

Do I Really Feel Your Pain? Comparing the Effects of Observed and Personal Ostracism

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Abstract

It has been argued that “we feel the pain of others’ ostracism as our own”. However, it is unknown whether observed ostracism is as distressing as self-experienced ostracism. We conducted two studies to address this lacuna. In Study 1, participants played or observed an online ball-tossing game, in which they or a stranger were ostracized or included by others. In Study 2, participants imagined themselves or someone else being ostracized or included. Across both studies, self-experienced and observed ostracism had the same negative effect on mood. Also, both self-experienced and observed ostracism evoked need threat, but this effect was slightly lower after observed ostracism. In sum, the findings suggest that we do feel the pain of others’ ostracism as our own, consistent with the notion that humans are equipped with a system that detects violations of social inclusion norms in the environment.

Keywords

ostracism, observation, ostracism detection system, distress, mood, need threat, self–other distinction

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Ostracism, being ignored and excluded, is a painful experience that threatens fundamental human needs (e.g., Williams, 2007). Yet, this is true not only when someone is being personally ostracized: Previous research has shown that observing others being ostracized is also distressing (e.g., Wesselmann, Bagg, & Williams, 2009; Wesselmann, Williams, & Hales, 2013). This finding has been attributed to a highly sensitive ostracism detection system (Kerr & Levine, 2008; Spoor & Williams, 2007), which is assumed to automatically elicit feelings of pain when signs of ostracism are detected in the environment. It appears that this system is activated not only by ostracism directed at oneself but also by ostracism directed at other people. Thus, it has been concluded that we “feel the pain of others’ ostracism as our own” (Wesselmann et al., 2009, p. 1308).

However, it remains unknown whether personal and observed ostracism indeed cause comparable distress or whether personal ostracism is experienced as more threatening. On one hand, observed ostracism might hurt less than personal ostracism because we usually do not confuse the other with the self when empathically feeling others’ emotions (e.g., Singer & Lamm, 2009). On the other hand, observed ostracism may trigger similar effects as self-experienced ostracism. This prediction is based on the notion that humans have evolved to possess a system that constantly monitors the environment for social norm violations, including ostracism (Kerr & Levine, 2008; Spoor & Williams,

2007). To examine these contrasting predictions, we compared the effect of observed versus personal ostracism on fundamental human needs and mood. As mood presumably represents a more direct signal of norm violations compared with need threat responses, we explored whether the observation of ostracism is more likely to affect mood than need threat.

Observing Ostracism Hurts

It is widely established that experiencing ostracism personally causes social pain (Williams & Nida, 2011). For example, previous research has shown that ostracism activates the same brain regions as physical pain (i.e., the dorsal anterior cingulate cortex and right ventral prefrontal cortex; Eisenberger & Lieberman, 2004; Eisenberger, Lieberman, & Williams, 2003), causes negative mood, and thwarts fundamental human needs (e.g., Williams, 2007). In his temporal need-threat model, Williams (2009) argued that ostracism specifically threatens the need to belong, need for control, meaningful existence, and self-esteem. The magnitude of the

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need threat (i.e., the threat to the need to belong, need for self-esteem, need for control, and meaningful existence) depends on the temporal distance to the experienced ostracism. As soon as individuals notice that they are ostracized, they experience intense need threat (i.e., the reflexive stage). This immediate need threat can be relieved when ostracized individuals engage in coping and reflect upon their experience with the passage of time (i.e., the reflective stage). Thus, the reflexive, immediate response to ostracism is especially painful.

Interestingly, previous research has shown that merely observing others being ostracized can be distressing as well: Observed ostracism activates the same brain area as personal ostracism, the area associated with physical pain (i.e., the dorsal anterior cingulate cortex; Eisenberger & Lieberman, 2004; Masten, Eisenberger, Pfeifer, Colich, & Dapretto, 2013; Masten, Eisenberger, Pfeifer, & Dapretto, 2013; Masten, Morelli, & Eisenberger, 2011). Observed ostracism also increases heart rate and skin conductivity, indicating enhanced stress (Coyne, Nelson, Robinson, & Gundersen, 2011), and it causes more behavioral mimicry in children (Over & Carpenter, 2009), which is a possible response to threats to belongingness needs (Lakin, Chartrand, & Arkin, 2008). Furthermore, Wesselmann and colleagues (2009) demonstrated that observed ostracism causes negative mood and frustrates the reflexive need to belong, need for control, meaningful existence, and self-esteem. They concluded that “we feel the pain of others’ ostracism as our own” (p. 1308).

