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Original Article

Imagined Intergroup Contact Promotes Prosocial Behavioral Intentions through Intergroup Anxiety in the United Kingdom and Malaysia

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Abstract

This research study investigates the mediating influence of intergroup anxiety in the linkage between imagined contact and prosocial behavioral intentions. Authors extend the existing literature on imagined contact by incorporating behavioral scripts and a visual perspective as part of the intervention. To further enhance the generalizability of the findings, the study was conducted in two distinct phases, encompassing diverse target groups of 147 British and 251 Malay students enrolled in universities in the United Kingdom and Malaysia, respectively. In the first experiment, the results revealed a significant main effect of condition, indicating high levels of altruistic intention after participants imagined contact ($M = 3.82$, $SD = 0.32$), in contrast to the control condition ($M = 3.00$, $SD = 0.32$). Additionally, the analysis demonstrated significantly reduced levels of intergroup anxiety ($M = 2.06$, $SD = 0.35$) and egoistic intention ($M = 1.97$, $SD = 0.31$). The findings also highlighted the mediating role of intergroup anxiety in the relationship between imagining positive contact and all three prosocial behavioral intentions: altruistic intention ($\beta = 0.04$, $p < .001$), egoistic intention ($\beta = -0.02$, $p < .001$), and willingness to donate ($\beta = 0.19$, $p < .001$). In the second experiment, the results were consistent with those obtained in the first experiment. These findings suggest that techniques involving a third-person perspective and the integration of intended behavior in imagery tasks not only enhance positive behavioral outcomes but also mitigate prejudice effectively.

Imagined contact is a flexible strategy designed to enhance intergroup interactions (Meleady & Crisp, 2016). As posited by the intergroup contact hypothesis (Allport, 1954), promoting interaction can potentially diminish stereotyping and prejudice between cultural groups. Over the past fifty years, research has consistently shown that contact between members of different groups correlates with more favorable out-group attitudes (Pettigrew, 2021). However, a significant limitation of intergroup contact as a prejudice-reducing intervention is its challenging implementation in segregated settings. To address this, numerous studies have explored supplementary strategies that can be employed when opportunities for contact are limited or individuals are reluctant to engage in contact.

Crisp and Turner (2009) proposed the concept of imagined intergroup contact as an innovative indirect contact strategy aimed at fostering more positive intergroup relations. This method suggests that the process of envisioning interaction provides a behavioral script, which forms the cognitive basis for

subsequent judgments about future contact intentions (Crisp et al., 2010). A substantial body of empirical evidence supports imagined contact, demonstrating its potential to enhance attitudes toward a wide range of target groups, including those stigmatized due to factors such as race, nationality, ethnicity, religion, age, or gender identity.

Significant advancements have been made in understanding the variables that mediate the influence of imagined contact on prejudiced attitudes. Initially, Turner et al. (2007) theorized that akin to actual contact, the efficacy of imagined contact was driven by the reduction of intergroup anxiety. This theory has been successfully validated across various task variants and target outgroups, underscoring that intergroup anxiety mediates the effects of imagined contact. Indeed, the primary aim of imagined contact interventions is to enhance intergroup relations and prosocial behavioral intentions. It is believed that fostering positive behavior towards members of other groups can contribute to a more harmonious society. Thus, this research study makes an original contribution to the field of behavioral science by investigating the mediating role of intergroup anxiety in the association between imagined contact and prosocial behavioral intentions (i.e., altruistic and egoistic tendencies) and intergroup behavior (i.e., willingness to donate). This study explores in depth the underlying psychological mechanisms that affect intergroup interactions and prosocial conduct by adding the concept of intergroup anxiety into the preexisting framework. The study offers insightful information on how imagined contact might lower intergroup anxiety and encourage constructive intergroup attitudes and actions in various cultural situations. Furthermore, the visual perspective element makes the imagined encounter scenarios more vivid and realistic, potentially amplifying their impact on intergroup attitudes and prosocial behavioral intentions.

Literature Review

This section explains the relevant literature, theories, concepts, and earlier studies to support the relationship between imagined intergroup contact, prosocial behavioral intention, altruistic and egoistic tendencies, and willingness to donate.

Intergroup Contact Theory

Harrington and Miller (1992) praised Allport's (1954) contact hypothesis as one of the most productive and significant contributions to research on social issues. As documented by Brown and Hewstone (2005) and Pettigrew (1998), this hypothesis has evolved into a well-articulated theory elucidating the psychological processes that lead to the positive outcomes of social contact. Initially, Allport proposed that interactions characterized by equal status between groups, shared objectives, an absence of competition, and institutional support yield the most beneficial results.

Despite the merits of the intergroup contact theory, it is important to note that intergroup contact only reduces prejudice and discrimination when social groups and their members have equal opportunities to engage in contact (Christ & Kauff, 2019; Kauff et al., 2021; Vezzali & Stathi, 2020). Consequently, it becomes necessary to establish indirect forms of contact as a solution for the lack of contact opportunities and the impracticality of direct intervention. According to the extended contact hypothesis, knowing about an in-group member's close relationship with an outgroup member might indirectly influence one's perceptions of the outgroup (Landmann et al., 2023; Stark, 2020).

