Vicarious Ostracism and Its Potential Interaction with Minimal Group Membership

Alexa Spoerle[1] and Heather Claypool[#]

[1]Miami University, USA
[#]Advisor

ABSTRACT

Vicarious ostracism occurs when individuals experience other people's ostracism as though it were their own. In this experiment, we attempted to replicate the vicarious ostracism effect, and we also tested whether it was moderated by the group membership of the ostracized target. Participants were placed in a minimal group and watched a person ("Player 2") play a virtual ball-tossing game. "Player 2" was labeled as either a minimal ingroup or outgroup member and was either included or ostracized by co-players in the game. Participants' own fundamental needs and mood were measured following the game. Results showed that those watching an ostracism game reported lower fundamental needs and worse mood than did those watching an inclusion game (a vicarious ostracism effect), but the group membership of the target person did not moderate these effects. Future research is needed to better understand when and whether the group membership of the witnessed ostracized target impacts personal feelings of ostracism.

Introduction

Belonging, or feeling meaningfully connected to others, is fundamental to people's well-being (Baumeister & Leary, 1995). When people experience threats to belonging through events like ostracism, they experience a host of negative outcomes. Indeed, according to one prominent model (Williams, 2009, p. 276), ostracism elicits a set of immediate "reflexive" responses, including feelings of pain, negative mood, and drops in four "fundamental needs" – self-esteem, belonging, meaningful existence, and control. From an evolutionary perspective, ancient humans fared better if they belonged in cooperative groups, and being ostracized from such groups would have threatened their survival (e.g., Baumeister & Leary, 1995). Not surprisingly, then, modern-day belonging threats increase mortality risk (Holt-Lunstad et al., 2015).

Because ostracism is a threat to health and survival, it stands to reason that people should be vigilant to signals of it. In other words, because belonging is fundamental, people need a system to detect whether it is satisfied, and scholars have argued that humans have evolved an ostracism detection system for this purpose (Williams, 2007). According to Williams (2007, 2009), the ostracism detection system monitors our environments for signs that we are currently experiencing or are at risk of experiencing a belonging threat. If such a threat is detected, this system sends out a reflexive alarm in the form of pain (Williams, 2007). This aversive feeling grabs attention quickly and tells us that we must change course to prevent the belonging threat from happening or seek an alternative environment of belonging elsewhere.

Similar to other systems that monitor for survival threats (e.g., a smoke detector), the ostracism detection system is prone to false alarms (Williams, 2007, 2009). From a functional perspective, if the ostracism detection system is to make an error, it is better, from a survival standpoint, that it mistake a non-ostracism event as a belonging threat rather than miss a true ostracism event. Because of this tendency, multiple pieces of empirical evidence show that humans are hyper-sensitive to potential belonging threats, and humans can detect these threats under minimal conditions, even under conditions that may not fit the standard definition of what constitutes "true" ostracism. For example, Zadro and colleagues (2004) found that humans still experienced pain (in terms of reduced fundamental

needs) following ostracism (as compared to inclusion) in a virtual ball-tossing game, even when told that the entity ostracizing them was merely a code-following computer program.

Another example of this hyper-sensitivity, which is most germane to the current study, concerns something called vicarious ostracism. This occurs when people experience another person's ostracism as though they were being ostracized themselves (Wesselmann et al., 2009). For example, in Wesselmann et al.'s work, participants watched a virtual ball-tossing game that appeared to involve three people tossing around a ball for a few minutes (Williams et al., 2000). In one condition, participants watched an inclusion game, where all three observed players received ball tosses equally and regularly. In another condition, participants observed an ostracism game, wherein a target player was almost entirely left out of the game. Those observing the ostracism game reported lower fundamental needs and worse mood than those watching the inclusion game. Thus even though the participants were not themselves ostracized, merely observing another alleged person's ostracism was enough to elicit pain. Again, this may occur, in part, due to the hyper-sensitivity of the ostracism detection system.

Another possible reason for vicarious ostracism is empathy. Though a consensually endorsed definition remains elusive (see Cuff et al., 2016, for a review), one classic description characterizes empathy as "the other-focused, congruent emotion produced by witnessing another person's suffering [involving] such feelings as sympathy, compassion, softheartedness, and tenderness" (Batson et al., 1987, p. 20). Thus, seeing someone else have an emotional reaction to ostracism could trigger the observer to feel that same emotion. In the literature, there is evidence that empathy, which is often especially strong when we feel very close to a target or have been instructed to engage in perspective-taking, enhances vicarious ostracism effects.

