If they don’t care, I won’t share: Feeling unrelated to one’s in-group increases selfishness instead of behavior for the greater good

Sina A. Klein1 | Selma C. Rudert2

1 Research Center for Environmental Economics, Heidelberg University, Heidelberg, Germany
2 Social, Environmental, and Economic Psychology, University of Koblenz-Landau, Landau, Germany

Correspondence
Sina Klein, Research Center for Environmental Economics, Heidelberg University, Heidelberg, Germany.
Email: sina.klein@awi.uni-heidelberg.de

Abstract
Individuals cooperate more with others to whom they feel connected. As a consequence, reduced belonging to an in-group decreases cooperation with this group, but not with others. Sometimes, however, there may be no new group available to (re)affiliate with. In this case, reduced belonging may either increase cooperation on a higher level, such as with the superordinate group humanity, or increase selfishness. We investigate this in an online experiment and a survey study. Study 1 (N = 299) showed that being ostracized in Cyberball reduced cooperation with the ostracizers and increased selfish behavior, while cooperation with humanity did not increase. Similarly, Study 2 (N = 1300) showed that lower feelings of belonging were associated with more selfishness, as fewer participants decided to donate to a humanitarian cause. These findings highlight the importance of inclusion and integration for societies and communities who wish to maintain a high level of cooperation.

KEYWORDS
cooperation, ostracism, pro-environmental behavior, prosocial behavior, relatedness

1 INTRODUCTION

In the past, cooperation with others led to evolutionary benefits, resulting in a deeply rooted human desire to belong (Balliet et al., 2014; Baumeister & Leary, 1995). Accordingly, and in line with social identity theory (Tajfel & Turner, 1979), research consistently showed that individuals cooperate more when they feel a stronger sense of belonging towards others, such as with members of their in-group (Balliet et al., 2014). More specifically, smaller in-groups generally evoke stronger belonging and thus, also elicit more cooperation than larger superordinate groups such as all humanity. In turn, if belonging towards a group is suddenly reduced, cooperation with that group should also decrease. However, research on ostracism, an experience that strongly reduces sense of belonging, provides mixed findings regarding subsequent cooperation. To resolve this, Maner et al. (2007) showed that excluded individuals evaluate others who ostracized them negatively and aggress against them, whereas social interactions with new interaction partners are not impaired and can restore the impaired sense of belonging. Our first aim was to replicate and extend these findings by investigating whether individuals with a reduced sense of belonging due to an episode of ostracism will refrain from cooperating with those who ostracized them, but remain open to cooperation with new partners. Our second aim was to explore two behavioral alternatives that individuals with a reduced sense of belonging might engage in to restore belonging when there are no new cooperation partners available. Specifically, we tested whether these individuals behave more selfishly or redirect their cooperation to a higher-level group such as humanity to restore their impaired sense of belonging.
1.1 | Belonging to an in-group increases cooperation with this group

Cooperation is essential for the functioning of groups and society as it allows individuals to achieve larger goals together than they could on their own. However, cooperation situations often pose so-called social dilemmas, in which each individual has to decide whether to cooperate and thereby maximize the group’s welfare or whether to defect and thereby maximize their own welfare (Joireman, 2005; Joireman et al., 2004; van Lange et al., 2013). Importantly, every actor in these situations is best off by defecting, whereas the group is best off when everyone cooperates (Kollock, 1998; van Lange et al., 2013). Although defecting maximizes an individual’s welfare, individuals cooperate to a substantial degree. This can be explained by taking other factors than pure monetary maximization into account (for overviews, see Kollock, substantial degree. This can be explained by taking other factors than pure monetary maximization into account (for overviews, see Kollock, 1998; van Lange et al., 2013), for instance, the sense of belonging one feels towards others. Empirical evidence for this can be derived from intergroup research. In general, individuals cooperate more with individuals they feel they belong to, such as members of an in-group compared to members of an out-group (meta-analytic \( d = 0.32 \); Balliet et al., 2014), which can be explained by two reasons. First, in the past, being part of a group increased one’s chances of survival. Thus, individuals have an inherent desire to belong to a group and to comply with norms of reciprocity and cooperation to avoid exclusion from the group and the associated benefits (Balliet et al., 2014; Baumeister & Leary, 1995; Yamagishi et al., 1999). Second, social identity theory (Tajfel, 1974; Tajfel & Turner, 1979) postulates that individuals strive for positive discrimination of the groups they belong to in order to achieve or maintain a positive self-view. Cooperation with an in-group also benefits the cooperating individual’s self-image stemming from his/her social identity, either because it benefits the performance of the group (social competition strategy) or because the cooperating individual can derive a positive self-image from perceiving their group to be particularly social and cooperative (social creativity strategy). In contrast, individuals might also try to leave a group in order to find more attractive others (social mobility), for instance, after in-group identification was decreased (see Ellemers et al., 2022).

