited resources. Finally, Integrated Threat Theory (ITT, Stephan & Stephan, 1996), based on but extending RGCT and SIT, explains bias through perceived threat from outgroups.

All these theories have been successfully used to explain intergroup bias on various dimensions of social categorization, such as ethnicity, religion, gender (Bettencourt et al., 2001; Esses et al., 2005; Riek et al., 2006). However, studies of intergroup bias usually focus on a single dimension of social categorization, whereas in reality, people are aware of others' multiple group memberships. Research on crossed and multiple categorization suggests that people simultaneously use multiple bases of categorization when forming impressions of others (Crisp, Hewstone, & Cairns, 2001; Crisp & Hewstone, 2007). The present research examines the predictive power of the three theories in explaining intergroup bias on a given categorization dimension when target's other group memberships are simultaneously salient.

Scholars across disciplinary boundaries emphasize the importance of considering the multiplicity of group memberships in the study of prejudice (Cole, 2009; Crisp & Hewstone, 2007; Vertovec, 2007). Understanding the extent and the limits of applicability of theories of intergroup relations to real-life settings requires testing these theories in situations that resemble reality, that is, in situations when more than one group membership is salient. However, the question of how well the existing theories of intergroup relations can explain the strength of intergroup bias in multiple categorization settings remains largely unaddressed in social psychological literature. This study aims to attend to this gap by examining the generalizability of three established determinants of intergroup bias—identification, salience of conflict, and perceived symbolic threat—across contexts, categorization dimensions, and groups in multiple categorization settings.

We first briefly discuss studies of intergroup bias in multiple categorization settings. We then turn to specific predictions derived from the three theories under consideration: SIT, RGCT, and ITT. Finally, we provide an overview of the current study.

**Intergroup Bias in Multiple Categorization Settings**

Multiple categorization can refer to self- or other-categorization that involves either multiple groups on a single dimension (e.g., mixed race individuals) or multiple dimensions of social categorization (e.g., female engineer; Nicolas et al., 2017). In this article, we use the term multiple categorization to indicate that the target of perception is categorized along multiple dimensions (Crisp & Hewstone, 2007).

The study of intergroup bias in multiple categorization settings commenced with crossed categorization paradigm. Crossed categorization is a special case of multiple categorization, where two categorization dimensions intersect, creating four targets that share either none, one,

or both group memberships with the perceiver (Deschamps & Doise, 1978; Doise, 1978). For example, a perceiver who is a female and an engineer would evaluate four targets: a female engineer (double ingroup), a male engineer (outgroup/ingroup), a female psychologist (ingroup/outgroup), and a male psychologist (a double outgroup). Multiple categorization paradigm we employ is an extension of the crossed categorization paradigm, where multiple dimensions of social categorization are crossed, creating targets with systematic variation in group memberships along multiple dimensions. To use an extension of the earlier example, participants would evaluate targets described as "A [young/elderly] [female/male] [engineer/psychologist] from [Germany/USA]".

There are two streams of research that employ crossed and multiple categorization designs. One focuses on information processing, investigating patterns of evaluation of multiply categorized targets (Hewstone et al., 1993; Urban & Miller, 1998). Another focuses on bias reduction, showing that increasing the number of categorization dimensions leads to reduction in intergroup bias (Crisp, Hewstone, & Rubin, 2001; Hall & Crisp, 2005; Prati et al., 2016). The current study does not aim to investigate either the evaluation patterns or the bias reduction potential of multiple categorization. Instead, we aim to study the generalizability of well-established predictors of intergroup bias and use multiple categorization scenarios as a tool to approximate real-life interactions.

Studies of intergroup bias in multiple categorization settings show that the strength of bias varies across categorization dimensions. The differential strength with which various categorization dimensions affect attitudes is attributed to category salience (Crisp & Hewstone, 2007). According to self-categorization theory (Turner et al., 1987), category salience is a product of the readiness of a perceiver to use a specific category (accessibility) and the fit

between category representations and the stimulus. In multiple categorization scenarios the fit is usually a constant (categories are explicitly stated in the stimuli and the variation in the stimuli is controlled) unless there is contextual variation in category representations. Within a given context, with little to no variation in category representations, perceiver readiness, that is, a perceiver's expectations and motivations (Bruner, 1957), should be the main factor leading to differences in category salience.

Perceiver readiness is usually operationalized through category accessibility (Oakes, 1987), which can be either situational, resulting from the recent use of a category, or chronic, resulting from frequent use of a category (Higgins, 1989). If situational accessibility is controlled, as is the case in multiple categorization scenarios, category salience should be predominantly affected by chronic accessibility. A number of studies suggest that chronic accessibility of social categories is linked to prejudice levels: individuals who are prejudiced towards a specific group are likely to base their judgments on that particular group membership (e.g., Quanty et al., 1975; Stangor et al., 1992). Following this theorizing, we should expect individual differences that predict prejudice to also predict the strength of intergroup bias in multiple categorization scenarios.

**Identification**

SIT (Tajfel & Turner, 1979) posits that social groups to which we belong become part of our self-concept through identification. As we are motivated to see ourselves positively, we are also motivated to see these membership groups positively, which can be achieved through intergroup comparison. This is the basic cognitive process that, according to SIT, underlies ingroup favoritism (Tajfel & Turner, 1986). Whether identification does or does not lead to outgroup derogation depends on individual and contextual factors, such as legitimacy and

stability of groups' status relations and permeability of group boundaries (Brewer, 1999; Brown, 2000; Ellemers, 1993; Mummendey & Otten, 1998). Much of intergroup bias, prejudice, and discrimination is motivated by preferential treatment of the ingroup rather than direct hostility towards outgroups (Brewer, 1999). Meta-analytical evidence supports the SIT prediction that bias results from identification with and the desire to benefit the ingroup (Balliet et al., 2014).

How does SIT theorizing apply to situations when information about others' multiple group memberships is available? Most of the evidence addressing this question comes from the crossed categorization literature. Studies using this paradigm show that the importance of a category affects evaluation patterns of the four targets (Urban & Miller, 1998). When a dimension is deemed important, it tends to dominate perception, leading to the category dominance pattern in which the second, less important dimension is either ignored or has a weaker effect on evaluations (Hewstone et al., 1993). The dual-route model of crossed categorization suggests that category importance moderates the effects of categorization dimensions through both cognitive and affective routes. Category importance increases category accessibility (Turner et al., 1987), which in turn makes it more readily available both for cognitive processing and affective evaluation (Crisp et al., 2003).

Most studies that looked into the role of category importance either used primes to make certain categories more salient (Crisp & Hewstone, 2007), or estimated the importance of different categories post hoc (Urban & Miller, 1998). Often, the dominance of a category in target evaluations was treated as a proxy for its importance to the self. We argue that importance of a category to the self (a key component of identification; Ashmore et al., 2004; Leach et al., 2008) and its dominance in target evaluations (strength of bias) need to be differentiated. We hypothesize that the higher the importance of a categorization dimension to the self, the stronger

is intergroup bias on that dimension (H1). Considering the universality of cognitive processes underlying identification (Turner et al., 1987), we expect this effect to be similar across contexts and dimensions of social categorization. As to generalizability across perceiver and target groups, there is mixed evidence suggesting that depending on circumstances, both high-status and low-status groups can show stronger identification with the ingroup (Branscombe et al., 1999; Roccas, 2003) and more intergroup bias (Bettencourt et al., 2001; Scheepers et al., 2006). There is no clear evidence to suggest that group status will moderate the relationship between identification and intergroup bias.

**Perceived conflict**

RGCT puts contextual and situational factors to the fore and explains prejudice through competition for resources. The key mechanism the theory proposes is negative interdependence of the groups: if a situation is viewed as a zero-sum game, this will lead to competition, conflict, and prejudice (Sherif et al., 1961). Studies in psychology, anthropology, and sociology demonstrate that competition for resources leads to greater intergroup hostility (e.g., Divale & Harris, 1976; Esses et al., 2005; Jackson, 1993). The theory was later incorporated into ITT (Stephan & Stephan, 2000) and studies within this paradigm suggest that realistic threat predicts prejudice over and above other types of threat (Riek et al., 2006).

The two frameworks, RGCT and ITT, rely on somewhat different operationalizations of intergroup conflict. In RGCT, conflict is usually operationalized through intergroup competition and manipulated experimentally (e.g., Holtz & Miller, 2001). In ITT, conflict is operationalized through perceived threat (e.g., Zárate et al., 2004). Although perceived threat is part of RGCT theorization, conflict itself is considered the primary cause of prejudice, with both perceived

threat and prejudice following from it (Campbell, 1965). As we aim to test the core prediction of RGCT, the variable of interest is the salience of intergroup conflict.

Only one study, to the best of our knowledge, tested the effect of intergroup conflict on attitudes towards multiply categorized targets. In a cross-sectional study, authors measured German students' political affiliation and attitudes towards Syrian immigrants before and after the Paris 2015 terrorist attacks (Jungkunz et al., 2019). The immigrants' religious affiliation (Christian vs. Muslim) and religiosity were manipulated. The study found that only immigrant's religious affiliation but not religiosity affected attitudes towards them. Attitudes towards Muslim immigrants became more negative among conservative students after the attacks. Based on evidence from the studies presented above, we hypothesize that the higher the perceived salience of intergroup conflict on a categorization dimension, the stronger is intergroup bias on that dimension (H2). Considering the importance of the history of intergroup relations in perceptions of conflict, we expect this effect to be more prone to contextual influences.

**Perceived Symbolic Threat**

Not only realistic but also less tangible, symbolic threats can lead to prejudice (Allport, 1954; Kinder & Sears, 1981). ITT expands the concept of symbolic racism to all intergroup relations and defines symbolic threat as a threat to an ingroup's "way of life", which arises from perceived incompatibility of the ingroup's and the outgroup's values, beliefs, and norms (Stephan & Stephan, 1996, 2000). Meta-analytical evidence suggests that the explanatory power of symbolic threat in predicting outgroup attitudes is as strong as that of realistic threat (Riek et al., 2006).