Extended contact has been shown to have a beneficial impact on attitudes and outgroup stereotypes, by promoting positive ingroup norms, fostering feelings of similarity, and reducing anxiety, both in children (Armstrong et al., 2017) and adults (Lytle & Levy, 2019). Moreover, extended contact has been linked with improved attitudes and decreased outgroup stereotypes (Liebkind et al., 2019). While extended contact can enhance the effectiveness of the contact hypothesis and offers undeniable benefits, it does not completely resolve the issue of contact opportunity.

Imagined Intergroup Contact

Crisp and Turner (2009) characterized imagined intergroup contact as a mental simulation of cooperative interaction with outgroup members. Like how mental imaging influences intergroup perspectives, imagined intergroup contact can also yield beneficial effects on intergroup attitudes and behaviors (e.g., Renner et al., 2019). When envisioning intergroup contact, individuals may engage in conscious and unconscious thought processes akin to those activated during actual intergroup contact (Cerrato & Forestell, 2022). For example, they might consider what they could learn about the outgroup member, how the interaction would affect them, and how this could alter their perceptions of the individual and the outgroup at large. Analogous to the effects of direct interaction, this should result in more positive evaluations of the outgroup (Fuochi et al., 2020).

Given that individuals have control over their imagination, positive contact framed as mental imagery may diverge from its original intent, fade from memory, and thus diminish the efficacy of the imagery process (Pearson et al., 2013). Evidence suggests that two factors—visual viewpoint and behavioral script—can aid and enhance the mental imagery process. It has been found that formulating a behavioral script that explicitly targets desired behavioral outcomes increases the likelihood of behavior modification (Elder & Krishna, 2022). The behavioral script provides the participant with information that renders the activity more tangible in their minds, thereby persuading them to engage in it (Strack & Schwarz, 2021).

Attributional theory posits that when viewed from a third-person perspective, individuals typically attribute their behavior to personal factors (dispositional attribution), and when observed from a first-person perspective, they attribute it to external circumstances (situational attribution) (Jones & Nisbett, 1971). Observing the contact hypothesis from a third-person viewpoint, as opposed to a first-person one, may encourage individuals to reflect on and direct their actions, which is directly associated with increased empathy and willingness to assist outgroup members (Niese et al., 2022).

Imagined contact and Intergroup Anxiety

Intergroup anxiety refers to the discomfort and uncertainty experienced when interacting with individuals from different groups (Grant et al., 2020). This concept has been extensively explored in contact research and is a crucial determinant in the relationship between direct contact and reduced prejudice. It is believed that negative emotions associated with intergroup anxiety stem from the anticipation of rejection, prejudice, or discomfort during cross-group interactions (Appiah et al., 2022). These negative emotions can lead to prejudice and avoidance of contact. However, research indicates that imagined intergroup contact interventions can reduce intergroup anxiety by facilitating positive exposure to out-group members without the risk of negative encounters (e.g., Beelmann & Lutterbach, 2020).

It has been found that imagining positive interactions with others diminishes intergroup anxiety and fosters future interactions, helpful intentions, and positive attitudes (Malott et al., 2023). It is proposed that intergroup anxiety plays a critical role in the success of intergroup contact.

Imagined Contact and Prosocial and Intergroup Behavior

Previous research has explored the impact of imagined intragroup contact on intergroup attitudes (Ioannou, 2019; White et al., 2021). However, the ultimate objective of both direct and imagined contact extends beyond merely altering attitudes; it aims to encourage prosocial and intergroup prosocial behavioral intentions (Meleady & Seger, 2017). Prosocial behavioral intentions are defined as selfless acts intended to benefit others and can be driven by a range of motivations (Pak & Babiarz, 2023). A heuristic model of prosocial motivations, extending from egoistic to altruistic motivations, was proposed by Eisenberg et al. (2016). Such actions not only benefit society at large but also promote positive relationships among groups. Imagined contact is a flexible and minimally invasive strategy with the potential to effect substantial prosocial change (Meleady & Seger, 2017; Promchart & Potipiroon, 2020). This has been evidenced in

multiple studies examining the influence of imagined contact on helping behaviors. These studies have found that imagined contact can lead to increased cooperation with outgroup members (Turner et al., 2013), the development of helpful intentions (Vezzali et al., 2015), and enhanced levels of collaboration and cooperation (Pagotto et al., 2013).

In their 2017 study, Meleady and Seger demonstrated how envisioning positive interactions could stimulate cooperative and prosocial behavioral intentions, as assessed by the prisoner's dilemma game. These findings suggest that visualizing positive encounters may encourage individuals to engage in prosocial behavioral intentions. Intergroup helping has not been extensively investigated as a specific prosocial action to foster intergroup relationships. However, based on the reviewed literature, it holds promise as a highly effective strategy. Therefore, further investigation into fostering prosocial behavioral intentions and intergroup behavior through imagined intergroup contact can provide valuable insights for refining and enhancing the existing intergroup contact hypothesis.