For example, in the Wesselmann et al. (2009) work just described, some participants were asked to simply watch the ball-tossing game, whereas others were asked to take the perspective of the target person. Though vicarious ostracism effects occurred in both conditions, effects were stronger in the perspective-taking condition. Relatedly, vicarious ostracism results in neurological reactions similar to physical pain, but only if the observer has high levels of empathy (Masten et al., 2011). Additionally, people exhibit neurological pain reactions when observing a friend being ostracized (Beeney et al., 2011).

Thus, to date, there is a small, but growing, literature showing that vicarious ostracism effects occur and may do so because of the hyper-sensitivity of the ostracism detection system and/or because of empathic processes. One goal of the current work was to simply replicate these conceptual effects to add to this literature. Namely, in this experiment, participants witnessed another's ostracism or inclusion and then reported on their own fulfillment of fundamental needs and mood. Based on the summarized findings, we expected that those watching ostracism would have lower fundamental needs and worse mood than those watching inclusion.

A second goal of the current work was to understand whether the group membership of the person being ostracized (or included) moderates vicarious ostracism effects. Based on the group identification literature, there is good theoretical reason to believe it should. Indeed, classic work inspired by social identity theory has repeatedly found that people show favorable bias (such as preferential treatment) towards their ingroup members on a variety of outcomes. This occurs even when the membership is arbitrary, random, or based on trivial features (Tajfel, 1970). That is, so-called minimal group distinctions are enough to elicit ingroup favoritism. For example, putting people into different groups based on their art preferences, how many dots they count on a screen, or even by pure chance results in people favoring their ingroup (e.g., Billig & Tajfel, 1973; Tajfel et al., 1971).

Importantly, one of the ways that ingroups are favored over outgroups involves empathy. That is, studies show that we feel more empathic concern for and are more willing to help ingroup versus outgroup members (e.g., Tarrant et al., 2009). Moreover, merely separating people into minimal groups can trigger an ingroup empathy bias (Montalan et al., 2012). Additionally, group membership also encourages "identity fusion," leading to a feeling of group "oneness" (Swann et al., 2012, p. 441). Thus, because we often feel more empathy for and/or "oneness with" ingroup members, it is logical to predict that people might feel vicarious ostracism effects more strongly when witnessing an ingroup member (versus an outgroup member) being ostracized.

One study supports this prediction (Paolini et al., 2016, Exp. 2). In it, participants watched a virtual ball-tossing game. In an early phase of the game, the target player was included by their co-players. But, in a later phase, the target was ostracized by those same co-players. The co-players (the perpetrators of the inclusion and ostracism) were always members of the participants' ingroup. But, the target player was manipulated to be an ingroup or outgroup member relative to the participant. Thus, there were two between-subjects conditions: (1) ingroup members included, then ostracized, an ingroup member or (2) ingroup members included, then ostracized, an outgroup member.

The facial temperature of the participants was assessed as a measure of arousal across the phases of the game as they watched. Findings showed greater facial thermal variation while participants observed ostracism versus inclusion. Moreover, this effect was stronger when watching an ingroup member being ostracized by ingroup members compared to watching an outgroup member being ostracized by ingroup members.

Thus, this work suggests that vicarious ostracism effects are stronger when witnessing the ostracism of ingroup (versus outgroup) members as captured by a relatively automatic, physiological measure of arousal. However, this work did not assess whether people *consciously experience* greater social pain, as indicated by reductions in mood and/or fundamental needs, when witnessing ingroup versus outgroup ostracism. The current study examined this very issue.