Typically, individuals do not just belong to one in-group, but simultaneously belong to many groups differing in their level of abstraction, inclusiveness, and proximity (Ashforth & Johnson, 2001; Böhm et al., 2020; Brewer, 1991). For instance, a group may include all individuals from a country or all individuals from a continent and, additionally, those groups can be nested, meaning that several subgroups such as countries can be part of the same superordinate group such as a continent. Importantly, individuals do not necessarily feel the same amount of belonging to all their in-groups: By default, a smaller (sub-)group is more proximate, more concrete, and less inclusive (Ashforth & Johnson, 2001; Böhm et al., 2020; Brewer, 1991) and should thus elicit greater feelings of belonging and more cooperation in individuals than larger (superordinate) groups. Indeed, when individuals have to decide whether to maximize their individual welfare, the welfare of a smaller in-group, or the welfare of a collective superordinate group in so-called nested social dilemmas, individuals cooperate more with the smaller in-group than with the collective group (Aaldering & Böhm, 2020; Aaldering et al., 2018; Wit & Kerr, 2002; although see Buchan et al., 2009; Polzer et al., 1999 for exceptions).

1.2 | Effects of reduced belonging on subsequent cooperation

As a higher sense of belonging increases cooperation, cooperation with a group should decrease if one’s sense of belonging to that group is suddenly reduced. One exemplary experience that strongly reduces an individual’s sense of belonging to others is ostracism, the experience of being excluded or ignored by others (Williams, 2009). Ostracism elicits feelings of hurt and decreases basic psychological needs such as belonging, self-esteem, control, and meaningful existence (Rudert et al., 2017; Rudert, Janke, et al., 2020; Williams, 2009). As a consequence, ostracized individuals aim to restore their threatened needs (Timeo et al., 2019; Williams, 2009), for instance by reaffiliating with new interaction partners to restore their sense of belonging, as suggested in the social reconnection hypothesis (Baumeister & Leary, 1995; Maner et al., 2007). Indeed, ostracized individuals show more conformity in a subsequent task (Williams et al., 2000) and are willing to donate more money to a stranger’s cause (Carter-Sowell et al., 2008). However, there is also evidence that ostracized individuals behave less prosocial and more aggressive towards others (Schoel et al., 2014; Twenge et al., 2001, 2007) or withdraw from social interaction altogether (Ren et al., 2016). Maner et al. (2007) provided an explanation for these inconclusive findings with empirical evidence on exceptions of the social reconnection hypothesis. Specifically, excluded individuals should only strive to reaffiliate with others if those others provide a realistic source of reaffiliation. Maner et al. (2007) argue that given the negative feelings caused by experiencing exclusion, individuals will most likely not see their ostracizers as a possible source of positive contact and will, as a consequence, not try to affiliate with but rather react negatively towards them. Indeed, individuals evaluate individuals that ostracized them as angry and hostile and assign less money to them in a subsequent task, whereas they evaluate novel interaction partners as friendly and assign more money to them (Maner et al., 2007). This is in line with predictions of both social identity theory and evolutionary theories of group cooperation (Balliet et al., 2014; Tajfel, 1974; Turner et al., 1979; Yamagishi et al., 1999).

While the potential of ostracism as punishment to prevent individuals from deviating against the social norms of cooperation has often been discussed in the literature (e.g., Kerr et al., 2009; Maier-Rigaud et al., 2010; Rudert et al., 2018, 2020), empirical findings on how ostracism actually affects subsequent cooperation in a social dilemma is more limited. Balliet and Ferris (2013) showed that ostracism (vs. no ostracism) reduced cooperation in a subsequent public goods game with the same group. However, this difference vanished when a future orientation was made salient prior to the public goods game. Twenge et al. (2007) found no differences in initial cooperation rates in a prisoner’s dilemma between individuals with a reduced sense of belonging and individuals with a restored sense of belonging. Importantly, individuals played the prisoner’s dilemma with an individual who was...
unrelated to the source of reduced belonging. Together, these findings support the claim that reduced belonging to a group impairs cooperation with that specific group, but not with others. In line with this, Lelieveld et al. (2012) showed that, in a dictator game, ostracized individuals give less money to those who previously excluded them than to individuals who included them or to entirely new interaction partners. However, the dictator game measures prosocial behavior rather than cooperation.