Intergroup Anxiety and Prosocial and Intergroup Behavior

Dovidio et al. (2006) argued that anxiety responses play a significant role during intergroup encounters. Similarly, Plant and Devine (2003) claim that these responses are believed to arise due to expectations of discomfort, rejection, or discrimination during cross-group interactions. Imagined contact interventions have been demonstrated to lessen intergroup anxiety by encouraging positive exposure to other group members and minimizing the possibility of physical and social harm associated with unfavorable intergroup interactions (M'manga & Shuliang, 2019; West & Greenland, 2016). Prior research has shown that visualizing pleasant contact with others can lower intergroup anxiety, increase helpful intentions, and impact implicit and explicit attitudes (Vezzali et al., 2013; West et al., 2011). An earlier study indicated that intergroup anxiety mediated the connections between contact quality and implicit and explicit anti-transgender prejudice. In addition, Cakal et al. (2021) demonstrated that intergroup contact caused privileged groups to support disadvantaged outgroups' desires for social change by fostering improved trust, perspective-taking, and decreased anxiety. Considering the reviewed literature, this study further explores the mediating role of intergroup anxiety in understanding the links between imagined contact and the enhancement of prosocial behavioral intentions and intergroup behavior. Examining these mediating mechanisms, research aimed to advance the existing knowledge of how imagined contact interventions can successfully affect intergroup dynamics and get beneficial results.

Hypotheses

Therefore, the present investigation aimed to test the following hypotheses:

1. Imagined intergroup contact interventions will enhance altruistic intentions.
2. Imagined intergroup contact interventions will reduce egoistic intentions.
3. Imagined intergroup contact will lead to an increase in individuals' willingness to donate.
4. Intergroup anxiety will mediate the relationship between imagined intergroup contact and changes in prosocial behavioral intentions and intergroup behavior in the two studies conducted with distinct target groups.

Method

Participants and Design

This study employed a between–subjects experimental design to compare the outcomes and effects of imagined intergroup contact across different conditions and participant groups. In this design, participants were divided into several categories and engaged in an imagined intergroup interaction that differed from the others. The study used a between–subjects design to compare the results and impacts of hypothetical intergroup contact under different scenarios. The dependent variables were measured and compared between the groups to ascertain the effect of the manipulation. Each condition reflects the independent variable's unique level or variation (imagined intergroup contact). The participants were randomly assigned to one of the conditions: first–person perspective and third-person perspective.

Assigning participants randomly helps account for potential confounding variables and guarantees that any observed differences across the conditions result from viewpoint manipulation.

From a first-person perspective, imagined contact is imagining oneself in a situation in which they engage with an outgroup member. For instance, people might picture themselves conversing amicably or working together on a project with someone from a different race or ethnic group. Using this perspective, people can recreate the experience and feelings of positive intergroup contact from their point of view. On the other hand, imagined contact from a third-person perspective entails imagining a positive interaction between two or more members of various groups while watching it from a distance. In this situation, one would picture seeing two individuals with various backgrounds engaging in dialogue. With this viewpoint, individuals can view intergroup interactions from a wider angle and observe productive acts and results without actively participating.

This study finds that the third-person viewpoint in imagined interaction promotes perspective-taking and empathy, lowers self-consciousness, and offers vicarious experiences. Compared to the first-person perspective, these variables encourage stronger prosocial behavioral intentions. For instance, the third-person viewpoint enables people to adopt a more dispassionate and objective attitude, which can aid in perspective-taking and empathy. Seeing pleasant relationships between people from diverse groups can help people grasp the advantages and positive results of such connections, thus strengthening their willingness to engage in prosocial behavioral intentions. Additionally, adopting a third-person viewpoint can help reduce any self-consciousness or self-related anxieties that might develop while picturing oneself near outgroup members. Through an increase in the processing of good intergroup interactions on a cognitive and emotional level, this reduced self-focus can result in more positive attitudes and behavioral intentions. The last possibility is that individuals can have vicarious experiences by observing favorable intergroup interactions from a distance. Watching others engage in positive behaviors can be a source of inspiration and motivation, shaping individuals' intentions to engage in similar prosocial behavioral intentions. The study consisted of two separate studies conducted in different settings (universities in the UK and Malaysia) and with different participant groups (British and Malay students). Participants were white British university students who were directed either to envision interacting with Arab Muslims or, in a control condition, to visualize interacting with an unspecified stranger. If the effects of imagined contact mirror those of direct intergroup contact, then visualizing contact with Arab Muslims should lead to a heightened desire to engage with Arab Muslims, compared to the control condition—a relationship likely mediated by intergroup anxiety. The first study was conducted at the University of Sheffield in April 2019. The second study aimed to replicate and expand on the findings from Study 1. It introduced two key differences: First, we tested a different target group—this time based on ethnicity—to determine whether our adaptation of imagined contact would also be effective with a different outgroup. Participants were Malay university students, and we examined their relationship with Chinese/Indian university students. The participants furthermore gave their signed, informed consent. The participants were also told by the researchers that their names would remain anonymous and they can withdraw from the study at any time. The second study was conducted at Universiti Putra Malaysia (UPM) in April 2019. The study was authorized by the university's ethics committee (No. JKEUPM-2019-481).

Study 1 involved 147 non-Muslim British psychology students from the University of Sheffield (26 males, 121 females), with an average age of 18.72 years (*SD* = 1.27). In Study 2, we randomly assigned 251 Malay students (26 males, 225 females) from a Malaysian public university to either the imagined-contact condition or a control condition. The average age of these students was 21.62 years (*SD* = 1.53).