Moreover, recall that the *perpetrators* of the ostracism in the Paolini et al. (2016) study were *always* ingroup members. Thus, it is not known how observers of ingroup versus outgroup victims of ostracism would react when the perpetrators' group status was unknown. This could matter a great deal, because ingroup members often capture more attention due to their increased motivational relevance (see Kawakami et al., 2018, for a review). As such, in the condition wherein ingroup members ostracized an outgroup victim, participants might have focused their attention primarily on the ingroup perpetrators, not noticing the outgroup victim much. However, in the ingroup ostracism condition, the participants may have divided their attention relatively equally across all three players — as all were fellow ingroup members — and thus the ostracized victim may have been more salient here relative to the outgroup ostracism condition. Put more simply, the outgroup ostracism victim might have been less salient relative to the ingroup ostracism victim. This might explain why the vicarious effects were smaller in the former case. A design wherein the perpetrators' group status is unknown offers an arguably cleaner way to determine if vicarious effects are stronger for ingroup versus outgroup targets. The current study did just this.

Overview and Hypotheses

In this study, participants were first placed into a minimal group. Allegedly, the computer software placed them into either "Group 1" or "Group 2" randomly, and participants received no other information about this group distinction. In reality, all participants were placed into "Group 1." Then, all participants watched three alleged others play a virtual ball-tossing game of Cyberball (Williams et al., 2000) and were asked to focus their attention on a target player ("Player 2"). Based on random assignment, "Player 2" was either ostracized or included in the game. Additionally, "Player 2" was explicitly labeled as a fellow minimal ingroup member (as a member of "Group 1") or a minimal outgroup member (as a member of "Group 2"). The group memberships of the co-players were not displayed (i.e., were unknown). We predicted two hypotheses: First, we predicted that those who watched an ostracism game would report lower fundamental needs and worse mood than those who watched an inclusion game; a classic vicarious ostracism effect. Second, we predicted that these effects would be larger in the minimal ingroup versus the minimal outgroup condition.

Methods

Participants

One-hundred seven students from an introductory psychology class participated in exchange for class credit. Eighty-three identified as women, 21 identified as men, 1 identified as non-binary, and 2 people did not disclose their gender identification. In terms of racial identification, 94 identified as White, 4 as Black/African American, 4 as Asian/Asian American, 2 as multiracial, and 3 did not disclose their racial identification. In terms of ethnic identification, 5 participants identified as Latino/a/x and 102 did not.

Procedure

Participants arrived at the lab, provided informed consent, and were seated in individual workrooms with their own computer workstation. All instructions and procedures were displayed and administered on the computer.

At the start of the study, participants learned that the experiment examined how people react to virtual group interactions. To this end, they further learned that some participants would *participate* in a virtual group interaction, while others would *observe* a virtual group interaction. Importantly, though they believed they could be assigned to either a virtual participant or virtual observer role, in actuality, all were assigned to observe, as is necessary to study vicarious ostracism.

Additionally, because the study allegedly concerned "reactions to virtual group interactions," participants were told that everyone, including them, would need to be placed into a group. They were explicitly advised that the computer would place them randomly into "Group 1" or "Group 2." No further information was provided about this group distinction, thereby meeting the criteria for a minimal group. At this point, participants clicked an onscreen button to (allegedly) initiate the group assignment procedure. Upon clicking this button, the screen advanced and gave participants a brief message telling them to wait for a moment while the computer made its selection. The computer remained paused on this screen for a few seconds to bolster the cover story that the computer was actually making such a "decision." In reality, though, all participants were assigned to the same group, "Group 1." Therefore, in summary thus far, all participants were told they would be observing a virtual group interaction and that they were a member of "Group 1."

Next, participants were told that they would observe another participant, who would be generically labeled as "Player 2" onscreen, engage in a virtual ball-tossing game called Cyberball (Williams et al., 2000) with two other people. They were told to watch the game unfold by focusing their attention on, and taking the perspective of, "Player 2." They were further told that "Player 2's" group membership would be listed onscreen. That is, the label "Group 1" or "Group 2" would appear next to the "Player 2" icon.

At this point, participants clicked an onscreen button to join an alleged virtual live stream of "Player 2." Once clicked, the screen advanced, and the participants saw the Cyberball instructions. The screen paused here for roughly 40 seconds, as it appeared that "Player 2" was reading these instructions. After roughly 40 seconds elapsed, "Player 2" appeared to launch the game itself.

