

Meta-Humanization Reduces Prejudice, Even Under High Intergroup Threat

Abstract

Meta-dehumanization, the perception your group has been given less than human qualities, contributes to a vicious cycle of outgroup dehumanization and hostility, such as, hate crimes and support for discriminatory policies. Minimal research has investigated potential benefits of *meta-humanization*, or perceiving your group has been given dignified qualities. Across seven studies ($N = 1,261$) in Canada and the United Kingdom, we focus on Muslim – non-Muslim relations and provide the first empirical evidence to suggest that (a) there is an indirect effect of meta-humanization through outgroup humanization that reduces prejudice, and (b) that perceived high intergroup threat moderates the indirect effect of meta-humanization. Studies 1a and 1b reveal that humanization mediates the indirect effect of meta-humanization on prejudice. Studies 2a and 2b replicate these results as well as demonstrate that perceived threat moderates the indirect effect, and Study 2c extends this by testing the perspective of Muslims. Studies 3a and 3b further demonstrate an interaction between high threat and meta-humanization on prejudice and interest in intergroup contact. We conclude by discussing the implications of our results for the growing literature on meta-dehumanization, meta-humanization and intergroup relations more broadly.

Keywords: Meta-humanization, dehumanization, threat, intergroup contact, prejudice

Dehumanization is a destructive feature of intergroup conflict that involves perceiving your opponent is less evolved or lacks human characteristics and emotions (Haslam & Loughnan, 2006). Relatedly, research focusing on the opposite end of the dehumanization spectrum has documented the positive effects of humanization, perceiving an outgroup is dignified or has humanlike qualities, on reducing prejudice, enhancing outgroup attitudes,

and promoting intergroup contact (Capozza, Di Bernardo, & Falvo, 2017; Periera, Vala, & Leyens, 2009). In parallel to research on humanization and dehumanization, a growing body of literature has recently investigated these variables as meta-perceptions. Scarce research exists however on antecedents and outcomes of *meta-humanization*, perceiving your group is human or has dignified qualities. The research that currently exists on meta-humanization is limited as it solely investigated its effect on hostility and prejudice (Kteily, Hodson, & Bruneau, 2016). The purpose of this research is to advance knowledge on the dehumanization- humanization spectrum, treating these constructs as meta-perceptions and investigating their role on prejudice. We specifically focus on the positive side of the meta-dehumanization-humanization continuum (i.e., meta-humanization) and explore its function on intergroup relations.

We sought to extend the dehumanization and meta-perception literature by proposing a model of meta-humanization that investigates a novel predictor and outcomes, as well as examining mediating and moderating processes underpinning meta-humanization. Theoretically, it is imperative to investigate the processes or conditions that underpin meta-humanization in order to understand why an individual would perceive that they are seen as anything less than a *human*, and the implications this has on intergroup relations. As limited research on meta-humanization exists, we draw on theoretical approaches from the distinct literature on meta-dehumanization and dehumanization. We argue that this approach is plausible given that the two constructs are not distinct but rather differ in valence. We advance theory on humanization by evidencing the causal effects of meta-humanization to reduce intergroup hostility and improve attitudes and behaviour through outgroup humanization. We broaden the meta-perception literature by demonstrating meta-

humanization follows a reciprocal feedback loop similar to meta-dehumanization (Kteily et al., 2016) resulting in reduced prejudice, even under perceived high intergroup threat.

In the current research we provide a novel contribution to the literature as we extend the scarce research on meta-humanization and meta-dehumanization by experimentally demonstrating, between both majority and minority group perspectives, a) meta-humanization reduces prejudice compared to meta-dehumanization and a control group, b) outgroup humanization mediates the effect of meta-humanization on outgroup prejudice, and c) identifying a conditional process of meta-humanization by testing a moderator of the indirect effect, i.e. intergroup threat.

Meta-Perceptions: Dehumanization and Humanization

Blatant dehumanization is commonly expressed between a range of groups, both with high and low power, with right and left-wing political ideologies, and in various conflictual situations or instances of threat (Dunwoody & McFarland, 2017; Kteily & Bruneau, 2017; Siddique, 2019). The dual model of dehumanization (Haslam, 2006) suggests that dehumanizing perceptions range from being blatant to quite subtle and can involve devaluing a person's unique human traits by explicitly referring to people as lower animals, or a more mechanistic approach of simply denying them human emotions, for example being cold or callous. Dehumanization creates a moral disconnection between groups, resulting in the outgroup being perceived as outside the realm of consideration for ethical treatment. This increases negative attitudes and behaviours toward the outgroup by justifying the ingroup's hostile actions (Kelman, 1974). Despite substantial empirical work on dehumanization, there is limited evidence suggesting how to increase outgroup humanization (Davies, Yogeeswaran, Verkuyten, & Loughnan, 2018).

In their seminal work, Kteily et al. (2016) investigated the role of meta-dehumanization and meta-humanization in intergroup conflict settings among Israelis and Palestinians, Hungarians and Roma Gypsies, and Arabs and Americans. Their research demonstrated that there is a relationship between meta-dehumanization and a range of hostile attitudes and behaviours mediated through outgroup dehumanization. In addition, they found that meta-humanization reduced prejudice and the tendency to dehumanize the outgroup.

Kteily and colleagues (2016) found that compared to a control condition, meta-humanization significantly reduced outgroup hostility. Beyond this, there has not been a rigorous investigation into the potential positive effects of meta-humanization. Although it is informative to understand the processes that lead to negative attitudes and behaviour, the meta-perception literature is lacking an in-depth investigation into effects of perceived outgroup humanity. We need to better understand mechanisms that reverse negative perceptions and facilitate positive interactions. Moreover, the newly emerging meta-dehumanization literature is predominantly correlational (Kteily et al., 2016) and could further be theoretically and empirically developed by providing additional experimental comparisons.

As elemental work has shown that there is reduced hostility toward outgroups when the ingroup perceives to be humanized (Kteily et al., 2016) the current research will advance what we know about meta-(de)humanization in a new direction. We extend previous research to investigate the degree to which a composite of outgroup prejudice (comprised of hostility, negative reciprocal intentions, desire for outgroup contact, and outgroup befriending) can be attenuated via meta-humanization. We test these effects in a series of

experimental situations that mirror real-world examples of meta-humanization and meta-dehumanization in the media.

Reciprocal Outgroup Humanization

Theorizing from a self-categorization perspective (Turner, 1985), people that perceive they are similar to an outgroup are more likely to have positive intergroup perceptions, as the outgroup would be more closely perceived to resemble an ingroup member. Relatedly, the reciprocity hypothesis suggests that when an outgroup expresses favourable attitudes toward an ingroup, the ingroup is more likely to reciprocate similar favourable attitudes (Doosje & Haslam, 2005). Indeed, empirical evidence in the literature suggests ingroups reciprocate perceived outgroup attitudes, however largely in a negative context, leading to the endorsement of intergroup hostility (Kamans, Gordijn, Oldenhuis, & Otten, 2009; Kteily et al., 2016). Doosje and Haslam (2005) demonstrate the desire to reciprocate extends to positive behaviour as well, as ingroup members were more inclined to reward an outgroup when they perceived that the outgroup had rewarded them in the past.

In line with the above findings, previous research found that meta-dehumanization was associated with reciprocal outgroup dehumanization, resulting in the desire for intergroup hostility (Kteily et al., 2016). In line with this Kteily and Bruneau (2017) demonstrate the consequences of minority groups (Muslims and Mexicans) perceiving to be dehumanized by a majority group (Americans), which was the endorsement of hostile actions and reciprocal dehumanization toward the ingroup. We expect that making participants aware an outgroup sees them as human (meta-humanization) will follow the same reciprocal pattern as seen in the literature with meta-dehumanization and dehumanization, as these variables merely differ in valence from meta-humanization and humanization (Kteily et al., 2016). That is, as meta-humanization is a positive perception, we predict that it will result in

higher reciprocal outgroup humanization than those participants exposed to meta-dehumanization or control conditions. If this prediction holds true then following the literature on reciprocity (Doosje & Haslam, 2005) and humanity attributions (Davies et al., 2018) it would be reasonable to expect that reciprocal outgroup humanization will lead to reduced prejudice.

Outgroup humanization has also been shown to lead to improved intergroup attitudes, reduced prejudice, and improved contact with an outgroup member (Capozza et al., 2017; Davies et al., 2018). Relatedly, increased frequency and quality of contact with an outgroup member can in fact reduce prejudice and improve humanity attributions toward the outgroup (Capozza, Falvo, Di Bernardo, Vezzali, & Visintin, 2014). In their review of humanization and contact, Capozza and colleagues identified that this relationship extends to direct and indirect contact among ethnic, religious, and marginalized groups. Recent research has also shown that the relationship between contact and humanization is bi-directional (Capozza, Di Bernardo, & Falvo, 2017). Historically, the literature has focused on the humanizing effect of contact; however, in the current research we aim to extend the literature to further demonstrate that perceiving to be humanized by the outgroup can predict reciprocal outgroup humanization and reduced prejudice. Given the relationship between humanization and intergroup contact with respect to prejudice reduction, we controlled for frequency of outgroup contact throughout our analyses. In addition, as there is scant research on predictors of humanization and meta-humanization, much of our theorizing stemmed from the literature on dehumanization and pointed us to consider threat as a fundamental (Haslam & Loughnan, 2014). In order to further test the boundaries of meta-humanization beyond what we know in the literature, we extended previous research by investigating the interaction of meta-

humanization with intergroup threat, a construct known in the literature to increase outgroup dehumanization.

Intergroup Threat

The perception of intergroup threat, whether real *or imagined*, plays a caustic role in shaping our judgements and cognitive representations of outgroup members (Esses, Jackson, & Armstrong, 1998; Sherif, 1966). That is, perceiving an outgroup is a physical threat, or poses a threat to our values can shift us from subtle avoidance of intergroup contact to discrimination and overt hostility (Aberson, 2019; Chang, Krosch, & Cikara, 2016, Stephan & Stephan, 2017). Negative outgroup cognitions fortify intergroup boundaries as they lead to the development of negative stereotypes and prejudice. Studies have shown that the overreporting of negative news in the media may influence the ingroup to perceive that all group members are prototypical of negative stereotypes and perceive increased threat from the entire outgroup (Baker et al., 2013). This negative outgroup generalization may cause the ingroup to anticipate negative interactions and avoid the outgroup, thereby limiting the opportunity to experience positive intergroup contact. This is problematic as substantial empirical work has demonstrated that positive intergroup contact reduces prejudice (Pettigrew & Tropp, 2008).

Consistent findings have also shown that perceiving an outgroup is a threat may cause the ingroup to dehumanize outgroup members (Esses et al., 2013; Kteily et al., 2016). Dehumanization is a catalyst for hostility as perceiving an outgroup is less than human puts the outgroup outside the realm of moral consideration, permitting the belief that the outgroups deserve exclusion or mistreatment (Esses et al., 2013; Haslam & Loughnan, 2006). Related research has also shown that when a Muslim or non-Muslim ingroup perceived they

had been dehumanized by the other, they reported heightened identity threat and more willingness to reciprocate hostility toward the offending group (Kteily et al., 2016).

Behavioural responses to threat vary, however at the group level they are commonly represented by direct negative behaviour or negative behavioural intentions (Stephan & Stephan, 2017). For instance, studies have found that perceived intergroup threat was related to discriminatory intentions toward immigrants in the Netherlands (Wagner, Christ, & Pettigrew, 2008) and reluctance to provide direct assistance to immigrants in Canada (Costello & Hodson, 2011). Shortly after the 9/11 terrorist attack in America, when intergroup threat levels were still high, Matthews and Levin (2012) found that Americans prevented children from reading books by Muslim authors and were inclined to prohibit the teaching of Muslim values in schools. Symbolic and realistic threat predicted support for violent intentions among Muslim and non-Muslim Danes, and Muslims in Afghanistan (Obaidi, Kunst, Kteily, Thompson, & Sidanius, 2018). This phenomenon has similarly been evidenced in crime reports following incidents of public threat (Patterson, Walters, Brown, & Fearn, 2018). In the United Kingdom for example records indicate hate crimes rise exponentially, spiking as high as 200% from the same time the previous year, following highly threatening events such as the Charlie Hebdo shooting, EU referendum vote, and the attack at Westminster in London (Home Office, 2017). Following these findings on the prolific nature of symbolic and realistic threat to act as a catalyst for increased dehumanization and hostility, in the current research threat will be tested as a moderator of meta-humanization in order to identify the boundaries for meta-humanization to reduce prejudice, and will be explained further in the section below.

The role of threat on meta-(de)humanization. Reviewing dehumanization literature, Haslam and Loughnan (2014) suggest that there are different factors influencing

the likelihood of dehumanization to occur such as threat, motives, emotion, power, and cognitions. Haslam and Loughnan argued that perceived threat of an outgroup increases the tendency to dehumanize. This is problematic as threat only needs to be perceived and not necessarily tangible or imminent. Literature has shown that perceived threat moderates the relationship between dehumanization and hostility, in that Americans endorsed torturing Muslim prisoners of war, only when they also dehumanized them (Viki, Osgoode, & Phillips, 2013). Similar research has found that threat was associated with dehumanization, Islamophobia and anti-immigrant sentiment (Louis, Esses, & Lalonde, 2013).

Research revealed that when the degree of humanity attributed to the outgroup was experimentally manipulated, discrimination was higher for the outgroup perceived as lacking human qualities (Periera, Vala, & Leyens, 2009). This relationship was mediated by symbolic threat only when egalitarian norms were salient. However, as with a great deal of humanization literature the investigators were not examining outright denial of humanness, merely the perception that the outgroup lacked certain human characteristics such as secondary emotions, a construct known as infra-humanization. Relatedly, findings have shown that lower realistic and symbolic threat perceptions resulted in reduced infra-humanization and prejudice (Capozza, Trifiletti, Visintin, & Vezzali, 2014). Nonetheless, this is still noteworthy as it indicates that reduced threat perceptions are related to increased perceptions of humanity.

Theorizing from a dehumanization perspective, as the literature demonstrates that threat is a robust predictor of dehumanization and discrimination, and as humanization is found on the other end of the dehumanization valence spectrum, it would be reasonable to suggest that the perception of intergroup threat would also predict reduced outgroup humanization. In line with this, research has shown that selectively ascribing uniquely

human emotions to the ingroup is a defence mechanism when the ingroup feels threatened (Vaes, Heflick, & Goldenberg, 2010). However, when humanity perceptions are associated with an outgroup they can reduce prejudice and improve desire for intergroup contact between groups historically in conflict (Capozza et al., 2014). Given these findings, the current research investigates the boundaries of humanization under perceived threat. That is, the current research examines first whether threat moderates the indirect effect of meta-humanization, through outgroup humanization, on prejudice, and secondly whether meta-humanization can reduce the harmful intergroup effects of perceived threat.

