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Prototypicality and Need to Belong: How One's Standing in the Group Affects Parochial Cooperation

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by

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Abstract

This study explores the dynamics of parochial cooperation within intergroup social dilemmas, specifically examining the roles of harm, prototypicality, and the need to belong (NTB). Utilizing an experimental design and an adapted investment game, the study investigates how these factors influence individuals' decisions to engage in cooperation that is biased towards their own group, especially when such actions potentially harm outgroup members. The findings reveal a strong preference for parochial cooperation over universal cooperation and free-riding, consistent with previous research on ingroup favoritism. Notably, this preference is significantly moderated by the harm condition, where participants reduced their parochial investments when outgroup harm was required. The study also uncovers that peripheral members with high NTB seemed to show a notable shift from parochial cooperation towards universal cooperation in the harm condition, highlighting an unexpected and complex interplay between group dynamics and individual psychological needs. This research contributes to our understanding of social behaviors in intergroup conflicts and suggests that interventions aimed at reducing such conflicts may benefit from considering both the psychological needs of group members and specific contexts that might influence these needs.

1. Introduction

Ideal intergroup relationships are marked by peaceful coexistence, stable alliances, and mutually beneficial exchange of people, goods, and services. Unfortunately, peaceful coexistence is continuously threatened by ubiquitous intergroup conflicts in human history and the present society. Notably, conflicts between groups are often harmful and unproductive for individual participants, even if they may appear to benefit the group as a whole (Columbus et al., 2023). However, humans still engage in intergroup conflicts and sometimes even sacrifice their own welfare for the sake of their group. Indeed, this ingroup-biased behavior of cooperating only with one's ingroup members, which is referred to as *parochial cooperation,* fosters advantages for ingroups compared to out-groups, often leading to a sense of pride and superiority in ingroup members, as well as material advantages for the ingroup. Such dynamics can deteriorate intergroup relations and escalate conflicts, as they may provoke preemptive or retaliatory aggressive behaviors (Aaldering et al., 2018; De Dreu et al., 2014). In order to further study people's parochial cooperation choices in an intergroup context, the present study aims to answer the following questions: What are some positive and negative factors that affect people's preference for parochial cooperation? Specifically, will people still choose parochial cooperation when it harms others? And, do group members with different within-group positions or motivations to belong have the same preference for parochial cooperation?

1.1 Intergroup Social Dilemmas

Intergroup social dilemmas are intragroup situations in intergroup conflict or interaction where each individual group member might be better off behaving selfishly, yet the ingroup as a

whole may be better off if every ingroup member cooperates, while the whole society is usually better off if everyone cooperates regardless of group membership (Dawes, 1980; De Dreu et al., 2014). These three choices in intergroup social dilemmas are called *free-riding*, *parochial cooperation*, and *universal cooperation* (Aaldering et al., 2018; Bornstein, 2003).

Student groups and clubs on college campuses provide good examples of intergroup social dilemmas. As a member of a student group, one can choose to solely enjoy the benefit of being a part of the group, contribute to the group at the same time to help it get more resources from the school, or promote the interest of all students and groups in the school. On an individual level, one might maximize their personal welfare by free-riding and enjoying the benefits from the student group. At the group level, the group as a whole is more likely to flourish if every member of the group cooperates and contributes to the group. At the same time, critically, helping one's group perform well and obtain more support from the school may reduce the other student groups' chances of obtaining funding and aid, given that the school's resources are not unlimited. On a school level, however, the whole community may be better off if students cooperate regardless of their group or club.

Large-scale intergroup conflict (e.g., war) is another and more consequential context in which self-sacrificial contributions of money, time, or efforts to help one's group come at a cost not only to the self but also to outgroup members and the world in general (Baron, 2001). Soldiers who fight on a battlefield can choose to avoid possible harm to themselves by withdrawing from the battlefield, so they do not need to risk their lives to engage in the fight. They can also choose to stay and engage in the war to protect the homeland, property, and public

behind them. However, at the same time, they are choosing to harm soldiers and people from the other side. Moreover, it is also possible to choose to cooperate with everyone on both sides, resolve the conflict, and conduct peace negotiations and agreements, while neither side will "win" in this case and get as much as they originally wanted (Wagner, 1994).

Because of limited resources, people in intergroup interactions have to choose one of the three options: free-riding, parochial cooperation, and universal cooperation. Thus, the internal cooperation problem of groups facing an intergroup conflict is in the form of a social dilemma (Bornstein, 2003).

1.2 Parochial Cooperation

As a social species, humans usually have a tendency to limit cooperation, benefit the ingroup, and trust the ingroup more since it is the most efficient strategy from an evolutionary perspective (Aaldering et al., 2018; Balliet et al., 2014; Ioannou et al., 2015; Rand & Nowak, 2013; Tajfel et al., 1971). For instance, a pioneering study by Tajfel et al. (1971) showed that when participants had to choose rewards for ingroup and outgroup members (e.g., 42/22 points vs. 34/34 points to ingroup member/outgroup member), they would prefer to maximize ingroup outcomes. This ingroup preference would occur even in a very minimal setting where participants were randomly assigned to a group, not allowed to communicate, did not know their group members in person, and had no vested interest in serving their group. Another study found that people gave more money to ingroup compared to outgroup members in the trust game, where participants would choose to transfer an amount of endowment to trustees. The transferred amount would be tripled for the trustees; then, the trustees would decide how much of the money to return to the participants (Berg et al., 1995). This and related findings indicate that people are

more likely to trust ingroup members and cooperate with them instead of with outgroup members (Ioannou et al., 2015). Notably, some participants choose to cooperate with ingroup members even if they could get more personal benefits from free-riding (Diekmann, 1985). In intergroup social dilemmas, this ingroup preference leads people to prefer parochial cooperation to universal cooperation and sometimes to free-riding (Choi & Bowles, 2007).