The potentially important role of perceived threat in multiple categorization has been discussed in earlier studies but without conclusive empirical evidence. Some studies find that

when the outgroup on one dimension poses a threat to identity, the mixed targets are evaluated as negatively as the double outgroup (Hewstone et al., 1993). However, a meta-analysis of the effects of crossed categorization on intergroup bias did not find supporting evidence for this effect (Migdal et al., 1998). Importantly, the degree of identity threat in these studies was not measured or manipulated but evaluated post hoc by the researchers.

Several factorial survey experiments theorized about the role of economic and cultural threats in how different factors contribute to acceptance of immigrants, without explicitly measuring the level of perceived threat (Bansak et al., 2016; Diehl et al., 2018; Hainmueller & Hiscox, 2010; Hainmueller & Hopkins, 2015). All these studies find that cultural threat (operationalized through target's membership in ethnic or religious outgroup) leads to lower acceptance of immigrants, whereas the role of economic threats (operationalized through likelihood of labor market competition) is less clear. Most common finding regarding the role of economic threats is that individuals with both low and high socio-economic status prefer immigrants with high socio-economic status (Bansak et al., 2016; Hainmueller & Hiscox, 2010; Hainmueller & Hopkins, 2015), which contradicts the economic threat prediction.

Although none of the abovementioned studies explicitly measured perceived threat, they provide some initial evidence that symbolic threat might have larger predictive power in multiple categorization settings than realistic threat. We hypothesize that the higher perceived symbolic threat from an outgroup, the stronger the intergroup bias on that categorization dimension (H3). The effect of perceived threat on attitudes is stronger when the target group has low vs. high status (Riek et al., 2006; Stephan et al., 2002). This effect can be explained through the mechanism of loss aversion (Kahneman & Tversky, 1979): high-status groups are concerned with losing power, whereas low-status groups do not have much to lose (Stephan et al., 2002).

We expect the effect of symbolic threat to be present across dimensions and contexts, but stronger for target groups with lower status.

**Current Study**

The motivation behind this study is to examine the generalizability of three major theories of intergroup relations by investigating their predictive power in a realistic setting, using multiple dimensions of social categorization. We further aim to address some key limitations of multiple categorization research with regard to ecological validity, which include (a) the frequent use of artificial groups in laboratory settings (Ensari & Miller, 2001), (b) use of only two categorization dimensions (Nicolas et al., 2017), and (c) homogeneity of samples and regional bias.

To address these limitations, we employ a cross-cultural sequential mixed-methods design. First, we select four countries representing contrast cases for country-level inequality and acceptance of cultural diversity: Australia, Armenia, Brazil, and India.[1] This cross-cultural design allows testing the generalizability of the theories across markedly different contexts and addresses the regional bias of earlier studies (Boehnke et al., 2011). Second, we conduct interviews with local experts on intergroup relations in each country to select dimensions that are relevant for the context (similar to the procedure used in stereotype content research, Fiske et al., 2002). The results of the expert interviews are then used in a factorial survey experiment where all the selected dimensions are manipulated. Factorial survey designs combine the benefits of experimental and field studies, allowing the manipulation of multiple independent variables and implementation in a survey format (Jasso, 2006). Factorial surveys are also less prone to social desirability effects compared to other self-report measures (Armacost et al., 1991; Auspurg et al.,

[1] We used this contrast cases approach to test predictions about country-level determinants of intergroup bias. The results of country-level analysis are out of the scope of the current paper and are presented elsewhere (Grigoryan et al., 2020).

2014) and have been successfully used to study attitudes towards immigrants and asylum seekers (Bansak et al., 2016; Diehl et al., 2018; Hainmueller & Hopkins, 2015; Jungkunz et al., 2019), residential segregation (Diehl et al., 2013; Schlueter et al., 2018), and ethnic prejudice (Havekes et al., 2013). Finally, we address the issue of sample heterogeneity by recruiting participants from all social groups that are included in the study. The sample includes both majority and minority group members on each categorization dimension studied.

All study materials, including the questionnaires, data, syntax, and the pretest report can be found on the Open Science Framework platform: https://osf.io/4crnq/.

## Selection of Categorization Dimensions

### Method

#### *Participants*

Ten or eleven experts on intergroup relations in each country participated in an online survey ($N_{total} = 41$; 20 female). We pre-selected and invited the experts based on their research and regional expertise. Disciplinary backgrounds included social psychology, sociology, political science, history, and social sciences (interdisciplinary).

#### *Design and Procedure*

The experts in each country responded to a semi-structured online questionnaire. The instruction read: “Please go through the list of different possible dimensions for categorizing people into groups and rank these dimensions in terms of how relevant or important they are in [Country] for people's perceptions of each other.” The list of dimensions was based on group memberships that frequently appear in studies of intergroup relations: gender, age, occupation, education, income, political views, place of residence (within country), citizenship, migration status, religion, race, ethnocultural background, mother tongue, proficiency in [country’s

official] language, ability/disability, and sexual orientation. Then, experts were asked: "Are there any other important ways of categorizing people in [Country] that were not listed above? Please list all the categorization dimensions that were not mentioned before."

**Results**

The intra-class correlation (ICC) for inter-rater reliability varied between .66 and .87 across countries. To determine which dimensions should be included in the main study, we ran repeated measures ANOVA with simple contrasts in each country, comparing the rank of the first (most important) dimension with each of the following dimensions (see Tables S1.1 to S1.4 in the Online Supplement). We dropped dimensions that ranked significantly lower than the first dimension, starting from the lowest ranking dimension. For the open-ended question, the dimension was considered for inclusion if at least 30% of the experts mentioned it. This was the case only with caste in India, which was mentioned by eight out of ten experts.

We then integrated the results of within-country analyses. Gender, occupation, income, and ethnocultural background were found to be important in all four countries; age and education in three countries; race, religion, and place of residence in two countries. All these dimensions were included in the main study in all four countries. We combined the dimensions of ethnocultural background and race, as both refer to socially constructed cultural groups based on origin. Additionally, there were categorization dimensions that were identified as important only in one of the countries. English language proficiency was important only in Australia, sexual orientation in Armenia, political views in Brazil, and caste in India. These dimensions were incorporated into the vignette setup as country-specific dimensions (see below). A cross-validation of the expert interview results with earlier studies where salient social groups were

elicited from general population in an open-response format (Fiske, 2020; Grigoryan et al., 2020) suggests that the two methodologies result in nearly identical lists of categorization dimensions.

## Main Study

### Method

#### *Design*

To maximize the power of a factorial design, the dimensions should be represented by the same number of levels, ideally 2 to 3 levels per dimension (Auspurg & Hinz, 2015). We used three levels to represent each dimension, except for gender in all countries and sexual orientation in Armenia, which were represented by two levels. We aimed for functional equivalence (Fontaine, 2005; van de Vijver & Leung, 1997) of selected groups rather than an exact match between countries (e.g., religious groups differed across countries, but always represented the majority and the largest minority religion in the country, plus a category of *not religious*). To select the groups to represent the dimensions that were closely linked to the country context (e.g., ethnic or religious groups), we conducted two to four informal interviews with residents of each country. For ethnicity and religion, we included the majority ethnic group in each country and two minority groups with relatively high and low status. For the dimensions of education, occupation, and income, the groups were selected to represent conceptual categories *low, average*, and *high*, but the specific labels were selected to be relevant to the local context. We excluded combinations of group memberships that were perceived as highly implausible by the interviewees (for example, having a professional job and low level of education in Brazil and India), as the inclusion of unrealistic vignettes can compromise data validity (Auspurg & Hinz, 2015). Table 1 summarizes the categorization dimensions and categories included in the vignette

setup in each country. We provide a more detailed account of dimension and category selection in each country in the Online Supplement.

With nine dimensions and two to three levels per dimension, there were 13122 vignettes in the vignette universe per country (all possible combinations of all group memberships: 3x3x2x3x3x3x3x3x3). To sample a set of vignettes that would be representative of the vignette universe and allow orthogonality of vignette dimensions and balanced representation of all levels, we employed a D-efficient fractionalized design with orthogonal main effects[2] (Dülmer, 2007). D-efficiency coefficients of 90 and higher provide sufficient power to estimate the causal effects of vignette dimensions on the dependent variable (Auspurg & Hinz, 2015). We used SAS Enterprise software to sample the vignettes (SAS Institute Inc., Cary, 2011). We sampled thirty vignettes in each country and split the sampled vignettes into three sets of ten vignettes. Methodological studies on factorial survey designs suggest that evaluating more than ten vignettes in a single questionnaire can cause participant fatigue and result in poor data quality (Auspurg & Hinz, 2015). The distribution of factor levels by vignette sets can be found in Table S3 of the online supplement. The D-efficiency coefficients varied between 92.55 and 98.02, indicating sufficient power of the design in all countries.

***Participants***

Aiming to overcome the underrepresentation of minority groups in studies of intergroup relations (Hindriks et al., 2014), we used non-probabilistic quota sampling to represent all the social categories that were included in the vignettes. Two criteria were used to determine the sample size at the country and the group level. For the country level, we followed recommendations by Maas and Hox (2005) and aimed at 100 participants per vignette set—

[2] The orthogonal main effects design ensures that the main effects can be estimated independent of each other by confounding higher-order interactions. Therefore, this design does not allow testing interaction effects between vignette dimensions (Atzmüller & Steiner, 2010; Dülmer, 2016).

optimal sample size for the second level units in multilevel models. Hence, to achieve sufficient power for the three sets of vignettes, the desired sample size was 300 participants per country (100 respondents x 3 vignette sets). For the group level, we followed Auspurg and Hinz's (2015) recommendation to aim for at least 5 participants per questionnaire version; thus, the desired sample size was at least 15 participants per group.