Our first aim (Study 1) was thus to conceptually replicate and extend these findings by investigating how reduced belonging to an in-group, here induced through an episode of ostracism, affects subsequent cooperation in a social dilemma with the previous in-group (e.g., the ostracizers) and a new group. More specifically, we assumed that excluded individuals would cooperate more when interacting with a new group than when interacting with their old group (Hypothesis 1). Moreover, we expected that individuals would cooperate more with their old group when they were previously included versus excluded by that group (Hypothesis 2).

1.3 Replacing in-group cooperation: being selfish or contributing to the greater good?

In real life, excluded individuals might often find themselves in situations where they cannot easily find new cooperation partners to mend their impaired sense of belonging. Assuming that individuals will refrain from cooperating with those who ostracized them, we investigate two behavioral options that individuals may engage in when cooperation with a new group is not an option: (1) Withdrawal from any possible cooperation by showing selfish behavior or (2) cooperation (and thus reaffiliation) with the superordinate group all humanity by showing behavior for a greater good.

Regarding (1), research on monetary compensation and money priming indeed suggests that individuals with reduced belonging might become more selfish and hoard resources to compensate for the negative consequences of ostracism. For instance, participants who counted money prior to the exclusion or received monetary compensation experienced less negative affective consequences following exclusion than those who did not (Lelieveld et al., 2012; Zhou et al., 2009). While money might not be able to fix impaired belonging, it provides socio-economic power and could thus restore individuals’ threatened need for control or even the need for self-esteem (Timeo et al., 2019; Zhou et al., 2009). However, there is also evidence that effects of money priming are not as robust as previous research might suggest (Vadillo et al., 2016), which is why these findings have to be treated with caution. Still, theoretically, individuals with reduced belonging who have no option to reaffiliate with others might compensate their experiences by behaving selfishly, for instance by keeping or trying to gain money. This reasoning is in line with research showing that ostracized individuals feel more entitled and cheat more in order to receive more undeserved money (Poon et al., 2013).

As an alternative option (2), cooperating with a superordinate group that is always available might be a way to directly restore a sense of belonging. To elaborate, on the highest group-level, all humanity can be seen as an in-group (Böhm et al., 2020; Reese, 2016). Cooperation with all humanity therefore subsumes behaviors that benefit all humanity, such as supporting humanitarian causes, helping to eradicate deadly diseases, or saving the environment. Similarly to behavior in nested social dilemmas, individuals generally prefer to cooperate with a smaller in-group when they have to decide between maximizing their own welfare, maximizing the welfare of their (small) in-group, and maximizing the welfare of humanity (Böhm et al., 2018; Klein et al., 2017, 2019). However, if there is no option for reaffiliation with a (small) in-group, individuals with reduced belonging might seek affiliation with a group on a higher, superordinate level, such as humanity. For instance, cooperating with all humanity through pro-environmental behavior might not only restore the need for meaningfulness and purpose in life, but also reaffirm a sense of belonging to the superordinate group of humanity in a similar way as connecting to nature does (Timeo et al., 2019). Yet research on whether ostracized individuals show more behavior for the greater good provides mixed results, with some studies showing negative (Li et al., 2020), some showing positive associations (Poon et al., 2015) of ostracism and pro-environmental behavior. Others showed positive associations of ostracism and pro-environmental behavior only when the pro-environmental behavior could be seen by others, thereby giving individuals the possibility to signal pro-sociality and increase the likelihood of future interactions with others (Guo et al., 2020).

Given these inconclusive findings, our second aim (Studies 1 and 2) was to investigate whether—in the absence of new cooperation partners on a similar group level—individuals with reduced belonging to an in-group would rather cooperate with the superordinate group humanity or merely behave more selfishly instead.

1.4 The present research

We tested our hypotheses within two studies. Study 1 is an online experiment. Participants were ostracized in Cyberball and then paired with a new versus the old group in a social dilemma game in which they made hypothetical choices to act selfishly, to cooperate with the group, or to cooperate with the superordinate group humanity via donations to a pro-environmental organization. Thus, Study 1 investigates both whether excluded individuals will preferably cooperate with a new compared to an old group, and also which alternative behavioral strategies (selfish behavior or cooperation with humanity) individuals will engage in if cooperation with a new (smaller) group is not possible. In line with our theoretical assumptions, we further test in an exploratory fashion whether the effect of ostracism on these choices is mediated via decreased belonging. Study 2 is part of a larger survey study and focuses on the choice of alternative strategies by investigating associations between individuals’ current sense of belonging to close others and their actual choice between selfish behavior and cooperation with the superordinate group humanity via donations to an emergency fund during the COVID-19 pandemic.
2 | STUDY 1

2.1 | Methods

A 2 (exclusion vs. inclusion in Cyberball) × 2 (old group vs. new group in the Greater Good Game) between-subjects design was implemented. We report how we determined our sample size, all data exclusions, all manipulations, and all measures. The study was pre-registered (https://aspredicted.org/6ky6y.pdf) and all materials, data, and code for analyses are available online (https://osf.io/dy6hp/).