1.3 Factors of Parochial Cooperation

Evidence shows that the preference for parochial cooperation is not constant in every condition and for every individual. In fact, it emerges especially when parochial cooperation benefits individuals' within-group reputation and status (De Dreu et al., 2014) and when people sense a threat from the outgroup in their competition (Columbus et al., 2023). The need for a stable or higher within-group status activates individuals to show ingroup bias toward their ingroup members. Moreover, the pressure of competition motivates individuals to participate in the conflict and defend their group's advantages since, as members of the group, individuals will feel threats to their personal benefits when their group is threatened.

On the other hand, this preference for parochial cooperation will be diminished when the ingroup benefits are accompanied by harm to the outgroup because of the conviction that harming others is immoral. For example, in an investment game that simulates an intergroup social dilemma, participants were less likely to invest in the parochial cooperation option when it harmed the outgroup compared to when it did not influence the outgroup directly (Aaldering et al., 2018). Although the ingroup preference still exists when it may cause harm to the outgroup, it is not as strong as in the conditions when parochial cooperation simply does not benefit the outgroup members.

Therefore, from an individual perspective, the preference for parochial cooperation is boosted by the motivation to increase one's within-group position and the possible personal benefits derived from the group's benefits. At the same time, it is disparaged by the moral conviction to harm others. The effectiveness of moral conviction in decreasing and delaying decisions that harm others is relatively constant (Crockett et al., 2014). However, the motivation to increase one's within-group status can vary depending on conditions and individual characteristics.

1.4 The Role of Prototypicality

Many factors can influence the motivation to increase within-group status, one of the most important of which is the intragroup dynamic, specifically the standing of an individual within their own group (Hohman et al., 2017; Van Kleef et al., 2013).

Within the group, each member has a different prototypicality, representing what group members have in common and differentiating them from outgroup members. Some group members–referred to as *prototypical* members–possess characteristics that are more prototypical of the group and will be considered more representative examples of the group than others (Turner, 2010). These prototypical members, knowing that their positions within the group are secure and that they align with group norms, usually feel a greater sense of "fitting in" with the group. They also get more salient social identification (Hogg et al., 2004) and social categorization attached to the group membership, which helps self-identification in a multigroup context (Hogg, 2007). People who are less prototypical, who can be referred to as *peripheral* members, represent what the group stands for less well. The alternative experience that these peripheral members have generates a sense of identity insecurity (Jetten et al., 2002). Individual

differences in feelings of identity security, which are derived from different standings within the group, in turn, predict differing social behaviors among group members.

Traditionally, researchers were interested in prototypical members of the group when studying intergroup dynamics. The main reason for this is that prototypical members were found to demonstrate more ingroup bias compared to peripheral members (Jetten et al., 1997). Given that prototypical members find themselves aligned with the group's characteristics and norms, they are more likely to consider themselves secure members of the group and thus connect the needs and benefits of the group with the needs and benefits of themselves more tightly. Therefore, prototypical members are more responsive to the demands of the group and more willing to act in ways that further the group's interests compared to peripheral members in general (Jetten, 2006).

However, it is not always the case that the peripheral group members are passive group members who are not loyal to the group and never defend the interests of their group. Instead, there are countless instances when those who are least central in the group stand out to display loyalty and defend the group. For example, many soldiers from historically marginalized communities gave their lives in World War II to defend their country even though they were not representative members of the society at that time (Wagner, 1994). Previous studies indicate that peripheral members will pay more attention to and can acquire and recall more information in intergroup negotiation processes than prototypical members do since they have higher information processing motivation and higher sensitivity to social cues in intergroup conflict. (Van Kleef et al., 2013). Nevertheless, unlike prototypical members who more consistently demonstrate high conformity to the group's needs, peripheral members' ingroup bias and parochial cooperation are more variable. One of the important factors in this variation is the

motivation to be accepted by the group. Individuals who have a high motivation to be accepted by social groups show more ingroup favoritism and self-sacrifice for the benefit of the group as a means to assert their group belongingness (Dorrough et al., 2015; Hohman et al., 2017; Steinel et al., 2010; Van Kleef et al., 2007).

1.5 The Role of Need to Belong

The motivation to be accepted by social groups is derived from a fundamental human need — the need to belong (NTB). Every individual may have a different level of NTB, while the NTB of each individual is assumed to be relatively constant over time and under different conditions (Baumeister & Leary, 1995). The NTB makes people strive to build and maintain relationships with others and, in this case, to enhance their reputation and secure their position within the group. Hence, a high NTB can motivate people to exhibit group-serving behaviors. For example, De Cremer and Leonardelli (2003) showed that people with a high dispositional NTB focused more on the group's collective interest in large-group social dilemmas.