Current research

The current research provides a novel theoretical framework to conceptualize meta-humanization. We integrate previous research on meta-dehumanization and humanization (Kteily et al., 2016) to advance the meta-perception literature by demonstrating an indirect effect of meta-humanization through outgroup humanization (Studies 1a and 1b). We then for the first time, experimentally investigate a conditional process, proposing that intergroup threat moderates an indirect effect of meta-humanization, via outgroup humanization on prejudice (Studies 2a, 2b, and 2c). The final two studies (3a and 3b) experimentally test the boundaries of meta-humanization documenting the unique role and resilience of meta-humanization to shape the desire for intergroup contact and outgroup friendship in the face of threat.

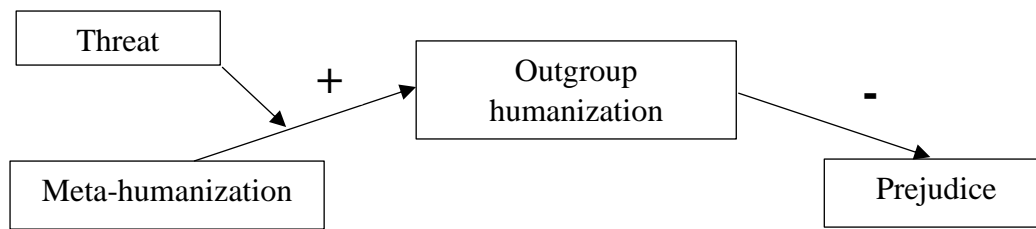
The limited research on meta-dehumanization and meta-humanization that exists (Kteily et al., 2016) focused more so on the negative outcomes of meta-dehumanization disregarding the potential positive effects of meta-humanization. The current research theoretically advances the humanization and meta-perception literature by proposing a novel model of meta-humanization that investigates implications for both majority and minority

groups with outcome variables generalizable beyond the context of the current research, that could be used to investigate any groups experiencing tension. We compared differences between key measures of attitudes, both positive and negative, and behavioural proxies after manipulating meta-humanization and meta-dehumanization (versus a control group). This allowed us to investigate causality among the variables, as previous research on these meta-perceptions is principally correlational (Kteily et al., 2016). We argue that perceiving to have been given human-like qualities will result in reduced prejudice toward the target group.

We examined our hypothesis across seven samples, while controlling for frequency of outgroup contact. Taking into consideration previous research that has shown that contact can reduce prejudice and improve humanity attributions (Capozza et al., 2014) we aimed to demonstrate the unique effects of meta-humanization, above and beyond existing intergroup contact. We used two distinct experimental manipulations (Studies 1a and 1b versus Studies 2a – 2c) with different samples spanning two continents to examine whether meta-humanization would reduce prejudice among samples of Canadian non-Muslims (Study 1a) and British non-Muslims (Study 1b) in the context of Muslim – non-Muslim relations. Additionally, we examined whether there was an indirect effect of the meta-perception manipulation on prejudice through outgroup humanization.

In Studies 2a – 2c we examined whether threat moderated the indirect effect of the meta-perception manipulation through outgroup humanization on prejudice among different samples of Canadian non-Muslims (Study 2a) and British non-Muslims (Study 2b). Study 2c replicated Studies 2a and 2b but from the perspective of British non-Muslims, as we sought to capture both majority and minority group perspectives. Figure 1 shows the theoretical representation of our proposed model.

Figure 1
Proposed theoretical model of meta-humanization



Note. Theoretical model of meta-humanization, where threat moderates the conditional process of outgroup humanization on outgroup prejudice. Outgroup prejudice is a latent variable comprised of Islamophobia*, hostility, negative reciprocity, comfort and interest in intergroup contact, and a behavioural proxy for outgroup befriending either a Muslim or non-Muslim.

* Islamophobia was not included in the latent variable for Study 2c (Muslim sample)

In Studies 3a and 3b we further investigate the causal effects of meta-dehumanization and meta-humanization, under conditions of high, medium, and low threat. To the best of our knowledge, no prior studies have experimentally investigated the role of threat on meta-humanization or meta-dehumanization. In line with previous literature (Kteily et al., 2016) and given that meta-humanization and meta-dehumanization are essentially one construct representing opposite ends of a spectrum, we expect that meta-humanization will reduce hostility and prejudice and increase the desire for intergroup contact, outgroup befriending, and donation intentions.. In line with previous literature on humanization and prejudice (Capozza et al., 2017; Davies et al., 2018), and literature on humanization and threat (Periera et al., 2009), we expect meta-humanization to be effective in ameliorating intergroup attitudes when it interacts with high levels of threat.

Study 1a

Method

Participants and design. Data were collected from the general public in Canada using snowball sampling. Participants were required to consider themselves as Canadian, living in Canada, and to identify with being Christian, Jewish, Buddhist, Atheist, Agnostic, or non-religious. The sample consisted of 140 participants (M age = 39.78, SD = 16.85; 65.7% female). The following affiliations were reported: 54.2% Christian, 37.8% Atheist or Agnostic, 7.9% Jewish. The ethnic background of participants was 88% White, 4% Black, 5% Asian, 2% mixed, and 1% Indigenous Indian.

The study was designed using Qualtrics and was conducted online in one session. Participants were randomly assigned to one of three conditions, i.e., meta-dehumanization versus meta-humanization versus control. In the experimental conditions, participants read a news article describing fictional interviews about Muslim's attitudes toward non-Muslim Canadians, adapted from Kteily et al. (2015). The article purported to summarize interviews among Muslims living in Saudi Arabia, Jordan, Syria, Lebanon, and Yemen. In the meta-dehumanization condition Canadian non-Muslims were described as, "animals and brutes lacking in self-control and sophistication," and in the meta-humanization condition Canadian non-Muslims were described as, "dignified, sophisticated, culturally refined, and highly civilized." In the control condition participants read a brief news article about a flower. Frequency of outgroup contact, which was used as a control variable, was measured prior to the experimental manipulation and dependent measures. As the range of outcome variables that were being tested centred around a central theme of prejudice, we chose to construct a latent 'prejudice' variable that represented all dependent variables. Using a latent variable

approach allowed us to test our predictions in a single process model thereby minimizing slippage of null hypothesis significance testing inference and familywise type 1 error.

Prior to data collection an a priori power analysis was conducted using G-power based on a multiple regression with two predictors, an α .05 and power of .95, determining that we needed a sample size of 107.

Procedure. Participants started by filling out demographic information; embedded within this was a measure for frequency of outgroup contact which was used as a control variable in the analysis, and were then told that we were interested in how different groups of people feel about each other. After reading the randomly assigned article, participants were asked manipulation check questions relating to how they perceived their group was viewed by Muslims (in the experimental conditions). Participants then completed the measure of humanization, followed by randomized presentation of Islamophobia, positive reciprocity, hostile behavioural intentions, comfort and interest in intergroup contact, and outgroup befriending.

Frequency of outgroup contact. This was measured with one-item asking how frequently participants are in contact with either Muslims or non-Muslims. Participants responded on a five-point Likert scale ranging from (1) *never* to (5) *very frequently*, where higher scores indicated more frequent contact with the outgroup.

Outcome measures. All measures, unless otherwise stated, were measured on a five-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree*, where higher scores indicated higher agreement with the items.

Meta-perception manipulation check. As a manipulation check we assessed the extent to which participants perceived that Muslims had either blatantly dehumanized or

humanized non-Muslim Canadians in the article that they read. Participants were asked to indicate their level of agreement for five items ($\alpha = .94$), for example “Muslims think non-Muslim Canadians are beasts” (Kteily et al., 2016).

Dehumanization. To measure participants’ blatant dehumanization toward Muslims the Ascent of Man scale was used (Kteily et al., 2015). Responses were measured on a scale ranging from 0 (*highly uncivilized*) to 100 (*highly civilized*). Participants were asked to use a slider to indicate how evolved they believed Muslims to be. Higher scores indicated higher outgroup humanization.

Islamophobia. The measure was adapted from Lee, Reid, Short, Gibbons, Yeh, and Campbell (2013), and composed of two facets with 16 items combined to a single index. Eight items measured affective Islamophobia, focusing on avoidance-related emotions and behaviours toward Muslims, for example, “I would avoid going to places where Muslims would be”. The remaining eight items measured cognitive Islamophobia, addressing the belief that Muslims and Islam are dangerous, for example, “The religion of Islam supports acts of violence” ($\alpha = .98$).

Negative reciprocity. The desire for participants to reciprocate Muslims’ perceptions of non-Muslims was measured by asking them to indicate their level of agreement with the following two statements, “It makes me want to respond back negatively,” and “It makes me want to respond back positively”. The positive phrase was reverse-coded so that higher scores indicated a more negative response $r = .24, p = .01$ (Kteily et al., 2016).

Hostile behavioural intention. The intention to cause harm or intentional suffering toward Muslims was examined using a measure adapted from Golec de Zavala, Cichocka, and Iskra-Golec (2013). Participants were asked, “To what extent did reading the results of

the Social Attitudes Article made you want to: *hurt, offend, injure, intimidate, and humiliate* Muslims” ($\alpha = .98$). Each of the five italicized words were presented and answered individually.

Comfort and interest in intergroup contact. Comfort and interest in contact with Muslims was measured with 11 items adapted from Migacheva and Tropp (2012). Participants were asked to answer questions relating to how comfortable they would feel interacting with Muslims. Items were measured on a scale ranging from (1) *not at all* to (5) *very much*, for example “How much would you like to become friends with people who are Muslim?” ($\alpha = .93$). All items except one were reverse scored so that higher scores indicated less desire and comfort in intergroup contact.

Outgroup befriending. This was a one-item measure created for the purposes of this study. Participants read a brief vignette stating that the Canadian government has created a cultural bridging program pairing Canadian Muslims with Canadian non-Muslims to *offer friendship, support, advice, and answer any questions they may have*. Participants were then asked whether they would be interested in providing their contact details to participate in the program, answering on a scale ranging from (1) *extremely uninterested* to (5) *extremely interested*. This item was reverse scored so that higher scores indicated less interest in becoming friends with an outgroup member.

Results

To determine whether creating a latent variable from the dependent variables was appropriate, we first investigated the reliability index by running a two-way mixed random effect interclass correlation coefficient (ICC). The results were an $ICC = 0.97, p < .001, 95\%$

CI [.97, .98] indicating excellent reliability for including all dependent measures as a latent 'prejudice' variable.

See Appendix A for a summary of descriptives and effect sizes for all measures. We began by examining the manipulation check to determine whether the meta-perception manipulation influenced how participants believed they were viewed by Muslims. Those exposed to the meta-humanization (MH) manipulation were significantly more likely to perceive that they were humanized by Muslims ($M = 4.74$, $SD = 0.54$), than those in the meta-dehumanization (MD) condition ($M = 2.07$, $SD = 1.10$), $F(1, 91) = 220.36$, $p < .001$, $\eta^2_p = .71$.

Mediation Analysis

A mediation analysis was conducted using Hayes (2018) PROCESS v3.1 Model 4 with 5,000 bootstrap resamples with 95% bias-corrected confidence intervals for the indirect effect of the meta-perception manipulation on the outcome variable through outgroup humanization. Two sets of indicator (dummy) coding were used to construct products for a comparison of the effect of meta-humanization and meta-dehumanization in the hypothesized model. Indicator coding is a form of dummy coding provided as an option within the PROCESS Macro that constructs the mean difference between two categorical variables. First, using the control group as the reference point to meta-humanization (Model 1), and secondly, using the control group as the reference point to the meta-dehumanization (Model 2) as this compares the mean difference between the two focal predictors in each model. Results are reported in unstandardized coefficients controlling for outgroup contact.

Compared to the control group, in Model 1, meta-humanization was associated with increased outgroup humanization ($B = 18.74$, $p = .005$, 95% CI [5.77, 31.71]). In Model 2,

compared to the control group meta-dehumanization was not significantly associated with decreased outgroup humanization ($B = -.15, p = .98, 95\% \text{ CI } [-13.11, 12.81]$). Outgroup humanization was significantly associated with decreased prejudice ($B = -.02, p < .001, 95\% \text{ CI } [-.02, .02]$).

In Model 1, meta-humanization emerged as a stronger focal predictor when compared to the control group; however there was no statistically significant difference between meta-dehumanization and the control. To further support our hypothesis the indirect effect of meta-humanization through outgroup humanization to reduce prejudice was statistically significant, see Table 1.

Table 1
Unstandardized Total, Direct, and Indirect Effects of Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 1a Controlling for Frequency of Outgroup Contact

Effects	Model 1	Model 2
Control-MH		Control-MD
Total	-.35 [-.71, .002]	-.20 [-.16, .55]
Direct	-.003 [-.26, .27]	.19 [-.06, .45]
Indirect	-.36 [-.61, -.13]	.002 [-.26, .31]

Study 1b

To validate that the results obtained in Study 1a are generalizable under different social contexts, in Study 1b we replicated the experimental design of Study 1a by considering the same intergroup context but with a different sample. Specifically, we used British non-Muslims as the participant sample under investigation in order to provide a comparative approach and demonstrate that the phenomena under investigation span two different continents.

Method

Participants and procedure. Data collection processes and inclusion criteria were identical to Study 1a, with the exception that participants were required to consider themselves as British non-Muslims, living in the United Kingdom. The sample consisted of 149 participants, based on the same power analysis as in Study 1, (M age = 31.31, SD = 10.89; 68.5% female. The following affiliations were reported: 54.2% Christian, 37.8% Atheist or Agnostic, 7.9% Jewish. The ethnic background of participants was 92% White, 3% Black, 3% Asian, and 2% mixed ethnicity. The study took approximately 10 minutes to complete and was administered using Prolific Academic. In line with the payment policy of Prolific Academic, participants were paid the equivalent of £5.00/hour.