Via random assignment, participants observed one of two games. In the ostracism game condition, "Player 2" was ostracized during Cyberball, receiving only 2 early tosses from their co-players, followed by no additional ball tosses. In the inclusion game condition, "Player 2" consistently received ball tosses from the co-players throughout the game. Additionally, and via random assignment, "Player 2" was either from the participant's own ingroup ("Group 1") or from their outgroup ("Group 2"). Unbeknownst to the participants, the co-"players" in the game they observed were actually computer controlled, and the participants were simply watching a video recording of a Cyberball game the researchers created.

Once their observation of the game ended, participants were asked a set of filler questions to assess their reactions to virtual group interactions (to maintain consistency with the cover story). After these filler questions, participants completed the two primary dependent measures assessing (1) fundamental need fulfillment and (2) mood (both adapted from Williams, 2009). The fundamental needs measure included 16 total items, 4 each to assess their belonging (e.g., "I felt I belonged"), self-esteem (e.g., "I felt liked"), meaningful existence (e.g., "I felt invisible," reverse scored), and control (e.g., "I felt I had control"). For each, participants responded on a 1 (strongly disagree) to

5 (strongly agree) scale to indicate how they felt while watching the game. The mood measure was comprised of 6 items that tapped both positive (e.g., "I felt happy") and negative (e.g., "I felt angry") affective states. Participants used the same response scale for the mood items as they did for the fundamental needs items. These 22 total items were presented in a randomized order. Embedded among them was an attention check that read, "To illustrate that you are paying attention, please select '2' as your answer." Finally, participants completed a demographic questionnaire and then were thanked, debriefed, and dismissed from the lab.

Results

Attention Check

As just noted, participants completed an attention check to screen out those who were not fully engaged. For this question, participants were to choose a value of "2" if they were paying attention. A frequency analysis revealed that all 107 participants replied with "2," thereby passing the check. Therefore, no participants were removed from any of the analyses reported below.

Hypothesis Testing

As a reminder, we offered two hypotheses. First, we predicted that those who watched an ostracism game would report lower fundamental needs and worse mood than those who watched an inclusion game. Second, we predicted that these effects would be larger in the minimal ingroup versus the minimal outgroup condition. Before testing these predictions, we first constructed appropriate composite scores. For the fundamental needs composite, we averaged all 16 need items together, after appropriate reverse scoring, such that larger values indicated more satisfied needs ($\alpha = .851$). For the mood composite, we averaged all 6 mood items together, after appropriate reverse scoring, such that larger values indicated more positive mood ($\alpha = .758$).

To test the hypotheses, we first conducted a 2 (Experience Observed: ostracism, inclusion) × 2 (Group Status: ingroup member, outgroup member) ANOVA on the fundamental needs composite variable. If Hypothesis 1 is correct, this test should yield a main effect of Experience Observed, with participants reporting lower need fulfillment when watching ostracism versus inclusion. If Hypothesis 2 is correct, this main effect should be moderated by Group Status, such that these effects should be larger in the ingroup member condition.

Consistent with Hypothesis 1, results of this ANOVA did yield a main effect of Experience Observed, $F(1, 103) = 26.07$, $p < .001$, in the direction anticipated. Namely, those watching ostracism reported lower fundamental need fulfillment ($M = 1.877$, $SE = .073$) than did those watching inclusion ($M = 2.403$, $SE = .073$). However, we did not observe the predicted interaction between Experience Observed and Group Status, $F(1, 103) < 1$, $p = .766$. As shown in Figure 1, those observing ostracism had lower fundamental needs than did those observing inclusion, but the magnitude of this effect was the same across ingroup and outgroup conditions.

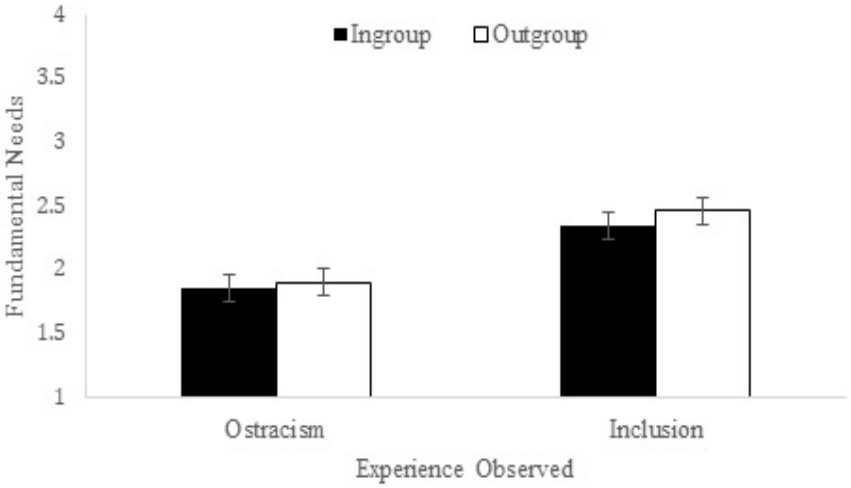

Figure 1. Fundamental Needs as a Function of Experience Observed and Group Status