However, it remains unknown whether observing ostracism is as distressing as ostracism directed at oneself. Addressing this open issue would not only add missing empirical evidence, but is also important at a theoretical level because different models make divergent predictions regarding the comparison.

In the following, we first outline theoretical background supporting the hypothesis that observed ostracism is less threatening than personally experienced ostracism. Then, to present the other viewpoint, we outline the theoretical background supporting the hypothesis that observed ostracism is equally threatening as personally experienced ostracism.

Observed Ostracism Might Hurt Less Than Personally Experienced Ostracism

The negative effects of observed ostracism have been explained based on humans’ empathic skills (Wesselmann et al., 2009). Specifically, we have the capacity to imagine how another person must feel in a given situation or how we would feel in that situation (Batson, Early, & Salvarani, 1997). According to the perception-action model of empathy (Preston & de Waal, 2002), the observation of others’ pain triggers autonomic and somatic responses similar to those elicited during self-experience. This holds not only for physical pain (Avenanti, Sirigu, & Aglioti, 2010), but also for social pain caused by social exclusion (Beeney, Franklin,

Levy, & Adams, 2011; Coyne et al., 2011; Masten, Eisenberger, Pfeifer, Colich, & Dapretto, 2013; Masten, Eisenberger, Pfeifer, & Dapretto, 2013; Masten et al., 2011).

However, our cognitive-affective system still distinguishes between sources of experiences, including the pain of self and others (Decety & Chaminade, 2003; Lamm, Decety, & Singer, 2011). This distinction is functional in that it can prevent the self from experiencing the same level of personal distress that is experienced by the observed other (Singer & Lamm, 2009). Furthermore, empathic responses are not indiscriminately intense; rather, they vary depending on various factors. For example, empathy can be affected by the social relation between the observed person and the observer, by the familiarity and similarity of the observed person, and by perspective taking (Preston & de Waal, 2002; Singer & Lamm, 2009). However, the established ostracism manipulations (Aydin, Fischer, & Frey, 2010; Wesselmann et al., 2009), which we used in our two studies, create conditions that are *less* likely to evoke full-blown empathy. In the following, we elaborate on these conditions.

First, when we observe or imagine the suffering of an unknown stranger, we should experience a relatively lower level of empathic affect than when we observe or imagine the suffering of a familiar, close other. Indeed, prior research on observed ostracism revealed that there is stronger activation in brain areas related to empathy and pain when friends (vs. strangers) were observed (Beeney et al., 2011; Meyer et al., 2013). In our Study 1, as in Wesselmann et al. (2009), the victim of observed ostracism was an unfamiliar player in Cyberball, an online ball-tossing game in which the players’ ball tosses are represented by simple avatar movements (Williams, Cheung, & Choi, 2000). In Study 2, the victim was an unfamiliar student in an imagined scenario. Thus, the lack of closeness and familiarity could weaken the empathic response and vicarious distress from observed ostracism relative to self-experienced ostracism.

Second, previous research has shown that perspective taking enhances personal distress: Participants in Wesselmann et al. (2009) experienced stronger need threat when they were (vs. were not) explicitly instructed to take the perspective of the observed target. That is, participants who did (vs. did not) take the perspective of the players during the observation of Cyberball reported higher need threat. In our studies, we wanted to assess responses to observed ostracism without the influence of additional instructions. Thus, no perspective-taking instructions were given to the participants. In light of the results by Wesselmann et al., the absence of perspective taking may attenuate the level of self-experienced distress from observed ostracism.

Observed Ostracism Might Hurt as Much as Personally Experienced Ostracism

On the contrary, it is also possible that observing ostracism is as threatening as personally experienced ostracism and

triggers the same level of negative mood. In a nutshell, the underlying argument rests on the assumption that humans have evolved to be particularly sensitive to the occurrence of fundamental social norm violations in their environment. It has been argued that witnessing the violation of social inclusion norms (i.e., norms demanding social inclusion of others; Kerr, Seok, Poulsen, Harris, & Messé, 2008) and equality (i.e., norms demanding equal treatment of individuals; see, for example, Lutz, 2001) is distressing (e.g., Masten, Eisenberger, Pfeifer, Colich, & Dapretto, 2013; Masten, Eisenberger, Pfeifer, & Dapretto, 2013; Masten et al., 2011; Meyer et al., 2013; Over & Carpenter, 2009; Wesselmann et al., 2009; Wesselmann et al., 2013). Indeed, prior research (Legate, DeHaan, Weinstein, & Ryan, 2013) has shown that even *perpetrators* of ostracism reported enhanced negative mood and threats to their autonomy and relatedness needs. Thus, simply observing norm violation caused by ostracism may trigger personal distress in observers.