Design. Participants answered the same demographics, control measure (frequency of outgroup contact), and were randomly allocated to the same conditions as in Study 1a; however, all study material was phrased to suit non-Muslims from the United Kingdom instead of Canada. Alpha reliabilities for the measures were: Islamophobia ($\alpha = .98$), hostility ($\alpha = .97$), positive reciprocity ($r = .33, p = <.001$), and comfort and interest in intergroup contact ($\alpha = .93$). The interclass correlation coefficient was $ICC = .97, p < .001$, 95% CI [.97, .98], again confirming excellent reliability of the dependent measures to act as a latent prejudice variable. Based on this we proceeded to run the analysis as in Study 1a, combining all the dependent measures into one latent ‘prejudice’ variable investigating the indirect effect of meta-humanization and meta-dehumanization compared to the control group.

Results

As in Study 1a, we began by examining whether the meta-perception manipulation influenced how participants believed they were viewed by Muslims in the article that they read. Those exposed to the meta-humanization manipulation were significantly more likely to perceive that they were humanized by Muslims ($M = 4.76, SD = 1.10$), than those in the meta-dehumanization condition ($M = 2.22, SD = 0.54$), $F(1, 98) = 358.38, p < .001, \eta^2_p = .79$.

Mediation Analysis

The mediation analysis followed the same analytical procedure as in Study 1a, again controlling for outgroup contact. The indirect effect of meta-humanization through outgroup humanization was observed on prejudice, however there was no indirect of meta-dehumanization compared to the control condition. See Table 2 for a summary of direct, indirect, and total effects.

Meta-humanization ($B = 9.66, p = .09, 95\% \text{ CI } [-1.49, 20.82]$) and meta-dehumanization ($B = -4.99, p = .39, 95\% \text{ CI } [-16.37, 6.39]$) were not significantly associated with increased or decreased outgroup humanization respectively. Outgroup humanization however was significantly associated with decreased outgroup humanization ($B -.02, p < .001, 95\% \text{ CI } [-.02, -.02]$).

Table 1
Unstandardized Total, Direct, and Indirect Effects of Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 1a Controlling for Frequency of Outgroup Contact

Effects	Model 1	Model 2
Control-MH		Control-MD
Total	-.37 [-.70, .04]	.23 [-.11, -.04]
Direct	-.18 [-.43, .07]	.13 [-.12, .38]
Indirect	-.19 [-.41, -.001]	.10 [-.15, .37]

In summary, the results of Study 1b replicate and extend the findings of Study 1a spanning across both the United Kingdom and Canada. The results were consistent across both Study 1a and b with similar effect sizes for the indirect effects.

Study 2a

In Study 2a we sought to replicate the design of Studies 1a and 1b using a different form of the meta-perception manipulation. We wanted to demonstrate that the results were consistent with previous research using different styles of outgroup feedback. In Studies 1a and 1b we used a fictitious news article as the meta-perception manipulation, and in Study 2a the manipulation was presented as fictitious results from a social attitudes survey, based on previous research (Kteily et al., 2016). Both versions of the experimental manipulation are similar to the content that would be widely available in the news or media. Additionally, we sought to extend our findings by testing a conditional process analysis (moderated mediation) using intergroup threat as a moderator of the indirect effect of meta-humanization through outgroup humanization on the same outcome variables as in Studies 1a and 1b. This replication and extension are important to authenticate the reliability of our results as we provide novel evidence for the proposed theoretical model of meta-humanization. As we were adding an additional variable (threat) into the model in the current study, we conducted another a priori power analysis using G-power based on a multiple regression with three predictors, an α .05 and power of .95, determining that we needed a sample size of 119.

Method

Participants. As in Study 1b, data were collected using Prolific Academic, an online participant recruitment website offering a small monetary compensation for study participation equivalent to \$5.00/hour. As in Study 1a, participants were required to consider

themselves as Canadian, living in Canada, and to identify with being Christian, Jewish, Buddhist, Atheist, Agnostic, or non-religious. The sample consisted of 158 participants (M age = 29.68, SD = 9.86); 53.2% male. The following affiliations were reported: 28.7% Christian, 68.4% Atheist or Agnostic, 3.8% Jewish. The ethnic background of participants was 77% White, 4% Black, 15% Asian, 4% mixed ethnicity.

Procedure and materials. After answering demographic questions and the frequency of outgroup contact measure participants filled in a measure of intergroup threat and then were randomly assigned to conditions. In the experimental conditions, participants read fictitious results of a recent ‘Social Attitudes Survey’ similar to the one that they were participating in, adapted from Kteily et al. (2015). The survey results purported to examine Muslim attitudes toward non-Muslim Canadians, among Muslims living in Saudi Arabia, Jordan, Syria, Lebanon, and Yemen.

The articles contained filler information such as average age, countries of origin, and religion of the respondents. Central to the experimental manipulation was Muslims’ ratings of non-Muslims and Muslims on the Ascent Dehumanization scale. In the meta-dehumanization condition participants read that Muslims rated their own group highly evolved (96 on the Ascent scale) and non-Muslim Canadians were rated as considerably lower (40 on the Ascent scale). In the meta-humanization condition participants read that Muslims rated both their own group and non-Muslim Canadians as equally, highly evolved (96 on the Ascent scale). The control condition was the same as in Studies 1a and 1b.

Intergroup threat. Two dimensions of threat, symbolic and realistic were measured (adapted from Gonzales et al., 2008) and combined into a single index to provide a general measure of threat. We were interested in a general measure of threat as research has shown that both symbolic and realistic threats are salient when considering the perception of

Muslims (Pew Global Attitudes Project, 2015). Symbolic threat was measured using three-items, for example, "British identity is being threatened because there are too many Muslims". Realistic threat was measured using three-items, for example, "Because of the presence of Muslims, people have more difficulties finding a job" and higher scores indicated higher perceived intergroup threat ($\alpha = .95$).

Outcome Measures. All outcome measures were identical to those used in Studies 1a and 1b and alpha reliabilities for the measures were: Islamophobia ($\alpha = .89$), hostility ($r = .16, p = .04$, reciprocity ($\alpha = .72$), and comfort and interest in intergroup contact ($\alpha = .90$). The interitem correlation reliability for all of the dependent measures was ICC = .96, $p < .001$, 95% CI [.95, .97], again confirming that it was appropriate to proceed with testing one latent 'prejudice' variable as the dependent measure in our model.

Results

We began by examining whether the meta-perception manipulation influenced how participants believed they were viewed by Muslims in the survey results that they read. Those exposed to the meta-humanization manipulation were significantly more likely to perceive that they were humanized by Muslims ($M = 4.41, SD = 0.89$), than those in the meta-dehumanization condition ($M = 1.62, SD = 0.70$), $F(1, 105) = 322.70, p < .001, \eta^2_p = .76$.]

Conditional Process Analysis

Analyses were conducted using Hayes' (2018) PROCESS v3.1 Model 7 with mean centred variables, 5,000 bootstrap resamples and 95% bias-corrected confidence intervals for the indirect effects at 16th, 50th, and 84th percentiles of the moderator (threat). Percentiles were chosen to represent values of the moderator rather than standard deviations as this

method can more accurately detect effects that are not normally distributed. The same indicator coding was used as in the previous two studies. Specifically, controlling for outgroup contact, the effect of threat on meta-humanization to reduce prejudice via outgroup humanization was tested. For brevity only significant effects are reported in the results section. See Table 3 for a summary of all effects and the indexes of moderated mediation for both models.

Compared to the control group, meta-humanization ($B = 5.42$, 95% CI [-1.82, 12.68]) and meta-dehumanization ($B = -5.03$, 95% CI [-11.88, 1.82]) were associated with an increase and decrease respectively, in outgroup humanization, however this was not statistically significant. Outgroup humanization significantly reduced prejudice ($B = -0.02$, 95% CI [-.02, -.02]).

In line with predictions there was a significant meta-perception by threat interaction $\Delta R^2 = 0.07$, $F(2, 151) = 10.34$, $p < .001$. An inspection of the conditional effects of the focal predictor at values of the moderator indicated that among those relatively high in threat, when compared to the control group, those in the meta-humanization condition ($W_{\text{high}} = 1.49$) $= 21.34$, $t(151) = 3.20$, $p < .01$, 95% CI [8.15, 34.53], significantly reciprocated humanization compared to those in the meta-dehumanization condition. The index of moderated mediation for the indirect effect through outgroup humanization was statistically significant only for meta-humanization compared to the control group, indicating that threat moderated the indirect effect of meta-humanization through outgroup humanization on prejudice, see Table 3.

The results of Study 2a show support for our hypothesis that perceived intergroup threat moderates the indirect effect of meta-humanization. Additionally, the effect of meta-

humanization is strong enough to increase outgroup humanization and reduce prejudice.

Again, effect sizes for the indirect effect are similar to those in Study 1a and 1b.

Table 3

Unstandardized Indirect Effects at 16th, 50th, and 84th Percentiles of the Moderator Intergroup Threat for Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 2a Controlling for Frequency of Outgroup Contact

Effects	Model 1	Model 2
Control-MH		Control-MD
Low(16 th)	.11 [-.03, .23]	.001 [-.15, .13]
Average (50 th)	.003 [-.10, .10]	.05 [-.07, .16]
High (84 th)	-.43 [-.72, -.14]	.25 [-.13, .66]
Index	-.21 [-.36, -.07]	.10 [-.08, .29]

Study 2b

In Study 1a and 1b we demonstrated that outgroup humanization mediated the relationship between meta-humanization and the outcomes for Canadian and British non-Muslims. To provide consistency and, for comparative purposes, to demonstrate the validity in our results in Study 2b we replicated the experimental design of Study 2a, using British non-Muslims as the participant sample under investigation.

Method

Participants and procedure. Data were collected using Prolific Academic and paid the equivalent of £5.00/hour. Similar to Study 1b, participants were required to consider themselves as British, living in the United Kingdom, and to identify with being Christian, Jewish, Buddhist, Atheist, Agnostic, or non-religious. The sample consisted of 155 participants (*M* age = 32.59, *SD* = 10.88; 68.4% female). The following affiliations were reported: 40.7% Christian, and 59.3% Atheist or Agnostic. The ethnic background of participants was 92% White, 5% Black, and 3% Asian.

The methodology of Study 2b was identical to that of Study 2a. Participants answered the same demographics, questionnaires, and were randomly exposed to the same study conditions; however, all study material was phrased to suit non-Muslims from the United Kingdom instead of Canada. Alpha reliabilities for the measures were: Threat ($\alpha = .95$), Islamophobia ($\alpha = .98$), hostility ($\alpha = .98$), positive reciprocity ($r = .32, p < .001$), and comfort and interest in intergroup contact ($\alpha = .93$). The interitem correlation reliability of our dependent measures indicated an ICC = .98, $p < .001$, 95% CI [.97, .98], demonstrating excellent reliability of the latent ‘prejudice’ variable.

Results

We began by examining whether the meta-perception manipulation influenced how participants believed they were viewed by Muslims in survey results that they read. Those exposed to the meta-humanization manipulation were significantly more likely to perceive that they were humanized by Muslims ($M = 4.80, SD = 0.27$), than those in the meta-dehumanization condition ($M = 1.59, SD = 0.67$), $F(1, 99) = 966.37, p < .001, \eta^2_p = .91$

Conditional Process Analysis

When compared to the control condition meta-humanization was not significantly associated with increased outgroup humanization ($B = 6.63, 95\% \text{ CI } [-49, 13.75]$), however compared to the control group meta-dehumanization was significantly associated with reduced outgroup humanization ($B = -7.62, 95\% \text{ CI } [-14.54, -.71]$) Outgroup humanization significantly reduced prejudice ($B = -0.02, 95\% \text{ CI } [-.03, -.02]$).

The interaction between the meta-perceptions and threat was not statistically significant $\Delta R^2 = 0.02, F(2, 148) = 2.92, p = .06$, however in line with predictions, threat did moderate the effect of meta-humanization. Conditional effects of the focal predictor at values

of the moderator indicated that among those relatively high in threat, in the meta-humanization condition, significantly reciprocated outgroup humanization compared to those in the control condition ($W_{high} = 1.52$) = 16.54, $t(148) = 2.65$, $p = .01$, 95% CI [4.21, 28.88]. Across all outcome variables, the indexes of moderated mediation were statistically significant, indicating that threat moderated the indirect effect of meta-humanization through outgroup humanization on prejudice, see Table 4.

As predicted, the results of Study 2b replicate those of Study 2a using a different version of the meta-perception manipulation. Under conditions of high threat, the indirect effect of meta-humanization was significant.

Table 4
Unstandardized Indirect Effects at 16th, 50th, and 84th Percentiles of the Moderator Intergroup Threat for Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 2b Controlling for Frequency of Outgroup Contact

Effects	Model 1	Model 2
Control-MH		Control-MD
Low(16 th)	.02 [-.11, .15]	.15 [-.04, .34]
Average (50 th)	-.10 [-.22, .01]	.17 [.02, .32]
High (84 th)	-.37 [-.72, -.05]	.19 [-.20, .64]
Index	-.15 [-.30, -.02]	.02 [-.16, .21]

Study 2c

In Study 2c we replicated the experimental design of Studies 2a and 2b, this time from the minority group perspective using British Muslims as the participant sample under investigation. We were interested in both the majority and minority group perspectives for several reasons. First, Muslims as a minority group are underrepresented in social psychological literature. Secondly, we sought to investigate whether there were similarities in how both majority and minority groups would respond to positive attitudinal outcomes when they perceive they are seen as human by an outgroup, as the limited meta-

dehumanization/meta-humanization research that exists from a minority perspective focused mainly on negative outcomes such as hostility (Kteily et al., 2016). Finally, by extending our previous research to represent the minority perspective we provide theoretical inferences to generalize the nature of meta-humanization beyond a majority specific context. We predict that the results of the conditional process in Study 2c will follow the same pattern as in Study 2a and 2b, however in line with previous research on intergroup contact and prejudice between majority and minority groups we expect there to be weaker effects (Pettigrew & Tropp, 2005).

Method

Participants and procedure. Data were collected using Prolific Academic and were paid the equivalent of £5.00/hour for the ten-minute study. Participants were required to be British, and to identify with being Muslim. The sample consisted of 154 participants (M age = 29.20, SD = 8.42; 57.8% female). The majority of participants 88% were born in the United Kingdom, with 2% being born in Europe, 5% Africa, 4% Middle East, 1% Asia, and 1% North America. Ethnically, participants reported to be 51% South Asian, 16% White, 14% Arab, 11% Black, and 8% East Asian.

The methodology of Study 2c was identical to Study 2a and 2b. Participants filled in the same demographics, questionnaires (with the exception of the Islamophobia scale), and were randomly assigned to the same conditions, meta-dehumanization, meta-humanization, and a control group; however, all study material was phrased to represent non-Muslims from the United Kingdom instead of Muslims. Alpha reliabilities for the measures were: Threat (α = .88), hostility, (α = .97), positive reciprocity (r = .12, p = .02), and comfort and interest in outgroup contact (α = .88). The interitem correlation reliability of our dependent measures

indicated $ICC = .86, p < .001, 95\% CI [.82, .89]$, demonstrating very good reliability of the latent 'prejudice' variable.

