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Close-knit Ties through Thick and Thin:
Sharing Social Exclusion and Acceptance Enhances Social Bond

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Abstract

Three experiments investigated whether and why sharing experiences of social exclusion or social acceptance with others strengthens social bonds. Participants experienced either social exclusion or social acceptance alongside another co-participant who either also experienced the same outcome, or experienced a different outcome, as them. Multilevel modeling results showed that participant dyads who shared the experience of social exclusion or social acceptance felt closer to each other than those who experienced different outcomes, and that perceived similarity mediated the effect of shared experiences on social bonds. Interestingly, participants felt closer to one another after having shared social acceptance, more so than when they have shared social exclusion. Implications of the present findings are interpreted in light of theories of social exclusion, shared experiences, and social bonding.

Keywords: shared experience, social exclusion, social acceptance, social bond, perceived similarity

Close-knit Ties through Thick and Thin: Sharing Social Exclusion and Acceptance Enhances Social Bond

There is almost a unanimous agreement amongst scholars that the human need to form and maintain social bonds is an innate and universal one (e.g., Baumeister & Leary, 1995; Deci & Ryan, 1985; Maslow, 1943). The historical reliance on others for survival and reproduction dictates that fulfilling this need to belong can lead to prosperity while thwarting this need can lead to hardship or even death (Baumeister & Leary, 1995). As a result, researchers have long been fascinated with the psychological effects of social acceptance and social exclusion¹ (e.g., Eisenberger, Lieberman, & Williams, 2003; MacKenzie, & Baumeister, 2019; Williams, Cheung, & Choi, 2000; Zadro, Williams, & Richardson, 2004). To date, replete evidence has established that social exclusion (relative to social acceptance) brings about detrimental consequences on a broad spectrum of variables. These include worsened mood (Blackhart, Nelson, Knowles, & Baumeister, 2009), anxiety (Baumeister & Tice, 1990), hurt feelings (Zadro et al., 2004), anger (Twenge, Baumeister, Tice, & Stucke, 2001), loneliness (Leary, 1990), reduced prosocial behaviour (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), impaired intelligence (Baumeister, Twenge, & Nuss, 2002) and self-control (Baumeister, DeWall, Ciarocco, & Twenge, 2005), as well as a dampened sense of belongingness, control, meaningful existence, self-esteem (Williams et al., 2000), and even physical pain (Eisenberger et al., 2003). However, the effects of social exclusion and social acceptance as ‘individual experiences’ have already been extensively studied (Blackhart et al., 2009) and are therefore not central to the present research. Instead, the present study seeks to investigate the phenomena of social exclusion and social acceptance as ‘shared experiences’².

In everyday life, people often experience social exclusion or social acceptance as a shared experience alongside others. For instance, in a classroom setting, two students may both be invited to a friend’s party and consequently enjoy social acceptance alongside one another. On a much larger scale, African Americans and Asian Americans may co-experience racial discrimination alongside one another (Craig & Richeson, 2012). Despite the ubiquity of social exclusion and social acceptance as shared experiences, research in this domain not only appears to be surprisingly thin, they also seem to be largely focused on outcomes that have

already been shown to manifest following individual experiences. For instance, van Beest, Carter-Sowell, van Dijk, and Williams (2012) investigated whether sharing (vs. individually experiencing) social exclusion experiences led to different levels of intrapersonal distress and interpersonal aggression. The present research therefore seeks to investigate something novel—whether shared experiences of social exclusion or social acceptance promote interpersonal connectedness such that individuals co-experiencing the same event experience enhanced bonding propensity.

Conventional wisdom suggests that such shared experiences between two or more people can foster social cohesion between them. However, no study to date has experimentally tested the effects of shared social exclusion and social acceptance on individuals' bonding propensity. Fortunately however, clues can be obtained from similar research domains.

Why Shared Social Exclusion and Acceptance can Enhance Social Bonds

Studies from the shared experience and 'common fate' literatures have suggested that individuals are more inclined to bond with others who share common emotional experiences as themselves (Nakayachi & Ozaki, 2014; Turner & Wainwright, 2003). For example, numerous studies have documented that shared experiences of major catastrophes, such as wars, natural disasters, and terrorist attacks, contributed to stronger social bonds amongst survivors and soldiers (Bauwens & Tosone, 2010; Boulanger, 2013; Cohen, Roer-Strier, Menachem, Fingher-Amitai, & Israeliet, 2015; Whitehouse & Lanman, 2014). The effect of shared emotional experiences on enhanced interpersonal bonds may be explained by perceived similarity (Valdesolo & DeSteno, 2011; Valdesolo, Ouyang, & DeSteno, 2010). For example, Håkansson and Montgomery (2003) found that shared hardships or troubling experiences (e.g., illness, job loss, or grieving the death of someone close) contributed to perceived similarity and empathy. Considerable research have also documented that, across different kinds of relationships, people tend to interact with, affiliate with, and maintain their relationships with those who are similar to themselves (Gaunt, 2006; Gonzaga, Campos, & Bradbury, 2007; Feingold, 1988; Hill & Stull, 1981; Little, Burt, & Perrett, 2006; Lydon, Jamieson, & Zanna, 1988; Mahajan & Wynn, 2012; Muraru, Iorga, & Turluc, 2017; Sprecher, 2014). Taken together, the aforementioned studies allow us to reason that because social exclusion and social acceptance are both emotional events, individuals co-experiencing either

social exclusion or acceptance should be more inclined to bond due to increased perceptions of similarity.

Shared Social Exclusion versus Shared Social Acceptance

At this juncture, a follow up question arises: Is there a difference in bonding propensity between individuals who have co-experienced social acceptance and individuals who have co-experienced social exclusion? In principle, enhanced bonding could be more profound in those who have been socially excluded compared to those who have been socially accepted. The reason for this is twofold: first, social reconnection theory (Maner, DeWall, Baumeister, & Schaller, 2007) suggests that social exclusion motivates individuals to display conscious (Maner et al., 2007) and non-conscious (Bernstein, Young, Brown, Sacco, & Claypool, 2008; Pitts, Wilson, & Hugenberg, 2014) attitudinal and behavioral changes aimed at social reconnection in order to compensate for lost social affiliations. For example, Cheung, Slotter, and Gardner (2015) demonstrated that in response to social exclusion, individuals showed an increased tendency to engage in facial mimicry, and that it served to foster interpersonal closeness and rapport. Given that this exacerbated motivation to reconnect has not been found in the socially accepted, it can be argued that individuals who have co-experienced social exclusion, relative to social acceptance, should show greater bonding propensity. Second, while research supporting the notion that shared experiences facilitate stronger bonds have largely been non-experimental, they have almost exclusively focused on negative emotional experiences (Bauwens & Tosone, 2010; Boulanger, 2013; Cohen, et al., 2015; Whitehouse & Lanman, 2014). Given that social exclusion is negatively valenced and social acceptance is not, the prediction that shared social exclusion will promote greater social bonds than shared social acceptance seems more empirically grounded compared to the opposite relationship.

While it may be tempting to test a single directional hypothesis, it is also plausible that the shared experience of social exclusion, compared to acceptance, is less conducive in fostering interpersonal bonds. Again, there are two lines of reasoning supporting this possibility. First, in many life domains, people often attach negative stigma and connotations to individuals or groups who are excluded or marginalized, such as individuals with mental illnesses (Pescosolido, Medina, Martin, & Long, 2013; Vaughan & Hansen, 2004) and ‘unpopular kids’ in the school setting (Gorman, Schwartz, Nakamoto, & Mayeux, 2011).