More specifically, it has been suggested that humans are equipped with a system that monitors the environment for social exclusion and ostracism (Kerr & Levine, 2008; Spoor & Williams, 2007), arguably a result of evolutionary adaptation of the "ultrasocial species" (Campbell, 1983). This system helps individuals avoid potential ostracism and, in case it cannot be avoided, helps them prepare a defense against its harmful consequences. It is activated even by minor cues of ostracism and responds with immediate (i.e., reflexive) pain to prevent the potentially high costs of undetected ostracism. Given the risks from undetected ostracism, the ostracism detection system is assumed to be highly sensitive, such that it responds even to ostracism directed at someone else (Wesselmann et al., 2009). Hence, observing others being ostracized should activate the ostracism detection system by eliciting a warning signal.

We suspect that mood is a more appropriate warning signal for the ostracism detection system than need threat. This is because mood is a spontaneous, basic response of the human organism that is initially not associated with a source or an object (Clore, Schwarz, & Conway, 1994). Moreover, mood is commonly interpreted as having informational value for the individual (e.g., Schwarz & Clore, 1983, 1996). Specifically, negative mood can alert individuals to potentially undesirable or harmful outcomes in the environment and triggers a shift of attention to identify the source of such potential risks (Schwarz & Clore, 1996). Compared with mood, need threat responses in ostracism studies require some awareness of the source and context of the threat; thus, these responses require higher level processes than does the assessment of mood. This is because the standard need threat probes (Williams, 2009) specifically refer to experiences during the Cyberball game (e.g., "I felt like an outsider," "I felt insecure") and presuppose actual participation in the game (e.g., "I felt the other players decided everything," "I felt the other players interacted with me a lot"). When participants merely observe the Cyberball game, they need to

take the perspective of the excluded player to answer many of these need threat items in a meaningful way; this may explain why participants in Wesselmann et al. (2009) with (vs. without) perspective-taking instructions reported greater need threat. In contrast, the mood measures refer to a general state (e.g., "I felt bad," "I felt good") and do not require perspective taking. Because of these differences, we assume that need threat (vs. mood) responses are less likely to be driven purely by an automatic detection system.

We note that the distinction between mood and need threat responses applies irrespective of the stage (reflexive, reflective) of the response to ostracism. In other words, we are *not* claiming that mood responses are reflexive whereas need threat responses are reflective.

Consistent with our reasoning, Wesselmann and colleagues (2009) found that observers' need threat was exacerbated by instructions to take the perspective of the ostracized individual (vs. no such instruction), but mood was not affected by these instructions. That is, mood was as negative in the absence of perspective-taking instructions as it was in the presence of such instructions. These findings resonate well with the notion that mood is a more basic response compared with assessing one's need threat. In sum, we propose that the observation of ostracism is more likely to reduce mood (vs. need threat) responses to the level of self-experienced ostracism.

The Present Research

In two studies, we addressed an important open issue in research on ostracism: Is observed ostracism (e.g., Masten, Eisenberger, Pfeifer, Colich, & Dapretto, 2013; Masten, Eisenberger, Pfeifer, & Dapretto, 2013; Masten et al., 2011; Wesselmann et al., 2009) as distressing as self-experienced ostracism (ostracism directed at oneself)? We examined the effect of observed and self-experienced ostracism on immediate mood and need threat. As discussed above, different predictions can be derived from extant research and theoretical models. Models of self-other distinctions in empathy (Decety & Chaminade, 2003; Lamm et al., 2011) and evidence for the susceptibility of empathy to moderating factors (e.g., Preston & de Waal, 2002; Singer & Lamm, 2009) suggest that observed ostracism might be experienced as less distressing than self-experienced ostracism (attenuated-distress account). In contrast, according to models invoking an automatic ostracism detection system (Kerr & Levine, 2008; Spoor & Williams, 2007), the negative responses triggered by observed ostracism may be equally strong as the negative responses triggered by self-experienced ostracism (equal-distress account). Furthermore, we have argued that observed ostracism should be more likely to affect observers' mood responses than observers' need threat responses.