Results

We first assessed whether our manipulation had successfully influenced participants' perceptions that non-Muslims humanized Muslims. Indeed, those participants in the meta-humanization condition were significantly more likely to report that they were humanized in what they read by non-Muslims ($M = 4.25, SD = 1.07$) than were those that were in the meta-dehumanization condition ($M = 1.68, SD = 0.84$), $F(1, 100) = 181.98, p < .001, \eta^2_p = .65$.

Conditional Process Analysis

When compared to the control condition, meta-humanization significantly predicted an increase in outgroup humanization ($B = 8.39, 95\% CI [1.00, 15.79]$), whereas compared to the control group, meta-dehumanization was not significantly associated with reduced outgroup humanization ($B = -3.39, 95\% CI [-10.74, 3.97]$). Outgroup humanization significantly reduced prejudice ($B = -0.01, 95\% CI [-.02, -.01]$).

In line with predictions there was a significant meta-perception by threat interaction $\Delta R^2 = 0.04, F(2, 147) = 4.13, p = .02$. Conditional effects of the focal predictor at values of the moderator indicated that among those reporting high levels of intergroup threat, in the meta-humanization condition, significantly reciprocated outgroup humanization compared to those in the control condition ($W_{high} = 0.99$) = 16.76, $t(147) = 3.19, p < .01, 95\% CI [6.39, 27.13]$. Compared to the control condition, the index of moderated mediation was statistically significant for meta-humanization, see Table 5.

In summary, the results of Study 2c extend our findings from Studies 2a and 2b, demonstrating the minority group perspective. Indeed, the results provide further evidence to

firstly suggest that when both minority and majority groups perceive to have been humanized by the other, they are likely to reciprocate outgroup humanity perceptions. Secondly, the results demonstrate that high perceptions of intergroup threat moderate the effect of meta-humanization when compared to a control group, demonstrating the capacity of meta-humanization to influence change in the attitudes of hostility, negative reciprocity, and comfort and interest in intergroup contact and variables that act as behavioural proxies, namely outgroup befriending.

Table 5
Unstandardized Indirect Effects at 16th, 50th, and 84th Percentiles of the Moderator Intergroup Threat for Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 2c

Effects	Model 1	Model 2
Control-MH		Control-MD
Low(16 th)	.001 [-.08, .09]	.02 [-.04, .34]
Average (50 th)	-.08 [-.22, .01]	.04 [.02, .32]
High (84 th)	-.20 [-.72, -.05]	.06 [-.20, .64]
Index	-.10 [-.30, -.02]	.02 [-.01, .08]

Studies 3a and 3b

The findings from Studies 1a and 1b provide an interesting extension of previous work on meta-(de)humanization demonstrating that meta-humanization can predict reciprocal outgroup humanization and reduced prejudice, and in Studies 2a – 2c we see this relationship exist even under high threat. Studies 3a and 3b further test the boundaries of meta-humanization to reduce prejudice and hostility and improve interest in intergroup contact, outgroup befriending, and donation intentions under conditions of manipulated high and low threat between a non-Muslim majority group and Muslim minority group. These final two studies were important to firstly, further clarify the relationship between threat and meta-humanization, and secondly to provide further evidence for the effects of meta-humanization and meta-dehumanization from the minority group’s perspective.

Overview of Studies

We conducted two studies to examine how the activation of low and high threat impacts intergroup attitudes and proxys of behaviour when the majority (Study 3a) and minority (Study 3b) group perceive that they are humanized or dehumanized by each other. Prejudice between Muslims and non-Muslims is pervasive, and their relations are strained largely due to the negatively biased over-representation of Muslims as being a threat to Western safety and economy (Baker, Gabrielatos, & McEnery, 2013; Choma, Jagayat, Hodson, & Turner, 2018). Moreover, given frequent and blatant expressions of prejudice and dehumanization between Muslims and non-Muslims it is important to investigate the consequences of meta-dehumanization and the benefits of reversing this meta-perception. In addition, it is also highly important for social psychological studies on intergroup relations to demonstrate findings that represent both majority and minority groups, as minorities are underrepresented in social psychological literature (Ballinger, 2018). Due to the intergroup context we are investigating, Muslims and non-Muslims, two groups that are considered as being in conflict with one another, we expect there to be similar outcomes.

In Study 3a we considered the non-Muslim majority group perspective, whereas Study 3b replicated the design of Study 3a from the Muslim minority group perspective. This was an important feature of the study as it would allow to demonstrate replicability in our work. This is important firstly, as social psychologists stress the need to replicate empirical findings in order to ensure investigators are not finding false positive results. In addition, replication among different groups of people increases generalizability of results beyond the confines of the study to the global population (Earp & Trafimow, 2015). Secondly, it is theoretically important to look at both majority and minority group perspectives in order to improve the experiences of underrepresented groups and understand the intergroup dynamics

that shape interactions (Ballinger, 2018). By only understanding one group's perspective it is not possible to repair intergroup relations. We need to establish whether there are differences in majority and minority group member's attitudes and the extent to which they would act on these beliefs. A group that is marginalized or disadvantaged in society may not act the same way as a group that is privileged (Kteily & Bruneau, 2017), despite having similar dissatisfaction toward the outgroup (Shelton, 2000).

Given the important role of threat identified in the previous studies (2a – 2c) and considering that it was self-reported, the next studies manipulated the construct in order to further test the boundaries of meta-humanization. In both Studies 3a and 3b we manipulated the exposure to low and high threat, as well as exposure to either meta-dehumanization, meta-humanization, or a neutral control condition. As similar effects on intergroup relations have been observed via threat and meta-dehumanization separately on outcomes such as hostility and prejudice, we chose to include a control condition as a reference point to firstly, investigate whether prejudice and hostility are being driven by threat or meta-dehumanization, and secondly to determine whether the positive effects of meta-humanization under conditions of threat are resilient in improving intergroup attitudes compared to a control condition, rather than just observing the known difference in effects of meta-humanization and meta-dehumanization. As in the previous studies, we again controlled for frequency of outgroup contact using the same measure as reported above.

Previous research demonstrated that the perception of threat increases negative attitudes and behaviours (Stephan & Renfro, 2002). Moreover, meta-dehumanization causes similar negative effects on intergroup attitudes and behaviour, whereas, meta-humanization has been evidenced to improve intergroup attitudes (Kteily et al., 2016). As such, we expect there to be significant main effects of threat and the meta-perceptions. More specifically,

high threat and meta-dehumanization, separately, will result in the greatest increase in hostility and prejudice and reduction in comfort and interest in intergroup contact, outgroup befriending, and donation intentions. Secondly that meta-humanization will significantly increase the positive outcome variables and reduce the negative outcomes compared the control group and meta-dehumanization. Although based on previous literature we expect there to be significant main effects, of central interest in this paper is our prediction for the interaction effect. Given the moderating role that intergroup threat had in Studies 2a – 2c, we expect there to be an interaction between levels of threat and meta-perception manipulation. In line with this we hypothesize that meta-humanization will reduce prejudice and hostility, and increase the desire for contact and proxys for behaviour under high threat, compared to the control group, and meta-dehumanization, in that order. Moreover, in Studies 2a – 2c we found that the effect of meta-humanization was moderated by high levels of threat, and no significant effects on the dependent variable was seen under low threat. As such, we do not expect that there will be a significant interaction between the meta-perceptions and low threat.

Study 3a

Method

Participants and design. Data were collected from Prolific Academic, participants were paid the equivalent of £5.00/hour for the ten-minute study. Participants were required to consider themselves as British, living in the United Kingdom, and to identify with being Christian, Jewish, Buddhist, Atheist, Agnostic, or non-religious. The sample consisted of 251 participants (M age = 36.06, SD = 14.09; 64.5% female. The following affiliations were reported: 33.1% Christian, 66.2% Atheist or Agnostic, 0.8% Buddhist.

Participants were randomly assigned to one of the six experimental conditions of a 2 (intergroup threat: high threat vs. low threat) x 3 (meta-perception: meta-dehumanization vs. meta-humanization vs. control) factorial design. Prior to data collection an a priori power analysis was conducted with an $\alpha = .05$ and power of .95, determining we needed a sample size of 251. These studies were also pre-registered on the Open Science Framework Platform to ensure transparency and uphold high scientific standards. In Studies 3a and 3b we opted to keep our dependent measures separate instead of creating a latent variable from the dependent measures as in Studies 1a – 2c. Our rationale for doing this is due to the difference in study design between 1a – 2c and 3a/3b. In Studies 1a – 2c we were interested in testing a model of meta-humanization that would attenuate intergroup prejudice more generally, under conditions of intergroup threat. As we have established a pattern of results that supports this, the current studies (3a and 3b) aim to investigate the interaction between intergroup threat and meta-(de)humanization more closely. To do this, we included prejudice as a separate dependent measure, alongside measures for intergroup attitudes and behavioural proxies.

Procedure. Participants were asked to complete a questionnaire as part of research on social attitudes, beginning with demographic questions. Embedded within the demographics was a measure of *intergroup contact* with Muslims, assessed by one-item, asking the frequency that they were in contact with the outgroup. On a five-point Likert scale ranging from (1) *very seldom* to (5) *very frequently*, participants indicated the frequency of contact they have with Muslim people. We used this measure to control for contact in our analysis, as in the previous studies.

After filling out the demographic information, participants were randomly assigned to the first experimental condition, intergroup threat. Participants read either a fictitious high or

low intergroup threat vignette, adapted from Matthews and Levin (2012) that purported to examine the interplay between social values of the Muslim and Western world. The high threat vignette was titled ‘Expert estimations: non-Muslim ideals prove to be extreme threat to Islamic values and economy’, and purported that Muslims perceived non-Muslims to be both a realistic and symbolic threat. The low threat vignette was titled, ‘Expert estimations: Islamic faith appreciates non-Muslim values and economy’. The low threat article suggested that Muslims perceived there to be integration between Islamic and non-Muslim values and shared resources in the United Kingdom. Participants could not advance to the next page for 30 seconds to ensure they had time to read the article. Following this, participants answered manipulation check questions (see measures for a full description of manipulation checks used).

After completing the intergroup threat portion of the study participants were randomly assigned to one of the three meta-perception conditions where they viewed fictitious survey results (adapted from Kteily et al., 2016) or the neutral control condition where they read a story about a flower. In the experimental conditions, participants viewed fictitious results of a recent ‘Social Attitudes Survey’ similar to the one that they were participating in. The survey results purported to examine Muslim attitudes toward non-Muslim Canadians, among Muslims living in Saudi Arabia, Jordan, Syria, Lebanon, and Yemen, similar to Studies 2a.

After viewing the survey results, those in the experimental condition completed a meta-perception manipulation check. Following the meta-perception section of the study. all participants were asked to answer the dependent measures: hostility, prejudice, comfort and interest in intergroup contact, and two proxy behavioural measures. Dependent measures were counterbalanced to avoid order effects. Participation was voluntary and debrief statements were provided upon completion of the questionnaire.

Materials

Threat manipulation check. As a manipulation check we assessed the extent to which participants retained key information related to the high or low threat posed by Muslims the article that they read. Participants were asked to indicate their level of agreement for two items ($r = .56$), for example ‘The increasing amount of Muslims in the UK has resulted in hundreds more Mosques (Islamic prayer centers) being built.’

Meta-perception manipulation check. As a manipulation check we assessed the extent to which participants perceived that Muslims had either blatantly dehumanized or humanized non-Muslim Britons in the article that they read. Participants were asked to indicate their level of agreement for two items ($r = .56$), for example “Muslims think non-Muslims are beasts”, adapted from (Kteily et al., 2016).

Outcome Measures. All measures, unless otherwise stated, were measured on a five-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree*, where higher scores indicated higher endorsement of the measure. Hostility ($\alpha = .95$), comfort and interest in interest in intergroup contact ($\alpha = .93$), and outgroup befriending were the same measures used in Studies 1a-2c.

Prejudice. To measure prejudice toward Muslims we employed a 10-item measure tapping on both blatant and subtle forms of prejudice (Pettigrew & Meertens, 1995). Participants were presented statements, such as, “Muslims living in Britain have jobs that non-Muslims should have” ($\alpha = .88$). Higher scores indicated stronger prejudice toward Muslims.

Donation intention. This was a one-item measure created for the purposes of this study. Participants read a brief vignette, presented to look like the review of a cookbook. The vignette was adapted from ‘Jerusalem: A cookbook’ (Ottolenghi & Tamimi, 2011) which

emphasizes culinary and cultural commonalities among Israelis and Palestinians living in Jerusalem. At the beginning of the study participants were told that upon completion of the study they could enter a prize draw for one of two \$25 Amazon gift cards. Our vignette suggested that two chefs: Fahad Al Udeen and Chris Alexander started a Crowdfunder in order to generate funds to publish their cookbook of recipes influenced by Fahad's Arab Muslim background and Chris's British non-Muslims background. After reading book review participants were asked whether they would be willing to donate their prize draw entry so that if they won the prize money could be used toward Fahad and Chris's cookbook.

Results

Manipulation checks

We began by examining whether the meta-perception manipulation influenced how participants believed they were viewed by Muslims in the article that they read. Those exposed to the meta-humanization manipulation were significantly more likely to perceive that they were humanized by Muslims ($M = 4.49$, $SD = 0.88$), than those in the meta-dehumanization condition ($M = 1.42$, $SD = 0.78$), $t(158) = 23.38$, $p < .001$. Next we examined the intergroup threat manipulation and found that those exposed to high threat indeed perceived significantly more threat from Muslims ($M = 3.94$, $SD = 0.82$) than those in the low threat condition ($M = 1.94$, $SD = 0.58$), $t(249) = 22.41$, $p < .001$.

Main analyses

Statistical analyses were performed using IBM statistics 25. A 2 (threat: high threat, low threat) x 3 (meta-perception: meta-dehumanization, meta-humanization, control) ANOVA was performed on the dependent measures, controlling for frequency of outgroup contact. Results from the univariate analysis of variance indicated that there were significant

interactions between threat and meta-perceptions on all dependent variables: hostility, prejudice, contact, befriending, and donations, therefore although there were significant main effects they will not be interpreted but are presented with the interactions in Table 7.