Consequently, excluded individuals may feel the need to deliberately distance themselves from other excluded individuals so as to avoid such negative labels being attached to themselves. In the same vein, people seem to exhibit a natural inclination to affiliate with those who are socially accepted, or ‘popular’ (Adler & Adler, 1995). This gravitation has been theorised to be a reflection of people’s desire to increase their own social status as they become associated with socially liked individuals (Dijkstra, Cillessen, Lindenberg, & Veenstra, 2010), as well as their desire to learn from socially successful peers how social success can be achieved (Harris, Anseel, & Lievens, 2008). Second, there have been some unresolved empirical and theoretical inconsistencies in the social exclusion literature (for a review, see Baumeister, Brewer, Tice, & Twenge, 2007). Most pertinent, Twenge et al (2001) demonstrated that individuals who have been socially excluded display increased levels of aggression and hostility not only to the source of exclusion, but even to neutral and innocent third parties. This appears to contradict the previously mentioned finding that social exclusion motivates individuals to cultivate new relationships (Maner et al., 2007). Regardless, such findings leave open the possibility that individuals who have co-experienced social exclusion may simply become more aggressive towards each other, and that this hostility may even be perpetuated and amplified by each other.

Taken together, although it makes sense to predict that individuals co-experiencing social acceptance would display greater levels of bonding with each other compared to individuals with different experiences (Dijkstra et al, 2010), the corresponding prediction for social exclusion is less clear-cut. Specifically, it remains to be explored whether co-experiencing social exclusion would bolster individuals’ bonding propensity with each other more than, or less than, co-experiencing social acceptance does. In fact, shared social exclusion may even be counterproductive to social bonding as it could merely be a recipe for anger and conflict (Twenge et al., 2001).

The Present Research

The present research sought to investigate whether compared to sharing different experiences, sharing common experiences of social exclusion and social acceptance would increase social bonds between two individuals. Here we suggest that such shared experiences foster enhanced social bonds because individuals with shared experiences perceived each

other to be more similar to themselves, and this in turn catalyzes interpersonal closeness. We also had a more refined goal to explore the relative magnitude of enhanced social bonds between individuals co-experiencing social exclusion and individuals co-experiencing social acceptance. That is, does sharing the experience of social exclusion with someone promote bonding with that person more than sharing the experience of social acceptance? Given the presence of competing theories, this was an exploratory question and no a priori prediction was hypothesized.

At this juncture, it is important to note that social dynamics are inherently complex and multifaceted, and admittedly, a myriad of forces may be at play behind a given phenomenon. It is plausible, for instance, that, in addition to perceived similarity, dyads bond more easily following shared social acceptance because of their status seeking motives (Adler & Adler, 1995). Similarly, dyads may bond more easily following shared social exclusion because of their social reconnection motives (Maner et al., 2007), in addition to perceived similarity. However, it is also true that the abovementioned alternative mechanisms are outcome specific in nature. For instance, social reconnection motives likely would not manifest unless the individual is made to feel socially excluded. Perceptions of similarity on the other hand, is a more overarching dimension that remains pertinent regardless of whether the individual is made to feel socially excluded or socially accepted. Moreover, the alternative mechanisms outlined earlier also entail contradictory research findings, such as whether social exclusion makes individuals more social (Maner et al., 2007) or more aggressive (Twenge et al., 2001). These alternative mechanisms were therefore covered in the context of competing theories for our exploratory question of whether shared exclusion promote bonding more than shared acceptance, and resolving their inconsistencies or testing them as mechanisms is outside the scope of the present study. As such, while the potential role of these alternative mechanisms should not be discounted, and future researchers are encouraged to make these more fine-grained delineations, in the present study, we chose to focus on perceived similarity as the underlying mechanism.

To test our hypotheses, a novel ‘shared-social acceptance/exclusion’ paradigm was developed where participants co-experienced social acceptance/exclusion and the dependent and mediating variables were administered thereafter. This research was conducted in

accordance with the ethical guidelines of the American Psychological Association and was approved by the Institutional Review Board (IRB) of Ningbo University. All data and R codes are available on <https://osf.io/yqzph/>.

Experiment 1

Method

Participants and Design

We originally executed a 2 (Exclusion: excluded vs. accepted) \times 2 (Experience: Shared vs. Alone) factorial design intended to be analyzed by analysis of variance (ANOVA). Because this design violates the independence of observation assumption of ANOVA, we subsequently conceptualized it as a multilevel design, which accounts for the nested structure of our data. For every participant, we coded whether he or she experienced social exclusion or acceptance, and whether this exclusion/acceptance was also experienced by the person with whom they interacted. If a participant was nested in dyad where either both participants experienced social acceptance, then this participant was coded as “shared-accepted” (SA); if both participants experienced social exclusion, then this was coded as “shared-excluded” (SE); if either participants experienced different outcomes from one another, this was coded as “different-experience” (DE). A sample data file structure is available in Online Supplementary Material: A (OSM: A).

A priori power analysis for our multilevel modeling (MLM) was not conducted, however, we had recruited 64 groups, more than the minimum number of 10 (Snijders & Bosker, 2012) or 50 groups (Maas & Hox, 2004) recommended by researchers. A total of 130 undergraduate students participated in Study 1 in exchange for course credits. Ten participants were suspicious about the simulated social exclusion, hence their data were excluded. Therefore, our final sample size consisted of 120 undergraduates (92 females and 28 males; $M_{age} = 19.25$ years old, $SD = 0.97$). The sample sizes for each condition were 30 (SE), 30 (SA), and 60 (DE). Note that there were twice as many dyads in the DE condition compared to the other two conditions because we originally conceived the design as a 2 (Exclusion: Excluded vs. Accepted) \times 2 (Experience: Shared vs. Alone) factorial design.

Measures

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Social bond was measured using four intimacy items (Sedikides, Campbell, Reeder, & Elliot, 1999) regarding closeness, likelihood of future friendship, degree of liking, and trust to the waiting partner (e.g., “How close do you feel to the participant with whom you are waiting”). Participants responded on a Visual Analogue Scale (VAS) ranging from 0 (*not at all*) to 10 (*very much*). The reliability of this social bonds measurement was satisfactory ($\alpha = .77$).

Perceived similarity was assessed using one item: “How similar do you feel to the participant with whom you are waiting?” Participants responded on a 10cm visual analogue scale (VAS) ranging from 0 (*not at all*) to 10 (*very much*).

Affect was assessed using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), a 20-item emotion adjective list that provides distinct indices of positive (e.g., enthusiastic) and negative emotions (e.g., distressed). Participants responded on a 5-point scale ranging from 1 (*not at all*) to 5 (*very much*). The positive and negative items of the PANAS were aggregated to create a positivity index ($\alpha = .93$) and a negativity index ($\alpha = .92$) respectively. These two indices served as an indirect manipulation check to ensure that the novel ‘shared social exclusion/acceptance’ paradigm developed and used in the present study was successful at evoking affect differences in accepted and excluded participants.

Procedure

Please see Figure 1 for the group formation procedure. Participants first arrived at the laboratory in unacquainted groups of six (Stage A). They were told the cover story that the experiment was about a decision-making task, and were then divided into two groups of threes (Stage B). In each trio, the participants were seated in a circle and each participant was randomly given an identification tag (A1, A2 and A3 for the participants in one trio; B1, B2 and B3 for the participants in the second trio). The participants were asked to learn one another’s IDs.

We used the Get-Acquainted paradigm as a social exclusion manipulation (Twenge et al., 2001). To promote mutual acquaintance, participants in each trio were instructed to take turns asking and answering ice-breaking questions for 12 minutes (Sedikides, Campbell, Reeder, & Elliot, 1999). Next, each trio was told that only two of them could take part in the upcoming

dyad decision-making task, hence they were each instructed to choose one participant (other than themselves) with whom they would not like to work, and write down his or her identification tag on the note paper. They could neither choose themselves nor abstain.

After all six participants have made their choices, they were randomly led to three different cubicles, resulting in one dyad in each cubicle. Each dyad consisted of one participant from each initial trio and was asked to await the outcome of their choices. While waiting, they were seated from each other at an azimuth angle of 30 to 40 degrees and a distance of 20 to 30 cm (Stage C). An experimenter returned after three minutes and delivered the bogus outcome verbally (Stage D). This meant that when the outcome was given, participants were in a room with a stranger who was either also excluded (shared-excluded), also accepted (shared-accepted), or had a different experience from oneself (i.e., one was excluded, while the other was accepted) (see OSM: B for more details).