2.1.1 | Measures

Cyberball. Participants played the virtual ball-tossing game Cyberball (Williams et al., 2000) with two computer-generated players named Alex and Taylor. Participants in the inclusion condition received one third of the tosses, whereas participants in the exclusion condition received two tosses at the beginning of the game and no subsequent tosses. As ostracism by a computer has comparable effects to alleged ostracism by actual humans with regard to both need threat and subsequent behavior towards the ostracizers (Jauch et al., 2021; Zadro et al., 2004), participants were made aware that their co-players were computer-generated. As manipulation check, participants indicated how active they were during the game on a 5-point Likert-type scale (1 = not at all; 5 = very much), and how often they received the ball in percent (Williams, 2009). Following the game, participants reported their level of need satisfaction (including belongingness, self-esteem, meaningful existence, and control) on four semantic differentials with a 9-point scale (Rudert & Greifeneder, 2016).

Greater Good Game. In the Greater Good Game (Klein et al., 2017), participants are paired with two other players who are all given the same starting endowment. Participants then decide whether to (i) keep the endowment for themselves (selfish behavior), (ii) invest it in a group account where the money is doubled and equally distributed across group members independently of whether participants contributed to the group account themselves (cooperation with the in-group), or (iii) invest it in an environmental account where the money is also doubled and donated to an environmental conservation organization (World Wildlife Fund) at the end of the study (pro-environmental behavior, that is, cooperation with all humanity). To manipulate whether participants played with their old or a new group, participants were either paired with the same (hypothetical) individuals they played Cyberball before (Alex & Taylor) or with new individuals (Elliot & Francis). Participants were explicitly informed that the decisions were hypothetical and would not influence their actual payment, as previous research has shown that behavior in the Greater Good Game does not vary depending on incentives (Klein et al., 2017, 2019; Klein & Hilbig, 2018). As manipulation check, participants were asked whether they played the Greater Good Game with the same individuals they played Cyberball with or with new individuals.

2.1.2 | Procedure

Participants were recruited via Prolific Academic. Only participants who reported that they had never played Cyberball before could participate in the study. After providing informed consent and playing Cyberball (inclusion or exclusion condition), participants answered the social exclusion manipulation checks and need satisfaction items. Then, participants received instructions for the Greater Good Game and played ten hypothetical rounds either with the old or the new group and starting endowments ranging from 0.50 € to 5.00 €. Participants then answered the manipulation check for the Greater Good Game, demographics, and two questions regarding quality and use of their data. Afterwards, they were debriefed and paid (0.80 €).

2.1.3 | Analytical strategy

The multinomial processing tree model (MPT model; Batchelder, 1998; Erdfelder et al., 2009) tailored to the Greater Good Game (Klein et al., 2017) was adapted to fit the present research questions (see Figure 1). Specifically, the MPT model used herein comprises two parameters: Parameter c is defined as the probability of cooperating with the in-group and therefore distinguishes between the choice that is cooperative towards the in-group (probability c) and any of the two choices that are non-cooperative towards the in-group (probability 1 – c). Parameter g is defined conditionally on non-cooperative behavior towards the in-group as the probability of showing behavior “for the greater good” (here: pro-environmental behavior), and therefore distinguishes between the pro-environmental choice (probability g) and the selfish choice (probability 1 – g) given non-cooperative behavior towards the in-group.2 The complete model consists of one tree per condition, each with distinct parameters (c\_excl old & g\_excl old, c\_excl new & g\_excl new, c\_incl old & g\_incl old).

FIGURE 1 Baseline multinomial processing tree model (adapted from Klein et al., 2017) for one condition

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1 Players are usually named “Player 1” and “Player 2” within Cyberball, however, we used names to increase recognition of potential cooperation partners as “new” vs. “old” in the second part of the study.

2 Note that we do not assume that individuals necessarily decide in a sequential decision process as described in the MPT model.
2.2 | Results

2.2.1 | Manipulation checks and need satisfaction

Table 1 provides an overview of means, standard deviations, and differences between experimental groups. Participants who were excluded in Cyberball felt significantly less active and perceived that they had received the ball significantly less. Moreover, excluded participants experienced less need satisfaction, including belonging (all \( p < .001 \)).