Participants in Australia, Brazil, and India were recruited from a research panel of a survey company Lightspeed that specializes in digital data collection. The company does not offer panels in Armenia. Data collection in Armenia was conducted by the Turpanjian Center for Policy Analysis at the American University of Armenia. Where online access to participants was not possible (hard-to-reach minority groups in Armenia and India), the survey was administered as a computer-assisted personal interview by local research assistants. Overall, we sampled 103 groups in four countries; the desired sample size was reached for 100 groups. The total sample size was $N = 1281$ ($N_{AU} = 359$, $N_{AR} = 311$, $N_{BR} = 282$, $N_{IN} = 329$). As each participant evaluated ten vignettes, this amounted to $n = 12810$ observations. Even the smallest subsample ($n = 7$) still provides sufficient data for the analysis with $n = 70$ of observations. Table 1 combines the summary of dimensions and categories used in the vignettes and the number of participants from each group in the sample.

**Table 1**

*Groups Represented in the Vignettes and in the Sample*

| Dimension | Group 1 | N participants | Group 2 | N participants | Group 3 | N participants |
|---|---|---|---|---|---|---|
| Australia, $N_{total} = 359$ | | | | | | |
| Age | Young | 59 | Middle-aged | 216 | Elderly | 84 |
| Ethnicity | European Australian | 267 | Asian Australian | 35 | Aboriginal Australian | 46 |
| Gender | Female | 189 | Male | 168 | | |
| Place | Capital city | 212 | Regional town | 109 | Country | 38 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | Australia | |
| Religion | Christian | 171 | Muslim | 19 | Not religious | 166 |
| English language proficiency | Is a native Australian English speaker | 292 | Is fluent in English, but doesn't sound Australian | 59 | Has difficulty speaking English | 8 |
| Education | Has a university degree | 119 | Completed vocational training | 171 | Completed high school to year 10 | 69 |
| Occupation | Has a professional job | 187 | Tradesperson | 163 | Unemployed | 9 |
| Income | Better off than the average Australian | 54 | On a par with the average Australian | 188 | Worse off than the average Australian | 117 |
| Armenia, $N_{total}$ = 311 | | | | | | |
| Age | Young | 225 | Middle-aged | 59 | Elderly | 27 |
| Ethnicity | Armenian | 273 | Russian | 21 | Yazidi | 17 |
| Gender | Female | 200 | Male | 109 | | |
| Place | Yerevan | 167 | Regional town | 96 | Village | 48 |
| Religion | Christian | 236 | Yazidi | 17 | Not religious | 54 |
| Sexual orientation | Heterosexual | 289 | Homosexual | 22 | | |
| Education | Has a university degree | 234 | Attended college | 36 | Completed high school | 41 |
| Occupation | Skilled professional | 215 | Low-skilled worker | 42 | Unemployed | 54 |
| Income | Is wealthy | 67 | Has an average income | 142 | Is poor | 102 |
| Brazil, $N_{total}$ = 282 | | | | | | |
| Age | Young | 122 | Middle-aged | 133 | Elderly | 27 |
| Ethnicity | White | 166 | Mixed race | 91 | Black | 25 |
| Gender | Female | 141 | Male | 140 | | |
| Place | Capital city | 135 | Regional town | 130 | Village | 17 |
| Religion | Catholic | 122 | Evangelical | 101 | Not religious | 59 |
| Political views | Apolitical | 151 | Supports the right | 84 | Supports the left | 47 |
| Education | Has a university degree | 168 | Completed high school | 76 | Completed primary school | 38 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Occupation | Skilled professional | 214 | Low-skilled worker | 61 | Unemployed | 7 |
| Income | Rich | 60 | Has an average income | 170 | Poor | 52 |
| India, $N_{total}$ = 329 | | | | | | |
| Age | Young | 161 | Middle-aged | 146 | Elderly | 22 |
| Ethnicity | Bihari | 69 | Bengali | 108 | Tamil | 140 |
| Gender | Female | 127 | Male | 201 | | |
| Place | Capital city | 181 | Regional town | 109 | Village | 39 |
| Religion | Hindu | 283 | Muslim | 27 | Not religious | 19 |
| Caste | Forward Caste | 175 | Other Backward Class (OBC) | 107 | Scheduled caste/tribe | 47 |
| Education | Has a university degree | 281 | Studied up to high school | 33 | Studied up to primary school | 15 |
| Occupation | Professional | 258 | Laborer | 49 | Unemployed | 22 |
| Income | Rich | 46 | Has an average income | 256 | Poor | 27 |

Note. Group labels presented in the table are the labels used in the vignettes. Participants' membership in a group was determined based on their self-reported demographic background (see Procedure and Measures for details).

***Procedure and Measures***

The survey was set up on the online survey platform Unipark. The study description informed the participants that the study is about "social groups in [Country]" and "We are interested in how people associate with these groups and how these groups are perceived in [Country] society". All participants received an informed consent form at the beginning of the questionnaire and agreed to participate. Participants were presented with one of the three sets of vignettes, chosen at random. Except for variation in the vignette sets, the questionnaires were identical. We used both the translation/back-translation technique and committee approach to

translate the questionnaires (Harkness et al., 2003; van de Vijver & Hambleton, 1996). To ensure the quality of the questionnaire, we conducted a pilot study with 30 to 34 participants in each country ($N_{total}$ = 189). The questionnaire was administered in English in Australia, in Armenian and Russian (for the Russian minority) in Armenia, and in Portuguese in Brazil. In India, participants could choose between Hindi and English versions of the questionnaire. The average completion time for the questionnaire was 14 minutes.

**Vignettes.** The questionnaire started with the vignette evaluation task. The instruction read, "Below you will read descriptions of 10 different people living in [Country]. Please evaluate each person using the scales after each description. You need to choose a number on a scale from 1 (*not at all*) to 6 (*very much*) that best describes your attitude towards a person. There are no right or wrong answers, we are interested in your opinion." Then, ten vignettes were presented in a randomized order. The order of presentation of the vignette dimensions within each vignette was kept constant. Examples of vignettes: "A young Bihari woman. She lives in a village. She is Muslim. She belongs to a Scheduled Caste. She studied up to high school and works as a laborer. She has an average income." (India); "An elderly Asian Australian man. He lives in a regional town. He is not religious. He is a native Australian English speaker. He completed vocational training and works as a tradesperson. Financially, he is worse off than the average Australian." (Australia). Three questions were used to measure the attitude towards the vignette person: "I like this person", "I respect this person", and "I want to engage with this person". Liking and respect[3] were aimed at covering the warmth and competence dimensions of perception (Fiske et al., 2002; Wojciszke et al., 2009), and the last question

[3] Although some recent studies (Brambilla et al., 2011; Goodwin et al., 2014) argue that respect reflects the morality dimension of perception rather than agency/competence, all studies agree that this characteristic is distinguishable from likeability (sociability/warmth).

measured the behavioral component of the attitude. Cronbach's α for this measure varied from .81 to .92 across countries.

**Socio-Demographic Variables and Ingroup Membership.** The second part of the questionnaire assessed the socio-demographic characteristics of the participants. We measured all nine dimensions of categorization included in the vignette setup to be able to identify whether the participant and the person described in the vignette shared a group membership on each of the dimensions. For each dimension, we coded an observation as an "ingroup" if the participant and the target person belonged to the same group on that dimension and as an "outgroup" if they belonged to different groups.

***Gender***, with categories *female*, *male*, and *other* (open-ended).

***Age.*** Exact age and self-identified age category *young*, *middle-aged*, and *elderly*. The latter was used to code ingroup membership.

***Place of Upbringing and Residence.*** Two questions were included: "Where did you grow up?" and "Where are you currently living?" with categories *in a capital city*, *in a regional town*, and *in a village/countryside*. We used the former question to code ingroup membership.

***Ethnicity.*** "Please indicate to which of the following groups you consider yourself to belong?" Only those ethnic groups that were included in the study design were included as response categories, plus a category of *other*. For bicultural participants, we included an additional question: "If you consider yourself to belong to more than one of these groups, please indicate which of the other groups you belong", with the same response options.

***Religion.*** "Are you religious and if yes, which religion do you belong to?" with a category *not religious* and categories representing the most widespread religions in the country

(e.g., Christianity, Buddhism, and Islam in Australia). Additionally, we included categories of *other* (open-ended) and *I do not want to answer this question*.

***Level of Education.*** "What is the highest level of education that you have attained?" The categories were tailored to the educational system in each country based on measures used in international surveys, such as World Values Survey and International Social Survey Programme.

***Employment Status.*** "Are you currently working for pay, did you work for pay in the past, or have you never been in paid work?" with categories *I am currently in paid work*, *I am currently not in paid work*, and *I have never had paid work*. If participants answered that they worked for pay currently or in the past, they were directed to another question to determine whether they should be categorized as *workers* or *professional*. We asked participants to describe their current job, or, if not currently employed, their last job. Three items measured the job status: "Does your job require a high level of education?", "Is it a high-paying job", and "Does it require a high level of skills?" Three-point response scale was offered: *no*, *to some extent*, and *yes*. Participants who scored two or higher on the scale were categorized as *professionals* and those who scored lower as *workers*. Those who have never been in paid work were categorized as *unemployed*.

***Income.*** To measure perceived financial status, we asked: "In terms of income, to which of the following groups you consider yourself to belong?" Response categories indicated low, average, and high income levels, but the specific labels were tailored to country (e.g., *lower class*, *middle class*, and *upper class* in India; *worse off than the average* [country resident], *about the same as the average* [country resident], *better off than the average* [country resident] in other countries).

***Country-specific Dimension.*** In each country, we additionally asked about participant's group membership on the dimension that was included as a country-specific dimension in the vignette setup. In Australia, this was English language proficiency. We first asked, "Are you a native Australian English speaker" (*yes*/*no*). For participants who responded *no*, we followed up with a question "How well do you know English?" with response categories *native English speaker*, *fluent in English*, and *have difficulty speaking English*. In Armenia, given that the topic of sexual orientation is a taboo and a direct question might have elicited negative reactions from the participants, we instead asked: "Do you consider yourself a member of the LGBT community?" (*yes/no*); an explanation of the abbreviation LGBT was provided as well. In Brazil, we asked, "What is your political orientation?" with response categories *I have no interest in politics*, *I support parties on the left*, and *I support parties on the right or center*. In India, the classification for castes paralleled the one selected for the vignettes. The question read, "Please indicate which of the following groups you consider yourself to belong to?" with response categories *Forward caste*, *Scheduled caste/Scheduled tribe*, *OBC*[4], and a category of *other*.