Insert Figure 1 about here

After providing the outcome, the experimenter told the dyads that he or she needed to check the progress in other cubicles, so the two needed to wait for a while together. Three minutes later, the experimenter returned and asked participants to complete a questionnaire measuring their current affect, and perceived similarity and social bond with the other member of their dyad. Subsequently, participants were probed. No participant guessed the purpose of the study correctly, but ten participants indicated suspicion about the outcome (feedback) of the selection task (e.g., whether they were truly excluded). These data were excluded from further analysis. Finally, participants were debriefed and thanked. Care was taken to ensure that participants, especially those who were made to feel socially excluded, did not suffer any distress as a result of the manipulation in which all participants received bogus feedback.

Results

Manipulation check

Participants who were made to feel socially excluded ($M = 1.78$, $SD = 0.40$) experienced lower levels of positive affect compared to those who were made to feel socially accepted (M

= 3.44, $SD = 0.46$), $t(118) = 21.11$, $p < .001$,³ $d = 3.53$. Participants who were made to feel socially excluded ($M = 2.69$, $SD = 0.45$) also experienced greater levels of negative affect compared to those who were made to feel socially accepted ($M = 1.33$, $SD = 0.30$), $t(118) = 19.59$, $p < .001$, $d = 3.56$. This suggests that our manipulations of social exclusion and acceptance were successful.

Social bonds

Participants were nested within dyads. Below we present results using MLM, conducted using the lme4 (Bates, Maechler, Bolker, & Walker, 2015) and lmerTest (Kuznetsova, Brockhoff, & Christensen, 2017) packages in R (R Core Team, 2018). Maximum likelihood estimation method was used; degrees of freedom were estimated using the Satterthwaite's approximation.

Multilevel modeling. In Model 1, a random intercept was fitted without any predictors (i.e., null model). This model revealed a substantial variance was accounted for by clustering, intraclass correlation coefficient (ICC) = 20.6%. In Model 2, predictors and the random intercept were fitted; the ICC reduced to 2.2%. The two models differ significantly, $\chi^2(2) = 22.9$, $p < .001$, thus supporting the use of MLM.

Table 1 and Figure 2 report the results of the two models. The different experience (DE) condition was the reference group. Participants in the shared-excluded condition scored higher in bonding than participants in the different experience, but this difference was non-significant (coefficient = .29, $p = .354$). However, participants in the shared-acceptance condition reported significantly higher bonding scores compared to those in the different experience condition (coefficient = 1.50, $p < .001$), and those in the shared-excluded condition (coefficient = 3.41, $p = .001$).

Insert Figure 2 and Table 1 about here

Mediating mechanisms on social bonding. We next examined the multilevel mediation effect of perceived similarity between shared experience and social bonds using the R package mediate (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014)⁴. We used a model-based inference approach to estimate the average causal mediation effect (ACME), average direct effect (ADE) and the average total effect. The ACME represents the explanatory effect of the

presumed mediator (i.e., indirect effect) whereas the ADE represents all other explanations. The confidence intervals were obtained with quasi-Bayesian approximation, bias-corrected and accelerated, and number of bootstrap resamplings set to 1000. Our predictor has three levels (shared-exclusion, shared-acceptance, and different experience). Because mediate (Tingley et al., 2014) can only handle two levels at a time, we performed two separate mediation models; the different experience condition was always designated as the “control” condition. In each mediation analysis, two regression models were fitted: the mediator model and the outcome model. The mediator model regressed the mediator on the independent variable; the outcome model regressed bonding on the independent variable and mediator. Figure 3 depicts the results of the mediation models.

We tested whether similarity to one’s partner would mediate the effect of shared-experience on group bonding. The regression coefficients in Table 2 reveal the direction of the mediation effects. In the first model comparing participants in the shared-excluded vs. the differential experience conditions (3A), similarity was not a mediator, $ACME = .21 [-.04, .48], p = .11$. In the second model comparing participants in the shared-acceptance vs. the differential experience conditions (3B), similarity was a mediator: accepted participants felt more similar to one another, which led to greater feelings of bonding, $ACME = .29 [0.05, 0.57], p = .02$.

Insert Table 2 and Figure 3 about here

Discussion

The results showed that co-experiencing social acceptance enhanced feelings of social bonding compared to experiencing different emotional events, and perceived similarity mediated the effect of shared social acceptance on social bonds. In contrast, when excluded participants were grouped with someone who likewise experienced social exclusion, they did not experience enhanced social bonding. At this juncture, it may be tempting to conclude that only shared social acceptance fosters social bonding. However, one limitation of Experiment 1 was that the control group used may have hindered the interpretability of the shared exclusion condition results. This is because in Experiment 1, the control group dyad consisted

of two participants who experienced polar opposite outcomes – one social acceptance, one social exclusion. Since the purpose of the control group was simply to offer a reference point in which dyads experienced ‘different’ events, and not ‘polar opposite’ events, the control group may not have served as an ecologically valid and fair reference point in Experiment 1. To address this issue, a new type of non-shared condition was added whereby one of the two participants experienced an emotional event (either social exclusion or acceptance), while the other did not experience any emotional event (neither social exclusion nor acceptance); we abbreviate these as the excluded-unknown (EU) and accepted-unknown (AU) conditions.

Experiment 2

Method

Participants and design

In Experiment 2, participants were nested in dyads, where the dyads experienced one of six outcomes: both excluded (SE, $n = 30$), both accepted (SA, $n = 30$), one excluded-one accepted (different experience; DE, $n = 60$), one excluded-one unknown (EU, $n = 31$), one accepted-one unknown (AU, $n = 31$), both unknown (BU, $n = 30$).⁵ A total of 212 undergraduates (132 females and 80 males; $M_{age} = 18.31$ years old, $SD = 0.78$) participated in exchange for course credit. They were randomly allocated to the six experimental conditions. As with Experiment 1, results were analyzed using MLM. There were 106 dyads in total. No participants expressed suspicion and hence data from all participants were used in the analyses.

Procedure

Please see Figure 4 for the group formation procedure. The procedure was the same as Experiment 1 except three new comparison groups were included, and that the outcome feedback was provided in both written and oral form to bolster the credibility of the cover story. Participants first arrived at the lab in unacquainted groups of eights (Stage A). They were immediately divided into two groups of four (Stage B). Participants in each group were seated in a circle and randomly given identification tags (A1, A2, A3 and A4 for one group, B1, B2, B3 and B4 for the other). Participants were asked to learn the ID tags of each other and then engaged in the same ‘get acquainted’ task with their group members as in

Experiment 1 for about 15 minutes.

After the ‘get acquainted’ task, to create the EU, AU and BU conditions, one of the four participants in each group was randomly chosen and asked to complete an ostensible product evaluation task unrelated to the present study in a separate cubicle (Stage C1). The three remaining participants were then asked to complete the selection task: they were told that only two of them could take part in the upcoming dyad decision-making task, and that they had to select one participant with whom they would not like to work. After that, each participant in the trio was given a note to write down the ID tag of the chosen participant. Subsequently, the eight participants were reassigned to four different cubicles, with a two participant dyad in each cubicle (Stage C2). Each dyad consisted of one participant from each initial group of four and was asked to await the outcome of their preferences. After 3 minutes, the experimenter returned and provided both written and oral bogus feedback (Stage D). Specifically, each participant got a summary table, which shows the choices of all the eight participants. It is noteworthy that in each dyad, the choices were bogus, except that the choices of the two participants in the dyads were real (the choice is blank for the participants who completed the product evaluation task). This design was intended to foster greater levels of believability as participants were presumably more likely to trust the genuineness of the procedure if they saw their own choices in the summary table.

After having received the written feedback, the participants received oral feedback publicly. The oral feedback in the SA, SE, and DE conditions was identical to that of Experiment 1. In the EU and AU conditions, one participant who completed the selection task was told that he or she was excluded or accepted by others respectively, while the other participant who were not involved in the selection task were told that their choices were blank since they did not engage in the selection task.