The interactions were dissected using simple main effects in order to keep the error term constant. Bonferroni corrected alpha values were adjusted to .02 to reduce familywise type 1 error for multiple comparisons in the post-hoc analysis. Simple effects are presented by dependent variable, with mean \pm standard deviation. For brevity, only statistically significant simple effects will be reported, see Table 6 for descriptive statistics.

The results indicated a statistically significant simple main effect at different levels of the meta-perception manipulation for those exposed to high threat across all dependent variables: hostility $F(2, 244) = 39.42, p < .001, \eta^2_p = .24$, prejudice $F(2, 244) = 34.17, p < .001, \eta^2_p = .22$, comfort and interest in intergroup contact $F(2, 244) = 25.41, p < .001, \eta^2_p = .17$, outgroup befriending $F(2, 244) = 12.28, p < .001, \eta^2_p = .09$, and donation intentions $F(2, 244) = 8.30, p < .001, \eta^2_p = .06$. The statistically significant simple main effect for low threat at different levels of the meta-perception manipulation was only observed for comfort and interest in intergroup contact $F(2, 244) = 4.46, p = .01, \eta^2_p = .04$. Following the simple effects analysis post hoc tests were carried out to determine the significant differences between levels of the meta-perceptions under threat. See Table 6 for a summary of main and interaction effects and Table 7 for a summary of post hoc results.

Table 6
Main and Interaction Effects for Five Dependent Measures by Threat and Meta-Perception Controlling for Frequency of Intergroup Contact

Variable	df	ANOVA				
		Hostility	Prejudice	Contact	Befriending	Donation
		F	F	F	F	F
Threat	1, 244	24.64***	11.12***	10.79***	1.22*	6.66**
Meta-perception	2, 244	33.65***	27.30***	25.67***	10.06***	8.66***
T x MP	2, 244	11.42***	10.75***	5.38**	4.17*	3.73*

Note., $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Table 7
Descriptive Statistics and Post-Hoc Analysis for Five Scale Items as a Function of Threat (High vs. Low) and Meta-Perception (Meta-Dehumanization vs. Meta-humanization vs. Control)

Threat	Meta-P	Five scale items									
		Hostility		Prejudice		Contact		Befriending		Donation	
		M	SD	M	SD	M	SD	M	SD	M	SD
High	Meta-D	2.67 _a	1.50	3.22 _a	0.94	2.63 _a	0.91	1.97 _a	1.35	2.10 _a	1.12
	Meta-H	1.04 _a	0.17	1.82 _{a,b}	0.57	4.02 _{a,b}	0.66	3.49 _a	1.07	3.49 _a	1.47
	Control	1.46 _a	0.92	2.41 _{a,b}	0.79	3.36 _{a,b}	1.01	3.00 _a	1.40	3.02 _a	1.36
Low	Meta-D	1.47	0.68	2.33	0.72	3.39 _a	0.81	2.78	1.26	3.26	1.63
	Meta-H	1.13	0.49	2.06	0.59	3.79 _a	0.65	3.00	1.27	3.76	1.32
	Control	1.11	0.43	2.22	0.64	3.69	0.84	3.18	1.37	2.98	1.45

Note. For meta-perception, columns sharing the same subscript are significantly different, $p < .025$

As expected, there was an interaction between levels of intergroup threat and the meta-perceptions. The findings indicate that the interaction of high threat and meta-dehumanization increased hostility and prejudice, and reduced comfort and interest in intergroup contact, willingness to befriend a member of the outgroup, and donation intentions. Although there were significant differences between meta-dehumanization and meta-humanization under conditions of high threat, the strength of the effect indicated that meta-dehumanization resulted in a stronger interaction than meta-humanization. In the low threat condition, there was a significant increase in comfort and interest in intergroup contact for those exposed to meta-humanization compared to meta-dehumanization, and significant

increase in donation intentions for those exposed to meta-humanization versus the control group.

Study 3b

In Study 3b we replicated the experimental design of Study 3a, this time from the minority group perspective using British Muslims as the participant sample under investigation. We extend our previous research to represent the minority perspective in order to provide further theoretical inferences to generalize the nature of meta-humanization beyond a majority specific context. We predict the results in Study 3b will follow the same pattern as in Study 3a, however we acknowledge, there may be weaker effects in line with previous research on intergroup contact and prejudice from the minority group perspective (Pettigrew & Tropp, 2005).

Method

Participants and design. Data were collected using Prolific Academic and participants were paid the equivalent of £5.00/hour for the ten-minute study. Participants were required to be British, and to identify with being Muslim. Based on the same power analysis as in Study 3a we were required to have a sample of 221 participants. The sample we recruited consisted of 255 participants (M age = 27.67, SD = 8.36; 59.2% female). Ethnically, participants reported to be 47% South Asian, 13% White, 11% Arab, 9% East Asian, 8% Black, 6% South East Asian, and 6% mixed. The design of Study 3b followed the same 2 (threat) x 3 (meta-perceptions) experimental design as in Study 3a.

Procedure. The methodology of Study 3b was identical to Study 3a. Participants filled in the same demographics, questionnaires, and were randomly assigned to the same experimental conditions of threat (high vs. low) and meta-perceptions (meta-dehumanization

vs. meta-humanization vs. control); however, all study material was phrased to represent non-Muslims from the United Kingdom instead of Muslims as the target outgroup. We similarly controlled for frequency of outgroup contact as in Study 3a. Alpha reliabilities for the measures were: hostility, ($\alpha = .94$), prejudice ($\alpha = .81$), and comfort and interest in outgroup contact ($\alpha = .85$).

Results

Manipulation checks

As in Study 3a, we began by examining whether the meta-perception manipulation influenced how participants believed they were viewed by Muslims in the article that they read. Those exposed to the meta-humanization manipulation were significantly more likely to perceive that they were humanized by Muslims ($M = 3.79$, $SD = 1.08$), than those in the meta-dehumanization condition ($M = 1.70$, $SD = 1.08$), $t(162) = 12.41$, $p < .001$. Next we examined the intergroup threat manipulation and found that those exposed to high threat indeed perceived significantly more threat from Muslims ($M = 3.27$, $SD = 1.17$) than those in the low threat condition ($M = 2.27$, $SD = 0.78$), $t(253) = 7.89$, $p < .001$.

Main analyses

Following the same procedure for analysis as Study 3a, a series of two-way ANOVAs were conducted to assess the effects of threat and meta-perceptions on hostility, prejudice, comfort and interest in intergroup contact, and two measures for proxies of behaviour: outgroup befriending, and a donation intention. Significant interactions were observed between threat and meta-perceptions across all dependent measures, therefore main effects will not be interpreted but are presented with the interactions in Table 8. To dissect the interactions, simple main effects were carried out and Bonferroni corrected alpha values were

adjusted to .02 to reduce familywise type 1 error for multiple comparisons. Simple effects are presented by dependent variable, with mean ± standard deviation. For brevity only statistically significant simple effects are reported, see Table 9 for descriptive statistics.

Table 8
Main and Interaction Effects for Five Dependent Measures by Threat and Meta-Perception Controlling for Outgroup Contact
 Note. $p < .02^*$, $p < .01^{**}$ $p < .001$

Variable	df	ANOVA				
		Hostility	Prejudice	Contact	Friendship	Donation
Threat	1, 248	24.05***	10.84***	15.22***	12.75***	6.95**
Meta-perception	2, 248	48.04***	13.51***	35.08***	5.50**	8.29***
T x MP	2, 248	15.30***	4.88**	6.01***	3.25*	4.31**

Table 9
Five Scale Items as a Function of Threat (High vs. Low) and Meta-Perception (Meta-Dehumanization vs. Meta-humanization vs. Control)
 Note. For meta-perception, columns sharing the same subscript are significantly different, $p < .05$

Threat	Meta-P	Five scale items									
		Hostility		Prejudice		Contact		Befriending		Donation	
		M	SD	M	SD	M	SD	M	SD	M	SD
High	Meta-D	2.91 _a	1.35	3.14 _a	0.71	2.92 _a	1.09	2.53 _a	1.40	2.24 _a	1.36
	Meta-H	1.32 _a	0.47	2.38 _a	0.64	4.22 _a	0.59	3.24 _a	1.48	3.05 _a	1.25
	Control	1.37 _a	0.44	2.45 _a	0.79	3.96 _a	0.71	3.22 _a	1.22	3.24 _a	1.24
Low	Meta-D	1.71 _a	0.73	2.50	0.51	3.76 _a	0.71	3.40	1.06	3.00 _a	1.41
	Meta-H	1.09 _a	0.34	2.28	0.65	4.32 _a	0.53	4.00 _a	1.07	3.88 _{a,b}	1.26
	Control	1.40	0.76	2.36	0.76	4.14	0.59	3.22 _a	1.39	3.00 _b	1.45

The results indicated a statistically significant simple main effect at different levels of the meta-perception manipulation for those exposed to high threat across all dependent variables: hostility $F(2, 248) = 64.84, p < .001, \eta^2_p = .34$, prejudice $F(2, 248) = 19.39, p < .001, \eta^2_p = .14$, comfort and interest in intergroup contact $F(2, 248) = 38.92, p < .001, \eta^2_p = .24$, outgroup befriending $F(2, 248) = 5.19, p = .01, \eta^2_p = .04$, and donation intentions $F(2, 248) = 7.58, p = .001, \eta^2_p = .06$. The statistically significant simple main effect for low threat

at different levels of the meta-perception manipulation was only observed for hostility $F(2, 248) = 5.86, p < .01, \eta^2_p = .05$, comfort and interest in intergroup contact $F(2, 248) = 5.71, p < .01, \eta^2_p = .04$, outgroup befriending $F(2, 248) = 4.21, p = .02, \eta^2_p = .03$, and donation intentions $F(2, 248) = 6.07, p < .01, \eta^2_p = .05$. Following the simple effects analysis post hoc tests were carried out to determine the significant differences between levels of the meta-perceptions under threat. See Table 9 for a summary of post hoc results.

The findings from Study 3b were generally consistent with Study 3a, however despite all means being in the predicted direction, the effects were slightly weaker and there were no significant differences between meta-humanization and the control condition under conditions of high threat. Unlike Study 3a, in Study 3b there were differences in the dependent variables between levels of the meta-perceptions for participants exposed to low threat, with the exception of prejudice. In the low threat condition, the differences were mainly seen between meta-dehumanization and meta-humanization, however for outgroup befriending and donation intentions there was a significant increase in meta-humanization compared to the control condition. In line with our predictions, the combination of perceived high intergroup threat and meta-dehumanization resulted in the most detrimental effects on the desire for outgroup contact and positive behaviour in both studies. Study 3b generally replicated the results of Study 3a, from the minority group perspective, however we found that the effects were weaker in the Muslim sample. In line with previous literature on minority groups and prejudice (Pettigrew & Tropp, 2005) we expected the positive effect of meta-humanization to be reduced in Study 3b. A full interpretation of the results will follow in the discussion section.

Discussion

Across seven studies spanning two continents, representing both majority and minority group perspectives between non-Muslims and Muslims, we document the prolific nature of meta-humanization to reduce prejudice and increase positive attitudes and proxy behaviours. Previous research, albeit limited, investigated the reciprocal relationship between perceiving an ingroup has been dehumanized by an outgroup, or meta-dehumanization, and the indirect effect of reciprocal dehumanization on a range of hostile outcomes (Kteily et al., 2016). In addition, Kteily and colleagues demonstrated that there was reduced outgroup hostility when an ingroup perceived to have been humanized compared to a control group. We theoretically extend the research on meta-dehumanization and meta-humanization in several ways; firstly, we demonstrated a model of meta-humanization that is associated with reciprocal outgroup humanization, complimentary to the model of meta-dehumanization in the literature, thereby demonstrating the meta-dehumanization continuum (Kteily et al., 2016). Secondly, we provided a new perspective to the meta-dehumanization and meta-humanization literature, with an array of variables, that focus on positive implications, both attitudinal and as behavioural proxys, that ensue following humanity perceptions. Thirdly, we demonstrated that high levels of threat moderate the relationship between meta-humanization and reciprocal outgroup humanization, over and above frequency of contact with the outgroup. Finally, we established that intergroup threat influences the effect that meta-(de)humanization has on aggravating or ameliorating intergroup relations.

Combining past research on dehumanization, suggesting that the perception of threat precedes outgroup dehumanization (Haslam, 2006), prior work indicating a reciprocal relationship between meta-dehumanization and outgroup dehumanization, and the ability of

meta-humanization to reduce hostility (Kteily et al., 2016), we predicted that a similar inverse relationship would exist between meta-humanization and reciprocal outgroup humanization. As intergroup threat research has shown that there is a desire to reciprocate negative attitudes and behaviours when the ingroup perceives to be threatened (Branscombe, Ellmers, Schmidt, & Doosje, 1999), we theorized that threat would moderate the relationship between meta-humanization and outgroup humanization. As previous meta-dehumanization research had focused on negative outcomes, we shifted the focus to investigate more positive attitudes and proxy behaviours, while still including negative outcomes for replicability and comparative purposes.

Examining the intergroup relations between non-Muslims and Muslims in Canada (Study 1a) and the United Kingdom (Study 1b), we documented, for the first time, a theoretical extension of Kteily et al.'s (2016) model of meta-dehumanization by replicating and mirroring their work to show that there is an indirect effect of meta-humanization through reciprocal outgroup humanization to reduce prejudice. This effect was coded in two ways, firstly to provide a comparison between the control group and meta-humanization and secondly between the control group and meta-dehumanization. This allowed us to provide evidence that meta-humanization emerged as the stronger focal predictor of the indirect effect on our outcomes compared to the control group and meta-dehumanization. We further showed in Studies 2a and 2b (non-Muslim) and Study 2c (Muslim) that threat moderates the indirect effect of meta-humanization. Finally, in Studies 3a (non-Muslim sample) and 3b (Muslim sample) we found that meta-humanization interacted with high threat to reduce prejudice and improve comfort and interest in intergroup contact and outgroup befriending compared to the control condition. Across studies, our results were generally consistent.