To test the attenuated- versus equal-distress account, participants in Study 1 directly observed or personally experienced ostracism (vs. inclusion) in Cyberball, an online

ball-tossing game (Williams et al., 2000). In Study 2, we had participants merely imagine observing (vs. personally experiencing) ostracism (vs. inclusion), removing visual input information and in vivo experiences. Study 2, thus, allowed us to test whether negative effects of observed Cyberball ostracism on mood and need fulfillment require the in vivo experience and the corresponding visual stimulus features of the Cyberball game.

Study 1

Wesselmann and colleagues (2009) found that observing ostracism (vs. inclusion) causes reflexive need threat and negative mood, and they concluded that we feel the pain of ostracized others as our own. However, to draw this conclusion, a comparison with self-experienced ostracism is needed. To remedy this shortcoming, we added conditions in which participants experienced either self-experienced ostracism or inclusion. Thus, we were able to test the competing predictions about the negative effects of observed ostracism outlined above. According to the equal-distress account, observed ostracism does not differ from personal ostracism in its immediate consequences. According to the attenuated-distress account, observed (vs. self-experienced) ostracism should trigger a lower extent of need threat and negative mood.

Method

Design and participants. The experiment was based on a 2 (Cyberball outcome: inclusion vs. ostracism) \times 2 (involvement: self-experience vs. observation) between-subjects design. Participants were randomly assigned to the conditions.

Participants were recruited for a study on mental visualization, lasting approximately 40 min. The required sample size was calculated with G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009) based on a Type I error (α) of .05 and a power of $1 - \beta = .80$. As our manipulation of observed ostracism (vs. inclusion) replicated the manipulation in the no-perspective-taking condition in the study by Wesselmann and colleagues (2009), we needed a sample size that was sufficient to detect the effect found in this condition ($d = 0.727$). The sample size for detecting this effect is $N = 62$. Because our design consisted of two more conditions (self-experienced ostracism vs. inclusion), we needed to recruit at least twice as many participants ($N = 124$). To be able to detect a possible Cyberball outcome \times Involvement interaction, we increased the sample by 15%, resulting in a final sample size of $N = 143$ students (112 female, 23 male; M age = 22.10 years, $SD = 3.16$). Participants received course credit or 6 Euros as compensation.

Procedure and materials. The study was run with the software Inquisit 4.0 (by Millisecond Software) on Windows desktop computers in sessions with one participant at a time. Upon

arrival at the laboratory, participants read and signed an informed consent and were seated at a computer. To manipulate Cyberball outcome, participants first either played or observed Cyberball (Williams et al., 2000). Participants in the self-experience conditions were told that they would play Cyberball with two other participants, seated in different laboratories of the university. In fact, these two alleged other participants were not real; rather, the ball-tossing behavior of the two coplayers followed a programmed pattern. Participants in the observation conditions were told that they would observe a game of three other alleged participants. In fact, the ball-tossing behavior of the Cyberball avatars was also preprogrammed.

To make personal involvement versus observation more salient, the avatar representing the participants differed between the conditions. Specifically, in the self-experience conditions, participants were represented by a hand at the bottom of the screen (Williams et al., 2000). In the observation conditions, the target player was depicted by a full-body figure at the bottom of the screen, shown from its back (similar to Wesselmann et al., 2009; see Figure 1).

Participants were informed that they were playing or observing Cyberball to practice their mental visualization skills (Williams et al., 2000). They were further instructed that their task was to mentally visualize the situation and that the ball-tossing performance was not relevant. Overall, the Cyberball game comprised 30 ball tosses. In the inclusion conditions, all players received the ball about 33% of the time. In the ostracism conditions, the participant or target player (when observing Cyberball) received the ball only twice in the beginning. Afterward, he or she was ignored and excluded by the other two players.

Directly after having played Cyberball, the four reflexive needs and the reflexive mood were assessed (Williams, 2009). The reflexive needs were measured with 20 items concerning the Cyberball experience (e.g., "I felt like an outsider," "I felt good about myself"; $\alpha = .913$), referring to the need to belong, need for self-esteem, control, and a meaningful existence. As in Wesselmann et al. (2009), we combined the four needs into a single measure (also see Williams, 2009). Mood was assessed with eight adjectives (e.g., "good," "angry"; $\alpha = .929$). Participants were asked to indicate on 5-point Likert-type scales how they felt during the game (1 = *not at all*; 5 = *extremely*).