We next conducted this same 2 (Experience Observed: ostracism, inclusion) × 2 (Group Status: ingroup member, outgroup member) ANOVA, but this time on the mood composite variable. As was the case with the fundamental needs, we observed the predicted main effect of Experience Observed, $F(1, 103) = 49.663$, $p < .001$, but not the predicted Experience Observed by Group Status interaction, $F(1, 103) < 1$, $p = .612$. Observing ostracism led participants to report worse mood ($M = 2.468$, $SE = .079$) than did observing inclusion ($M = 3.253$, $SE = .078$). But, as shown in Figure 2, this effect was statistically equivalent across the ingroup and outgroup conditions. Thus, overall, across both dependent variables, we found strong and consistent support for Hypothesis 1, but no support for Hypothesis 2. That is, we replicated the basic vicarious ostracism effect, that observing another person's ostracism can elicit feelings of personal ostracism (as evidenced by lowered fundamental needs and worse mood), but this vicarious ostracism effect was not moderated by the ingroup/outgroup status of the person being observed.

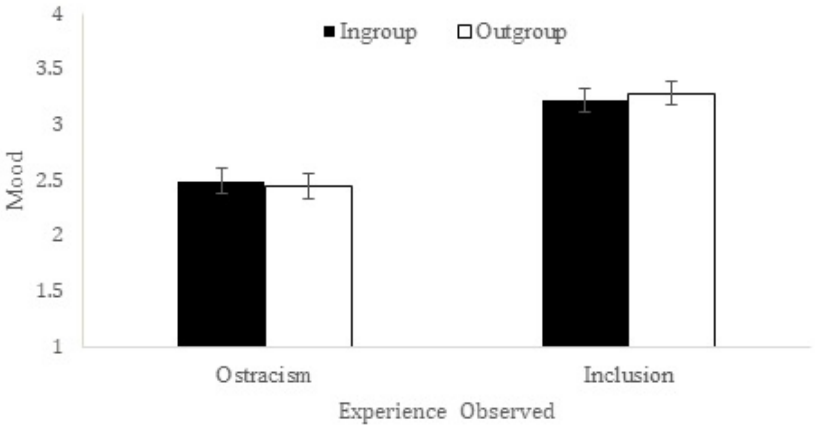

Figure 2. Mood as a Function of Experience Observed and Group Status

Discussion

This study aimed to test two hypotheses. First, we predicted that those who watched an ostracism game would report lower fundamental needs and worse mood than those who watched an inclusion game. Second, we predicted that these effects would be larger in the minimal ingroup versus the minimal outgroup condition. Ultimately, the results supported Hypothesis 1, but not Hypothesis 2.

Though the results were not fully supportive of both the predictions, they nevertheless offer a scientific contribution. Namely, this experiment did replicate the basic vicarious ostracism effect; those who viewed others being ostracized indeed reported lower fundamental needs and worse mood than those who viewed others being included. Given the so-called replication crisis in social psychology, the field currently (more so than historically) encourages and appreciates well-powered replication attempts (e.g., Open Science Collaboration, 2015), and we were well-powered to detect the basic effect in this study. Indeed, we conducted a post-hoc analysis to determine our achieved power, given our sample size and observed effect sizes. The effect sizes we obtained for the basic vicarious ostracism effect, comparing the observed ostracized and observed included means to one another, ignoring the Group Status factor, were d = .994 for fundamental needs and d = 1.373 for mood. According to G*Power (version 3.0.10; Faul et al., 2007), we achieved over 95% power to detect these effects. That we replicated the basic vicarious ostracism effect in this way gives the field greater confidence that this effect is real and not spurious.