2.2.2 | Behavior in the Greater Good Game

Replicating previous findings (Klein et al., 2017, 2019), cooperation with the in-group was the predominant behavior (43%) across conditions, followed by selfish (35%) and pro-environmental behavior (22%). This pattern was prevalent in all conditions except for the “exclusion old”-condition, in which selfish behavior was the most prevalent behavior (52%), followed by comparable rates of cooperation with the in-group (25%) and pro-environmental behavior (23%). Behavioral choices across the different conditions and the resulting parameter estimates are depicted in Table 2.

To test whether participants cooperated more with their group after being excluded when paired with a new vs. their old group (Hypothesis 1), we implemented the parameter restriction \( \epsilon_{\text{excl new}} = \epsilon_{\text{excl old}} \). Indeed, when participants were excluded, they cooperated significantly more when paired with a new vs. their old group in the Greater Good Game (\( \Delta G(1) = 86.52, p < .001, \omega = 0.170 \)). Exploratory analyses showed that the rate of cooperation did not significantly differ

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2 Data was collected in several waves until the required sample size was reached after applying the exclusion criteria that were specified in the preregistration.

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**Table 1** Means (standard deviations in parentheses) and comparison of activity and need satisfaction items across inclusion and exclusion conditions

|                     | Inclusion | Exclusion | One-tailed t(df), [95% CI] | \( p \) | \( d \) |
|---------------------|-----------|-----------|---------------------------|---------|-------|
| Activity            | 3.82 (0.95) | 2.10 (0.63) | \( t(265.36) = -18.49, [-\infty; -1.56] \) | < .001 | 2.12 |
| Percent ball        | 26.11 (8.34) | 6.57 (3.63) | \( t(209.59) = -26.48, [-\infty; -18.32] \) | < .001 | 3.01 |
| Need satisfaction   | 5.89 (1.73) | 2.04 (1.17) | \( t(268.83) = -22.63, [-\infty; -3.57] \) | < .001 | 2.60 |
| Belongingness       | 5.92 (2.06) | 2.00 (1.29) | \( t(256.92) = -19.86, [-\infty; -3.60] \) | < .001 | 2.27 |
| Self-esteem         | 6.11 (1.83) | 2.36 (1.47) | \( t(288.23) = -19.60, [-\infty; -3.44] \) | < .001 | 2.26 |
| Meaningful existence| 6.03 (2.10) | 1.84 (1.44) | \( t(270.19) = -20.17, [-\infty; -3.84] \) | < .001 | 2.31 |
| Control             | 5.50 (1.83) | 1.97 (1.46) | \( t(288.39) = -18.51, [-\infty; -3.22] \) | < .001 | 2.13 |

\( s_{\text{incl old}}, s_{\text{excl new}} \). We used nested model comparisons to test the hypotheses.
between the "exclusion new" and the "inclusion new"-condition ($\Delta G(1) = 0.67, p < .412, \omega = 0.015$), showing that exclusion did not affect cooperation when participants were paired with a new group.  

To test whether participants cooperated more with their old group when they were included versus excluded (Hypothesis 2), we implemented the parameter restriction $c_{\text{excl old}} = c_{\text{excl old}}$. Indeed, participants cooperated significantly more with their old group in the Greater Good Game when they were previously included vs. excluded by this group ($\Delta G(1) = 108.08, p < .001, \omega = 0.190$).

To test whether excluded participants would show more selfish behavior or more behavior for the greater good, we implemented the parameter restriction $g_{\text{excl old}} = g_{\text{excl new}}$. Previously excluded participants showed more selfish behavior in comparison to pro-environmental behavior when they were paired with their old versus a new group ($\Delta G(1) = 9.20, p = .002, \omega = 0.055$). However, the proportion of pro-environmental behavior was similar across these conditions, meaning that participants switched from in-group cooperation to selfish behavior in the "exclusion old"-group in comparison to the "exclusion new"-condition. Thus, participants compensated for being excluded by behaving more selfishly when cooperation was only possible with their old group, whereas their rate of pro-environmental behavior remained unchanged.

### TABLE 2

| condition    | $n$ | coop | PEB | self | parameter estimates (SD), [95% CI] |
|--------------|-----|------|-----|------|-----------------------------------|
| exclusion old| 76  | .25  | .23 | .52  | $c = .25$, [22; 28], $g = .31$, [27; 35] |
| exclusion new| 70  | .48  | .21 | .31  | $c = .48$, [44; 52], $g = .41$, [36; 46] |
| inclusion old| 74  | .51  | .23 | .27  | $c = .51$, [47; 54], $g = .46$, [41; 51] |
| inclusion new| 79  | .50  | .20 | .30  | $c = .50$, [47; 54], $g = .40$, [36; 45] |

Note. coop = cooperation with in-group; PEB = pro-environmental behavior; self = selfish behavior.