Procedure

The contact scenario remained constant across all experimental conditions in both studies; the only variations pertained to the type of contact and the ensuing perspective-taking instructions. In the positive contact condition, participants were asked to imagine themselves on a train engaging in a relaxed and

positive conversation with an Arab Muslim in Study 1, and a Malaysian Chinese/Indian in Study 2, who were seated beside them. In the prosocial imagined contact condition, participants received the same instructions as in the positive contact condition, with an added behavioral script: "The train abruptly makes an emergency stop, and you and the person's belongings scatter on the ground. You rise and assist in gathering the other person's possessions."

Participants in the perspective-taking conditions were instructed to visualize the incident from either a first-person or third-person viewpoint to alter the perspective of the imagery. Following this, participants were asked a manipulation check question to ensure they had accurately imagined the scenario. After the task, to reinforce the effects of the imaginative activity, participants were requested to describe as precisely as possible what they had visualized. After the completion of the dependent measures assessing intergroup attitudes and behavior, participants were thanked and debriefed. The study took approximately 15 to 20 minutes to complete.

Measures

To measure intergroup anxiety, the researcher used 11 items adapted from the work of Britt et al. (1996). The scale assessed participants' overall anxiety about the outgroup based on their interactions with and knowledge of it in various contexts. Sample items are "I would feel nervous if I had to sit alone in a room with a crowd of [designated group] and start a conversation with them." and "I experience little anxiety when I talk to a [designated group]." A lower score on the scale, which ranged from 1 (strongly agree) to 5 (strongly disagree), indicated less anxiety.

Prosocial behavioral intentions were measured using 10 items adapted from the work of Boxer et al. (2004). The study only assessed two types of prosocial behavior intentions: Altruistic intention and egoistic intention. The altruistic intention is defined as willingly responding without expecting any benefit in return, whereas egoistic intention is defined as an instrumental, goal-directed response. Sample items are "often lend things to people to get what I want." and "I often share things with people without being asked." The prosocial behavior scale contained five items, with higher scores indicating a greater inclination towards either altruistic or egoistic behavior (α = .79 and .83, respectively).

As part of the study, researchers in the United Kingdom asked participants if they would be willing to donate between £0 and £50 to a charity supporting a humanitarian appeal for Gaza in Palestine. The researchers clarified that they were trying to estimate potential donations and were not soliciting donations at that time. Participants in Malaysia were asked if they would be willing to donate between RM0 and RM100 to homes for older adults and orphanages that were Chinese or Indian. The researchers clarified that they were not soliciting donations at that time and were only trying to estimate how much the campaign could potentially raise.

Data Analysis

ANOVA, MANOVA, and a Tukey post hoc test were used to analyze the experiments in this study, and the authors also examined differences between the experiments. Researchers also carried out a series of planned contrasts, employed when hypotheses are specific and provide a straightforward test of specific effects. This approach was appropriate for the current study. The authors employed regression-based analyses through a mediational bootstrapping study to examine how intergroup anxiety may have mediated the association (PROCESS model 4; Hayes, 2013). Investigating the intergroup anxiety's mediation function between IC and prosocial behavioral intentions is the primary goal of this study. By comparing certain groups of interest, regression analysis enables comparative analyses and the assessment of the direct and indirect impacts of variables in a mediated relationship.

The contrast code (-1 for imagined positive contact, -1 for imagined prosocial contact, -1 for imagined prosocial contact from the first-person perspective, and +3 for imagined prosocial contact from

the third-person perspective) was used as the predictor in the analysis, which was based on 5,000 bootstrap samples. Donations, altruistic and egoistic prosocial behavioral intentions, and intergroup anxiety were the dependent variables.

Results

Experiment 1

The first experiment incorporates behavioral scripts and a visual perspective and adds to the knowledge of imagined contracts. This innovative technique strengthens our understanding of how imagined contact can affect prosocial behavioral intentions. Participants in this study were Caucasian university students from the United Kingdom. They were split into two groups; one was asked to picture engaging with Arab Muslims, while the other was shown interacting with an unidentified stranger. In Table 1, the average and standard deviation values of all the dependent variables are presented, stratified by type of imaging task and visual viewpoint.

Table 1

Means and Standard Deviations of Study Constructs on Imagined Intergroup Contact (Study 1)

	IC (n = 38)	IC (prosocial) (n = 36)	IC (prosocial/first person) (n = 37)	IC (Prosocial/third person) (n = 36)
Construct	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
IA	2.75 (0.35)	2.43 (0.39)	2.63 (0.47)	2.06 (0.32)
PB				
AI	3.00 (0.32)	3.42 (0.47)	3.23 (0.43)	3.82 (0.32)
EI	2.57 (0.33)	2.20 (0.42)	2.27 (0.33)	1.97 (0.31)
WD	2.61 (6.31)	6.31 (5.60)	3.56 (6.07)	12.91 (6.80)

Note. Imagined contact = IC, Intergroup anxiety = IA, Prosocial behavioral intentions = PB, Altruistic Intention= AI, Egoistic Intention= EI, Willingness to donate = WD.