Afterward, the effectiveness of the inclusion versus ostracism manipulation was checked by asking participants in the self-experience conditions to indicate on two 5-point Likert-type scale items to which extent they felt (a) ignored and (b) excluded during the game (1 = *not at all*; 5 = *extremely*). In addition, they were asked to estimate the percentage of tosses they received during the game. Participants, who observed Cyberball, were asked to answer these questions with regard to the target player ($\alpha = .985$). At the end, demographic data were assessed and participants were thanked, debriefed, and compensated for their participation.¹

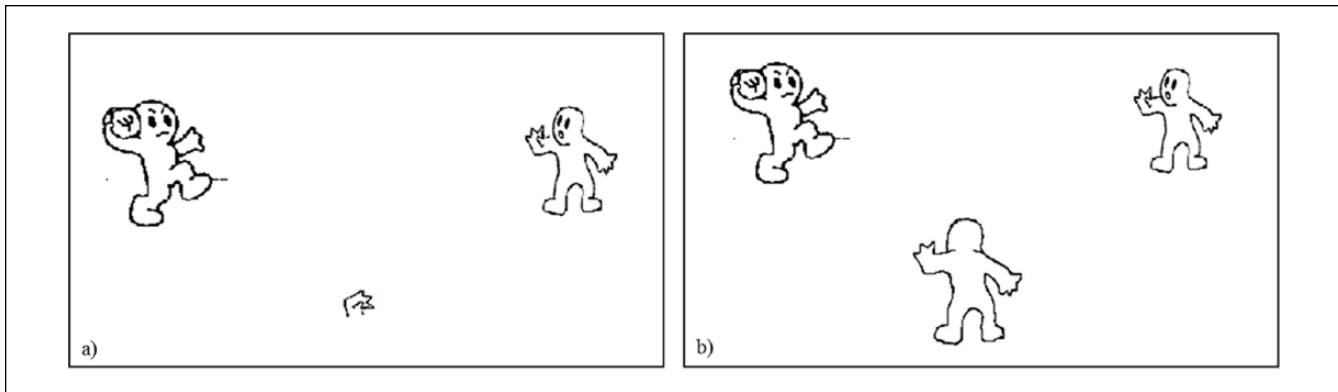


Figure 1. The different Cyberball versions used in the self-experience versus observation conditions.

Note. Panels depict the screens participants saw (a) in the self-experience conditions and (b) in the observation conditions. In (a), participants were represented by the hand at the bottom of the screen. In (b), the target player was represented by the full-body avatar at the bottom of the screen.

Results²

Manipulation check. To test the effectiveness of our manipulation, we conducted two separate 2 (Cyberball outcome: ostracism vs. inclusion) \times 2 (involvement: self-experience vs. observation) ANOVAs for the ostracism rating (i.e., the combined Likert-type scale items) and the estimate of received ball tosses. The analyses revealed significant main effects of inclusion versus ostracism on both the ostracism rating, $F(1, 139) = 134.40, p < .001, \eta_p^2 = .492$, 90% confidence interval (CI) = [.391, .563], and the received-tosses estimate, $F(1, 139) = 118.11, p < .001, \eta_p^2 = .459$, 90% CI = [.356, .535]. Participants in the ostracism conditions felt that they or the target player was more excluded and ignored ($M = 4.17, SD = 1.22$) than participants in the inclusion conditions ($M = 1.90, SD = 1.15$), and reported that they or the target player received fewer ball tosses (ostracism: $M = 9.56\%, SD = 12.37$; inclusion: $M = 29.26\%, SD = 9.69$).

No significant main effects of involvement were found for the ostracism rating, $F(1, 139) = 0.27, p = .603, \eta_p^2 = .002$, and the estimate of received tosses, $F(1, 139) = 1.44, p = .232, \eta_p^2 = .010$. Thus, there was no evidence that participants in the self-experience conditions provided greater ratings of feeling excluded and ignored ($M = 3.09, SD = 1.57$) or estimated a lower percentage of received tosses ($M = 18.34\%, SD = 14.50$) than did participants in the observation conditions ($M = 2.95, SD = 1.71; M = 20.84\%, SD = 15.12$, respectively).