2.2.3 | Exploratory moderated mediation via belongingness

Our theoretical argument strongly suggests that the effect of ostracism on in-group cooperation behavior should be mediated via belongingness.  

Using 5000 bootstrap estimates with process (Hayes, 2013), with (z-standardized) belongingness as a mediator and the group condition moderating the b-path (Model 14, see Figure 2). In-group cooperation was operationalized as the probability of giving money to the group account across the 18 trials (probability c). Exclusion had a strong negative effect on perceived belongingness, $b = −1.50, p < .001, 95\% \text{ CI} = [−1.65; −1.35]$. Importantly, the interaction between perceived belongingness and the group condition had a significant effect on in-group cooperation, $b = −.16, p < .001, 95\% \text{ CI} = [−.24; −.08]$. Specifically, perceived belongingness positively affected participants’ willingness to cooperate when being paired with the old group, $b = .14, p < .001, 95\% \text{ CI} = [.07; .21]$, but not when paired with a new group, $b = −.02, p = .497, 95\% \text{ CI} = [−.09; .05]$. The indirect effect of ostracism on in-group cooperation with the old group via belongingness was $b_{\text{indirect}} = −.21, 95\% \text{ CI} = [−.32; −.10]$; there was no indirect effect of belongingness when participants were paired with a new group, $b_{\text{indirect}} = .04, 95\% \text{ CI} = [−.07; .14]$.

2.3 | Discussion

In line with our hypotheses and previous evidence (Balliet & Ferris, 2013; Leelieveld et al., 2012; Maner et al., 2007; Twenge et al., 2007), ostracism decreased cooperation with the ostracizers, whereas cooperation with new individuals was not impaired. Furthermore, when cooperation was only possible with the old group, excluded individuals behaved more selfishly, but did not increase behavior that benefits humanity. This shows that individuals do not try to mend their impaired sense of belonging to an in-group by affiliating...
with a superordinate group such as humanity. In fact, rates of pro-environmental behavior remained unchanged across conditions, implying that the decision to behave pro-environmentally and thus doing something for the greater good of humanity was not affected by being ostracized.

One possible alternative explanation for our findings might be that, within our design, being ostracized could be perceived as evidence for a non-cooperation norm within the group. If so, subsequent non-cooperation in the Greater Good Game could be understood as compliance with this specific norm, as previous research has shown that individuals react to the non-cooperativeness of others by behaving non-cooperative themselves and, given the option, seek out new partners to interact with (Kollock, 1998; van Lange & Visser, 1999). However, the excluded player saw that the other two players shared the ball with one another. Moreover, previous research on ostracism has repeatedly demonstrated that—unless explicitly communicated otherwise—the norm in Cyberball is one of inclusion and individuals experience ostracism in Cyberball as a strong violation of those norms (Rudert & Greifeneder, 2016; Wesselmann et al., 2013). The strong negative affective reaction that mediated the effect of ostracism on cooperation with the old group also indicates a process more driven by emotional responses than by observational learning, rendering this explanation via non-cooperation norms unlikely.

Importantly, the study has two limitations. First, the study was merely hypothetical as the ostracizers were two computer-generated players and the behavior in the Greater Good Game was not incentivized. Although previous research indicates that participants’ negative reaction to exclusion from computer-generated and human players does not significantly differ (Jauch et al., 2021; Zadro et al., 2004) and that behavior in the Greater Good Game does not seem to vary depending on incentives (Klein et al., 2017, 2019; Klein & Hilbig, 2018), the importance of assessing actual behavior has been consistently highlighted in previous literature (Baumeister et al., 2007; Klein & Hilbig, 2019). Second, one could argue that the benefit of pro-environmental behavior for humanity is too abstract for individuals as it only benefits humanity indirectly or in the future. Ostracized individuals might strive to cooperate with all humanity and do something for the greater good, but might prefer actions that benefit humanity directly. Thus, using pro-environmental behavior might have masked an effect that would be prevalent with another form of cooperation with humanity. We address both limitations within Study 2.

3 STUDY 2

In Study 2, we specifically focused on the choice between selfish behavior and cooperation with humanity as a consequence of decreased sense of belonging. For this, we analyzed data from a larger survey study (Rudert & Janke, 2021) that was conducted in spring 2020 during the COVID-19 pandemic, when a large proportion of the population was isolated at home because of governmental lockdowns. Importantly, Study 2 differed from Study 1 in the following regards: First, whereas both studies investigate belonging to an in-group, the exact operationalization varied. Specifically, instead of experimentally reducing belongingness to an ad-hoc created in-group through an episode of ostracism, Study 2 measured current belonging to close others, that is, one’s natural in-group, by asking individuals how related they currently felt to important people in their lives. Second, in Study 2 participants made an actual behavioral decision by choosing to either keep a (potential) win in a lottery or to donate it to a humanitarian organization. Given the results from Study 1, we hypothesized that a decreased sense of belonging would be associated with more selfish behavior and thus less donations.