**Identification, Perceived Conflict, and Perceived Threat.** The following three sections measured identification, salience of intergroup conflict, and perceived symbolic threat on each dimension.

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[4] This is an official classification used by the Government of India to acknowledge the disadvantaged groups within the country. The official classification is applied to all Indian population, irrespective of their religious or ethnocultural background. Forward caste is not considered disadvantaged or discriminated against and does not qualify for affirmative action schemes. Scheduled castes or scheduled tribes are the group of people who have historically been discriminated. This group is mainly comprised of people who were previously referred to as "Untouchables" and are currently often referred to as Dalits. Finally, the third category is Other Backward Class (OBC), which includes other disadvantaged groups, such as the Shudra class from the traditional Hindu caste system.

***Identification.*** "To what degree are the group memberships listed below important to your sense of who you are?" (adapted from Cheek & Briggs, 1982). Each dimension ("My gender," "My age," "My ethnicity/race," etc.) was evaluated using a 6-point scale from 1 (*absolutely unimportant*) to 6 (*extremely important*).

***Salience of Intergroup Conflict.*** The instruction read: *"*All people around you can be described in terms of social groups they belong to, for example, men and women, or younger and older people. Some of these groups are in conflict with each other (for example, for resources or power), and some are not. Below is the list of different social groups that exist in [Country] society. Please assign a score to each of the groups listed below depending on to what degree you think these groups are in conflict with each other in [Country]." The list included the same nine dimensions, phrased in terms of opposing group memberships (e.g., "Men and women," "Younger and older people," "People with different religious beliefs," etc.). The response scale ranged from 1 (*not in conflict at all*) to 6 (*in a severe conflict*). The measure was developed by the authors for the purposes of the current study.

***Symbolic Threat.*** Following the definition of symbolic threat as perceived incompatibility of own group's values and beliefs with those of outgroups (Kinder & Sears, 1981; Riek et al., 2006), this measure was designed to specifically target outgroup perceptions. We asked participants "How compatible or incompatible are moral values and beliefs of the groups listed below with the values and beliefs of the groups that you belong to?" with the response scale ranging from 1 (*absolutely incompatible*) to 6 (*absolutely compatible*). The list of groups was filtered so that those groups that the participant belonged to (based on previous answers to the socio-demographic questions) were hidden. From the total list of 26 groups per country, each participant on average evaluated 17 groups (e.g. "men," "elderly people,"

"Muslims," etc.).[5] This measure is a conceptual adaptation of the symbolic threat scale by Stephan et al. (2002).

### *Analytical Strategy*

We used multilevel regression analysis to account for the hierarchical data structure, where vignettes are nested within respondents (Hox, 2010). In each model, we first included vignette characteristics, then dummy-coded indicators of ingroup membership between the participant and the target on each dimension, then participant characteristics for control. The measure of intergroup bias is the regression slope of ingroup membership on attitude. We tested the three proposed hypotheses as cross-level interactions, where individual-level scores of identification, conflict, and threat on a given dimension predict the link between ingroup (vs. outgroup) membership on that dimension and the attitude. Following recommendations on testing cross-level interactions in multilevel models (Aguinis et al., 2013), we first estimated whether there is significant between-participant variation in the slopes of ingroup membership on attitude, and tested interactions only for those dimensions that showed such variation. We tested all interactions in models with random slopes and random intercepts. If the model with a random slope did not converge, it was simplified by fixing the slope (Bates et al., 2018).

To avoid inflating false-positive rates for the main effects, we adjusted the alpha using the formula proposed by Good (1982) by the smallest sample size at the country level ($N = 282$ in Brazil). The adjusted p-value of 0.03 was used to estimate the significance of the main effects. For interaction terms, we used the conventional cutoff of $p < .05$, as the power to detect cross-level interactions is usually considerably lower than the power for estimating main effects (Mathieu et al., 2012). Country-specific models with main effects of the vignette dimensions,

[5] Due to a technical error, perceived symbolic threat was not evaluated for one target group: people who are "fluent in English, but don't sound Australian".

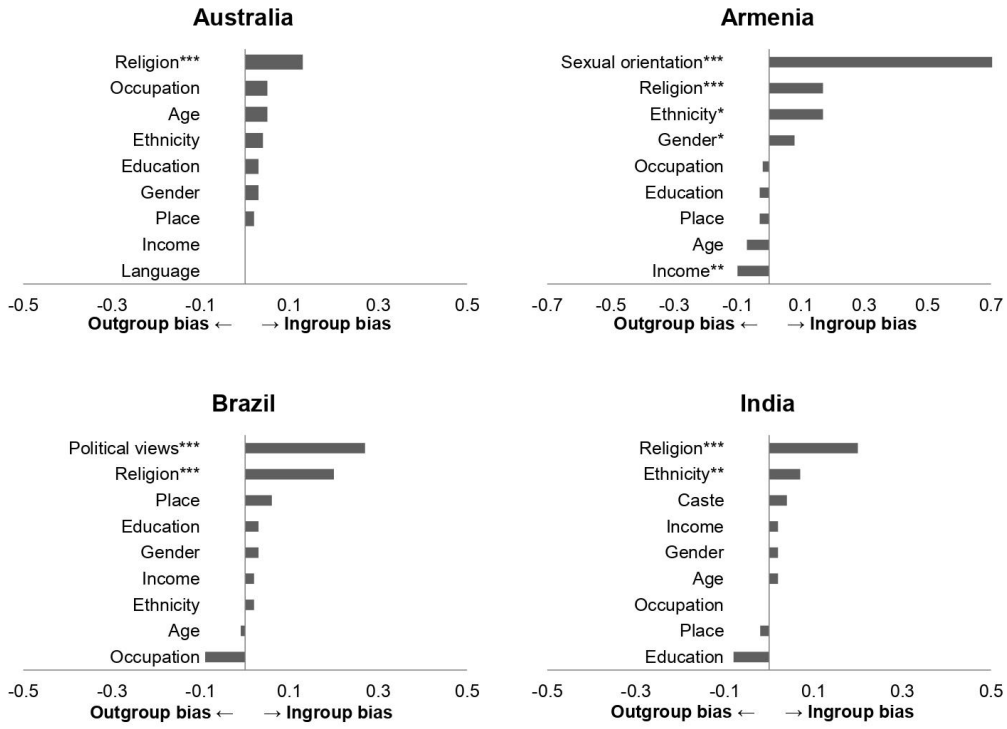
ingroup vs. outgroup membership, and respondent characteristics predicting attitudes are reported in Tables S4.1 to S4.4 of the Online Supplement.

## Results

From the eight dimensions manipulated in the vignettes in all countries, we observed significant intergroup bias on the dimensions of religion (AU: $b = 0.14$, $SE = .03$, $p < .001$; AR: $b = 0.17$, $SE = .05$, $p < .001$; BR: $b = 0.20$, $SE = .03$, $p < .001$; IN: $b = 0.20$, $SE = .04$, $p < .001$), ethnicity (AR: $b = 0.17$, $SE = .07$, $p = .012$; IN: $b = 0.07$, $SE = .03$, $p = .006$), and gender (AR: $b = 0.08$, $SE = .04$, $p = .025$). Intergroup bias was also observed on country-specific dimensions of sexual orientation in Armenia ($b = 0.72$, $SE = .07$, $p < .001$) and political views in Brazil ($b = 0.27$, $SE = .03$, $p < .001$), Figure 1 shows strength of bias and its direction across dimensions and countries.

**Figure 1**

*Strength of Intergroup Bias Across Dimensions and Countries*



*Note*. * $p < .03$, ** $p < .01$, *** $p < .001$. Positive coefficients indicate preference for the ingroup (ingroup bias), negative coefficients indicate preference for the outgroup (outgroup bias).

Before proceeding to test the moderating effects of identification, conflict, and threat, we tested whether the slopes of the effects of ingroup membership on attitude significantly varied between individuals. For this and the following analyses, we used the pooled sample of all four countries, including country as a fixed effect. To avoid over-fitting, we tested random slopes and interactions for each dimension in separate models. Five out of nine dimensions had significant random slope variation: the country-specific dimension ($\sigma^2_{u1} = 0.596$, $p < .001$), religion ($\sigma^2_{u1} = 0.024$, $p < .001$), ethnicity ($\sigma^2_{u1} = 0.003$, $p = .002$), occupation ($\sigma^2_{u1} = 0.087$, $p < .001$), and gender ($\sigma^2_{u1} = 0.058$, $p < .001$). Therefore, the following analyses were carried out for these five dimensions only.