Our study seeks to extend the insights regarding prototypicality, NTB, and parochial cooperation. We suggest that dispositional differences in NTB have a significant impact on the motivation of peripheral group members to be accepted by the group. Consequently, this affects their decisions to engage in parochial cooperation in an intergroup context. In simpler terms, being in a peripheral position within the group may create a desire to assert group belongingness via parochial cooperation, and this desire should be stronger for those peripheral group members who have a higher (versus lower) NTB. On the other hand, prototypical members' parochial cooperation decisions should not be (or should be less strongly) influenced by their NTB because of their secure positions within the group (Hohman et al., 2017; Steinel et al., 2010).

1.6 Research Aims and Hypothesis

The present study aims to examine people's preference for parochial cooperation in intergroup social dilemmas and investigate the effects and interactions of harm, prototypicality, and NTB to parochial cooperation behavior. On the basis of the foregoing theoretical rationale, we developed three hypotheses.

First, we wanted to examine whether parochial cooperation is the favorite option for people in intergroup social dilemmas. Given that parochial cooperation is favored over universal cooperation (Choi & Bowles, 2007), we further compared the preference for free-riding and parochial cooperation. We hypothesized that there exists an overall preference for parochial cooperation over both universal cooperation and free-riding (Hypothesis 1).

Second, this study aimed to test the effectiveness of outgroup harm in mitigating the preference for parochial cooperation. Following the results from previous studies (Aaldering et al., 2018), we hypothesized that the preference for parochial cooperation would be lower in the condition where benefiting the ingroup simultaneously harms the outgroup than in the condition where it does not (Hypothesis 2).

Third, we proposed to examine the influence of prototypicality and the NTB on an individual's motivation to increase within-group status using parochial cooperation decisions in intergroup social dilemmas. Our study posited a three-way interaction between prototypicality (vs. peripherality), the potential for outgroup harm, and dispositional NTB: Prototypical members (who presumably do not face threats to their within-group status) would not be motivated to invest in parochial cooperation in the harm condition as much as in the no-harm condition, regardless of their NTB. Therefore, prototypical members with both high and low

NTB would prefer parochial cooperation less in the harm condition than in the no-harm condition (Hypothesis 3a). On the other hand, peripheral members' preference for parochial cooperation would be contingent on their NTB. While peripheral members with low NTB would have a similar performance as prototypical members, peripheral members with high NTB would be less likely to withdraw from parochial cooperation in the harm condition (Hypothesis 3b).

2. Methods

We used an adapted version of an established experimental method in which all participants were assigned to invest monetary units (MUs) among three pools that would provide benefits to their ingroup members (parochial cooperation), to all players equally (universal cooperation), or to themselves (free-riding) (Aaldering et al., 2018). *Prototypicality* was manipulated through bogus feedback on a personality test that supposedly divided the participants into two personality-based groups that would compete against each other in the investment game: Participants were randomly assigned to believe that they were either a "typical" or an "atypical" member of their group. *Harm and no-harm conditions* were manipulated via the game design: In the no-harm condition, participants could choose to benefit the ingroup by sacrificing personal gains *without* harming the outgroup, while in the harm condition, ingroup benefit required simultaneously harming the outgroup. Finally, individual differences in the *NTB* were measured via the "personality test" and considered as a binary variable using a median split to the design. Participants' investment in the parochial cooperation option was the main dependent variable, which represented their preferences for parochial cooperation in intergroup social dilemmas. The preregistration for this study is available at https://aspredicted.org/RKM_DHQ.

2.1 Participants, Design, and Power

Previous studies show that prototypicality has a moderate effect (η_p^2 = .06) on participants' ingroup favoritism behaviors (Van Kleef et al., 2013), outgroup harming has a small to moderate main effect (η_p^2 = .04) on participants' parochial cooperation (Aaldering et al., 2018), and NTB has a moderate effect (R^2 = .11) on the motivation to be accepted (Steinel et al., 2010). Therefore, estimating to observe a moderate effect (e.g., η_p^2 = .06), we aimed to recruit 30 participants for each of the eight groups in our 2 (prototypical vs. peripheral) × 2 (high NTB vs. low NTB) × 2 (no-harm vs. harm to outgroup) experiment, which is at least 240 participants in total, to be sufficiently powered at 1 - β = 0.80 and α = .05.

A total of 337 participants were recruited via Prolific. Thirty-six participants did not finish the experiment, and so were excluded from the analyses as preregistered. The remaining 301 participants provided at least 30 participants in each group. Among the 301 participants who completed the task, fifty did not pass the attention check, which appeared at the end of the study asking which option in the investment game was the most beneficial to themselves ("If there is only one player in this game, which option will benefit you the most?") and which would benefit their group the most ("Which option will benefit your group the most?"). Failure on the attention check indicates that they did not understand the setting and rules of the experiment. As preregistered, we conducted the same analyses on datasets that both included and excluded these 50 participants, and we did not find noteworthy differences in the pattern or interpretation of results from the two datasets. However, in order to report more accurate results, we will report the results from the dataset that excluded participants who did not pass the attention check in the following sections. The final sample consisted of N = 251 participants (female 53.9%, male 43.0%, non-binary & gender queer 2.0%; M_{age} = 40.37 years, SD_{age} = 12.67). In the final sample,

Prototypical × low NTB × harm (N = 27), prototypical × high NTB × no-harm (N = 26), prototypical × high NTB × harm (N = 28), and peripheral × low NTB × harm (N = 22) had less than 30 participants. Participants were paid a flat fee of US$3.00 for an estimated 15 minutes of effort, as well as a surprise bonus of US$1.00.