Table 2 summarizes the findings obtained, demonstrating that the researchers utilized ANOVA and MANOVA to confirm the modifications, and a Tukey post hoc test to assess any potential differences between the investigated studies. To avoid raising the family-wise error rate with multiple significance tests, the *p*-values were adjusted using the Tukey post hoc test.

A one-way ANOVA was conducted to explore the impact of various imagined contact experiments on intergroup anxiety. Results demonstrated that individuals who imagined prosocial interaction and prosocial contact from a third-person viewpoint felt significantly less anxious than those who had positive imagined contact. Moreover, compared to respondents in the other imagined contact situations, those who imagined prosocial interaction from the third-person perspective reported significantly lower levels of intergroup anxiety.

A one-way MANOVA was then carried out to examine the impact of imagined contact manipulations on prosocial behavior tendencies. The results showed that, compared to other imagined contact situations, imagining prosocial interaction from the third-person viewpoint resulted in significantly higher levels of altruistic intention and significantly lower levels of egoistic intention. In addition, individuals who imagined prosocial interaction from a third-person viewpoint were significantly more inclined to donate to a charitable cause than participants in other imagined contact situations.

Table 2
Post Hoc Comparisons of Study Constructs on Imagined Intergroup Contact (Study 1)

Constructs/IC circumstances	1	2	3	4
IA				
1-IC	-	0.32*	0.12	0.69*
2-IC (prosocial)		-	-0.19*	0.37*
3-IC (prosocial/first person)			-	0.56*
4-IC (prosocial/third person)				-
PB				
AI				
1-IC	-	-0.43*	-0.23*	-0.83*
2-IC (prosocial)		-	0.19*	-0.40*
3-IC (prosocial/ first person)			-	-0.60*
4-IC (prosocial/ third person)				-
EI				
1-IC	-	0.37*	0.30*	0.60*
2-IC (prosocial)		-	-0.07*	0.23*
3-IC (prosocial/ first person)			-	0.30*
4-IC (prosocial/ third person)				-
WD				
1-IC	-	-3.70*	-0.95	-10.30*
2-IC (prosocial)		-	2.75	-6.60*
3-IC (prosocial/ first person)			-	-9.35*
4-IC (prosocial/ third person)				-

Note. IC = Imagined contact, Intergroup anxiety = IA, Prosocial behavioral intentions = PB, Altruistic intention= AI, Egoistic intention= EI, Willingness to donate = WD. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .01$

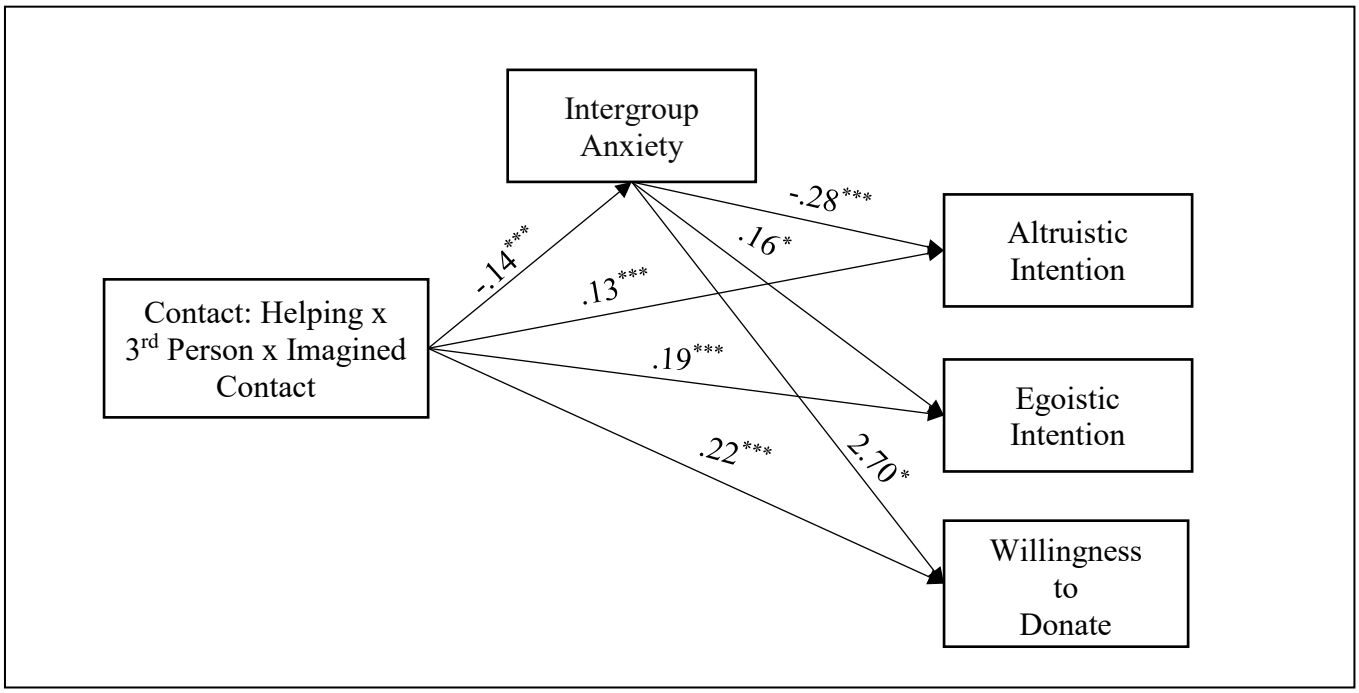
Finally, a planned comparison analysis supported the finding that imagining prosocial contact from the third-person standpoint resulted in significantly more positive prosocial outcomes regarding intergroup anxiety, altruistic intention, egoistic intention, and donation willingness. These results suggest that promoting favorable intergroup attitudes and actions may be achieved by visualizing prosocial engagement from the third-person perspective.