Despite this important contribution, this study, like all studies, has limitations. First, we were unable to find support for the hypothesis that group status moderates vicarious ostracism effects. It is possible that vicarious ostracism effects *are* larger for ingroup targets, but perhaps this only occurs when the ingroup/outgroup distinction is more psychologically important to the perceiver than in the present case. Recall, Paolini et al. (2016) found that observers showed stronger vicarious ostracism when observing an ingroup (versus an outgroup) member being ostracized on a physiological measure of arousal. In that work, they, like us, used a minimal group distinction. Namely, participants completed an alleged logic test, and they were placed into either the "deductive-reasoning group" or the "inductive-reasoning group" allegedly based on their performance (p. 66). In our case, participants believed that a computer put them into one of two groups based on mere random chance.

Thus, while both our work and that of Paolini et al. (2016) used a minimal ingroup/outgroup distinction, ours was *even more minimal* than theirs. Certainly, being an inductive versus a deductive reasoner is probably not important to most people. Yet, that alleged group distinction was purportedly based on something about the participants as individuals (their performance on a test). In our case, participants believed the group distinction was completely impersonal and just based on chance. Therefore, it may be the case that vicarious ostracism effects are larger when observing ingroup (versus outgroup) members, even for some types of trivial group distinctions. But, if the group distinction is so trivial that it is based on nothing but chance, this enhancement effect may not emerge. Put most simply, the type of minimal ingroup we used may not have afforded the level of empathic responding needed to moderate vicarious ostracism. Future work might fruitfully attempt to more precisely determine the psychological point at which a group distinction is too minimal to trigger an ingroup/outgroup moderation of vicarious ostracism effects.

Second, it is possible that even the type of minimal group distinction we used does moderate vicarious ostracism effects, but perhaps these effects do not emerge unless the group membership of the perpetrators is known and salient. Recall, the co-players/perpetrators of ostracism in the Paolini et al. (2016) work were known to be ingroup members. As noted in the introduction, we opted to leave the group membership of the co-players/perpetrators unknown because we thought it allowed for a clearer and more compelling test of our moderation hypothesis. Yet, given our null findings regarding moderation, it is also possible that having the perpetrators' group status be known is a necessary component to trigger this effect. Future work should attempt to investigate this further.

Third, it is possible that even randomly-determined minimal ingroups do trigger greater vicarious ostracism effects (than do minimal outgroups), but perhaps the presentation of the group status manipulation in our study may have gone unnoticed by our participants. The label "Group 1" or "Group 2" appeared onscreen next to "Player 2."

However, we do not know if participants noticed, deeply encoded, or remembered this information. In retrospect, it would have been helpful to ask participants a question like, "Player 2 was a member of…," and had them fill-in-the-blank with a response. Doing this would have allowed us to gauge how many participants noticed (correctly) the group membership of the target, and we could have then potentially analyzed data only from those who answered this item correctly. In short, we neglected to add a manipulation check for the minimal group manipulation, an issue that should be corrected in future work.

From the results of this study, it is evident that the vicarious ostracism effect is both replicable and robust, but more needs to be learned about it. Beyond the future study ideas already articulated, scholars might consider measuring how long vicarious ostracism effects last. It is clear from the results that participants feel an *immediate* psychologically painful reaction after watching ostracism, but future studies might track participants over time to determine how quickly participants recover. Moreover, past research has shown that people feel the sting of ostracism under minimal conditions, such as when they know they are being ostracized by a computer (Zadro et al., 2004). Does such an effect extend to vicarious situations? That is, if perceivers watch another person be ostracized by a computer, is that enough to elicit personal feelings of ostracism? These ideas, among many others, await future testing.

To close, this experiment found support for vicarious effects of ostracism. As our world continues to move into digital spaces, we may find ourselves witnessing the ostracism, rejection, and exclusion of others frequently, as when we see a Reddit poster's comment severely "down voted" or a Facebook friend's status ignored. The results of the current study suggest that these events may have profound effects not only on those directly ostracized, but also on us as witnesses. Therefore, the current study is important as it can help us better understand this phenomenon and its associated down-stream consequences.