***Identification***

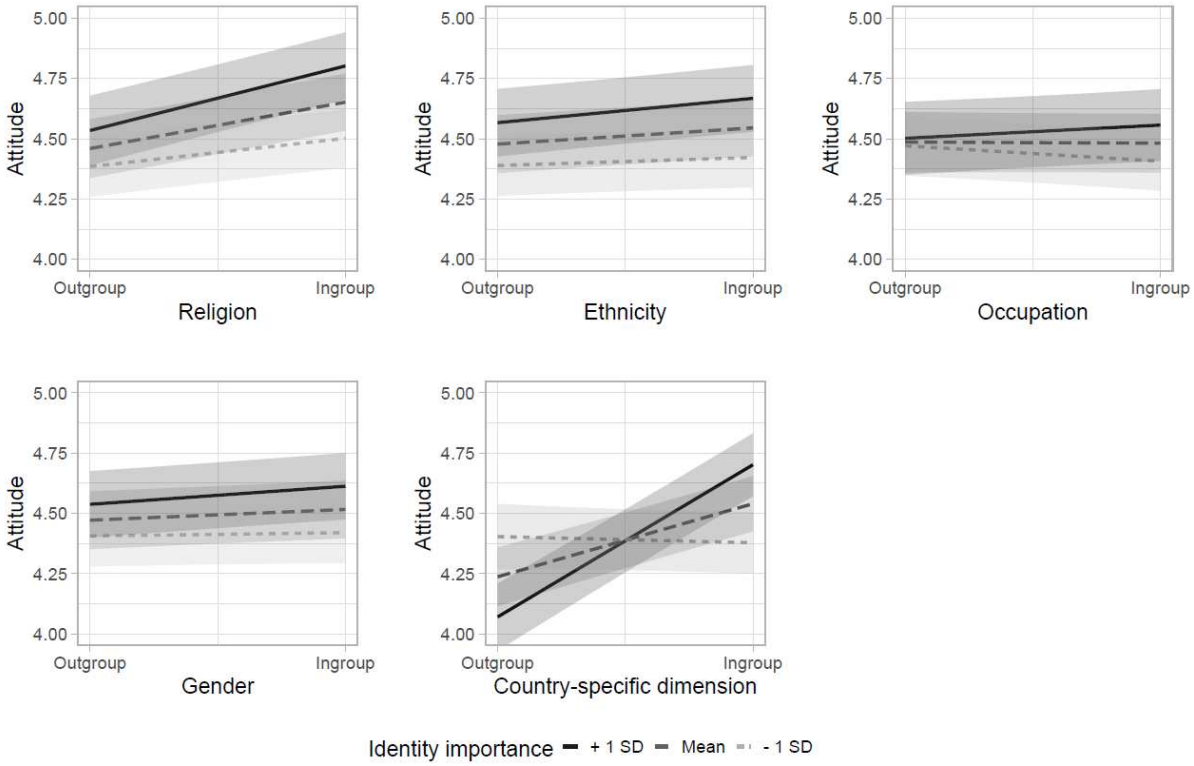
We hypothesized that the importance of categorization dimension to the self would be positively related to the strength of intergroup bias on that dimension. Participants in all countries consistently rated education and income as very important to their sense of self. The rural-urban distinction and religion were consistently rated as least important (see Figure S1 of the Online Supplement for the mean country-level scores for identification with different groups).

Identification moderated the link between ingroup membership and attitude for all five dimensions. All interactions followed the hypothesized direction: The more important the dimension was for the individual's self-concept, the stronger was the preference for ingroup members on that dimension (Figure 2), supporting H1. This was the case for religion ($b = 0.04$, $SE = .01$, $p < .001$), ethnicity ($b = 0.02$, $SE = .01$, $p = .032$), occupation ($b = 0.04$, $SE = .01$, $p < .001$), gender ($b = 0.02$, $SE = .01$, $p = .035$), and the country-specific dimension ($b = 0.20$, $SE =$

.01, $p < .001$). Inclusion of country in the interaction showed that the pattern was similar across countries, although the effect sizes differed for three out of five dimensions. The effect for religion was the strongest in Australia, whereas the effects for occupation and the country-specific dimension were strongest in Armenia.

**Figure 2**

*Intergroup Bias as a Function of Identity Importance*




*Note.* Differences between ingroup and outgroup evaluations at different levels of identity importance (plus/minus one standard deviation). The bands represent 95% confidence intervals. Number of observations: 12668 for religion and ethnicity, 12678 for occupation and the country-specific dimension, 12708 for gender.

### *Salience of Intergroup Conflict*

We hypothesized that perceived salience of intergroup conflict on a categorization dimension would be positively related to the strength of intergroup bias on that dimension.

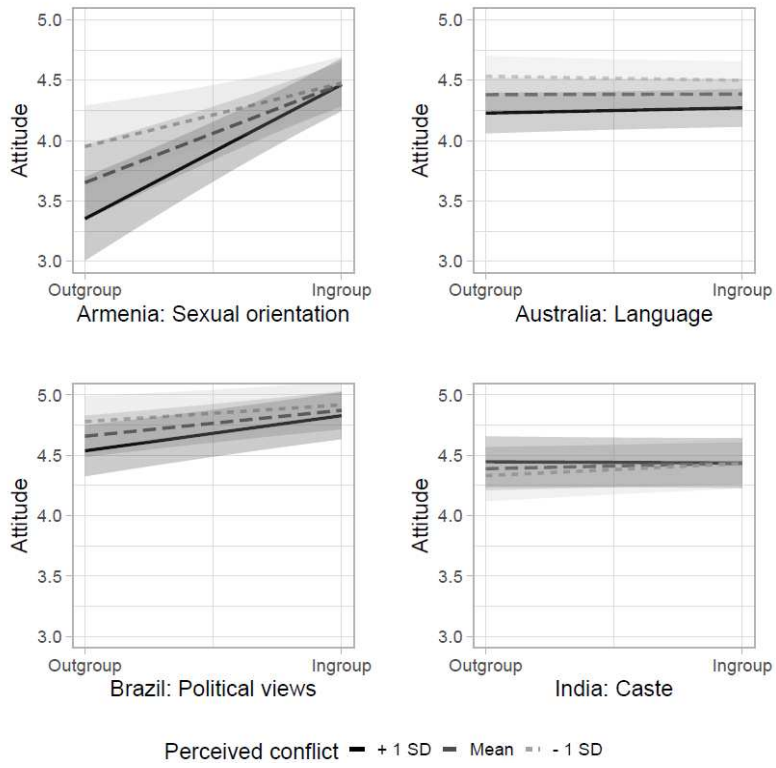
Participants in all countries reported strongest conflict between religion- and income-based groups. Groups based on sexual orientation in Armenia, ethnicity in Australia, political views in Brazil, and caste in India were also rated high on conflict. Place of residence received the lowest scores on conflict in all countries (see Figure S2 of the Online Supplement).

The interaction between perceived conflict and ingroup membership on a pooled sample was significant only for the country-specific dimension ($b = 0.16$, $SE = .02$, $p < .001$). A three-way interaction with the country as the second moderator revealed the pattern to be similar in three out of four countries: higher perceived conflict was associated with stronger preference for the ingroup in Armenia, Australia ($b = 0.03$, $SE = .02$, $p = .086$), and Brazil ($b = 0.06$, $SE = .03$, $p = .072$), although the effect was significant only in Armenia ($b = 0.23$, $SE = .05$, $p < .001$). The interaction was reversed in India, with higher conflict associated with weaker bias ($b = -0.04$, $SE = .02$, $p = .043$). Figure 3 illustrates these interactions by country.

Given the variation in associations found for the country-specific dimension, we also explored the possibility of country-specific effects on other dimensions. The three-way interactions revealed significant differences between countries for the dimensions of religion and gender. The within-country analyses indicated that higher salience of religious conflict predicted stronger bias in Australia ($b = 0.06$, $SE = .02$, $p = .006$) and higher salience of gender conflict predicted weaker bias in Armenia ($b = -0.08$, $SE = .03$, $p = .01$). These results provide inconclusive evidence for H2.

**Figure 3**

*Intergroup Bias as a Function of Salience of Intergroup Conflict*




*Note.* Differences between ingroup and outgroup evaluations at different levels of perceived conflict (plus/minus one standard deviation). The bands represent 95% confidence intervals. Number of observations: 3590 for Australia, 3038 for Armenia, 2790 for Brazil, 3250 for India.

### *Symbolic Threat*

We hypothesized that perceived symbolic threat from an outgroup would be positively related to the strength of intergroup bias on that dimension. Religious outgroups were perceived as the most threatening in all countries. Minorities on the country-specific dimensions were also among the most threatening groups: people who have difficulty speaking English in Australia, homosexuals in Armenia, and people with left-wing political views in Brazil. Women, age-based and place-based groups were among the least threatening outgroups in all countries (Figures S3.1 to S3.4 of the Online Supplement).

To test interactions with symbolic threat, we used the vignette dimensions instead of coded ingroup membership, as symbolic threat was only measured in relation to outgroup

members. For this analysis, we first tested which of the vignette dimensions had significant between-participant variation in slopes. The random slopes were significant for five out of nine dimensions: gender ($\sigma^2_{u1} = 0.08, p < .001$), religion[6] ($\sigma^2_{u1} = 0.16, p < .001$), occupation ($\sigma^2_{u1} = 0.11, p < .001$), income ($\sigma^2_{u1} = 0.04, p = .03$), and the country-specific dimension ($\sigma^2_{u1} = 0.66, p < .001$).

For gender, symbolic threat moderated the relationship between target's gender and attitude when the target was a man ($b = -0.05$, $SE = .02$, $p = .011$), but not when it was a woman ($b = 0.003$, $SE = .02$, $p = .896$). For all other dimensions, the following pattern emerged: Threat moderated the relationship between target's group membership and attitude when the target was a minority or a lower-status group member, but not when the target was a member of the dominant group. For religion, there was no effect for evaluations of the religious majority ($b = 0.01$, $SE = .02$, $p = .574$), but significant interactions for the minority group ($b = -0.15$, $SE = .02$, $p < .001$) and for non-believers ($b = -0.07$, $SE = .01$, $p < .001$). On the dimension of occupation, we found no interaction when the target was a professional ($b = 0.04$, $SE = .03$, $p = .226$), but significant interactions for workers ($b = -0.06$, $SE = .02$, $p < .001$) and unemployed people ($b = -0.12$, $SE = .02$, $p < .001$). For income, there was no interaction when the target was someone with an average income ($b = -0.02$, $SE = .03$, $p = .390$), but significant interactions when the target was poor ($b = -0.05$, $SE = .02$, $p = .002$) or rich ($b = -0.05$, $SE = .02$, $p = .009$).

For the country-specific dimension, we tested the interaction effects separately for each country. Despite different dimensions used across countries, the pattern was identical. We found no interaction effect for native English speakers in Australia ($b = 0.01$, $SE = .05$, $p = .790$), but a significant interaction for those who have difficulty speaking English ($b = -0.12$, $SE = .02$, $p <$

[6] Religion, occupation, income, and the country-specific dimension are factors with three levels, so there are two estimates for the random slopes in each case. We report the larger of the two estimates here.