3.1 Methods

3.1.1 Measures

Belonging was measured with six items of the Relatedness subscale from the Balanced Measures of Psychological Needs Scale (Sheldon & Schüler, 2011), assessing participants’ experiences within the previous seven days. Example items are “I felt unappreciated by one or more important people” (reverse coded) as well as “I felt close and connected with other people who are important to me.” (1 = not at all; 7 = completely; Cronbach’s α = .71). In the end, participants could decide whether to participate in a lottery for 16 × 50 Euro and whether they would prefer to have the money transferred to them or donated to the Corona Emergency Relief Fund of the German Red Cross Charity in case they win.

3.1.2 Sample

Participants were recruited from the German population via various mailing lists, social media groups, and newspaper articles. In total, 1447 individuals participated and agreed to the use of their data; however, 147 decided not to participate in the lottery and were thus excluded from the analysis. The final sample consisted of 1300 participants aged between 15 and 81 years (Mage = 35.94, SD = 13.67). Out of those participants, 78% were female, 20.92% were male, three participants were gender-diverse, and four participants chose not to respond to the gender question. Seven participants had missing variable data.

3.1.3 Results

In total, 48.5% of participants decided to keep the money for themselves, and 51.5% decided to donate it in case they won. We ran a logistic regression to test the effects of relatedness (M = 5.46, SD = 1.03) on the likelihood that participants would choose to donate the money (0 = keep the money; 1 = donate the money). The overall logistic regression model was statistically significant, χ²(1) = 38.76, p < .001. In line with our hypothesis, increased relatedness was associated with an increased likelihood of donating, β = .34, SE = .06, Wald(1) = 37.17, p < .001. Odd’s ratio (OR) = 1.41, 95% CIExp(β) = [1.26, 1.57]. A sensitivity power analysis showed that our sample size was sufficient to detect small effects with an OR = 1.23 with a power of .90.
3.1.4 | Discussion

Study 2 addressed both limitations from Study 1 and further corroborated the findings of a positive association of decreased belonging to one’s in-group and selfish behavior. Importantly, Study 2 shows that low relatedness predicts actual behavioral choices and replicates the finding from Study 1 that feeling ostracized and having a low sense of belonging is not associated with an increased interest to cooperate on a higher group level that benefits humanity, but rather with increased selfishness. It should be noted, however, that Study 2 does not allow for causal conclusions about this association. While relatedness was measured prior to the donation choice, third variables might have potentially influenced both constructs.

4 | GENERAL DISCUSSION

Belonging to other individuals or groups has been consistently highlighted as a beneficiary and important factor for cooperation. Reduced belonging, for instance through ostracism, should therefore reduce cooperation. However, previous research provided mixed results with ostracized individuals behaving more prosocial in some studies (e.g., Carter-Sowell et al., 2008), but less prosocial or more aggressive in others (e.g., Schoel et al., 2014; Twenge et al., 2007, 2001). Study 1 provides support for a previously suggested explanation for these inconclusive findings (Maner et al., 2007) and replicates as well as extends previous findings (Balliet & Ferris, 2013; Lelieveld et al., 2012) regarding cooperation: Individuals who were ostracized, and thus experienced reduced belonging to an in-group, will refrain from cooperating when interacting with the individuals who ostracized them. However, they will cooperate with individuals who either included them or are entirely new. An important novelty within our studies is that we allowed participants to choose between multiple behavioral options, whereas most previous studies on ostracism gave participants only one behavioral choice such as prosocial behavior or aggression. Yet, in real life, individuals can normally choose between multiple behaviors, which Study 1 represents with the Greater Good Game (Klein et al., 2017). As a consequence, Study 1 also provides evidence on alternative behaviors when individuals want to refrain from cooperation. Specifically, ostracized individuals who had no option to affiliate with a new group became more selfish, whereas rates of cooperation with humanity in the form of pro-environmental behavior remained stable. This finding was conceptually replicated within Study 2 which showed a positive association of decreased belonging and selfish behavior compared to cooperation with humanity in the form of donations to a COVID-19 help fund.