2.2 Procedures and Materials

Cover story for team formation. The experiment was introduced as a study of the relationship between personality and group decision-making. Subsequently, participants completed a so-called "personality test that can be used to compute an accurate profile of certain perspectives in their personality" and were told that they would be assigned to one of two groups based on their personalities. NTB items were embedded in the personality test among other filler items (see below).

Before the game, participants were told that this was a two-team investment game. Specifically, they were told that there would be four members all from the same personality type (e.g., P-type) on one team (e.g., P team) and four members all from the other personality type (e.g., O-type) on the other team (e.g., O team). The eight players would be present at the same time and play the game together. Therefore, they might need to wait for other players to join and make decisions during the game. Final outcomes of the game would depend on the decisions of the four members of their own group as well as the decisions of the members of the other group. Moreover, they were told that they might receive an extra bonus varying from US$0.25 to US$1.00, contingent on their final personal outcomes from the game. In actuality, all participants played the game independently and received the same bonus of US$1.00 at the study's conclusion.

In order to provide participants with a sense of engagement, they were asked to type a "nickname" for the game, which should not be their real name. To enhance the deception that participants' investment behaviors in the game would influence their within-group status, participants were told that they were going to rate a random teammate's performance after the game. They would see each ingroup member's contribution to the ingroup and the game as a whole, as well as the "nickname" and the prototypicality of each ingroup member.

Investment options and manipulation of outgroup harm. In each of the three rounds of the game, participants received 10 monetary units (MUs), which they could invest in Option A (universal cooperation), Option B (parochial cooperation), and Option C (self-benefiting) (see Figure 1). In both harm and no harm conditions, 1 MU invested in Option A would be multiplied by four and divided by eight, so all members of both groups would receive 0.5 MU. Also, in both conditions, 1 MU invested in Option C would be multiplied by two and kept in the player's own account. In the no-harm condition, 1 MU invested in Option B would be multiplied by four and divided by four among all ingroup members, which would provide all ingroup members an increase of 1 MU and not influence the outgroup members. While in the harm condition, 1 MU invested in Option B would be multiplied by four and divided by four among ingroup members and be multiplied by negative two and divided by four among outgroup members; thus, each ingroup member would receive 1 MU, and each outgroup members would lose 0.5 MUs. Therefore, each MU invested in Option A would create four MUs profit for everyone, and each MU invested in Option B would create four MUs profit for only ingroup members. However, from an individual perspective, the personal benefit from choosing Option C would be the highest, which is 2 MUs, compared to 0.5 MUs from Option A and 1 MU from Option B. By deciding among the three options (universal cooperation, parochial cooperation, and

self-benefiting), participants essentially choose whether they want to create more profit to be shared only among ingroup members, shared among everyone, or kept by themselves (Halevy et al., 2012). The total investment amount in each round was always summed up to 10. The program would give an error message in case of miscalculations by the participants.

Figure 1

Return on investment for options A, B, and C in the harm condition

	Your Team				The Other Team			
	You	Player 2	Player 3	Player 4	Player 5	Player 6	Player 7	Player 8
Option A	+0.5	+0.5	+0.5	+0.5	+0.5	+0.5	+0.5	+0.5
Option B	+1.0	+1.0	+1.0	+1.0	-0.5	-0.5	-0.5	-0.5
Option C	+2.0	0	0	0	0	0	0	0

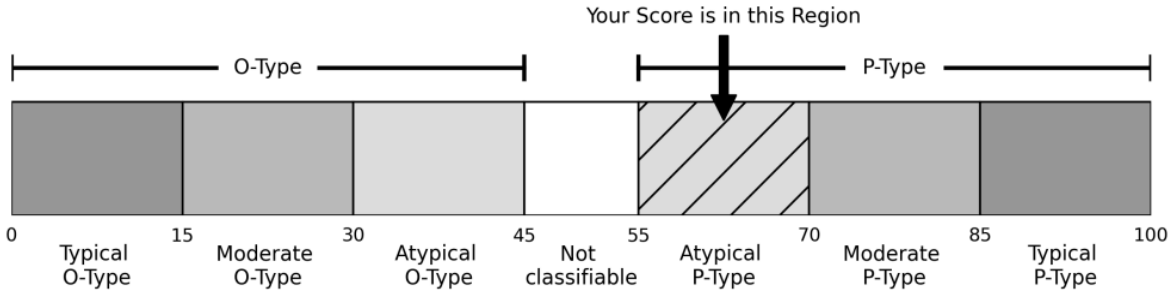
Note: In the no-harm condition, the return for option B to players 5-8 is 0.