References

Batson, C. D., Fultz, J., & Schoenrade, P. A. (1987). Distress and empathy: Two qualitatively distinct vicarious emotions with different motivational consequences. *Journal of Personality*, *55*, 19-39. https://doi.org/10.1111/j.1467-6494.1987.tb00426.x

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497-529. https://psycnet.apa.org/doi/10.1037/0033-2909.117.3.497

Beeney, J. E., Franklin, R. G., Levy, K. N., & Adams, R. B. (2011). I feel your pain: Emotional closeness modulates neural responses to empathically experienced rejection. *Social Neuroscience*, *6*, 369–376. https://doi.org/10.1080/17470919.2011.557245

Billig, M., & Tajfel, H. (1973). Social categorization and similarity in intergroup behaviour. *European Journal of Social Psychology*, *3*, 27–52. https://doi.org/10.1002/ejsp.2420030103

Cuff, B. M. P., Brown, S. J., Taylor, L., & Howat, D. J. (2016). Empathy: A review of the concept. *Emotion Review*, *8*, 144-153. https://doi.org/10.1177/1754073914558466

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191. https://doi.org/10.3758/bf03193146

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science*, *10*, 227-237. https://doi.org/10.1177/1745691614568352

Kawakami, K., Friesen, J., & Vingilis-Jaremko, L. (2018). Visual attention to members of own and other groups: Preferences, determinants, and consequences. *Social and Personality Psychology Compass*, *12*, e12380. https://doi.org/10.1111/spc3.12380

Masten, C. L., Morelli, S. A., & Eisenberger, N. I. (2011). An fMRI investigation of empathy for 'social pain' and subsequent prosocial behavior. *NeuroImage*, *55*, 381–388. https://doi.org/10.1016/j.neuroimage.2010.11.060

Montalan, B., Lelard, T., Godefroy, O., & Mouras, H. (2012). Behavioral investigation of the influence of social categorization on empathy for pain: A minimal group paradigm study. *Frontiers in Psychology*, *3*. https://doi.org/10.3389/fpsyg.2012.00389

Open Science Collaboration (2015). Estimating the reproducibility of psychological science. *Science*, *349,* aac4716. https://doi.org/10.1126/science.aac4716

Paolini, D., Alparone, F. R., Cardone, D., van Beest, I., & Merla, A. (2016). "The face of ostracism": The impact of the social categorization on the thermal facial responses of the target and the observer. *Acta Psychologica*, *163*, 65–73. https://doi.org/10.1016/j.actpsy.2015.11.001

Swann, W. B., Jetten, J., Gómez, Á., Whitehouse, H., & Bastian, B. (2012). When group membership gets personal: A theory of identity fusion. *Psychological Review*, *119*, 441-456. https://doi.org/10.1037/a0028589

Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, *223*, 96–103. http://www.jstor.org/stable/24927662

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behaviour. *European Journal of Social Psychology*, *1*, 149–178. https://doi.org/10.1002/ejsp.2420010202
Tarrant, M., Dazeley, S., & Cottom, T. (2009). Social categorization and empathy for outgroup members. *British Journal of Social Psychology*, *48*, 427–446. https://doi.org/10.1348/014466608x373589

Wesselmann, E. D., Bagg, D., & Williams, K. D. (2009). "I feel your pain": The effects of observing ostracism on the ostracism detection system. *Journal of Experimental Social Psychology*, *45*, 1308–1311. https://doi.org/10.1016/j.jesp.2009.08.003

Williams, K. D. (2007). Ostracism. *Annual Review of Psychology*, *58*, 425–452. https://doi.org/10.1146/annurev.psych.58.110405.085641

Williams, K. D. (2009). Ostracism: A temporal need-threat model. *Advances in Experimental Social Psychology*, *41*, 275–314. https://doi.org/10.1016/s0065-2601(08)00406-1

Williams, K. D., Cheung, C. K. T., & Choi, W. (2000). Cyberostracism: Effects of being ignored over the Internet. *Journal of Personality and Social Psychology, 79*, 748–762. https://doi.org/10.1037/0022-3514.79.5.748

Zadro, L., Williams, K. D., & Richardson, R. (2004). How low can you go? Ostracism by a computer is sufficient to lower self-reported levels of belonging, control, self-esteem, and meaningful existence. *Journal of Experimental Social Psychology*, *40*, 560–567. https://doi.org/10.1016/j.jesp.2003.11.006