The Cyberball Outcome \times Involvement interaction reached significance for both the ostracism rating, $F(1, 139) = 4.41, p = .037, \eta_p^2 = .031$, 90% CI = [.001, .090], and the estimate of received ball tosses, $F(1, 139) = 6.53, p = .012, \eta_p^2 = .045$, 90% CI = [.005, .111]. Pairwise comparisons were calculated to further analyze these interactions (see Table 1 for the statistics): On the ostracism rating and the received ball-tosses estimate, ostracism and inclusion differed significantly for both observing and playing Cyberball.

For inclusion, observing versus playing Cyberball did not differ significantly. Yet, for ostracism, observation versus self-experience differed marginally. Specifically, when the target of ostracism was the self (vs. the observed player), participants rated ostracism as slightly more severe.

Mood. We ran the same 2 \times 2 ANOVA to test whether observed and self-experienced ostracism (vs. inclusion) dampened participants' mood (see Table 2 for the descriptive statistics). The analysis revealed that mood differed significantly between the Cyberball outcome conditions, $F(1, 139) = 73.33, p < .001, \eta_p^2 = .345$, 90% CI = [.238, .431]: Participants in the ostracism conditions reported less positive mood ($M = 3.00, SD = 0.90$) than did those in the inclusion conditions ($M = 4.09, SD = 0.57$). No effects were found for involvement (observation: $M = 3.60, SD = 0.93$; self-experience: $M = 3.52, SD = 0.93$), $F(1, 139) = 0.22, p = .639, \eta_p^2 = .002$, or the interaction, $F(1, 139) = 0.01, p = .925, \eta_p^2 < .001$. See Table 3 for the pairwise comparisons. Given that we controlled for the Type II error, these findings suggest that mood is similarly affected by observing ostracism (vs. inclusion) and by personally experiencing ostracism (vs. inclusion).

Need satisfaction. Another 2 \times 2 ANOVA was conducted to analyze whether observed as well as self-experienced ostracism (vs. inclusion) led to lower need satisfaction (see Table 2 for the descriptive statistics). There was a significant main effect of Cyberball outcome, $F(1, 139) = 166.97, p < .001, \eta_p^2 = .546$, 90% CI = [.450, .611]: Participants in the ostracism conditions reported less need satisfaction ($M = 2.07, SD = 0.56$) than did participants in the inclusion conditions ($M = 3.36, SD = 0.66$). There was no effect of involvement (observation: $M = 2.72, SD = 0.81$; self-experience: $M = 2.73, SD = 0.98$), $F(1, 139) = 0.13, p = .724, \eta_p^2 = .001$. However, the Cyberball Outcome \times Involvement interaction was significant, $F(1, 139) = 7.28, p = .008, \eta_p^2 = .050$, 90%

Table 1. Pairwise Comparisons Between the Conditions of Study 1 for the Manipulation Check (Likert-Type Scale Items and Received Ball-Tosses Estimate).

	Ostracism rating					Received ball-tosses estimate				
	ΔM	SE	p	d	95% CI	ΔM	SE	p	d	95% CI
Observed Inclusion vs. Ostracism	2.86	.28	<.001	-1.30	[-1.80, 0.79]	-15.11	2.55	<.001	1.15	[0.65, 1.64]
Self-experienced Inclusion vs. Ostracism	2.69	.28	<.001	-3.33	[-4.05, -2.61]	-24.40	2.60	<.001	3.14	[2.44, 3.84]
Observed vs. Self-experienced Inclusion	-0.31	.28	.261	0.27	[-0.19, 0.73]	2.46	2.55	.335	-0.26	[-0.72, 0.21]
Observed vs. Self-experienced Ostracism	0.51	.28	.069	-0.43	[-0.90, 0.04]	-6.83	2.60	.009	0.57	[0.09, 1.05]

Note. CI = confidence interval.

Table 2. Mean Mood and Need Satisfaction as a Function of Cyberball Outcome and Involvement (Study 2).

Involvement	Mood		Need satisfaction	
	Ostracism	Inclusion	Ostracism	Inclusion
Self-experience	2.97 (0.87)	4.06 (0.61)	1.95 (0.54)	3.52 (0.61)
Observation	3.04 (0.95)	4.11 (0.54)	2.18 (0.56)	3.21 (0.68)

Note. n (Self-experience/Ostracism) = 35, n (Self-experience/Inclusion) = 35, n (Observation/Ostracism) = 35, n (Observation/Inclusion) = 38. SDs in parentheses.