Three minutes later, participants were instructed to complete the same questionnaire as in Experiment 1. The internal-consistency of the social bond measures was satisfactory ($\alpha = .71$). Finally, as in Experiment 1, participants were probed and care was taken to ensure that participants, especially those who were made to feel socially excluded, did not suffer any distress as a result of the manipulation in which all participants received bogus feedback.

Insert Figure 4 about here

Results

Manipulation check

Pairwise comparisons indicated that participants who were made to feel socially excluded ($M = 1.73$, $SD = 0.30$) experienced lower levels of positive affect compared to those who were made to feel socially accepted ($M = 3.32$, $SD = 0.54$), $p < .001$, $d = 3.64$, or those who did not know if they were socially accepted or rejected ($M = 2.64$, $SD = 0.24$), $p < .001$, $d = 3.34$. In addition, those who were made to feel socially accepted also experienced higher levels of positive affect compared to those who did not know if they were socially accepted or rejected, $p < .001$, $d = 1.62$. Participants who were made to feel socially excluded ($M = 2.78$, $SD = 0.35$) also experienced greater levels of negative affect compared to those who were made to feel socially accepted ($M = 1.48$, $SD = 0.32$), $p < .001$, $d = 3.87$, or those who did not know if they were socially accepted or rejected ($M = 1.98$, $SD = 0.17$), $p < .001$, $d = 2.90$. In addition, those who were made to feel socially accepted also experienced lower levels of negative affect compared to those who did not know if they were socially accepted or rejected, $p < .001$, $d = 1.95$. This suggests that our manipulations of social exclusion and acceptance were successful.

Multilevel modeling: Social bonds

See Figure 5 for a plot of our results. Multilevel modeling was conducted in a similar way as in Experiment 1. The first model, the random intercept model where no predictors were entered, revealed a substantial variance accounted for by the clustering, $ICC = 33.4\%$. Predictors were entered in model 2. The two models differed significantly, $\chi^2(5) = 52.8$, $p < .001$. Model 2 was split into four separate models (Models 2A to 2D), differing only in the reference group used (see Table 3). This was necessary as different reference groups addressed different research questions. Model 2A used participants in the different experience condition as a reference group in order to replicate Experiment 1's analysis. Participants who were both accepted by others experienced greater feelings of bonding, coefficient = 1.40, $p < .001$. Similarly, participants who were both excluded by others experienced greater feelings of bonding, coefficient = 2.02, $p = .05$, although to a significantly lesser degree compared to

participants who were both accepted by others, coefficient = $-.96$, $p < .001$. In light of the lack of ecological validity of the DE condition as outlined in Experiment 1, we next contrasted the AU with the SA conditions, and EU with the SE conditions. These contrasts showed that shared-accepted dyads experienced greater feelings of social bonding compared to accepted-unknown dyads, coefficient = $-.99$, $p < .001$, and shared-excluded dyads experienced greater feelings of social bonding compared to excluded-unknown dyads, coefficient = $-.92$, $p < .001$.

Insert Table 3 and Figure 5 about here

Multilevel mediation

We conducted pairwise multilevel mediation the same way as in Experiment 1. Because the focus here was first to replicate the results from Experiment 1, the DE group was designated as the control condition. Figure 6 plots the mediation effects, which were similar to that of Experiment 1.

The coefficients in Table 2 reveal the direction of the effects. Similarity mediated the effect of shared exclusion on bonding, ACME = 0.35 [$0.13, 0.57$], $p = .002$; ADE = 0.10 [$-0.40, 0.56$], $p = .68$. Similarity also mediated the effect of shared acceptance on bonding, ACME = 0.48 [$0.20, 0.79$], $p < .001$; ADE = 0.91 [$0.43, 1.42$], $p < .001$.

Insert Figure 6 about here

Discussion

Experiment 2 showed that dyads who co-experienced either social acceptance or social exclusion felt closer to one another, compared to dyads in which one member was accepted and the other was excluded, and that perceived similarity mediated the effect of shared experiences on social bonds. Dyads who co-experienced social acceptance also displayed greater levels of bonding propensity compared to dyads in which one member was accepted and the other's outcome was unknown. Similarly, dyads who co-experienced social exclusion displayed greater levels of bonding propensity compared to dyads in which one member was excluded and the other's outcome was unknown. These findings suggest that within dyads, sharing the experience of social acceptance or exclusion increases feelings of social bonding,

compared to when different (AU and EU conditions), and even polar opposite events (DE condition), are experienced. Taken together, our results support the notion that within dyads, it is the co-experience, rather than the lone experience, of social acceptance or social exclusion, that catalyzes social bonding. In addition, consistent with Experiment 1, it was found that sharing the experience of social acceptance built stronger social bonds than sharing the experience of social exclusion.

Despite our consistent results in Experiments 1 and 2, we were concerned that both experiments were underpowered. Furthermore, the affect manipulation checks were indirect measures of social acceptance/exclusion. In addition, similarity was measured with a one-item measure, hence its reliability is unknown. In Experiment 3, we ensured that our design was well powered, employed direct manipulation checks, and used two items to measure similarity.

Experiment 3

Participants and design

Using the parameters from Experiment 1, we conducted power analysis conducted using WebPower for two-arm cluster randomized trials (Zhang & Yuan, 2018). This analysis revealed that we needed 8 dyads per condition for 80% power (see OSM: C for more details) to replicate the SA vs DE contrast. We recruited 300 participants (85 males and 215 females) for Experiment 3 (i.e., 50 dyads per condition). Their mean age was 22.0 ($SD = .56$). Like in Experiment 1, Experiment 3 also comprises three conditions: SA, SE, and DE. We used DE as a control condition (instead of other control conditions as in Experiment 2) for two reasons. First, because in Experiment 1, the difference between SE and DE did not reach statistically significant, hence Experiment 3 aimed to test this finding with greater statistical power. Second, using DE allows a consistent comparison across all studies. Unlike Experiment 1 which had an unbalanced design because it was originally conceived as a factorial design, in Experiment 3, we achieved a balanced design with 50 dyads per condition because it was conceived as an MLM a priori.

Procedure

The experiment was conducted following a three-month campus closure due to Covid-19.

Face masks were not worn (nor required) on campus. Care was taken to ensure that participants were not exhibiting flu-like symptoms currently or in the past 14 days, and hygiene protocols were strictly observed. All procedures were identical to Experiment 1, except the following: First, instead of using indirect manipulation checks (i.e., affect), we used a direct manipulation check. Specifically, participants responded on 9-point scales (1 = *not at all*, 9 = *very much so*) their agreement with two items, namely: “During the experiment, I felt I was rejected (accepted) by others” ($r = -.95, p < .001$). Second, instead of a one-item measure of perceived similarity, participants now responded to two items (“How similar do you feel to the participant with whom you are waiting?” and “How much do you have in common with the participant with whom you are waiting?”), but still using the same VAS scale as previous experiments. Responses to the two items were averaged to create a similarity index ($\alpha = .72$), with higher numbers corresponding with greater perceived similarity. Third, as in Experiment 2, participants received both written and oral bogus feedback at Stage D.

Results

Manipulation check

Because the correlation between the two manipulation check items was high, we reverse coded the social acceptance item and then averaged the two manipulation check items into an index *social exclusion*. Participants who were made to feel socially accepted scored lower ($M = 3.81, SD = 3.27$) than those who were made to feel socially excluded ($M = 5.80, SD = 2.96$), $t(298) = 5.53, d = .64, p < .001$. Hence, the manipulation was successful.

Multilevel modeling: Social bonds

Multilevel modeling was conducted in the same way as in Experiment 1. Model 1, the null model, revealed a substantial variance accounted for by the clustering, $ICC = 58.9\%$. When the predictors were entered in model 2, ICC reduced to 42.9% . The two models differed significantly, $\chi^2(2) = 67.1, p < .001$.

Table 4 and Figure 7 report the results of the two models. Participants in the shared-excluded condition scored higher in bonding than participants in the different experience. In Experiment 1, this contrast was non-significant, but in this experiment, perhaps because with greater statistical power, it was significant, coefficient = $.65, p < .001$.