While both studies investigated the effect of reduced belongingness on individual’s decision between cooperation with humanity and selfish behavior, they employed different designs that methodologically complemented each other: Study 1 offered the advantage of a clean experimental manipulation of all variables of interest and three different behavioral options from which participants could choose. In contrast, Study 2 showed that the effect of interest (the choice between cooperating with humanity and selfish behavior) replicates for real-life decisions involving real money and without manipulating experienced belongingness a priori. Importantly, it should be noted that a sense of feeling unrelated to one’s close others likely happens more often than experiencing drastic ostracism behavior from one’s in-group members, which makes the positive associations with selfishness even more concerning. Furthermore, it should be mentioned that, naturally, an empirical design can only map reality so far. In many situations, individuals will have other or more behavioral options aside from the investigated one. For instance, future research could directly compare choices between cooperating with the old in-group or a new group or even implement the option to punish old group members.

4.1 | Theoretical and practical implications

We find that if no other group on the same level as the ostracizing group is available for cooperation, individuals do not cooperate with the superordinate group humanity but rather behave selfishly. Research on intergroup relations has shown that individuals feel less belonging to larger superordinate groups than to smaller in-groups, leading to less cooperation with superordinate groups than with smaller in-groups in general (Aaldering et al., 2018; Aaldering & Böhm, 2020; Böhm et al., 2018; Klein et al., 2017, 2019; Wit & Kerr, 2002). The present work thus suggests that the belonging gained from cooperation and thus affiliation with the superordinate group humanity seems insufficient to account for impaired belonging on a lower level, thereby highlighting the importance of belonging on the lower in-group level. Future research might wish to investigate the potential of other group sizes between small groups and all humanity for mending an impaired sense of belonging.

This also has implications for attempts to increase cooperation within a group: Previous research shows that the mere threat of being excluded as a punishment successfully increases cooperation and that individuals may often engage in ostracism to make others cooperate (Kerr et al., 2009; Maier-Rigaud et al., 2010; Rudert et al., 2018; Rudert, Ruf, et al., 2020). Yet positive effects of ostracism on prosocial behavior are likely conditional and hinge on individuals’ perceptions of how important the respective group is and how easily they can obtain (re)inclusion (Richman & Leary, 2009). The current findings suggest that using ostracism strategically might backfire profoundly insofar that actually ostracized individuals may actively refrain from future cooperation with those who ostracized them. Furthermore, ostracized individuals may even become trapped in a vicious circle from refraining from cooperation as a result of ostracism and being ostracized for being a poor cooperation partner (Hales et al., 2016). Some individuals might even generalize the feeling of being excluded and, due to an expectation or general fear of being rejected (Maner et al., 2007), refrain from any future cooperation altogether. Alternatively, as demonstrated in the current work, they might not even cooperate on the highest superordinate group level with a group that is always available.

On a larger scale, an increase of selfishness as a response to reduced belonging has alarming consequences: While previous research has
mainly focused on negative consequences of ostracism and a decreased sense of belonging for the functioning of individuals (Niu et al., 2016; Poon, 2018; Rudert et al., 2021), the present work extends these findings by highlighting the importance of feeling belonging to others for the functioning of society. Reduced belonging increases selfishness and thus—depending on the choice structure of the specific situation—potentially decreases behavior for the greater good that would benefit everyone. That is, especially if individuals with reduced belonging do not have the option to affiliate with another, small ingroup, selfish behavior increases. As a consequence, individuals may decide to engage less in cooperative behavior such as donating, volunteering, or helping, which can have tremendous negative effects on society.

5 | CONCLUSION

To summarize, the mere threat of ostracism can enhance cooperation, whereas the feeling of reduced belonging after actual ostracism will, in the long run, harm everyone. The strategy to exclude individuals from one’s group to promote cooperation might seem to be an attractive short-term solution, but will eventually create even more problems on a larger scale. In the same way, individuals who do not feel that they belong to others or who are even isolated over long periods of time will become more selfish and might withdraw from cooperation in specific and society in general. Therefore, to both avoid negative effects on individuals and ensure the functioning of society as a whole, it is of utmost importance to ensure inclusion and integration among all individuals within a society.

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CONFLICT OF INTEREST

The authors have declared no conflict of interest.

ETHICS STATEMENT

The reported studies have been approved by the Institutional Review Board of the Faculty of Psychology, University of Koblenz-Landau (IRB No. 2019_220 and 2020_255), and conform to recognized standards written in the Declaration of Helsinki. All participants provided informed consent at the beginning of the study.

DATA AVAILABILITY STATEMENT

All materials, data, and code for analyses are available online (https://osf.io/dy6hp/).

ORCID

Sina A. Klein https://orcid.org/0000-0002-8154-5429
Selma C. Rudert https://orcid.org/0000-0001-5986-2447

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