Mediational Analysis

Figure 1 presents the results of the mediational analysis, which indicate that the overall effect of imagining positive contact on altruistic intention was significant, even after controlling for intergroup anxiety. Bootstrapping analysis revealed a significant indirect effect through the mediator (intergroup anxiety). Similarly, the overall effect of imagining positive contact on egoistic intention was significant, but the effect became non-significant after adjusting for intergroup anxiety. The overall indirect effect was significant and negative through the mediator. Finally, the overall effect of imagining positive contact on willingness to donate was significant, and this effect remained significant after controlling for intergroup anxiety. The total indirect effect was significant through the mediator. These results suggest that intergroup anxiety plays a mediating role in the relationship between imagining positive contact and all three prosocial behavioral intentions: altruistic intention, egoistic intention, and donation willingness.

Figure 1

The Mediational Model of Intergroup Anxiety on the Relationship between Imagined Intergroup Contact from the Third-person Perspective and Prosocial Behavior Intentions (Study 1).



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

Experiment 2

In this study, Experiment 2 is a follow-up and elaboration of Experiment 1, which looked at the mediating role of intergroup anxiety in the association between imagined contact and prosocial behavioral intentions. Experiment 2 introduces several noticeable differences while building on the results of Experiment 1. Replicating the findings from Study 1 and investigating their generalizability were the primary goals of Experiment 2. To do this, the target group was university students from Malaysia, while its outgroup comprised students from China and India. In Table 3, the averages and variances of the variables that depend on particular activities and viewpoints of imagining are presented. The procedures used in the subsequent examination are similar to those in the initial study.

Table 3

Means and Standard Deviations of Study Constructs on Imagined Contact (Study 2)

Construct	IC (n = 62)	IC (prosocial) (n = 63)	IC (Prosocial/first person) (n = 64)	IC (Prosocial/third person) (n = 62)
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
IA	2.87 (0.41)	2.39 (0.32)	2.75 (0.47)	2.15 (0.37)
PB				
AI	3.31 (0.42)	3.70 (0.52)	3.53 (0.37)	4.05 (0.46)
EI	3.09 (0.39)	2.40 (0.53)	2.58 (0.44)	1.98 (0.38)
WD	26.35 (24.21)	34.35 (27.31)	29.54 (29.68)	39.01 (24.46)

Notes. IC = Imagined contact, Intergroup anxiety = IA, Prosocial behavioral intentions = PB, Altruistic intention= AI, Egoistic intention= EI, Willingness to donate = WD.

Table 4
Post Hoc Comparisons of Study Constructs on Imagined Intergroup Contact (Study 2)

Constructs/IC conditions	1	2	3	4
IA				
1. IC	-	0.48*	0.13	0.72*
2. IC (prosocial)		-	-0.35*	0.25*
3. IC (prosocial/first person)			-	0.60*
4. IC (prosocial/third person)				-
PB				
AI				
1. IC	-	-0.39*	-0.22*	-0.74*
2. IC (prosocial)		-	0.17	-0.35*
3. IC (prosocial/first person)			-	-0.52*
4. IC (prosocial/third person)				-
EI				
1. IC	-	0.69*	0.52*	1.11*
2. IC (prosocial)		-	-0.18	0.42*
3. IC (prosocial/first person)			-	0.60*
4. IC (prosocial/third person)				-
WD				
1. IC	-	-8.00	-3.20	-12.67
2. IC (prosocial)		-	4.81	-4.67
3. IC (prosocial/first person)			-	-9.47
4. IC (prosocial/third person)				-

Note. IC = Imagined contact, Intergroup anxiety = IA, Prosocial behavioral intentions = PB, Altruistic intention= AI, Egoistic intention= EI, Willingness to donate = WD. *$p < .05$, **$p < .01$, ***$p < .01$