Like in previous experiments, participants in the shared-acceptance condition of Experiment 3 also reported significantly higher bonding scores compared to those in the different experience condition, coefficient = 1.64, $p < .001$, and those in the shared-excluded condition, coefficient = .98, $p < .001$.

Insert Figure 7 and Table 4 about here

Multilevel mediation

All correlation coefficients were positive (see Table 5). In the first model comparing participants in the shared-excluded vs. the differential experience conditions (Figure 8A), similarity was a mediator, ACME = .73 [.47, 1.00], $p < .001$. In the second model comparing participants in the shared-acceptance vs. the differential experience conditions (Figure 8B), similarity was also a mediator: accepted participants felt more similar to one another, which led to greater feelings of bonding, ACME = .90 [.65, 1.17], $p < .001$.

Insert Table 5 and Figure 8 about here

General Discussion

Social exclusion takes place within social contexts. However, past work has primarily investigated social exclusion as ‘individual experiences’, while ignoring contextual factors that influence individuals’ responses to social exclusion. Indeed, as some research (DeWall, Twenge, Bushman, Im, & Williams, 2010; van Beest et al., 2012) showed that, social context does influence how individuals feel and respond to social exclusion. As an example, DeWall et al (2010) showed that inclusion by others numbed the pain of social exclusion, and made excluded individuals less likely to lash out against innocent others. The present research examined a unique situational context, that is, the co-experience of social exclusion alongside others, and its influence on the social bonds.

Our findings showed that sharing experiences of social acceptance or exclusion led to stronger social bonds, compared to dyads who experienced different events, which was mediated by the feelings of similarity between the co-experienced dyadic members. We also explored whether sharing the experience of social exclusion with someone promotes bonding with that person more than sharing the experience of social acceptance. Results showed that

relative to sharing the experience of social exclusion, sharing the experience of social acceptance was more conducive to social bonding.

Theoretical and Practical Implications

Consistent with our predictions and the notion that sharing emotional events could foster interpersonal bonding (Nakayachi & Ozaki, 2014; Turner & Wainwright, 2003), we found that when co-experienced alongside others, social acceptance and social exclusion promote greater levels of interpersonal bonding compared to when they are experienced alone. These findings complement and extend existing research in important ways. First, while research on social exclusion and acceptance as individual experiences has proliferated in recent decades (Blackhart et al., 2009), studies have seldom explored social exclusion and acceptance as shared experiences. The present study provides preliminary insight on the relatively untouched domain of social exclusion and acceptance as shared experiences. The present study also extends the existing literature because of its focus on both positive and negative emotional events. Specifically, previous studies that have examined the effects of shared experiences on social bonding have largely focused on negatively valenced emotional events (Bauwens & Tosone, 2010; Boulanger, 2013; Cohen, et al., 2015; Whitehouse & Lanman, 2014). Consequently, calls have been made by proponents of positive psychology to empirically examine human strengths and positive emotions, rather than focusing exclusively on experiences of suffering (Fredrickson, 2003; Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005; Sheldon & King, 2001). Until now, it has been unclear whether positively valenced shared emotional experiences could also promote social bonding. The present research adds to the existing theoretical framework by offering preliminary evidence that supports this prediction.

In line with previous research (Muraru et al, 2017; Sprecher, 2014; Valdesolo & DeSteno, 2011) and our predictions, perceived similarity was shown to mediate the relationship between shared social acceptance/exclusion and social bonding propensity. Previous research have shown that perceived similarity provided a robust basis for empathy, perspective taking, and self-other overlap or common identity (Aron, Norman, & Aron, 1998; Batson, Lishner, Cook, & Sawyer, 2005; Campbell, 1958; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Heinke & Louis, 2009), all of which are crucial factors affecting social bonding (Anderson,

& Keltner, 2002; Gaertner, Dovidio, Banker, Houlette, Johnson, & McGlynn, 2000; Galinsky, Ku, & Wang, 2005). Our results suggest that, indeed, similars do attract, even if the only commonality between them is a single shared experience of social exclusion or social acceptance.

Finally, our findings consistently showed that sharing the experience of social acceptance led to greater feelings of social bonding compared to sharing the experience of social exclusion. To our best knowledge, this is the first study that contrasted the effects of sharing positive versus negative emotional events on interpersonal bonds. Given the inconsistent theoretical bases as mentioned earlier, we did not have a directional a priori prediction and simply sought to explore this comparison. Our results seem to suggest that people prefer to be affiliated with others who are socially liked over those who are socially disliked, perhaps because of the social prestige that accompanies the former and the social stigma that comes with the latter (Dijkstra et al., 2010). An alternative explanation could be that social exclusion brews anger and resentment towards others (Twenge et al., 2001), and therefore diminishes people's desire to socially reconnect. The identification and disentanglement of the exact mechanism may be a topic for future research. In a broader light, the present findings support the notion that positive emotions, more so than negative emotions, are critical to the formation and maintenance of social connections (Fredrickson, 2013; Fredrickson et al., 2008; Gable & Berkman, 2008; Kok et al., 2013; Ramsey & Gentzler, 2015; Strong & Aron, 2006; Waugh & Fredrickson, 2006).

Findings of the present research carry important practical implications and explanatory power for broader issues such as social cohesion in schools, and geopolitical teaming. Students may find it easier to affiliate with other students whom they have shared experiences of social acceptance or exclusion. Perhaps this also explains the affinity that such students have with one another. Similar dynamics can be observed on the world stage. Being accepted into the same political coalition can promote collaborations and ties between two previously unacquainted countries. Conversely, countries who are denied membership into a political group may find comfort by seeking alliance with other countries that also shared the same fate.

Limitations and Future Research

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Three limitations of the present research deserve to be mentioned. First, the dependent variable, social bonding, was a self-report measure of attitude. It may be worthwhile to examine the behavioral consequences downstream. For example, would sharing social acceptance or social exclusion compel people to treat one another more prosocially?

Second, the magnitude of the effect shared acceptance or shared exclusion has on bonding depended on the control group against which it was contrasted. Across three studies, shared acceptance consistently fostered greater social bonding compared to shared exclusion. But the extent to which shared acceptance or shared exclusion *itself* fostered social bonding depended on which condition it was compared against. While there does not appear to be a single “correct” control group to estimate the “correct” effect size, future studies are encouraged to incorporate a greater variety of control conditions to better resolve the aforementioned uncertainty.

Conclusion

Despite the limitations, our research has deepened understanding of the effect of sharing social acceptance and exclusion on interpersonal relationships. While experiencing social exclusion alone could only lead to detrimental effects on people’s well-being, we learn that experiencing social exclusion alongside others who are also excluded could actually promote social bonding with them. Furthermore, co-experiencing social acceptance with others could promote even stronger social bonding inclinations compared to co-experiencing social exclusion. This appears counterintuitive since we often hear stories of solidarity when people collectively experience social or racial ostracism while such stories of unity seem less common for people who collectively experience social or racial acceptance. People seem to neglect the role that positive events such as shared social acceptance have in bringing people together. This could be the result of the negativity bias whereby negative emotional events tend to be more salient in people’s memory (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Nevertheless, our research illuminates this apparent oversight and showed that the shared experience of both social acceptance and social exclusion can bring people together, as long as it makes them feel more similar to one another.