CI = [.007, .117]. Need satisfaction was lower in the self-experienced ostracism (vs. self-experienced inclusion) condition as well as in the observing ostracism (vs. observing inclusion) condition (see Table 3 for the pairwise comparisons). Furthermore, need satisfaction was higher in the self-experienced (vs. observed) inclusion condition. There was no effect for self-experienced (vs. observed) ostracism. Even though the difference between observed and self-experienced ostracism was nonsignificant, the effect was of medium size. Given this finding, it is possible that observing ostracism might induce less need threat compared with experiencing ostracism firsthand. We follow up on this issue in Study 2 and a meta-analytic synthesis of both studies.

Discussion

Study 1 achieved an extended replication of Wesselmann and colleagues (2009), finding that observing ostracism (vs. inclusion) causes immediate need threat and an increase in negative mood. Importantly, the novel comparison between observed and self-experienced ostracism yielded no mood differences. For need threat, the negative effect of observed ostracism did not significantly differ from self-experienced ostracism. Yet, the size of the effect and the corresponding confidence interval do not rule out the possibility that individuals observing (vs. self-experiencing)

ostracism exhibit less need threat. This possibility warrants further investigation.

Regarding inclusion, our findings revealed that need satisfaction was stronger in the self-experience (vs. observation) condition. In contrast, mood did not differ between self-experience and observation of inclusion.

We have found these effects even though our manipulation check revealed that participants who were personally ostracized (vs. observed another player's ostracism) provided higher ratings of ostracism. This difference may seem unsurprising given the long-standing insight that individuals pay more attention to events that are personally relevant (e.g., Bargh, 1982; Cherry, 1953; i.e., when they are personally involved in the event). However, despite the manipulation check differences, ostracism had similarly strong effects on mood and need threat in both the self-experience and the observation conditions. This finding is consistent with the notion that humans have evolved an ostracism detection system (Kerr & Levine, 2008; Spoor & Williams, 2007). Observed ostracism may have similar consequences to those of personally experienced ostracism due to the particular sensitivity of such a system.

Study 2

Study 2 was conducted to further examine the processes underlying responses to observed ostracism. Specifically, we compared imagined self-experienced ostracism with imagined observed ostracism. We were thus able to test whether the *in vivo* experience of observed ostracism and the corresponding visual sensory input are necessary for the negative effects found by Wesselmann et al. (2009) and in Study 1.

Previous research has shown that individuals can easily imagine the pain of potential future social betrayals by their romantic partners (Chen & Williams, 2012). Other studies found that participants who read a text about being socially excluded exhibited negative responses (e.g., negative mood and aggression) typical for self-experienced ostracism

Table 3. Pairwise Comparisons Between the Conditions of Study 1 for Mood and Need Satisfaction.

	Mood					Need satisfaction				
	ΔM	SE	p	d	95% CI	ΔM	SE	p	d	95% CI
Observed Inclusion vs. Ostracism	1.07	.18	<.001	-1.41	[-1.92, -0.89]	-1.03	.14	<.001	-1.66	[-2.18, -1.12]
Self-experienced Inclusion vs. Ostracism	1.10	.18	<.001	-1.46	[-1.99, -0.93]	-1.57	.14	<.001	-2.73	[-3.38, -2.08]
Observed vs. Self-experienced Inclusion	-0.05	.18	.789	0.08	[-0.54, 0.38]	0.31	.14	.031	0.47	[0.01, 0.94]
Observed vs. Self-experienced Ostracism	-0.07	.18	.649	0.08	[-0.55, 0.39]	-0.24	.14	.103	-0.43	[-0.91, 0.04]

Note. CI = confidence interval.

(Aydin et al., 2010; Pfundmair, Graupmann, Frey, & Aydin, 2015). These findings suggest that imagination is sufficient to trigger painful reactions to negative social events. However, effects of imagined exclusion or ostracism on need threat have not been examined so far. Most importantly, it is unknown whether people would also feel social pain of others through imagination, that is, in the absence of an in vivo experience. To address this question, Study 2 employed an alternative ostracism manipulation based on an imagined scenario about ostracism in a university setting.