Manipulation of prototypicality. We designed the manipulation of prototypicality based on an established one that has been successfully used in prior research (see, e.g., Kleef et al., 2007; Steinel et al., 2010), providing participants with bogus feedback on the personality questionnaire. Participants were told that the questionnaire assessed the so-called O-type/P-type personality and that they would be grouped based on their personality types, with O-types competing in one group and P-types in the other. In fact, instead of grouping them based on the personality test results, we told all participants that they were P-type. We showed the bogus personality test results using both words and a figure (see Figure 2) about how characteristic they are of their groups by comparing the typical personality scores of each group and their scores. For peripheral manipulation, participants were randomly assigned to view different versions of the bogus personality test result. In the peripheral condition, participants were shown that their personality score was close to the middle point of the two groups and different from the typical

score of their own groups. In the prototypical condition, participants were shown that their personality scores fell into the typical range. This manipulation was based on the manipulation of need states (assimilation vs. differentiation) in Pickett et al. (2002) study 3, in which participants in the peripheral condition felt significantly less similar to group members than participants in the prototypical condition.

Figure 2

Bogus personality test result in the peripheral condition



Need to belong scale. There were ten statements embedded in the personality test designed to measure the need to belong (NTB). These included items such as "If other people don't seem to accept me, I don't let it bother me" (R), and "I try hard not to do things that will make other people avoid or reject me" measured on a 5-point scale (1 = *not at all*, 2 = *slightly*, 3 = *moderately*, 4 = *very*, 5 = *extremely*) (Leary et al., 2013). We calculated the median value of NTB in the participants ($Median_{NTB}$ = 2.8) and calculated a median split: participants with NTB greater or equal to 2.8 were categorized as high NTB, and participants with NTB lower than 2.8 were categorized as low NTB.

Dependent variables. The main dependent variables are the MUs invested in the parochial cooperation option (Option B) in the investment game. We aggregated investments across the three rounds of the game by taking sums. We also recorded investments in the other

two options (Option A and C) in order to compare participants' preference for parochial cooperation to their preference for universal cooperation and the self-benefiting option.

After the introduction of the game, a set of comprehension questions was administered. Participants needed to indicate the consequences of their ingroup and outgroup members' investments in the three options. For instance, they needed to indicate that the parochial cooperation option (Option B) would benefit their own group the most. Participants had to correctly answer all the practice questions before entering the real game.

After the game, a set of teammate evaluation questions was asked, such as "This player is a good teammate" (0 = *strongly disagree*, 10 = *strongly agree*), to make participants believe that they were assessing one of their fellow group members. Then, a series of questions about people's feelings of similarity to their teammates (e.g., "My teammates and I are alike, " 1 = *Strongly disagree*, 7 = *strongly agree*) were given in order to check the effectiveness of peripheral status manipulation. The teammate evaluation questions and manipulation checks will not be discussed further as they are not the main factors we intended to examine in the current study.

3. Results

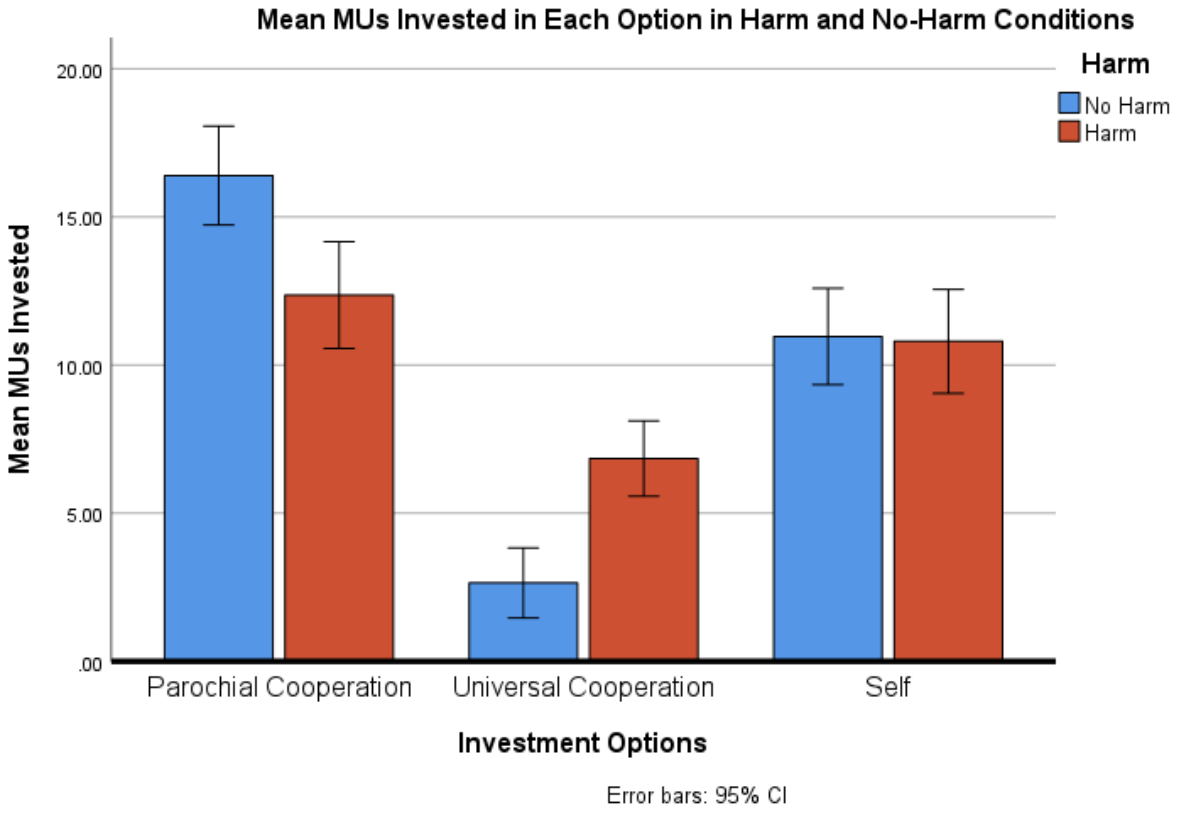
3.1 Preference for Parochial Cooperation