In Studies 1a - 2c we chose to use a composite of prejudice for our dependent measures whereas in Studies 3a and 3b we chose to report the results for each of our dependent measures separately: hostility, prejudice, comfort and interest in intergroup contact, and two behavioural proxies: outgroup befriending, and donation intentions. The decision to do this was based on two factors. Firstly, in Studies 1a – 2c we wanted to demonstrate the model we were testing would be reliable for majority and minority groups in different social settings. As there was a high inter-item reliability it was reasonable to represent the indirect effect and conditional process of meta-humanization as a whole to reduce type 1 error and demonstrate replicability of our model. In Studies 3a and 3b we wanted to demonstrate the effect of the meta-perceptions and intergroup threat on the attitudinal and proxy behavioural measures individually. In line with our rationale, Studies 3a and 3b indicated that under conditions of high threat, there were stronger effects of meta-humanization to reduce the negative and increase the positive attitudes, and there were weaker effects on increasing the proxy behaviours, especially for the minority group. This is an important finding that would not have been uncovered had we created a composite of prejudice for our outcome measures in these studies. This indicates that under conditions of high intergroup threat, meta-humanization ameliorated negative attitudes but was unable to consistently improve positive proxy behaviours.

In Studies 3a and 3b, there were significant interactions between high intergroup threat and the meta-perceptions, and indeed as expected, effects were weaker in the minority group sample (Study 3b). Contrary to predictions, post hoc analyses indicated that there were stronger interactions between meta-dehumanization and high threat than meta-humanization and high threat, consistently across all dependent measures in both Study 3a and 3b. Although the interactions were not consistent among the same dependent measures in Study

3a and 3b, meta-humanization did interact with high threat to reduce prejudice and improve comfort and interest in intergroup contact and outgroup befriending compared to the control condition in both studies. It is also important to note that in line with predictions there were no significant interactions between low threat and the meta-perceptions in the majority sample, however there were unexpected interactions for low threat and meta-humanization in the minority sample.

In Studies 1a and 1b, meta-humanization reduced intergroup prejudice through outgroup humanization and in Studies 2a – 2c, meta-humanization was robust in reducing prejudice even under high levels of self-reported threat, compared to the control group. Based on these findings, in Studies 3a and 3b, we predicted that meta-humanization would be robust in attenuating the negative effects of intergroup threat on the dependent measures. As mentioned above, the results between Studies 3a and 3b were not entirely consistent, specifically, that meta-humanization did not significantly reduce the negative and increase the positive outcome variables as in Studies 1a – 2c, which may be due to a variety of factors. It was surprising to us that there were significant differences between meta-humanization and the control group in the low threat condition for outgroup befriending and donation intentions in Study 3b, whereby meta-humanization improved these proxy behaviours. This discrepancy in the results for Studies 3a and 3b are interesting as it indicates there may be differences in the effects of threat and meta-humanization between majority and minority groups. We believe this may be due to the low intergroup threat manipulation suggesting that Muslims and non-Muslims were compatible and mentioned similarities between the two groups which previous research has shown can be threatening in itself (Gaertner & Dovidio, 2000), therefore, it is possible that the manipulations were interpreted as threatening. This low threat comparison between the ingroup and outgroup members may have resulted in the

perception that this was a threat to their respective group's distinctiveness. In line with the distinctiveness threat literature, prototypical and peripheral group members react differently to threats to their ingroup identity (Jetten, Spears, & Manstead, 1997). Future research should investigate whether prototypicality plays a role in meta-humanization under conditions of threat between majority and minority group members. This would be an important distinction as prototypical group members may have heightened ingroup bias and be less responsive to information indicating that an outgroup perceives them as being similarly unthreatening (as suggested in our low threat manipulation) or on an equal level of humanity (as in our meta-humanization manipulation). Another explanation for this could be that the effects of meta-humanization may only become activated when threat reaches perceived high levels, which would be in line with findings from Studies 1a – 2c. This could be overcome in future research by creating manipulations, similar to the ones that were used in the current study, that explicitly state, 'crime reports indicate that [Group A] poses a [low or high] threat to [Group B]'. This would further prime the idea of low versus high threat between groups.

An additional explanation for the reduced effects in Study 3b may be attributed to factors that we did not explore in the current research. Research suggests that intergroup anxiety is a barrier to intergroup contact and reducing prejudice (Mendez et al., 2007; Pettigrew & Tropp, 2008; Zhou et al., 2019). Relatedly, Stephan and Stephan (2017) suggest that intergroup anxiety is a predictor of threat. Given this knowledge, it would be worthwhile for future research to further consider the inhibitory role of intergroup anxiety, especially for minority groups. Another factor that may have influenced the reduced effects of meta-humanization in Study 3b is the status differences between Muslims and non-Muslims. Previous research indicates that low status groups may internalize and accept prejudice

toward their group (Jost, Banaji, & Nosek, 2004), and that given these attitudes, may be more sceptical to engage with the outgroup (Tropp & Pettigrew, 2005). Future research could address this by investigating perceived status as a moderator of meta-dehumanization and meta-humanization.

A final point of consideration for the partially significant effects seen in Studies 3a and 3b could potentially be attributed to the (low) power status of the minority group. Studies have shown that groups with low power may internalize and even accept that they are dehumanized by another group (Jost, Banaji, & Nosek, 2004). If this is true of the sample of Muslims in the current research, they would have been less likely to react to the meta-humanization manipulation with reciprocal humanization toward non-Muslims (Capozza, Andrighetto, Di Bernardo, & Falvo, 2012). Moreover, research on intergroup contact between majority and minority groups suggests that minority group members are more sceptical of cross-group interactions as they are more inclined to reflect on their low status and accept they are devalued by majority groups, therefore inhibiting the potential for positive contact outcomes (Tropp & Pettigrew, 2005). Future research could address this by examining power and status as potential moderators of meta-humanization and meta-dehumanization.

As an exploratory piece to the investigation, we ran the analysis removing the frequency of outgroup contact control variable and found that some of the main effects of intergroup threat, and interaction effects became non-significant, see Appendix B - E. The power of intergroup contact to reduce intergroup prejudice has been demonstrated in substantial empirical work (Zhou, Paige-Gould, Aron, Moyer, & Hewstone, 2019). We expected contact would drive a proportion of the effects on our outcomes, being the reason we controlled for it in our analysis. This is theoretically important and should be investigated

further in future research to determine what proportion of variance in intergroup attitudes and behaviours can be attributed to contact and meta-humanization, and whether frequency of intergroup contact may moderate meta-humanization.

Overall, we provided clear evidence for the first time that theoretically extends the minimal research on meta-humanization, showing its unique relationship to outgroup humanization and the potential to break cycles of intergroup prejudice and hostility, even under high levels of perceived intergroup threat. An important implication of the humanization specific pathway from meta-humanization on our outcomes was not only the ability of these perceptions to reduce hostile or aggressive behaviour but, arguably more importantly, to increase the desire for contact with the outgroup and willingness to befriend a member of the outgroup. This finding extended to both majority and minority group members. This is noteworthy as a great deal of research demonstrates the benefit of positive intergroup contact as well as the difficulty of getting outgroup members to engage (Al Ramiah, Schmid, Hewstone, & Floe, 2015; Pettigrew, 1998). Therefore, meta-humanization may provide a solution to facilitate engagement of outgroup members. If simply perceiving an outgroup sees an ingroup as human, increases the *desire* for contact, meta-humanization may be able attenuate some of the intergroup anxiety leading to an intergroup interaction and therefore facilitate actual contact. A future area of research would benefit from investigating the relationship between meta-humanization and contact to better understand the role meta-humanization may have in increasing not only willingness to interact but actual contact between groups.

The findings from the current research are significant as they opened up the door to further delve into developing interventions that can reduce hostility and promote intergroup contact. In order to identify the optimal conditions to reduce prejudice using meta-

humanization, it would be worthwhile to investigate how meta-humanization interacts with other variables related to intergroup contact and improved humanity attributions. Theorizing from a social categorization perspective (Gaertner & Dovidio, 2000) it would be worthwhile to investigate whether perceiving a common ingroup identity would predict meta-humanization. It would also be worthwhile for future research to consider altering the meta-perception manipulation to include meta-perceptions at the individual level and group level, for example group X thinks *you personally* have less than human qualities versus group X thinks *your group* has less than human qualities. This is an interesting avenue of research, as social identity theory has shown that our individual attitudes are shaped by our group membership (Tajfel & Turner, 1986) and group threat theory posits that prejudice is largely a group phenomenon (Blumer, 1958). In line with this, derogation that is aimed at an individual person rather than at their group membership may result in different consequences, for example reciprocal prejudice versus collective behaviour.

On a related line of thinking, it would be interesting to conduct research immediately following an incident of public threat where the experimental conditions are framed to tap on the specific incident and groups involved. This would draw on the realistic, experiential nature of the event rather than creating fictitious manipulations, and while threat perceptions may naturally be high. Such research would provide a more ecologically valid understanding of the intergroup implications following real, lived experiences of threatening situations.

Our research did not investigate the potential role of social ideological variables. As meta-(de)humanization research is still in its infancy, it would be worthwhile investigating individual differences in social dominance orientation (SDO), authoritarianism, and collective narcissism as predictors of meta-humanization. We suggest these three variables specifically as previous research has shown that SDO can increase perceived intergroup

threat (Vezzali & Giovannini, 2010) and authoritarianism and collective narcissism are associated with hostility, prejudice, and dehumanization (Golec de Zavala, Guerra, & Simao, 2017). Previous meta-dehumanization research has only investigated SDO, authoritarianism, and political conservatism as covariates. Although we included intergroup threat as a moderator of meta-humanization in the current research, future research should extend the literature by considering social ideologies, and ingroup identification as additional key variables that may moderate the effects of meta-dehumanization and meta-humanization.

An additional area that would be worthwhile for future research to investigate, that was outside the scope of the current research, is differences in gender and religious affiliation. In terms of gender, the literature shows that women generally report higher levels of fear of victimization or violence (Cops & Pleysier, 2011), as such there may be differences in how meta-humanization impacts women compared to men. In addition, there was a relatively large discrepancy in reported religions, however the groupings were largely different, firstly making any analysis inappropriate, and secondly not something that was hypothesized a priori. Future research should consider investigating the role of religiosity and religious affiliation, as studies have found that religion can be involved in the formation of prejudice (Burch-Brown & Baker, 2016) and related to xenophobia and violence (Niemi, Kallioniemi, & Ghosh, 2019). As such certain groups with higher affiliation to their respective belief systems may be more resistant to meta-humanization in a context where the outgroup is one that violates the ingroup's values or norms.

In line with Kteily et al. (2016), in the current studies (1a – 2c) we experimentally examined the effects of meta-humanization on humanization, compared to meta-dehumanization and a control condition. We acknowledge however, that as there has been minimal research on meta-humanization it is plausible that other models beyond the model

we have tested in the current studies may be possible, and should be further investigated. As outgroup humanization demonstrated to be a reciprocal reaction to meta-humanization in the current studies, and outgroup contact and humanity attributions have been shown to be bidirectional (Capozza et al., 2017) it seems plausible that given our outcome variable of contact intentions, there could be a second order indirect effect with the reversed order of meta-humanization and contact. To investigate this further, future research should consider a longitudinal design to examine changes in the effects of meta-humanization and contact over time as well as potential bidirectionality. A longitudinal design would also determine if the effects of meta-humanization are potent to be lasting over time, or whether the priming this perception in the current research resulted in momentary effects within the study context.

In the current research we expanded on outcome measures from previous research (Kteily et al., 2016) to include a variety of both negative and positive attitudes and proxy behaviours that would be generalizable beyond the context of our study. Although the context of our studies was specifically on Muslim and non-Muslim relations, the outcome variables we chose could be used beyond the context of our research to other groups in need of ameliorating intergroup relations. In order to further validate the generalizability of our findings it is vital for future research to consider investigating meta-perceptions between other groups that experience dehumanization and prejudice, such as women, LGBT groups, homeless, prison inmates, medical patients, and the elderly (Haslam & Loughnan, 2014).

Meta-humanization research is an area strongly needing further development by social psychologists. Given the threat of current economic and political uncertainty, blatant dehumanization expressed openly by people in positions of power (Resnick, 2018), as well as hate crimes and terrorist attacks that continue to occur globally (Siddique, 2019), it underscores the need for interventions to be developed that can be used to bring people closer

together instead of further dividing them. As we know, dehumanization and hostility operate in a cycle exacerbating each other in times of conflict (Kteily & Bruneau, 2017; Kteily et al., 2016). Future research using meta-humanization as an intervention should investigate whether the same type of continuous cycle exists resulting in longstanding positive changes in attitudes and behaviour. Organizations that currently engage with equality and diversity training would benefit from incorporating meta-humanization into their training schemes to bolster the effect of perceiving other groups are equally highly evolved and further facilitate positive intergroup interaction.

Although the current studies provide consistent results, we have to address some limitations. Frequency of outgroup contact has been shown to predict intergroup attitudes, specifically humanity attributions (Capozza, Triffleti, Vezzali, & Favara, 2013). In Studies 1a- 2b, and 3a, 3b we controlled for frequency of outgroup contact, showing that our effects could not be accounted for by contact. In Study 2c outgroup contact was unintentionally not measured. In future replications or extensions of this work with minority groups the role of outgroup contact as a control variable should also be considered. In order to provide consistency in our results, we have included our studies without the outgroup contact control variable in Appendix B for reference.

Another point to consider is that we collected data at different time points for our studies with the earliest collection point starting with Study 1a, through to Study 3b being the most recent. Studies 1a and 1b were collected within a few weeks following the terrorist attacks at London Bridge, Borough Market, and Westminster in the United Kingdom, Studies 2a,2b, and 2c were collected approximately two months after the attacks and Studies 3a and 3b were conducted over one year after the attacks. Following the attacks there was heavy media coverage of the atrocities and research has shown that following incidents of public

threat there are exponential increases of fear and hate related crime (Abrams, Van de Vyver, Houston, & Vasiljevic, 2016; Dodd & Marsh, 2017). At the time of data collection for Study 3a and 3b, there had not been any recent terrorist attacks that were being contentiously discussed, therefore it is possible that perceived threat from non-Muslims may have been as salient a factor as in the earlier studies.

Conclusion

Our research provides novel evidence for the reciprocal nature of meta-humanization and outgroup humanization to reduce hostility and increase the desire for contact and friendship between groups facing tensions, under conditions of threat. This research highlights that meta-humanization is an important meta-perception that can be used to break the cycle of hostility and perpetuation of prejudice. Future research should further investigate processes that enhance or inhibit the effects of meta-humanization, as well as interventions using meta-humanization to increase intergroup contact and reduce conflict. Moreover, as the climate of threat and uncertainty persist in the world and we see a rise in public support for more populist leaders, we can nearly be certain that contentious issues like safety, economic security, and immigration will continue to be at the forefront of political and public debate between majority and minority group members. For this reason, we believe that it is fundamental to further investigate the role that threat has on interventions that may reduce hostility and ameliorate intergroup relations, namely humanization and meta-humanization.