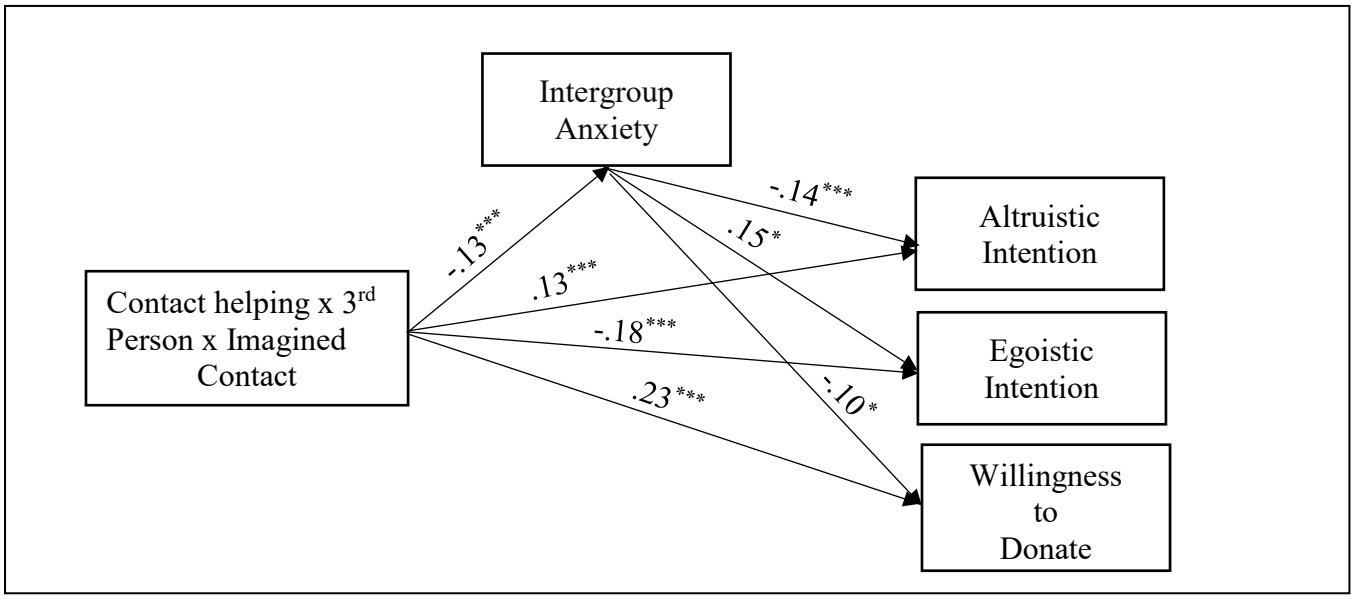
The one-way ANOVA analysis indicated that altering imagined contact had a significant impact on intergroup anxiety, with participants reporting lower anxiety levels when imagining prosocial interaction from a third-person perspective. The one-way MANOVA study showed that imagined contact significantly influenced prosocial behavior intentions, including both altruistic and egoistic intentions. Further analysis revealed that participants who imagined prosocial interaction from a third-person perspective had higher levels of altruistic intention and lower levels of egoistic intention compared to the other imagined contact scenarios. Additionally, they were more inclined to donate compared to those in the other imagined contact conditions. The planned contrast analysis supported these findings, showing that participants who imagined prosocial contact from a third-person perspective reported lower intergroup anxiety, higher altruistic intention, lower egoistic intention, and higher donation willingness compared to those in the other imagined contact conditions.

Mediational Analysis

The study found that imagined contact had a significant impact on both altruistic and egoistic intentions (Figure 2). The impact persisted even after controlling for intergroup anxiety. Bootstrap analysis revealed that the indirect impact via the mediator (intergroup anxiety) was also significant for both intentions, indicating a mediation effect. Although the effect of imagined contact on donation willingness was no longer significant when controlling for intergroup anxiety, the bootstrap analysis showed that the mediator had a significant, indirect impact, indicating a mediation effect. The study demonstrates that the relationship between imagined contact and prosocial and intergroup behavior is mediated by intergroup anxiety.

Figure 2

Mediational Model of Intergroup Anxiety on the Relationship between Imagined Intergroup Contact from the Third-person Perspective and Prosocial Behavioral Intentions (Study 2).



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

Discussion

This interdisciplinary study investigates the impact of imagined intergroup contact as an intervention on prosocial behavioral intentions, considering the mediation of intergroup anxiety. By integrating insights from psychology, sociology, and social neuroscience, this research aims to shed light on the effectiveness of imagined contact in promoting positive social outcomes across different cultural contexts. Two separate studies were conducted, involving university students from the United Kingdom and Malaysia, representing diverse target groups. The intervention required participants to envision interacting with an outgroup member, employing behavioral scripts and a visual perspective to enhance the effectiveness of the imagined contact intervention. This interdisciplinary research expands upon previous studies by considering the cultural context of the United Kingdom and Malaysia, providing valuable insights into the effectiveness of imagined intergroup contact interventions. By incorporating perspectives from psychology, sociology, and social neuroscience, this study enhances our understanding of the underlying mechanisms that promote positive intergroup attitudes and behaviors.

Recent empirical investigations have provided evidence supporting the notion that engaging in the cognitive process of imagining interactions with individuals from an outgroup can foster prosocial behavioral intentions. These findings align with prior scholarly inquiries that have similarly demonstrated the positive influence of imagined contact on prosocial behaviors (Auger & Amiot, 2019; Borinca et al., 2021; Gaesser et al., 2020; Glen et al., 2020; Meleady & Seger, 2017). The current study aimed to determine which aspects of imagined contact are most effective in promoting such intentions. Previous studies have found that prosocial third-party actions can enhance the influence of the imagery and encourage the desired behavior (Crisp et al., 2010; Crisp & Husnu, 2011; Wu et al., 2022). The current research supports this finding, demonstrating that picturing prosocial third-party actions is more effective than other imagined contact situations in promoting altruistic behavior and increasing donation willingness to an out-group organization. This effect is mediated by a decrease in intergroup anxiety.