Footnotes

1. In social exclusion research, ‘socially excluded’ individuals refer to those who feel unwanted or ignored. This group is usually compared to a ‘socially accepted’ group – those who feel liked or sought after, and/or a neutral control group, the participants of which are typically made to engage in a socially-unrelated task (Blackhart et al., 2009).
2. Here, *shared experience* means that individuals co-experience an event alongside others (Echterhoff, Higgins, & Levine, 2009). By “sharing”, we do not mean that one is revealing how one feels about his or her own emotional state (see Pennebaker, Zech, & Rimé, 2001; Rimé, Corsini, & Herbette, 2002).
3. The manipulation check should not be analyzed as a multilevel model. This is because the nested groupings are shared-accepted, shared-excluded, and different experience. Hence a multilevel model comparing how emotions differ between these three groups does not answer whether the manipulation of social exclusion or acceptance was effective.
4. Readers might be more familiar with the product-of-coefficients approach (e.g., Hayes, 2013), which is different from the difference-of-coefficient approach (Imai, Keele, & Tingley, 2010), also known as causal inference approach (Pearl, 2014), used by mediate. Although the difference-of-coefficient that we used is apparently more robust, our choice was based on software limitations: The only multilevel mediation approach available on R at the time of writing is the difference-of-coefficient approach.
5. The BU condition exists because there would necessarily be participants “leftover” after creating the EU and AU conditions.
6. The “both unknown” condition is a by-product of creating the excluded-unknown and the accepted-unknown conditions. It does not answer any substantive research questions. However, for completeness and openness, we have included it in the analyses.

Conflicts of Interest:

The authors declare that they have no conflict of interest.

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Tables

Table 1. Estimated coefficients (standard errors) of multilevel models in Experiment 1

	Model 1: Random intercept only	Model 2: Predictors + Random intercept
Fixed effects		
Intercept	5.57 (.15)*	5.14 (.16)*
Shared-excluded	-	.29 (.30)
Shared-accepted	-	1.50 (.29)*
Random effects		
Group-level	.40	.04
residual σ^2		
Individual-level	1.55	1.55
residual σ^2		
ICC	19.0%	2.22%
LL	-206.2	-196.1

Note: * $p < .001$. The different experience (DE) condition was the reference group.

Table 2. Individual-level correlation coefficients for key variables in Experiments 1 and 2

	Group contrast	Similarity	Bonding
Group contrast (SA = 1, DE = 0)	-	.63**	.49**
Similarity	.19†	-	.48**
Bonding	.10	.41**	-

Note: Lower and upper-halves depict correlation coefficients from Experiments 1 and 2, respectively. SA = shared-acceptance condition; DE = different experience condition. † $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3. Estimated coefficients (standard errors) of multilevel models in Experiment 2

	Model 1: Random intercept	Model 2A: Predictor + Random intercept (Ref = DE)	Model 2B: Predictor + Random intercept (Ref = SA)	Model 2C: Predictor + Random intercept (Ref = SE)	Model 2D: Predictor + Random intercept (Ref = BU) ⁶
Fixed effects					
Intercept	5.34 (.08)**	5.05 (.13)**	6.45 (.19)**	5.49 (.18)**	5.36 (.18)**
Shared-excluded (SE)	-	.44 (.22)*	-.95 (.26)**	-	.12 (.25)
Shared-accepted (SA)	-	1.40 (.23)**	-	.95 (.26)**	1.09 (.25)**
Diff experience (DE)	-	-	-1.40 (.23)**	-.44 (.22)*	-0.31 (.22)
Accepted-unknown (AU)	-	.41 (.23)*	-.99 (.27)**	-.02 (.26)	.10 (.25)
Excluded-unknown (EU)	-	-.48 (.23)†	-1.88 (.27)**	-.91 (.26)**	-.79 (.25)**
Both-unknown (BU)	-	.31 (.21)	-1.09 (.25)**	-.12 (.25)	-
Random effects					
Group-level residual σ^2	.38			.11	
Individual-level residual σ^2	.74			.71	
ICC	33.8%			13.0%	
LL	-305.5			-279.1	

Note: † $p < .10$; * $p < .05$; ** $p < .001$.

Table 4. Estimated coefficients (standard errors) of multilevel models in Experiment 3

	Model 1: Random intercept only	Model 2: Predictor + Random intercept
Fixed effects		
Intercept	5.74 (.09)*	4.98 (.13)*
Shared-excluded	-	.65 (.18)*
Shared-accepted	-	1.64 (.18)*
Random effects		
Group-level	.94	.03
residual σ^2		
Individual-level	0.66	1.54
residual σ^2		
ICC	58.9%	42.9%
LL	-463.1	-429.6

Note: * $p < .001$.

Table 5. Individual-level correlation coefficients for key variables in Experiment 3.

	Group contrast	Similarity
Group contrast (SA = 1, DE = 0)	-	-
Similarity	.46*	-
Bonding	.56*	.81*

Note: * $p < .001$.

Figure Legends

Figure 1. Group formation in Experiment 1. Red and blue figures represent participants who were excluded and accepted respectively. SE = Shared-Excluded; SA = Shared-Accepted; DE = Different Experience. Dotted arrows depict how participants were regrouped from trios to dyads.

Figure 2. Plot of bonding on dyadic condition. SE = Shared-excluded; SA = Shared-accepted; DE = Different experience. Error bars represent +/-1 standard error from the mean, corrected for within-group clustering.

Figure 3. Mediation effect in Experiment 1. *Note:* ACME = average causal mediation effect; ADE = average direct effect.

Figure 4. Group formation procedure in Experiment 2. Red, blue, and grey figures represent participants who were excluded, accepted, and “pending further tabulation”, respectively. SE = Shared-Excluded; SA = Shared-Accepted; DE = Different Experience; EU = Excluded-Unknown; AU = Accepted-Unknown. Dotted arrows depict how participants were regrouped from quartets to dyads.

Figure 5. Plot of bonding on dyadic condition. SE = Shared-excluded; SA = Shared-accepted; DE = Different experience; AU = accepted-unknown; EU = excluded-unknown. BU = Both unknown. Error bars represent +/-1 standard error from the mean, corrected for within-group clustering.

Figure 6. Mediation effect in Experiment 1. *Note:* ACME = average causal mediation effect; ADE = average direct effect.

Figure 7. Plot of bonding on dyadic condition. SE = Shared-excluded; SA = Shared-accepted; DE = Different experience. Error bars represent +/-1 standard error from the mean, corrected for within-group clustering.

Figure 8. Mediation effect in Experiment 3. Note: ACME = average causal mediation effect; ADE = average direct effect.