References

- Aberson, C. L. (2019). Indirect effects of threat on the contact–prejudice relationship: A meta-analysis. *Social Psychology, 50*(2), 105–126. <https://doi.org/10.1027/1864-9335/a000364>
- Abrams, D., Van de Vyver, J., Houston, D. M., & Vasiljevic, M. (2017). Does terror defeat contact? Intergroup contact and prejudice toward Muslims before and after the London bombings. *Peace and Conflict: Journal of Peace Psychology, 23*(3), 260–268. <https://doi.org/10.1037/pac0000167>
- Ames, D. R. (2004). Strategies for social inference: A similarity contingency model of projection and stereotyping in attribute prevalence estimates. *Journal of Personality & Social Psychology, 87*(5), 573–585. doi:10.1037/0022-3514.87.5.573
- Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley. 537 pp.
- Al Ramiah, A., Schmid, K., Hewstone, M., Floe, C. (2015). Why are all the White (Asian) kids sitting together in the cafeteria? Resegregation and the role of intergroup attributions and norms. *The British Journal of Social Psychology, 54*, 100–124. doi:10.1111/bjso.12064
- Baker, P., Gabrielatos, C., McEnery, T. (2013). Sketching Muslims: A corpus driven analysis of representations around the word ‘Muslim’ in the British press 1998–2009. *Applied Linguistics, 34*(3), 255–278. <https://doi.org/10.1093/applin/ams048>
- Bates, A., (2018). EXCL Tory councillor suspended after sharing ‘Muslim parasites’ article. Politics Home. Retrieved from <https://www.politicshome.com/news/uk/political-parties/conservative-party/theresa-may/news/94120/excl-tory-councillor-suspended>

- BBC News. (2017, October 17). Rise in Hate Crime in England and Wales. Retrieved from <http://www.bbc.co.uk/news/uk-41648865>
- Ballinger, T. (2018). Studying underrepresented groups. *Association for Psychological Science*. Retrieved from <https://www.psychologicalscience.org/observer/studying-underrepresented-groups>
- Bergsieker, H. B., Shelton, J. N., & Richeson, J. A. (2010). To be liked versus respected: Divergent goals in interracial interactions. *Journal of Personality and Social Psychology, 99*(2), 248–264. <https://doi.org/10.1037/a0018474>
- Bleich, E., Stonebraker, H., Nisar, H., & Abdelhamid, R. (2015) Media Portrayals of Minorities: Muslims in British Newspaper Headlines, 2001–2012. *Journal of Ethnic and Migration Studies, 41*(6) 942-962. doi 10.1080/1369183X.2014.1002200
- Bloch, C. (2016, July 27). Efter terror: Søren Espersen vil indføre muslim stop i Danmark. After the terror attack: Søren Espersen wants to implement a Muslim ban in Denmark. Politiko. Retrived from: <http://www.politiko.dk/nyheder/efter-terror-soeren-espersen-vil-indfoere-muslimstop-i-danmark>
- Branscombe, N. R., Ellemers, N., Spears, R., & Doosje, B. (1999). The context and content of social identity threat. In N. Ellemers, R. Spears, & B. Doosje (Eds.), *Social identity: Context, commitment, content* (pp.35–58). Oxford, England: Blackwell Science.
- Bruneau, E., Kteily, N., & Laustsen, L. (2018). The unique effects of blatant dehumanization on attitudes and behavior towards Muslim refugees during the European “refugee crisis” across four countries. *European Journal of Social Psychology, 48*(5), 645–662. <https://doi.org/10.1002/ejsp.2357>

- Burch-Brown, J., & Baker, W. (2016). Religion and reducing prejudice. *Group Processes and Intergroup Relations*, 19(6), 784-807. <https://doi.org/10.1177/1368430216629566>
- Capozza, D., Andrighetto, L., Di Bernardo, G. A., & Falvo, R. (2012). Does status affect intergroup perceptions of humanity? *Group Processes & Intergroup Relations*, 15, 363–377. <http://dx.doi.org/10.1177/1368430211426733>
- Capozza, D., Di Bernardo, G. A., & Falvo, R. (2017). Intergroup Contact and Outgroup Humanization: Is the causal relationship uni- or bidirectional?. *Plos ONE*, 12(1), 1-19. doi:10.1371/journal.pone.0170554
- Capozza, D., Trifiletti, E., Vezzali, L., & Favara, I. (2013). Can intergroup contact improve humanity attributions? *International Journal of Psychology*, 48(4), 527-541.
- Capozza, D., Trifiletti, E., Visintin, E. P., & Vezzali, L. (2014). Intergroup contact and infrahumanization: The mediation role of intergroup threat. Unpublished manuscript.
- Carlson, E. N., & Barranti, M. (2016). Metaperceptions: Do people know how others perceive them?. In J. A. Hall, M. S. Mast, T. V. West, J. A. Hall, M. S. Mast, T. V. West (Eds.), *The social psychology of perceiving others accurately* (pp. 165-182). New York, NY, US: Cambridge University Press. doi:10.1017/CBO9781316181959.008
- Chang, L. W., Krosch, A. R., & Cikara, M. (2016). Effects of intergroup threat on mind, brain, and behavior. *Current Opinion in Psychology*, 11, 69–73. <https://doi.org/10.1016/j.copsyc.2016.06.004>
- Choma, B. L., Jagayat, A., Hodson, G., & Turner, R. (2018). Prejudice in the wake of terrorism: The role of temporal distance, ideology, and intergroup emotions. *Personality and Individual Differences*, 123, 65-75.

- Choma, B. L., Sumantry, D., Jagayat, A., & Nasser, L. (manuscript in progress). Social justice comedy as a tool for reducing Islamophobia
- Ciftci, S. (2012). Islamophobia and threat perceptions: Explaining anti-Muslim sentiment in the West. *Journal of Muslim Minority Affairs*, 32(3), 293-309. doi: 10.1080/13602004.2012.727291
- Cops, D., & Pleyzier, S. (2011). 'Doing gender' in fear of crime: The impact of gender identity on reported levels of fear of crime in adolescents and young adults. *British Journal of Criminology*, 54(6), 58
- Costello, K., Hodson, G. (2011). Social dominance-based threat reactions to immigrants needing assistance. *European Journal of Social Psychology*, 41, 220-221. doi: 10.1002/ejsp.769
- Croucher, S. M. (2013). Integrated threat theory and acceptance of immigrant assimilation: An analysis of Muslim immigration in Western Europe. *Communication Monographs*, 80(1), 46–62. <https://doi.org/10.1080/03637751.2012.739704>
- Davies, T., Yogeewaran, K., Verkuyten, M., & Loughnan, S. (2018). From humanitarian aid to humanization: When outgroup, but not ingroup, helping increases humanization. *PLoS ONE*, 13(11), 1–15. <https://doi.org/10.1371/journal.pone.0207343>
- Demoulin, S., Leyens, J., Ph., & Dovidio, J. F. (2009). Intergroup misunderstandings: Interactions and divergences in realities, goals, and strategies. In S. Demoulin, J. Ph. Leyens, & Dovidio, J. F. (Eds.), *Intergroup misunderstandings: Impact of divergent social realities* (pp. 1–19). New York, NY: Psychology Press.
- Dodd, V., Marsh, S. (2017, June 7). *The Guardian: Anti-Muslim Hate Crimes*

- Increased Fivefold Since London Bridge Attack. Retrieved from <https://www.theguardian.com/uk-news/2017/jun/07/anti-muslim-hate-crimes-increase-fivefold-since-london-bridge-attacks>
- Doosje, B., & Haslam, S. A. (2005). What Have They Done for Us Lately? The dynamics of reciprocity in intergroup contexts. *Journal of Applied Social Psychology, 35*(3), 508–535. <https://doi.org/10.1111/j.1559-1816.2005.tb02133.x>
- Dunwoody, P. T., & McFarland, S. G. (2017). Support for anti-Muslim policies: The role of political traits and threat perception. *Political Psychology*, doi:10.1111/pops.12405
- Earp, B. D., & Trafimow, D. (2015). Replication, falsification, and the crisis of confidence in social psychology. *Frontiers in Psychology, 6*. doi: 10.3389/fpsyg.2015.00621
- Esses, V. M., Jackson, L. M., & Armstrong, T. L. (1998). Intergroup Competition and Attitudes Toward Immigrants and Immigration: An Instrumental Model of Group Conflict. *Journal of Social Issues, 54*(4), 699–724. <https://doi.org/10.1111/j.1540-4560.1998.tb01244.x>
- Esses, V. M., Medianu, S., & Lawson, A. S. (2013). Uncertainty, threat, and the role of the media in promoting the dehumanization of immigrants and refugees. *Journal of Social Issues, 69*(3), 518–536. <https://doi.org/10.1111/josi.12027>
- Frampton, M., Goodheart, D., & Mahmood, K. (2016). Unsettled belonging: A survey of Britain's Muslim communities. Policy Exchange. Retrieved from <https://policyexchange.org.uk/publication/unsettled-belonging-a-survey-of-britains-muslim-communities/>
- Frey, F. E., & Tropp, L. R. (2006). Being seen as individuals versus as group members: Extending research on metaperception to intergroup contexts. *Personality & Social Psychology Review 10*(3), 265-280. doi:10.1207/s15327957pspr1003_5

- Gaertner, S. L., & Dovidio, J. F. (2000). Reducing intergroup bias: The common ingroup identity model. New York, NY, US: Psychology Press.
- Golec, d. Z., Cichocka, A., & Iskra-Golec, I. (2013). Collective narcissism moderates the effect of in-group image threat on intergroup hostility. *Journal of Personality and Social Psychology, 104*(6), 1019-1039. Retrieved from <https://search-proquest-com.librweb.laurentian.ca/docview/1327073877?accountid=12005>
- Golec de Zavala, A., Guerra, R., & Simão, C. (2017). The relationship between the Brexit vote and individual predictors of prejudice: Collective narcissism, right wing authoritarianism, social dominance orientation. *Frontiers in Psychology, 8*. <https://doi.org/10.3389/fpsyg.2017.02023>
- Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review, 10*(3), 252-264. doi:http://dx.doi.org.librweb.laurentian.ca/10.1207/s15327957pspr1003_4
- Haslam, N., & Loughnan, S. (2014). Dehumanization and infrahumanization. *Annual Review of Psychology, 65*, 399-423. doi 010213-115045
- Hayes, A. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression based approach*. (2nd edition). New York, NY: The Guilford Press.
- Home Office Statistics. (2017). *Hate crime, England and Wales, 2016 to 2017*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/652136/hate-crime-1617- hosb1717.pdf
- Jetten, J., Spears, R., & Manstead, A. S. R. (1997). Distinctiveness threat and prototypicality: Combined effects on intergroup discrimination and collective self-esteem. *European Journal of Social Psychology, 27*(6), 635–657. <https://doi.org/10.1002>
- Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory:

Accumulated evidence of conscious and unconscious bolstering of the status quo.

Political Psychology, 25, 881–919. <http://dx.doi.org/10.1111/j.1467->

9221.2004.00402.x

Kelman, H. C. (1973). Violence without moral restraint: Reflections on the of victims and victimizers. *Journal of Social Issues*, 29(4), 25–61. <https://doi.org/10.1111/j.1540-4560.1973.tb00102.x>

Kteily, N., & Bruneau, E. (2017). Backlash: The politics and real-world consequences of minority group dehumanization. *Personality and Social Psychology Bulletin*, 43(1), 87–104. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psych&AN=2016-61669-007&site=ehost-live>

Kteily, N., Hodson, G., & Bruneau, E. (2016). They see us as less than human: Metadehumanization predicts intergroup conflict via reciprocal dehumanization. *Journal of Personality and Social Psychology*, 110(3), 343-370. Retrieved from <https://search-proquest-com.librweb.laurentian.ca/docview/1771733199?accountid=12005>

Kteily, N., Bruneau, E., Waytz, A., & Cotterill, S. (2015). The ascent of man: Theoretical and empirical evidence for blatant dehumanization. *Journal of Personality and Social Psychology*, 109(5), 901-931.

Lee, S. A., Reid, C. A., Short, S. D., Gibbons, J. A., Yeh, R., & Campbell, M. L. (2013). Fear of Muslims: Psychometric evaluation of the islamophobia scale. *Psychology of Religion and Spirituality*, 5(3), 157-171. <http://dx.doi.org.librweb.laurentian.ca/10.1037/a0032117>

- Levin, S., Pratto, F., Matthews, M., Sidanius, J., & Kteily, N. (2013). A dual process approach to understanding prejudice toward Americans in Lebanon: An extension to intergroup threat perceptions and emotions. *Group Processes & Intergroup Relations*, 16(2), 139–158. <https://doi.org/10.1177/1368430212443866>
- Lipka, M. (2017, August 9). Muslims and Islam: Key findings in U.S and around the world. *Pew Research Center*. Retrieved from <https://www.pewresearch.org/fact-tank/2017/08/09/muslims-and-islam-key-findings-in-the-u-s-and-around-the-world/>
- Louis, W. R., Esses, V. M., & Lalonde, R. N. (2013). National identification, perceived threat, and dehumanization as antecedents of negative attitudes toward immigrants in Australia and Canada. *Journal of Applied Social Psychology*, 43, E156–E165. <https://doi.org/10.1111/jasp.12044>
- Mackie, D. M., Devos, T., & Smith, E. R. (2000). Intergroup emotions: Explaining offensive action tendencies in an intergroup context. *Journal of Personality and Social Psychology*, 79(4), 602–616. doi:10.1037/0022-3514.79.4.602
- Mancini, T., Bottura, B., & Caricati, L. (2018). The role of perception of threats, conservative beliefs and prejudice on prosocial behavioural intention in favour of asylum seekers in a sample of Italian adults. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*, doi:10.1007/s12144-018-9909-4
- Marshall, P. (2015, March 3). The spy who came in from al-Qaeda. *BBC News*. Retrieved from <https://www.bbc.co.uk/news/magazine-31700894>
- Matthews, M., & Levin, S. (2012). Testing a dual process model of prejudice: Assessment of group threat perceptions and emotions. *Motivation & Emotion*, 36(4), 564–574. <https://doi.org/10.1007/s11031-012-9280-y>

- Méndez, E., Gómez, Á., & Tropp, L. R. (2007). When metaperceptions are affected by intergroup processes. *International Journal of Psychology & Psychological Therapy*, 7(2), 237–250. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=cookie,shib,ip&db=psyh&AN=2007-12662-008&site=ehost-live&scope=site>
- McGarty, C., Mavor, K. I., & Skorich, D. P. (2015). Social categorization. In J. D. Wright (Ed.), *International encyclopedia of the social and behavioural sciences* (2nd ed., Vol. 22, pp. 186–191). Oxford, UK: Elsevier
- McKenzie, R. (2018, March 8). Anti-Muslim activities in the United States. *New America*. Retrieved from <https://www.newamerica.org/in-depth/anti-muslim-activity/>
- Migacheva, K., & Tropp, L. R. (2013). Learning orientation as a predictor of positive intergroup contact. *Group Processes & Intergroup Relations*, 16(4), 426–444. <https://doi.org/10.1177/1368430212455854>
- Niemi, P., Kallioniemi, A., & Ghosh, R. (2017). Religion as a human right and a security threat – investigating young adults’ experiences of religion in Finland. *Religions* 10(1), 55; <https://doi.org/10.3390/rel10010055>
- Obaidi, M., Kunst, J. R., Kteily, N., Thomsen, L., & Sidanius, J. (2018). Living under threat: Mutual threat perception drives anti-Muslim and anti-Western hostility in the age of terrorism. *European Journal of Social Psychology*. doi 10.1002/ejsp.2362
- Ottolenghi, Y. & Tamimi, S. (2011). *Jerusalem a cookbook*. Ten Speed Press. New York.
- Patterson, J., Walters, M., Brown, R., & Fearn, H. (2018, January). *The Sussex hate crime project*. Retrieved from

<https://www.sussex.ac.uk/webteam/gateway/file.php?name=sussex-hate-crime-project-report.pdf&site=430>

Pettigrew, T. F. (1958). Personality and sociocultural factors and intergroup attitudes: A cross-national comparison. *Journal of Conflict Resolution*, 2, 29-42.