A paired samples *t*-test comparing investment in the parochial cooperation and universal cooperation options and a paired samples *t*-test comparing investment in the parochial cooperation and free-riding options supported Hypothesis 1. Participants showed a general preference for the parochial cooperation option in the game. The average investment in the

parochial cooperation option in all conditions combined was significantly higher than that invested in the universal cooperation option (M_{dif} = 13.75, SD_{dif} = 1.21, $p < .001$) and free-riding option (M_{dif} = 8.32, SD_{dif} = 1.17, $p < .001$) (see Figure 3).

Figure 3

Average investment in parochial cooperation, universal cooperation, and free-riding options in harm and no-harm conditions.



3.2 The Role of Outgroup Harm

We first conducted a between-subjects ANOVA to determine the effect of the harm condition, prototypicality, and NTB on participant's investments in parochial cooperation. The data supports Hypothesis 2, which predicted less investment in parochial cooperation in the harm

condition than in the no-harm condition. We observed a significant main effect of harm condition on investment to parochial cooperation ($F(1, 243) = 10.45$, $p = .001$). Specifically, participants invested significantly less in the parochial cooperation option in harm than in the no-harm condition ($M_{dif} = -4.20$, $SD_{dif} = 0.88$, $p < .001$). However, no other significant main effects or interactions were observed (Table 1).

Table 1

Between-subjects ANOVA (2 (prototypical vs. peripheral) × 2 (high vs. low NTB) × 2 (no-harm vs. harm)) on investment to parochial cooperation.

	df	***F***	η^2	***p***
NTB	1	0.002	.000	.97
Harm	1	10.45*	.041	.001
Prototypicality	1	0.03	.000	.87
NTB * Harm	1	0.32	.001	.57
NTB * Prototypicality	1	0.11	.000	.74
Harm * Prototypicality	1	0.30	.001	.58
NTB * Harm * Prototypicality	1	1.21	.005	.27
Error	243			