Stage A

Stage B

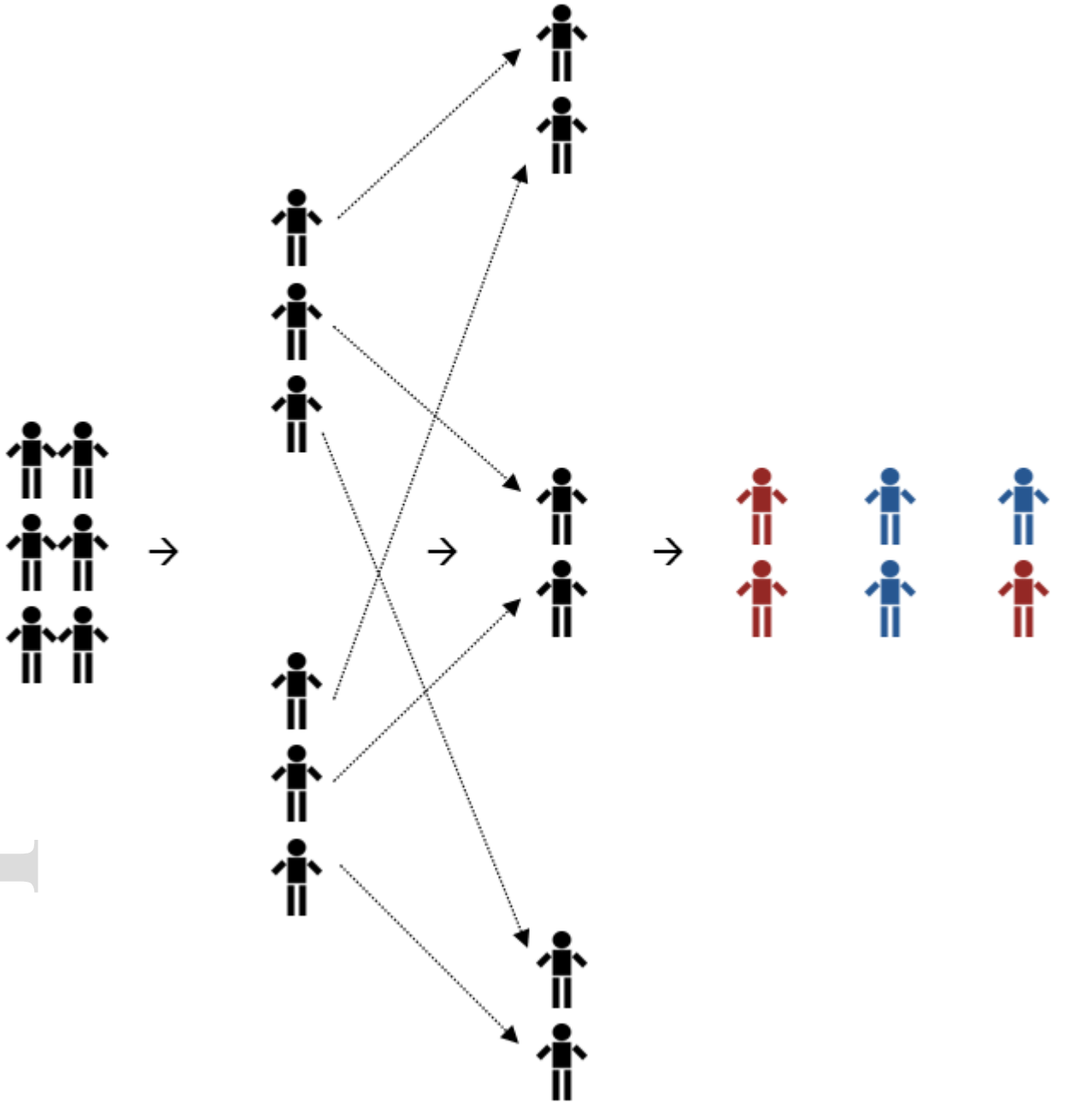
Stage C

Stage D

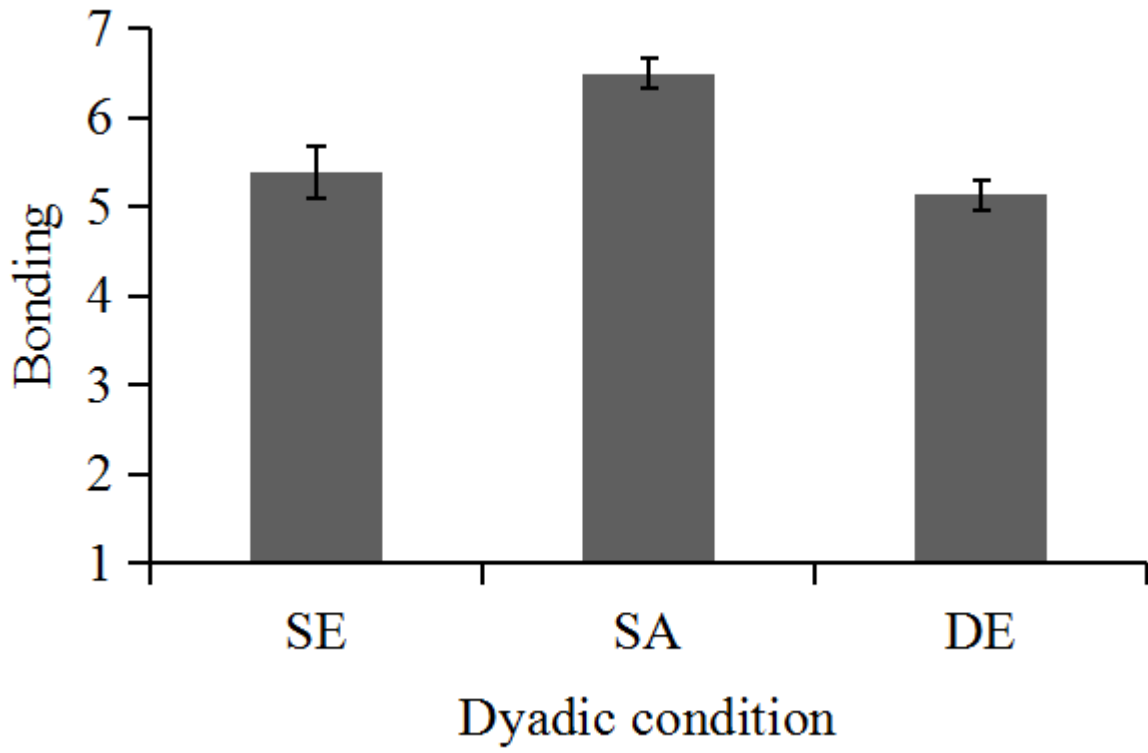
SE

SA

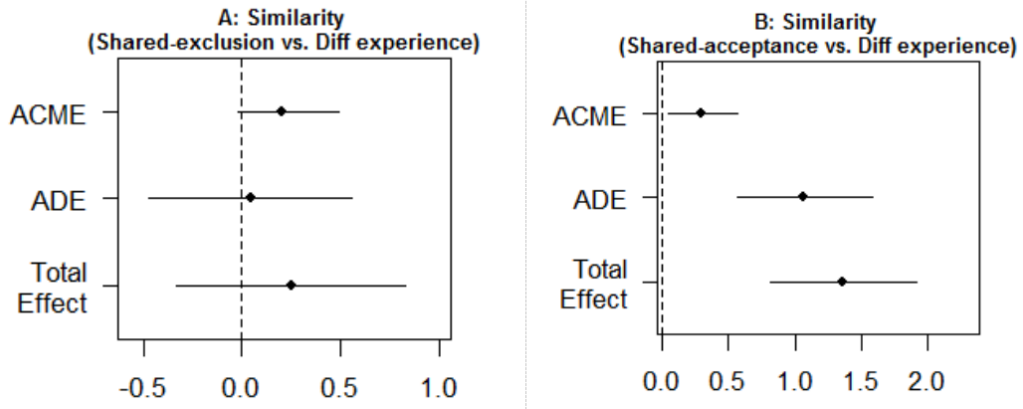
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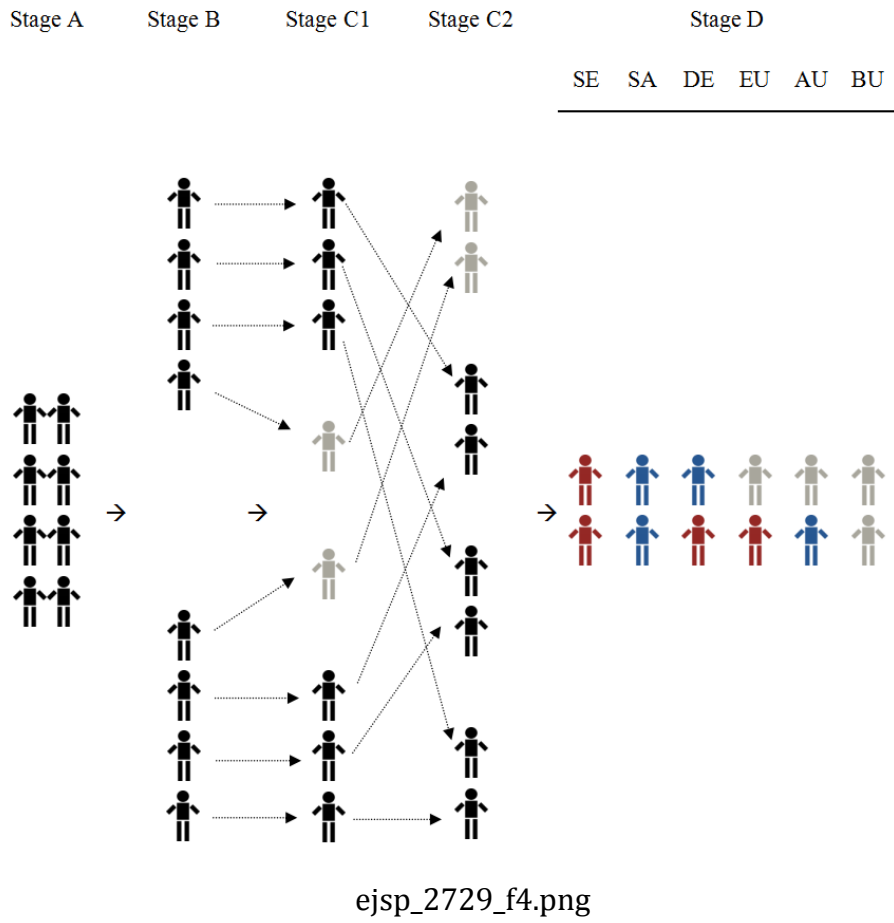
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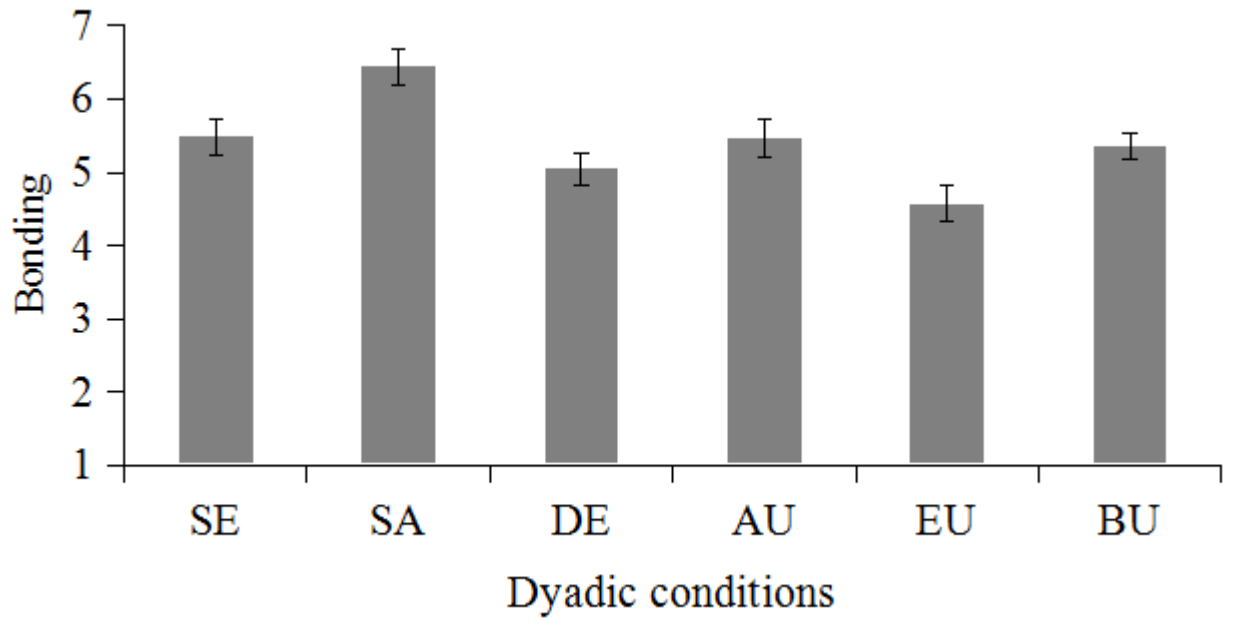