.001). In Armenia, threat did not moderate the link between group membership and attitude towards heterosexual targets ($b = 0.12$, $SE = .11$, $p = .301$), but did moderate this link for homosexual targets ($b = -0.34$, $SE = .05$, $p < .001$). In Brazil, no interaction was present for targets who were described as apolitical ($b = -0.03$, $SE = .04$, $p = .388$), but there were significant interactions for both the political right ($b = -0.11$, $SE = .03$, $p < .001$) and the left ($b = -0.12$, $SE = .03$, $p < .001$). Although the effects were not significant in India, the pattern was similar to other countries. The effect size for evaluations of the higher-status Forward caste was close to zero ($b = -0.008$, $SE = .03$, $p = .774$), whereas effect sizes for the two lower-status castes were similar to those found in other countries ($b = -0.05$, $SE = .03$, $p = .128$ for Scheduled caste and $b = -0.06$, $SE = .03$, $p = .105$ for OBC). Overall, these results provide partial support for H3.

***Exploratory analyses: simultaneous test of three predictors and the role of group status***

The three predictors of bias we studied are interrelated: Perceived threat and conflict positively correlate with the strength of identification (Moskalenko et al., 2006; Verkuyten, 2009). Research based on the instrumental model of group conflict (Esses et al., 1998) suggests that the link between identification and outgroup attitudes is mediated by perceptions of conflict, specifically, by zero-sum beliefs (Louis et al., 2013). In our sample, the average correlation between identification and conflict was $r = .18$, whereas average correlations between identification and symbolic threat ($r = -.04$) and symbolic threat and conflict ($r = .02$) were close to zero (see Table S5 in the online supplement). To identify the unique variance in strength of bias that each of the predictors explain, we wanted to test them simultaneously in a single model. Furthermore, the effect of symbolic threat on bias varied depending on the target group's status and we wanted to explore the role of group status in the effects of identification and conflict. Finally, the comparison of the results presented above for the three predictors is limited, as the

measure of symbolic threat only allows testing the effects for specific outgroups, whereas the other two tests are conducted on more generic ingroup vs. outgroup contrasts. Therefore, we next ran a series of multilevel regressions on subgroups of participants where identification, salience of conflict, and symbolic threat jointly predict the strength of intergroup bias. Participants' ingroup is the reference category in all models, hence a negative interaction term indicates stronger preference for the ingroup compared to a specific outgroup. Table 2 reports the estimates from these models.

We obtained 46 estimates for each predictor. For identification, the median effect size of the interaction was $b = –0.02$ across all tests. Identification significantly predicted strength of bias in 10 out of 46 cases. Nine of these effects were in the expected direction: stronger identification was associated with stronger bias. The estimates varied depending on the participant and target group's status. In eight out of nine cases, the participant belonged to a higher status group (religious or ethnic majority, professionals, native speakers, heterosexuals, and the rich) and the target belonged to a lower status group (religious and ethnic minorities, workers, unemployed, have difficulty speaking the language, homosexuals, and the poor). The median effect size in this subgroup was $b = –0.05$.

For conflict, the median effect size of the interaction was $b = 0.01$ across all tests. Conflict significantly predicted bias in 4 out of 46 cases. Although we expected perceived conflict to be associated with stronger bias, only two of these effects were in the expected direction. Higher salience of intergroup conflict was associated with stronger bias among the unemployed participants evaluating workers and among heterosexual participants evaluating homosexual targets. Higher salience of conflict was associated with weaker bias among professionals evaluating unemployed targets and among the rich evaluating the poor.

**Table 2**

*The Effects of Identification, Conflict, and Threat on Intergroup Bias by Participant and Target Subgroups*

| Sample | N | Dimension | Participant | Target | Identification | | | Conflict | | | Threat | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | *b* | *SE* | *p* | *b* | *SE* | *p* | *b* | *SE* | *p* |
| Pooled | 6100 | Gender | Man | Woman | –.026 | .01 | .069 | .012 | .02 | .461 | –.004 | .02 | .826 |
| Pooled | 6458 | Gender | Woman | Man | –.024 | .01 | .070 | –.006 | .02 | .672 | –.045 | .02 | .010 |
| Pooled | 7928 | Religion | Majority | Minority | –.032 | .01 | .028 | –.002 | .02 | .892 | –.146 | .02 | <.001 |
| Pooled | 7928 | Religion | Majority | Non-believer | –.057 | .01 | <.001 | .004 | .02 | .814 | –.058 | .01 | <.001 |
| Pooled | 2930 | Religion | Non-believer | Majority | .005 | .02 | .809 | .016 | .03 | .528 | –.047 | .02 | .060 |
| Pooled | 2930 | Religion | Non-believer | Minority | –.001 | .02 | .958 | –.021 | .03 | .418 | –.181 | .02 | <.001 |
| Pooled | 1570 | Religion | Minority | Majority | –.006 | .03 | .851 | .019 | .04 | .615 | –.035 | .04 | .334 |
| Pooled | 1570 | Religion | Minority | Non-believer | –.035 | .03 | .270 | –.018 | .04 | .632 | –.054 | .03 | .098 |
| Pooled | 7528 | Ethnicity | Majority | Minority (HS) | –.014 | .02 | .369 | .012 | .02 | .530 | –.079 | .02 | <.001 |
| Pooled | 7528 | Ethnicity | Majority | Minority (LS) | –.033 | .01 | .026 | .032 | .02 | .072 | –.086 | .02 | <.001 |
| Pooled | 2490 | Ethnicity | Minority (HS) | Majority | .019 | .03 | .475 | .009 | .03 | .777 | –.035 | .03 | .267 |
| Pooled | 2490 | Ethnicity | Minority (HS) | Minority (LS) | –.020 | .03 | .441 | .025 | .03 | .415 | –.067 | .03 | .021 |
| Pooled | 2190 | Ethnicity | Minority (LS) | Majority | –.029 | .02 | .244 | –.025 | .03 | .388 | –.094 | .03 | .002 |
| Pooled | 2190 | Ethnicity | Minority (LS) | Minority (HS) | –.039 | .02 | .098 | –.052 | .03 | .075 | –.121 | .03 | <.001 |
| Pooled | 8498 | Occupation | Professional | Worker | –.051 | .02 | .001 | .006 | .02 | .705 | –.064 | .02 | <.001 |
| Pooled | 8498 | Occupation | Professional | Unemployed | –.062 | .02 | <.001 | .035 | .02 | .027 | –.120 | .02 | <.001 |
| Pooled | 3120 | Occupation | Worker | Professional | .029 | .03 | .288 | .020 | .03 | .517 | .026 | .03 | .441 |
| Pooled | 3120 | Occupation | Worker | Unemployed | .002 | .03 | .937 | .007 | .03 | .800 | –.048 | .03 | .072 |
| Pooled | 900 | Occupation | Unemployed | Professional | –.043 | .06 | .497 | –.127 | .07 | .071 | .132 | .09 | .142 |
| Pooled | 900 | Occupation | Unemployed | Worker | –.073 | .06 | .220 | –.137 | .07 | .047 | .023 | .07 | .721 |
| Pooled | 1590 | Income | Rich | Average | –.003 | .04 | .931 | .038 | .04 | .328 | –.021 | .06 | .707 |
| Pooled | 1590 | Income | Rich | Poor | –.109 | .04 | .002 | .130 | .04 | .001 | –.011 | .04 | .791 |
| Pooled | 7268 | Income | Average | Rich | .006 | .02 | .722 | –.014 | .02 | .383 | –.045 | .02 | .010 |
| Pooled | 7268 | Income | Average | Poor | –.023 | .02 | .150 | .000 | .02 | .978 | –.057 | .02 | .002 |
| Pooled | 2370 | Income | Poor | Rich | .037 | .03 | .278 | .051 | .03 | .142 | .012 | .04 | .752 |
| Pooled | 2370 | Income | Poor | Average | .102 | .03 | .003 | –.018 | .04 | .619 | –.008 | .05 | .867 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia | 2768 | Sexual orientation | Heterosexual | Homosexual | –.285 | .03 | <.001 | –.079 | .03 | .012 | –.246 | .03 | <.001 |
| Armenia | 220 | Sexual orientation | Homosexual | Heterosexual | –.025 | .12 | .844 | .180 | .14 | .210 | .118 | .10 | .244 |
| Australia | 2910 | Language | Native speaker | Non-native fluent | –.001 | .02 | .947 | –.027 | .02 | .244 | NA | NA | NA |
| Australia | 2910 | Language | Native speaker | Difficulty speaking | –.046 | .02 | .025 | –.012 | .02 | .627 | –.112 | .03 | <.001 |
| Australia | 580 | Language | Non-native fluent | Native speaker | .001 | .04 | .980 | –.022 | .05 | .655 | .008 | .06 | .892 |
| Australia | 580 | Language | Non-native fluent | Difficulty speaking | –.055 | .04 | .173 | –.043 | .05 | .352 | –.087 | .06 | .155 |
| Australia | 70 | Language | Difficulty speaking | Native speaker | .198 | .48 | .682 | .044 | .26 | .863 | –.156 | .22 | .487 |
| Australia | 70 | Language | Difficulty speaking | Non-native fluent | .147 | .29 | .613 | .184 | .14 | .207 | NA | NA | NA |
| Brazil | 1460 | Political views | Apolitical | Right | .004 | .02 | .849 | –.013 | .03 | .635 | –.041 | .02 | .085 |
| Brazil | 1460 | Political views | Apolitical | Left | .039 | .02 | .086 | –.016 | .03 | .574 | –.018 | .02 | .432 |
| Brazil | 810 | Political views | Right | Apolitical | .004 | .04 | .923 | .021 | .04 | .604 | –.124 | .04 | .001 |
| Brazil | 810 | Political views | Right | Left | –.061 | .04 | .117 | –.025 | .04 | .547 | –.283 | .03 | <.001 |
| Brazil | 460 | Political views | Left | Apolitical | –.165 | .07 | .025 | .037 | .08 | .660 | –.063 | .06 | .306 |
| Brazil | 460 | Political views | Left | Right | –.081 | .07 | .274 | –.093 | .09 | .275 | –.180 | .06 | .001 |
| India | 1720 | Caste | Forward | OBC | –.053 | .03 | .083 | .060 | .03 | .073 | –.053 | .03 | .127 |
| India | 1720 | Caste | Forward | SCT | –.033 | .03 | .297 | .027 | .03 | .428 | –.049 | .03 | .146 |
| India | 1040 | Caste | OBC | Forward | –.025 | .03 | .404 | .059 | .03 | .075 | –.014 | .04 | .704 |
| India | 1040 | Caste | OBC | SCT | –.021 | .03 | .460 | .055 | .03 | .085 | –.082 | .03 | .017 |
| India | 440 | Caste | SCT | Forward | –.019 | .06 | .761 | –.034 | .06 | .547 | –.033 | .06 | .569 |
| India | 440 | Caste | SCT | OBC | .051 | .06 | .415 | .051 | .06 | .375 | .021 | .06 | .722 |

*Note*. We ran the analyses on all dimensions that showed significant between-participant variation in either ingroup membership-attitude or vignette dimension-attitude slopes. The highlighted effects are significant at $p < .05$. HS = higher-status, LS = lower-status, NA = estimate not available due to missing values.