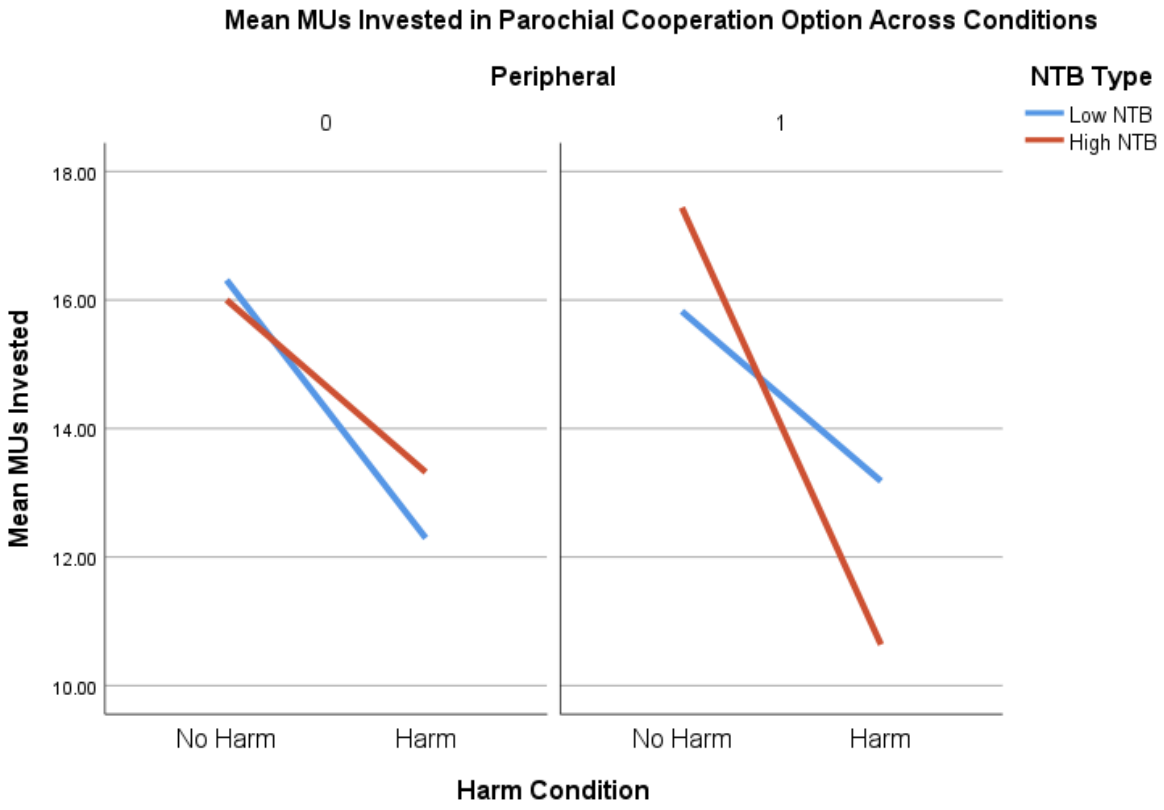
* $p<.05$

In order to more fully explore the data, mixed design ANOVAs were run to investigate how the harm condition, prototypicality, and NTB influenced participants' investments in parochial cooperation, universal cooperation, and free-riding options. We found that, as the investment in the parochial cooperation option decreased, the universal cooperation option

received more investment in the harm (vs. no harm) condition (M_{dif} = 4.03, SD_{dif} = 1.25, p = .001), though investments in the free-riding option did not differ across conditions (M_{dif} = 0.16, SD_{dif} = 1.21, p = .89) (see Figure 4).

Figure 4

Average investment in parochial cooperation option across harm, prototypicality, and NTB conditions.



3.3 Examining Prototypicality and Need to Belong

From the mixed ANOVA tests, we also observed that the harm condition significantly influenced prototypical members' investments for the parochial cooperation option ($F(1, 243) = 6.90$, $p = .009$). Specifically, prototypical members invested marginally less in the parochial cooperation option in the harm condition than in the no-harm condition ($M_{dif} = -3.35$, $SD_{dif} = 1.78$, $p = .061$). However, considering prototypical members with high NTB and with low NTB as independent groups, neither of them made significantly different investments to parochial cooperation between harm and no-harm conditions (low NTB: $M_{dif} = -4.01$, $SD_{dif} = 2.39$, $p = .09$; high NTB: $M_{dif} = -2.68$, $SD_{dif} = 2.63$, $p = .31$). Hence, our result partially supported Hypothesis 3a. Furthermore, we observed that prototypical members with high NTB invested significantly more in universal cooperation ($M_{dif} = 4.14$, $SD_{dif} = 1.84$, $p = .03$) and significantly less in free-riding ($M_{dif} = -5.17$, $SD_{dif} = 2.54$, $p = .04$) compared to prototypical members with low NTB.

On the other hand, we did not observe significant main effects of prototypicality on participants' investments in parochial cooperation ($F(1, 243) = 0.029$, $p = .69$). It shows that peripheral members did not perform differently from prototypical members in general. In fact, peripheral members also invested significantly less in parochial cooperation in the harm condition than in the no-harm condition ($M_{dif} = -4.72$, $SD_{dif} = 1.75$, $p = .01$). Specifically, we found out that peripheral members with low NTB did not invest significantly differently in parochial cooperation between the two harm conditions ($M_{dif} = -2.64$, $SD_{dif} = 2.65$, $p = .32$), similar to prototypical members. However, peripheral members with high NTB invested significantly less in parochial cooperation in the harm condition than in the no-harm condition

(M_{dif} = -6.80, SD_{dif} = 2.29, p = .003) but significantly more in universal cooperation (M_{dif} = 6.00 SD_{dif} = 1.62, p < .001). Notably, peripheral members with high NTB were the only group that invested significantly less in parochial cooperation in the harm condition, which is opposite to our hypothesis 3b.

4. Discussion

The findings of the present study shed light on the intricate dynamics of parochial cooperation within intergroup social dilemmas, particularly highlighting the roles of harm, prototypicality, and the need to belong (NTB). This study confirmed that there exists a preference for parochial cooperation over universal cooperation and free-riding in intergroup social dilemmas. These results are consistent with previous work demonstrating that people have a preference for cooperation within their groups and tend to prioritize the benefits for their ingroup, even when faced with minimal cues and a constructed group identity (Choi & Bowles, 2007). It suggests that the inherent motivation to benefit one's ingroup is robust, a finding that echoes evolutionary perspectives on altruism and ingroup bias where cooperation within groups can significantly enhance group survival and competitiveness (Rand & Nowak, 2013).

Moreover, the observed shift in preference from parochial to universal cooperation under conditions of outgroup harm underscores the complex interplay between ethical considerations and ingroup bias. We may conclude that causing harm to the outgroup serves as one of the negative motivations for ingroup-biased behaviors, such as parochial cooperation. This response aligns with theories that propose moral identity and empathy towards outgroups can mitigate ingroup bias when the potential harm to outgroups is made salient (Crockett et al., 2014). Therefore, these findings not only reinforce the strength of ingroup preferences in shaping

cooperative behavior but also highlight the potential for moral reasoning to influence these preferences, suggesting a balance between evolutionary predispositions and learned moral principles. Besides, the difference in preference for parochial cooperation under harm and no-harm conditions also indicates the distinction between wanting to help the ingroup and wanting to hurt the outgroup. It suggests that one of the motivations for parochial cooperation is to benefit the ingroup but not necessarily to maximize the difference between the ingroup and the outgroup (Aaldering et al., 2018).