Two studies found that imagined prosocial interaction from a third-person perspective increased altruistic intentions, donation willingness to an out-group organization, and decreased intergroup anxiety

compared to other imagined contact situations. These findings are consistent with previous research that has shown how positive behavior with an out-group can influence how individuals feel during the contact, enhance their knowledge about the out-group, and create positive judgments of them (e.g., Schuchart et al., 2021; Whitt et al., 2021). Furthermore, it has been found that positive contact can reduce prejudice by blurring intergroup boundaries. Adding an assisting script to the imaging task can improve the effectiveness of imagined contact by providing a plan of action that makes the behavior more accessible. However, imagining contact in the first person may negate the positive effects of the visualization exercise as it may divert attention away from the self and onto the situation, causing individuals to reconsider their intention to assist. Nonetheless, recent research supports the effectiveness of imagined contact in enhancing intergroup behavior, particularly when imagined from a third-person perspective and with a supportive script (e.g., Fowler & Harwood, 2021; Wang et al., 2022).

The findings show that imagined contact can promote altruistic intention rather than just egoistic intention and reduce intergroup anxiety. This study also has the positive aspect of employing a more deliberate behavioral measure and directly evaluating the cooperative component, which helps ensure prolonged assisting activity. Finally, the current research shows that including a positive behavioral script in the imaging, task is a more effective intervention strategy than simply imagining positive contact.

This study has significant theoretical and practical implications for encouraging prosocial behavioral intentions. The most effective way to achieve the strongest imagined contact effect may be to merge contacts with Attribution Theory as an intervention strategy. The third-person viewpoint effect may work by making individuals view themselves more positively, enhancing self-image, and indirectly motivating people to act positively towards the out-group. The findings of this study are significant for the populations under consideration. It found that imagining third-person prosocial interaction was beneficial in developing positive intergroup contacts in two different contexts: the United Kingdom and Malaysia. Given the current social climates in the United Kingdom and Malaysia, marked by Islamophobia, hate crimes, prejudice, discrimination, and inequality, implementing direct contact interventions in these contexts may be problematic. On the other hand, practitioners can use the critical notions of imagined contact to encourage improved intergroup interactions, such as picturing good and helpful contact from a third-person perspective. Imagining pleasant interaction and incorporating a helpful script can enhance prosocial activity and lessen anxiety while adopting a third-person perspective can improve the likelihood of completing the planned behavior (Fowler & Harwood, 2021). In conclusion, this study has contributed to recognizing prosocial activity as a desirable social behavior that promotes intergroup interactions and has offered insights into how imagined contact can be improved in the studied circumstances.

Limitations

This study has some limitations. For example, it did not include a control group as a baseline, which is necessary for experimental design studies to demonstrate the efficacy of the experimental design while accounting for confounding variables and bias. Furthermore, the generalizability of the anticipated effect can be limited by the group-focused intergroup (Schmid et al., 2014). Additionally, the group-focused intergroup assistance measure may limit the generalizability of the projected effect (Schmid et al., 2014). Therefore, future studies should include control groups and evaluate the donation willingness to a broad charity organization without naming any specific groups to address these limitations.

Implications for Behavioral Science

These findings are also likely to have important implications for the field of behavioral science. The study highlights the effectiveness of using a third-person perspective and incorporating positive behavior scripts in imagined contact circumstances to promote prosocial behavioral intentions. Researchers can use these findings to design interventions and strategies that encourage prosocial behaviors, such as

volunteering, helping others, or promoting cooperation in various contexts. The study suggests that incorporating positive behavior scripts into imagined contact tasks can make these scripts more accessible to individuals. Researchers and practitioners can use this insight to develop interventions that facilitate the mental rehearsal of prosocial behaviors, making it easier for people to translate their intentions into actions. The finding that imagining the situation in the third person promotes self-awareness and self-attribution of actions has implications for understanding the underlying psychological mechanisms of prosocial behavior. Behavioral scientists can further investigate the role of self-awareness in fostering empathy and altruism and explore how this awareness can be cultivated to encourage more prosocial behavior (Chen & Jordan, 2020). The study suggests that the combination of a third-person perspective and incorporating intended behavior in the imagery task can be effective not only in improving positive behavioral outcomes but also in reducing prejudice. This has implications for interventions aimed at reducing intergroup bias and improving social cohesion. Researchers can develop interventions that utilize these techniques to address issues related to prejudice and discrimination.

Conclusion

In conclusion, this study aimed to discern the effectiveness of imagined contact scenarios in fostering prosocial behavioral intentions within the context of intergroup anxiety in both the United Kingdom and Malaysia. The results indicated that imagining prosocial contact in the third person had the most significant impact. There are two potential explanations for this finding. Firstly, incorporating a positive behavior script into the imagined contact task makes the scripts more accessible, resulting in more positive intergroup intentions. Secondly, imagining the situation in the third person (as opposed to other viewpoints or without providing any perspective) may promote self-awareness and help individuals attribute their actions to themselves, making the behaviors more accessible. This combination enhances self-relevance, fosters vivid mental representations of desired actions, and amplifies the associated benefits. These findings not only improve positive behavioral outcomes but also play a role in mitigating prejudice.

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