Finally, the median effect size of the interaction for symbolic threat was $b = –0.05$ across all tests. Threat significantly predicted bias in 19 out of 46 cases. All significant effects were in the expected direction: higher perceived threat was associated with stronger bias. In 16 out of 19 cases, the target belonged to a (numeric) minority group, including higher-status minorities, such as the rich. The average effect size in this subgroup was $b = –0.10$. Three instances, however, remained unexplained by target's minority status. Threat predicted stronger bias in evaluations of men, an ethnic majority group, and apolitical people in Brazil.

Another potential moderator of the link between symbolic threat and intergroup bias is whether the group is perceived as an outgroup, i.e., how clearly the group boundaries are defined. For example, it is likely that native Australian English speakers and British English speakers would not view each other as outgroup members on the dimension of language. Therefore, perceived threat will not have explanatory power, as group boundaries are not defined well enough for intergroup bias to emerge. Perceptions of threat serve as cues for where the group boundaries should be drawn (Miller et al., 2010). We therefore reasoned that individual variation in perceived symbolic threat might explain strength of bias only when a group is viewed as threatening on the group level. To test this proposition, we calculated the aggregate-level perceived threat for each of the group combinations. The correlation between the aggregate-level threat and the individual-level threat-bias link was $r(44) = –.66$, $p < .001$. This finding indicates that the more threatening the group is perceived on average by ingroup members, that is, the more clear-cut the group boundaries are, the more predictive is perceived symbolic threat of the strength of intergroup bias on the individual level.

***Summary of Results***

We examined three predictors of the strength of intergroup bias on different dimensions of social categorization in multiple categorization settings. The strength of identification and symbolic threat predicted stronger intergroup bias across countries and categorization dimensions. The effects of both identification and symbolic threat were contingent upon the participant and the target groups' status. Identification mainly predicted stronger bias when the participant belonged to a higher status group and the target belonged to a lower status group. Threat mainly predicted stronger bias when the target belonged to a numerical minority group, including higher-status minorities, such as the rich. Conflict predicted bias only in few cases and the effects were inconsistent. Table 3 presents a summary of key findings.

**Table 3**

*Summary of Findings*

| Theory/predictor | % of sig. effects in the expected direction | Generalizability | | |
|---|---|---|---|---|
| | | Across categorization dimensions | Across countries | Across target groups |
| SIT: Identity importance | 90% | *Good*: Significant effects on 7/9 dimensions | *Good*: Only strength of the effect varies | *Limited*: Not predictive of attitudes towards higher-status groups |
| RGCT: Perceived conflict | 50% | *Poor*: Significant effects on 2/9 dimensions | *Poor*: Direction of the effect varies | *Limited*: No clear pattern |
| ITT: Symbolic threat | 100% | *Excellent*: Significant effects on 9/9 dimensions | *Good*: Only strength of the effect varies | *Limited*: Not predictive of attitudes towards majorities/non-threatening groups |

*Note.* The summary is based on the results presented in Table 2.

## Discussion

With increasing mobility and diversity in the world, scholars across the social sciences call for attention to the issue of multiple group memberships and their intersections in the study of prejudice and discrimination (e.g., Cole, 2009; Crisp & Hewstone, 2007;

Vertovec, 2007). Answering this call, the present study is the first to examine the predictive power of established determinants of intergroup bias, namely identification, perceived conflict, and symbolic threat, in multiple categorization settings. The study further addresses some limitations of existing research on crossed and multiple categorization by (1) taking a culture-sensitive approach to the selection of dimensions and categories; (2) using a research design that allows manipulation of multiple dimensions in a survey setting; (3) sampling both majority and minority group members on all dimensions used from various cultural contexts. The study design allows testing the generalizability of predictions derived from three established theories of intergroup relations across categorization dimensions, cultural contexts, and participant and target groups.

## Generalizability Across Categorization Dimensions, Contexts, and Target Groups

We manipulated nine dimensions of social categorization and assessed participants' attitudes towards the targets in a factorial survey experiment. Three of these dimensions—age, place of residence, and education—neither elicited significant intergroup bias in any of the countries, nor showed significant between-participant variation in their effects on attitudes. We tested the effects of identification, conflict, and symbolic threat on intergroup bias for the remaining six dimensions: gender, religion, ethnicity, occupation, and income in the pooled sample, and the country-specific dimensions of sexual orientation in Armenia, English language proficiency in Australia, political views in Brazil, and caste in India.

### *Identification*

Our findings suggest that the effect of identification on intergroup bias is generalizable across dimensions of social categorization. For all dimensions that showed significant bias and variation in the strength of bias across individuals, stronger identification predicted stronger bias. The higher participants rated the importance of their religious, ethnic, gender, etc., identity for their sense of self, the more they preferred ingroup over outgroup

members on the respective dimensions. The predictive power of identification also demonstrated generalizability across cultural contexts: the strength of the effects varied across countries, but the direction was stable.

The effect of identification on bias, however, did not generalize across participant and target groups. In most cases, identification predicted stronger bias when the participant was a member of a higher-status and the target was a member of a lower-status group, irrespective of categorization dimension. There was one notable exception to this pattern: identification predicted weaker preference for the ingroup in evaluations of targets with average income by poor participants. Although this was the only significant interaction in the opposite direction, closer examination of the effect sizes suggests that this effect is not a statistical artifact. We observed the same direction of the effects in workers' attitudes towards professionals, in poor participants' attitudes towards the rich, and in attitudes of those who have difficulty speaking English towards native English speakers. In short, importance of a categorization dimension to the self-concept predicts stronger preference for the ingroup when higher-status perceiver evaluates a lower-status target and weaker preference for the ingroup when lower-status perceiver evaluates a higher-status target.

These findings contribute to the debate on the relationship between group identification and intergroup bias (Balliet et al., 2014; Brewer, 1999; Brown, 2000) in several ways. First, they support the underlying assumption of SIT by showing the generalizability of identification-bias link across dimensions of categorization and contexts. Second, they highlight the importance of structural characteristics in this relationship. Making intergroup comparisons with a lower-status outgroup in favor of the ingroup is a straightforward way for the higher-status group member to boost the positive image of the ingroup. For lower-status groups this strategy is more difficult to implement, especially when there is a societal consensus regarding the existing status differences (Rubin & Hewstone, 2004). This is most

likely the reason why the link between strength of identification and bias is present only in higher-status group members' evaluations of lower-status outgroups. When the intergroup comparison does not favor the ingroup, structural characteristics determine which strategies of identity management will be used (Blanz et al., 1998; Ellemers, 1993; Tajfel & Turner, 1979). Groups that have lower status on a given dimension, but nevertheless find that dimension important, may adopt strategies of assimilation and individual mobility, which would lead to more positive evaluations of higher-status outgroups.

***Symbolic Threat***

Similar to identification, symbolic threat showed good generalizability in predicting bias across a wide range of categorization dimensions and contexts. Greater perceived threat predicted stronger intergroup bias on the dimensions of religion, gender, occupation, and the country-specific dimensions of language, sexual orientation, and political views. In line with the meta-analytical evidence on the effects of perceived threat on outgroup attitudes (Riek et al., 2006), threat mainly predicted attitudes towards minorities, but not towards majority groups. Importantly, the strength of the effect was associated with the target group's status. For example, on the dimensions of religion and occupation, the effect was twice as strong for attitudes towards religious minority groups compared to non-believers and for the unemployed compared to workers.

There were, however, several exceptions to this pattern: Perceived symbolic threat predicted stronger bias in evaluations of men, ethnic majority group members and apolitical persons. None of these groups can be considered either minorities or lower-status groups. These exceptions suggest that the predictive power of symbolic threat may be contingent not upon the target group's status in a societal hierarchy, but rather upon how threatening the target group is represented at the group level. Supporting this assumption, we found a strong correlation between group-level perceptions of threat and the strength of the effect. Group-

level perceptions of threat shape the psychological boundaries between the ingroup and the outgroup (Miller et al., 2010). Hence, symbolic threat appears to be most predictive of intergroup bias when the boundary between the ingroup and the outgroup is well defined.

***Conflict***

Salience of intergroup conflict showed weak generalizability across categorization dimensions, contexts, and target groups. Conflict predicted bias only in few cases and the direction of the effect varied, with the average interaction effect across all tests approaching zero. The direction of the effect appeared to depend not on country but on categorization dimension and specific combinations of participant and target group memberships. In some cases, both directions of the effect were found in the same country. In Armenia, for example, perceived conflict predicted stronger bias on the dimension of sexual orientation, but weaker bias on the dimension of gender.

The four cases when perceived conflict predicted less intergroup bias were evaluations of the unemployed and the poor by the professionals and the rich in the pooled sample, preference for own gender in Armenia and own caste in India. All these dimensions—socio-economic status, gender, and caste—are avidly discussed sources of inequality. Perceptions of conflict between different groups in society might reflect not only perceived threat from outgroups, but also greater awareness of inequalities in a given society. Those in positions of power (professionals, rich) who believe there is conflict between people of different socio-economic status are likely to be the ones who recognize these inequalities and their own privileged position. Under these circumstances, perceptions of conflict would not translate into perceptions of threat from the less privileged groups, as RGCT predicts. Instead, they would translate into more positive attitudes towards the disadvantaged and possibly more negative attitudes towards the ingroup, producing the effect we observed.