<https://doi.org/10.1177/002200275800200104>

Tajfel, H., & Turner, J. C. 1986. The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *The psychology of intergroup relations* (pp. 7-24). Chicago: Nelson-Hall.

Tropp, L. R., & Pettigrew, T. F. (2005). Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science*, 16(12), 951–957. <https://doi.org/10.1111/j.1467-9280.2005.01643.x>

Pettigrew, T. F., & Meertens, R. W. (1995). Subtle and blatant prejudice in Western Europe. *European Journal of Social Psychology*, 25, 57-75

Pew Global Attitudes Project. (2015, July). Extremism concerns growing in West and predominantly Muslim countries. Retrieved from <http://www.pewglobal.org/2015/07/16/extremism-concerns-growing-in-west-and-predominantly-muslim-countries/>

Quillian, L. (1995). Prejudice as a response to perceived group threat: Population composition and anti-immigrant and racial prejudice in Europe. *American Sociological Review*, 60(4), 586-611.

Resnick, B. (2018, August 14). Donald Trump and the disturbing power of dehumanizing

language. *Vox*. Retrieved from <https://www.vox.com/science-and-health/2018/5/17/17364562/trump-dog-omarosa-dehumanization-psychology>

Riek, B. M., Mania, E. W., & Gaertner, S. L. (2006). Intergroup Threat and Outgroup Attitudes: A Meta-Analytic Review. *Personality & Social Psychology Review (Lawrence Erlbaum Associates)*, *10*(4), 336–353.

https://doi.org/10.1207/s15327957pspr1004_4

Rosenstein, J. E. (2008). Individual threat, group threat, and racial policy: Exploring the relationship between threat and racial attitudes. *Social Science Research*, *37*(4), 1130–1146. <https://doi.org/10.1016/j.ssresearch.2008.04.001>

Savage, R. (2013). Modern genocidal dehumanization: a new model. *Patterns of Prejudice*, *47*(2), 139–161. <https://doi.org/10.1080/0031322X.2012.754575>

Shelton, J. N. (2000). A reconceptualization of how we study issues of racial prejudice. *Personality and Social Psychology Review*, *4*, 374–390.

[doi:10.1207/S15327957PSPR0404_6](https://doi.org/10.1207/S15327957PSPR0404_6)

Shelton, J. N., Richeson, J. A., & Vorauer, J. D. (2006). Threatened identities and interethnic interactions. In M. Hewstone & W. Stroebe (Eds.), *European Review of Social Psychology*, *17*, 321–358. New York, NY: Psychology Press.

Sherif, M. (1966). *Group conflict and cooperation*. London: Routledge & Kegan Paul.

Siddique, H. (2019, April 22). Sri Lanka explosions, what we know so far. *The Guardian*.

Retrieved from <https://www.theguardian.com/world/2019/apr/21/sri-lanka-explosions-what-we-know-so-far>

- Stephan, W. G., & Stephan, C. W. (2017). Intergroup threats. In C. G. Sibley & F. K. Barlow (Eds.), *The Cambridge handbook of the psychology of prejudice*. (pp. 131–148). New York, NY: Cambridge University Press. <https://doi.org/10.1017/9781316161579.007>
- Stephan, W. G., & Stephan, C. W. (2000). An integrated threat theory of prejudice. In S. Oskamp (Ed.), *Claremont symposium on applied social psychology* (pp.23–46). Hillsdale, NJ: Erlbaum
- Stephan, W.G., & Renfro, L. (2002). The role of threat in intergroup relations. In D. M. Mackie & E. R. Smith (Eds.), *From prejudice to intergroup emotions: Differential reactions to social groups*. (pp. 191-204). New York, NY: Psychology Press.
- Tajfel, H.,& Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Monterey, CA: Brooks/Cole.
- Tamborini, R., Hofer, M., Prabhu, S., Grall, C., Novotny, E. R., Hahn, L., & Klebig, B. (2017). The Impact of Terrorist Attack News on Moral Intuitions and Outgroup Prejudice. *Mass Communication & Society*, 20(6), 800-824.
doi:10.1080/15205436.2017.1342130
- Tropp, L. R., & Pettigrew, T. F. (2005). Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science*, 16(12), 951–957. <https://doi.org/10.1111/j.1467-9280.2005.01643.x>
- Vaes, J., Heflick, N. A., & Goldenberg, J. L. (2010). “We are people”: Ingroup humanization as an existential defense. *Journal of Personality & Social Psychology*, 98(5), 750–760. <https://doi.org/10.1037/a0017658>

- Vezzali, L., & Giovannini, D. (2010). Social dominance orientation, realistic and symbolic threat: Effects on Italians' acculturation orientations, intergroup attitudes and emotions toward immigrants. *TPM-Testing, Psychometrics, Methodology in Applied Psychology*, *17*(3), 141–159. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psych&AN=2010-20930-003&site=ehost-live>
- Vezzali, L. (2017). Valence matters: Positive meta-stereotypes and interethnic interactions. *Journal of Social Psychology*, *157*(2), 247–261. <https://doi.org/10.1080/00224545.2016.1208140>
- Viki, G. T., Osgood, D., & Phillips, S. (2013). Dehumanization and self-reported proclivity to torture prisoners of war. *Journal of Experimental Social Psychology*, *49*(3), 325-328. doi 10.1016/j.jesp.2012.11.006
- Wagner, U., Christ, O., & Pettigrew, T. F. (2008). Prejudice and group-related behaviour in Germany. *Journal of Social Issues*, *64*, 403-416. doi:10.1111/j.1540-4560.2008.00568.x
- Wike, R., Stokes, B., & Simmons, K. (2016, July 11). Europeans fear wave of refugees will mean more terrorism, fewer jobs. *Pew Research Center*. Retrieved from <https://www.pewglobal.org/2016/07/11/europeans-fear-wave-of-refugees-will-mean-more-terrorism-fewer-jobs/>
- Zhou, S., Paige-Gould, E., Aron, A., Moyer, A., Hewstone, M. (2019). The extended contact hypothesis: A meta-analysis on 20 years of research. *Personality and Social Psychological Review*, *23*(2) 132-160. <https://doi.org/10.1177/1088868318762647>

Appendices

Appendix A

Means, standard deviations, and effect size comparisons controlling for frequency of outgroup contact

Study 1a							
	η^2_p	M _{Deh} (SD)	M _{Hum} (SD)	M _{Con} (SD)	d _{Deh-Hum}	d _{Deh-Con}	d _{Hum-Con}
Humanization	0.08	68.74 (35.91)	87.68 (20.86)	68.48 (35.27)	-0.64**	0.01	0.66***
Islamophobia	0.04	2.28 (1.26)	1.82 (0.83)	2.32 (1.18)	0.43	0.03	-0.49
Reciprocity	0.27	3.11 (1.28)	4.39 (0.73)	3.42 (0.59)	-1.23***	-0.31	-1.46***
Hostility	0.16	1.90 (1.41)	1.19 (0.58)	1.02 (0.08)	0.66***	0.88***	0.41
Contact	0.05	3.16 (1.07)	3.65 (0.87)	3.25 (0.91)	-0.50*	0.09	0.45
Befriending	0.03	2.43 (1.31)	2.91 (1.41)	2.50 (1.21)	-0.35	0.06	0.31
Study 1b							
Humanization	0.04	75.00 (34.61)	89.43 (20.53)	79.96 (28.94)	-0.51*	-0.12	0.42
Islamophobia	0.06	2.29 (1.31)	1.63 (0.73)	2.01 (1.13)	0.62***	-0.23	-0.40
Reciprocity	0.27	3.12 (1.21)	4.34(0.71)	3.40 (0.57)	1.23***	-0.30	-1.46***
Hostility	0.11	1.84 (1.29)	1.20 (0.53)	1.18 (0.57)	0.65***	0.66***	0.04
Contact	0.06	3.27 (1.12)	3.86 (0.81)	3.37 (1.03)	-0.60***	0.09	0.53***
Befriending	0.03	2.91 (1.45)	3.43 (1.20)	3.04 (1.26)	-0.39	0.10	0.32
Study 2a							
Humanization	0.04	77.72 (31.44)	90.45 (9.53)	82.40 (26.26)	-0.55*	-0.16	0.41
Islamophobia	0.02	2.31 (1.19)	1.82 (0.88)	1.88 (1.07)	0.47	0.51	-0.10
Reciprocity	0.27	2.90 (1.04)	4.16 (0.81)	3.45 (0.99)	-1.35***	-0.54**	0.78***
Hostility	0.11	1.80 (1.26)	1.13 (0.61)	1.16 (0.52)	0.68***	0.66***	-0.05
Contact	0.03	3.18 (0.90)	3.44 (0.74)	3.51 (0.78)	-0.32	-0.39	-0.09
Befriending	0.05	2.75 (1.27)	3.42 (1.15)	3.02 (1.29)	-0.55*	-0.21	0.33
Study 2b							
Humanization	0.09	76.33 (28.07)	90.13 (16.35)	83.96 (24.34)	-0.60*	-0.29	0.30
Islamophobia	0.10	2.27 (1.18)	1.48 (0.64)	2.10 (1.07)	0.83***	0.15	-0.70***
Reciprocity	0.31	2.86 (1.20)	4.30 (0.60)	3.46 (0.70)	-1.29***	-0.60***	1.29***
Hostility	0.11	1.71 (1.22)	1.03 (1.49)	1.29 (0.66)	0.50***	0.23*	-0.23
Contact	0.19	3.05 (0.95)	4.03 (0.63)	3.33 (0.88)	-1.22***	-0.31	0.91***
Befriending	0.05	2.84 (1.30)	3.46 (1.20)	2.86 (1.31)	-0.50 [†]	-0.02	0.48 [†]
Study 3							
Humanization	0.05	81.25 (26.41)	92.16 (12.35)	84.14 (21.52)	-0.53*	-0.12	0.46
Reciprocity	0.11	3.43 (1.26)	4.22 (0.87)	3.58 (0.65)	0.81***	0.24	-0.83**
Hostility	0.09	1.67 (1.11)	1.42 (0.89)	1.05 (0.20)	-0.25	0.78***	0.57
Contact	0.03	3.79 (0.93)	4.13 (0.62)	4.01 (0.79)	-0.43	-0.25	0.17
Befriending	0.01	3.63 (1.33)	3.65 (1.18)	3.42 (1.30)	-0.02	0.16	0.19

*p< .05, **p<.01, ***p<.001, [†] marginally significant at .05 level

Note statistical significance for omnibus test is given by an *F* test with *df* effect = 2, *df* error = 137, 146, 155, 152, 152 respectively

Appendix B

Results of Studies 1a not controlling for frequency of outgroup contact.

Unstandardized Total, Direct, and Indirect Effects of Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 1a

Effects	Model 1	Model 2
Control-MH		Control-MD
Total	-.40 [-.76, -.04]	.15 [-.21, .52]
Direct	-.03 [-.30, .25]	.16 [-.10, .42]
Indirect	-.37 [-.63, -.13]	-.01 [-.28, .30]

Appendix C

Results of Studies 1b not controlling for frequency of outgroup contact.

Unstandardized Total, Direct, and Indirect Effects of Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 1b Controlling for Frequency of Outgroup Contact

Effects	Model 1	Model 2
Control-MH		Control-MD
Total	-.39 [-.72, -.05]	.23 [-.11, .58]
Direct	-.20 [-.47, .06]	.14 [-.13, .40]
Indirect	-.18 [-.39, -.002]	.10 [-.14, .35]

Appendix D

Results of Studies 2a not controlling for frequency of outgroup contact.

Unstandardized Indirect Effects at 16th, 50th, and 84th Percentiles of the Moderator Intergroup Threat for Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 2a Controlling for Frequency of Outgroup Contact

Effects	Model 1	Model 2
Control-MH		Control-MD
Low(16 th)	.02 [-.12, .16]	.16 [-.04, .36]
Average (50 th)	-.11 [-.23, .001]	.17 [.02, .33]
High (84 th)	-.40 [-.76, -.07]	.20 [-.20, .66]
Index	-.16 [-.32, -.01]	.02 [-.17, .22]

Appendix E

Results of Studies 2b not controlling for frequency of outgroup contact.

Unstandardized Indirect Effects at 16th, 50th, and 84th Percentiles of the Moderator Intergroup Threat for Meta-Humanization (Model 1) and Meta-Dehumanization (Model 2) in Study 2b Controlling for Frequency of Outgroup Contact

Effects	Model 1	Model 2
Control-MH		Control-MD
Low(16 th)	.11 [-.02, .24]	.003 [-.15, .14]
Average (50 th)	-.002 [-.10, .10]	.05 [-.06, .17]
High (84 th)	-.45 [-.73, -.17]	.23 [-.14, .66]
Index	-.22 [-.36, -.08]	.09 [-.08, .29]