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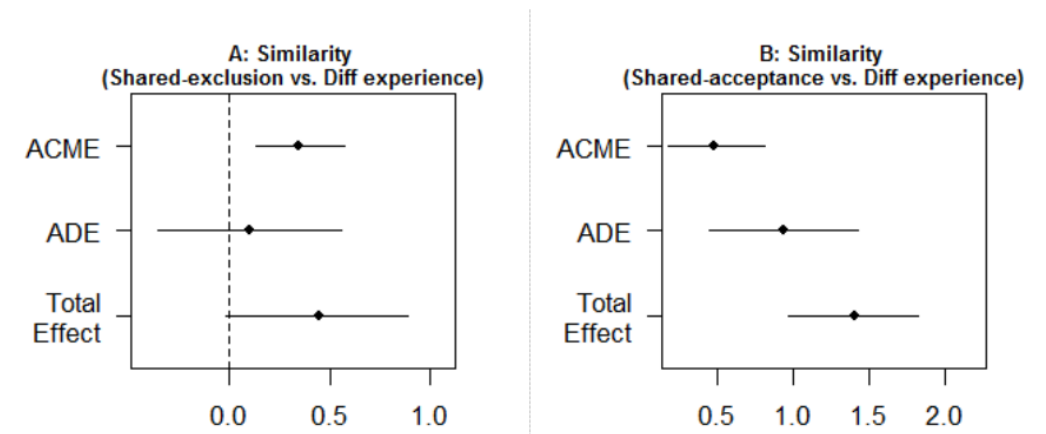


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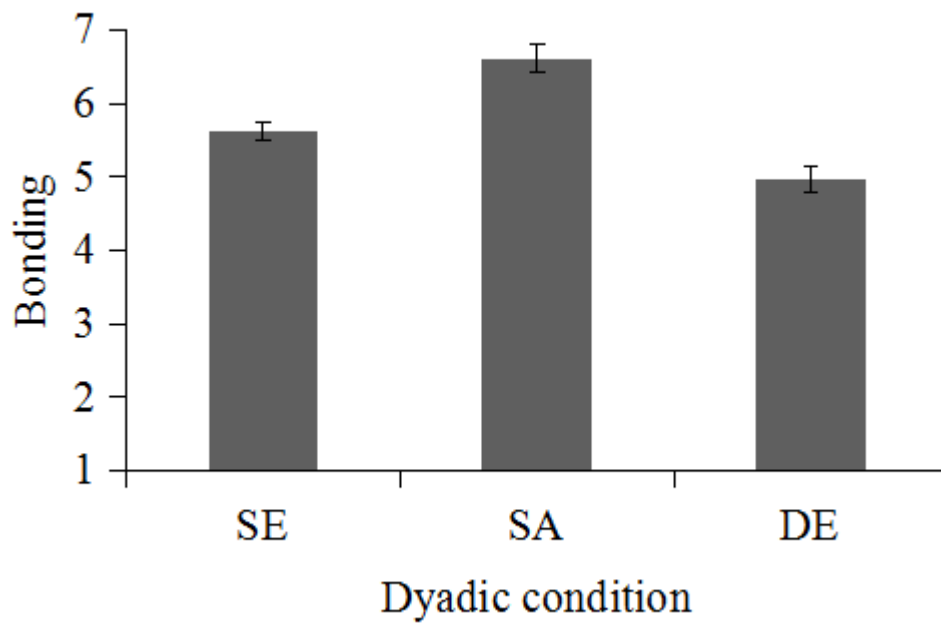




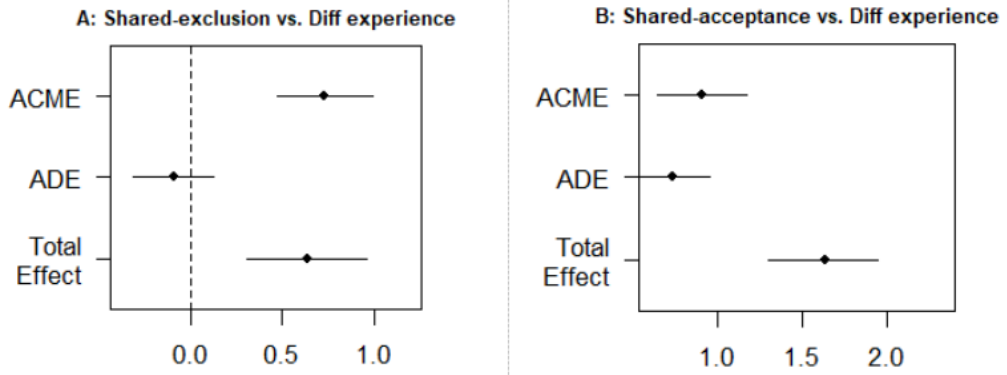
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