However, the role of prototypicality and NTB in this scenario remains inconclusive. The results indicate that peripheral members, especially those with a high NTB, exhibit a distinct pattern of prosocial tendencies by avoiding the parochial cooperation option that harms the outgroup and preferring the universal cooperation option that benefits everyone. This behavior aligns with the Need Threat Model, suggesting that these individuals may engage in prosocial behaviors as a strategy to mitigate threats to their social belongingness and self-esteem (Williams, 2007). In fact, peripheral members with high NTB are the group of participants who both feel the threats to their social belongingness and have a higher need to belong to a social group. Therefore, they might be the most motivated to perform prosocially. The Need Threat Model provides a useful framework for understanding the behaviors of peripheral members with high NTB and why they behaved in ways that were contrary to our predictions.

Interestingly, while prototypical members appeared to be less influenced by their NTB in their parochial cooperative behavior, their universal cooperation and self-riding preferences were more contingent on their NTB. Universal cooperation and self-riding options benefit the ingroup less than parochial cooperation and thus should be less effective tools in fulfilling people's need to belong to a social group. However, our results indicate a possible positive relationship

between NTB score and universal cooperation preferences and a negative relationship between NTB score and free-riding preferences. Future research should focus on exploring in greater depth the link between NTB and preferences for universal cooperation and free-riding. This could be approached by designing studies that specifically manipulate different aspects of the need for social belonging, such as belonging to a specific social group, gaining acceptance from the mainstream, and being accepted by specific individuals. Future studies could also measure different types of universal cooperative behaviors. This approach would help clarify whether higher NTB scores genuinely correlate with a preference for universal cooperation, which might suggest a more complex relationship between NTB and group-serving behaviors than currently understood.

Additionally, it is also possible that the current NTB measurement lacks the effectiveness and sensitivity to capture the specific need for belongingness and to predict belonging-related behaviors. It is possible that current NTB scales, such as the one used in this study, correlate with people's overall prosocial tendencies, which lead them to prefer universal cooperation but not free-riding. Hence, researchers in the future should investigate the relationship between NTB and prosocial and altruistic behaviors in social contexts. It is also valuable to develop and validate a more accurate measure of NTB, which could provide more reliable insights. This new measure should aim to capture the multifaceted nature of belongingness, potentially including dimensions such as emotional, social, and moral components of belonging.

The current study also has some limitations in experimental design that need careful consideration when interpreting the findings. First, the group in the investment game, although considered to be based on shared personality traits, was not important in participants' everyday lives. This artificial setting might not accurately reflect the dynamics of real-world groups where

stakes and social ties may significantly influence decision-making. Second, participants only had a one-time interaction with their "ingroup members" without opportunities to communicate or develop closer relationships and stronger group identities over time. This limited interaction may not fully capture the depth of ingroup biases and cooperative behaviors that evolve in more naturally occurring group settings. Third, the plausibility of the cover story may not have been entirely convincing for all participants, potentially affecting their engagement and behavior in the investment game. Furthermore, the effectiveness of the prototypicality manipulation was not confirmed, which could call into question the reliability of findings related to group dynamics based on perceived prototypicality.

Therefore, future studies are needed to address these limitations and refine the experimental design. To enhance the ecological validity and relevance of the group identity to participants, future research may benefit from conducting offline experiments that involve real team members. Allowing participants to communicate freely with their ingroup members can help establish more authentic social connections and a stronger sense of group identity. These conditions are likely to foster more genuine within-group interactions, thus providing a more accurate measure of how group dynamics influence cooperative and competitive behaviors. Additionally, future studies should implement robust checks to ensure participants believe the cover story and accept the group compositions as meaningful. Verifying the effectiveness of manipulations such as prototypicality in real-time would also strengthen the validity of the experimental findings.

Overall, this study contributes to the broader understanding of how context differences, like harm conditions, and individual differences relevant to group dynamics, such as prototypicality and NTB, influence decision-making in intergroup conflicts. While it supports the

general tendency towards parochial cooperation even in scenarios where such actions may harm the outgroup, this study also highlights the conditional nature of these behaviors, influenced by the members' status within the group and their psychological needs. It highlights the complex interplay between individual motivations and decision context, suggesting that interventions aimed at reducing intergroup conflict may benefit from addressing the underlying psychological needs of group members, particularly those who are more peripheral and have a higher need to belong.

In the broader context of intergroup relations, this study provides valuable insights into how moral considerations, subtle manipulations of group dynamics, and individual differences in the need to belong can impact decision-making in social dilemmas. The implications are significant for understanding real-world scenarios such as organizational behavior, international relations, and community interactions, where cooperation and competition often coexist. Future interventions aiming to foster cross-group collaboration may benefit from strategies that enhance recognition of shared goals and mutual benefits, thereby reducing the focus on zero-sum outcomes and emphasizing the value of ethical considerations in group decisions. This approach could potentially lead to more inclusive and less divisive social structures.

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