These findings show the added value of designs with higher ecological validity. The key finding of intergroup conflict literature—that intergroup conflict leads to more negative outgroup attitudes—is likely to replicate in any laboratory experiment where intergroup conflict is manipulated. It is more difficult, however, in a laboratory experiment, to account for dynamic contextual influences, such as awareness of inequality in a specific context. RGCT acknowledges that an actual intergroup conflict is not a necessary condition for intergroup bias to occur: Group members might believe that there is a conflict irrespective of whether there is one (Campbell, 1965). Our findings suggest that believing that there is intergroup conflict is also neither a necessary, nor a sufficient condition for intergroup bias to occur. This challenges one of the key assumptions of RGCT, namely that perceived intergroup conflict is directly linked to perceptions of threat from the outgroup. The link between perceived conflict and intergroup hostility is contingent upon individuals' interpretation of what that conflict represents.

**Differences in Bias Between Individuals and Between Categorization Dimensions**

When predicting the strength of bias from identification, conflict, and threat, we make inter-individual comparisons. If one individual rated religion as more important to their self-concept than another individual, then the first individual will also show stronger preference for the religious ingroups. However, this does not yet tell us which of the categorization dimensions will produce more bias on the aggregate level, i.e., whether higher importance of religious compared to occupation identity in a group will translate into stronger intergroup bias on the dimension of religion compared to occupation in that group. There were notable differences between identification on the one hand and perceptions of conflict and threat on the other in how well they accounted for hierarchies of prejudice in the four countries studied.

On the aggregate level, group memberships that were rated as most important for the self-concept (socioeconomic dimensions: education, occupation, income) did not produce intergroup bias, whereas group memberships that were rated as less important (sociocultural dimensions: religion, ethnicity) produced intergroup bias. Unlike identification, hierarchies of conflict and threat across countries closely resembled the hierarchies of intergroup bias. Religious and ethnic groups, as well as groups based on political views and sexual orientation, were perceived to be in a strong conflict and were among the most threatening groups. The same group memberships caused the strongest intergroup bias in the respective countries.

The mismatch between the functions of identity importance on the individual and group level points to possible differences in grounds for self- and other-categorization. Socioeconomic status defines our everyday experiences and interactions, whereas our sociocultural group memberships might not always be salient. Moreover, memberships in socioeconomic groups might be more useful for self-evaluations, as, first, these are the lines of categorization that societies use to ascribe success and worth (Easterbrook et al., 2020) and, second, these groups have more permeable boundaries and are perceived to be under individuals' control. Sociocultural groups are essentialized (Haslam et al., 2000), thus providing little possibility for change or control. These individuating functions of socioeconomic groups make them more useful for making inter- and intra-individual comparisons, whereas sociocultural groups are more useful for intergroup comparisons. These propositions can be addressed in future research.

Although the current study cannot provide conclusive answers to the question of why, on the group level, ingroup bias occurs on some dimensions of categorization but not others, we can gain some insight into this question by taking a closer look at these hierarchies of prejudice. Research on stigma offers two somewhat contradicting predictions. On the one

hand, people tend to hold more positive attitudes towards member of stigmatized groups when they believe the cause of stigma to be uncontrollable (Weiner et al., 1988). On the other hand, groups that are essentialized (which would correspond to uncontrollability of the cause of stigma), are evaluated more negatively (Haslam et al., 2000). In our study, the dimensions where significant bias emerged were religion, ethnicity, political views, sexual orientation, and gender. These dimensions are more likely to be perceived as essentialized (uncontrollable) rather than controllable, suggesting that at least at the group level, essentialized groups are stigmatized more, which is in line with meta-analytical evidence on the role of essentialism and entitativity in intergroup attitudes (Agadullina & Lovakov, 2018). Linking this observation back to SIT, differences in strength of bias between categorization dimensions can also be explained by the permeability of group boundaries and stability and legitimacy of status relations. The dimensions with stronger bias (e.g., religion, ethnicity) are likely to be perceived as having boundaries with low permeability and status differences on those dimensions are likely to be seen as illegitimate; in contrast, the dimensions with no bias (or even outgroup preference; education, occupation, income) are likely to be perceived as having permeable group boundaries and status differences on those dimensions are likely to be seen as legitimate. Future studies could further explore properties of social categories that increase the likelihood of stigmatization.

**Limitations**

By using large and diverse samples and an experimental design that provides not only high internal, but also high external validity, this study offers a reliable and rigorous test of the hypotheses in question. Nevertheless, certain limitations remain.

First, the measure of the salience of intergroup conflict does not provide a differentiated assessment of the realistic threat from specific outgroups. As we noted in the introduction, our operationalization is aligned with RGCT, measuring the presence and

severity of intergroup conflict rather than perceptions of threat. However, the comparability of this scale with the measures of identification and symbolic threat is limited, as the latter measures include a direct reference to the self and the ingroup. Although the statements were formulated in a way that the participant always belonged to one of the groups described to be in conflict, there was no explicit reference to the self. Measuring intergroup competition through realistic threat from specific outgroups could have yielded stronger effects.

Second, any psychological study that uses self-reports can potentially be biased by social desirability. When it comes to the study of prejudice, even implicit attitudes can be faked (Fiedler & Bluemke, 2005). There are several reasons to believe that social desirability is not a major concern for the validity of our findings. Factorial surveys repeatedly have been found to reduce social desirability bias, including when the topics of prejudice and discrimination are concerned (Armacost et al., 1991; Auspurg et al., 2014; Liebig et al., 2015). This reduction in social desirability is most likely linked to the nature of the task: With a high number of factors to consider, it becomes increasingly difficult for the participants to manage their responses. Experimental evidence suggests that increased cognitive load reduces dishonest, socially desirable, and strategic responding (Duffy & Smith, 2014; Van't Veer et al., 2014). The external validity of our findings is further strengthened by the inclusion of the item capturing the desire to interact with the target. Research on planned behavior shows that a desire and an intent to engage in a behavior reliability predict actual behavior (Fishbein & Ajzen, 2011; Perugini & Bagozzi, 2001; Sheeran, 2002).

Third, the current study used an orthogonal main effects design, where the main effects are orthogonalized by confounding higher-order interactions. This design has two limitations: first, not all higher-order interactions can be estimated, as some of them are confounded with each other; second, if non-negligible interactions strongly correlate with the main effects in the design, this could bias the estimates of the main effects (Atzmüller &

Steiner, 2010; Dülmer, 2016). The biggest threat to the accuracy of the main effect estimates are strong correlations between the main effects and the two-way interactions. In our experimental setup, out of over 30000 possible correlations between the main effects and the interaction terms across countries, only about 0.05% exceeded the value of |0.7|, and the mean absolute value of correlations was $r < .0001$. These results indicate that the likelihood of the main effects being biased is small. Although bivariate correlations do not provide conclusive evidence for the extent of bias, other possible confounds, such as three- or four-way interactions, or linear combinations of interaction terms, are less likely to have a large impact on the estimates of the main effects. The likelihood of bias is further reduced by the use of a D-efficient design. Unlike in simple random or fractional factorial designs, the influence of higher-order interactions in D-efficient designs is distributed across multiple main effects, reducing the extent of bias for each individual main effect (Dülmer, 2016).

Finally, our findings should be interpreted with caution when it comes to comparing the predictive power of the three theories from which we derived our hypotheses. Our findings point to different degrees of generalizability of the three predictors of intergroup bias across context, categorization dimensions, and participant and target groups. The hypotheses we test, however, only focus on specific elements of each theory, and do not constitute a comprehensive comparative test of the predictive power of different theoretical approaches. Further, as we noted above, each of the constructs studied can be operationalized in different ways and the evidence presented here should be interpreted with the operationalization of each construct in mind.

**Future Directions**

The findings we present here raise some important questions that can be addressed in future studies. All three predictors of intergroup bias showed some variability in either the strength or the direction of their effects on intergroup bias. We proposed and when possible,

tested potential moderators of this variance, but these additional tests were exploratory in nature. Does identification only lead to stronger preference for the ingroup among the higher-status, but not the lower-status groups? Does the direction of this effect reverse for lower-status groups' perceptions of high-status outgroups? An experimental study that would simultaneously manipulate group status and strength of identification could help address these questions. Is the effect of symbolic threat on bias contingent upon the target's minority status, as earlier studies suggest, or upon how threatening the group is considered to be in a given social context? Do the group-level perceptions of threat arise from strictness of group boundaries? Finally, under which conditions perceptions of intergroup conflict translate into perceptions of threat and then bias? This link might depend on the characteristics of the conflict and psychological characteristics of group members. To clarify this link, future studies could investigate perceived fairness of the conflict and the status relations of the groups involved, as well as individual differences in empathy, education, and attitudes towards inequality and social justice.

The scope of the current study did not allow exploring the richness of the data that factorial survey designs and the diversity of our samples offer. There are several lines of research that can be pursued with the current dataset or with new data employing this methodology. Very few studies tested whether the cognitive mechanisms of impression formation identified in crossed categorization studies with two dimensions generalize to multiple categorization scenarios with more than two dimensions (Grigoryan, 2019b, 2019a; Urada et al., 2007). The current dataset can be used to address that question. Investigating the interactions between categorization dimensions would further advance our understanding of the processes behind attitude formation in multiple categorization settings. A factorial survey experiment with orthogonal main effects and interactions could test both the replicability of our findings and further explore the interactions between different categorization dimensions.

## Conclusion

The present research advances intergroup relations literature by testing the predictive power of identification, conflict, and threat in explaining intergroup bias in multiple categorization settings, using diverse samples from different cultural contexts. This approach allowed exploring the generalizability of three established determinants of prejudice across dimensions of categorization, contexts, and participant and target groups. Our findings suggest that strength of identification and symbolic threat predict stronger intergroup bias and these effects generalize across countries and categorization dimensions. The effects, however, vary depending on participant and target groups' status. Salience of intergroup conflict showed limited generalizability: not only the strength, but also the direction of the effects varied across countries, dimensions, and target and participant groups. The field of intergroup relations can greatly benefit from more research using the multiple categorization paradigm, which takes the study of prejudice a step closer to real-life applications.

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