The use of imagination allowed us to test the role of visual bottom-up information in reactions to observed ostracism. In Study 1, and many other studies, ostracism was implemented using the Cyberball game, which can be described as a visual stimulus display consisting of forms with humanlike features (face, arms), a circle (the ball), and patterns of movement. Movement patterns, even those of simple geometrical shapes, are potent cues for the spontaneous attribution of meaningful social actions (Heider & Simmel, 1944). Indeed, Over and Carpenter (2009) found that the observation of the movement of abstract shapes, suggesting a social exclusion episode, is sufficient to threaten the need to belong in children.

Furthermore, the ostracism conditions in Cyberball already differ in terms of figural cues: In the inclusion condition, the repeated trajectories of the ball tosses connect all three players equally, and thus yield three edges of a triangular shape—a *gute Gestalt* (Wertheimer, 1923), a figure that is “good” by virtue of continuity and closure (Wagemans et al., 2012). According to a common grouping principle of Gestalt psychology, elements that form a closed figure tend to be grouped together by the perceiver. In contrast, the trajectories of the ball tosses in the ostracism condition merely produce a linear connection between two players, and thus fail to produce the possible triangular, “good” figure. Conceivably, perceiving the failed, incomplete formation of a figure might already trigger a sense of missing closure and negative affect.

In sum, we investigated whether the negative responses to observed ostracism found in Study 1 would still emerge in the absence of an in vivo experience and corresponding visual bottom-up information in the Cyberball game. To this

end, we asked student participants to *imagine* an observed (vs. self-experienced) ostracism (vs. inclusion) episode. We tested whether imagining the observation of ostracism (vs. inclusion) would trigger need threat and negative mood, and whether these effects would be weaker than or similar to the effects of imagined self-experienced ostracism.

Method

Design and participants. Study 2 employed a 2 (imagined scenario: inclusion vs. ostracism) \times 2 (involvement: imagined self-experience vs. imagined observation) between-subjects design with random assignment. Imagination was stimulated by having participants read a text describing the respective situation, written in third person versus second person singular. To facilitate data collection, we ran Study 2 as an online experiment.

Based on the same parameter scores used for Study 1, the calculated sample size was again $N = 128$. Because the percentage of dropouts and invalid data may be higher in online (vs. laboratory) studies (e.g., Dandurand, Shultz, & Onishi, 2008; Hoerger, 2010), we aimed at increasing the initial sample size by an additional 30%. Thus, the initial sample consisted of 170 participants. Seventeen individuals failed to complete the study,³ and another four individuals answered control questions incorrectly. The data of these 21 participants were not included in the analyses. Given that the scenario manipulation involved a typical situation in a student's life, an additional group of 16 nonstudent participants were excluded.⁴ The remaining sample size consisted of 133 participants (107 female, 26 male) with a mean age of 22.70 years ($SD = 3.41$ years). Students received course credit for their participation.

Procedure and materials. The study was administered online. Interested individuals above 18 years of age were given the URL link to the online study portal. Upon opening the link, they first read an informed consent and were notified that they could simply close the browser window if they did not want to participate. This option remained

throughout the rest of the study to allow for an earlier termination of participation.

Thereafter, participants answered demographic questions and were randomly presented with a text describing either an inclusion or ostracism experience at the university (based on Aydin et al., 2010), written in third person or second person singular. The gender of the protagonist in the third person text was counterbalanced across participants (Julia vs. Jan). In both the inclusion and ostracism conditions, the text described a situation in which students discuss the upcoming course selection during a lunch break in the canteen. In the inclusion condition, the protagonist approaches the group and gets easily integrated into the conversation. In the ostracism condition, the protagonist approaches the group and tries to get involved in the conversation but is fully ignored and excluded by the others. Participants in the imagined observation conditions were instructed to imagine observing the described situation; in the imagined self-experienced conditions, participants were instructed to imagine themselves to be personally involved. Thus, participants either imagined that they were observing the inclusion or ostracism of someone else, or they imagined that they themselves were being included or ostracized by others.

After having read the text, the reflexive needs (Williams, 2009; belonging, control, self-esteem, and meaningful existence; $\alpha = .955$) as well as reflexive mood ($\alpha = .907$) were assessed. For this purpose, the items used in Study 1 were adjusted to fit the present context. The effectiveness of the manipulation was verified by means of two items. Specifically, participants were asked to indicate on 5-point Likert-type scales (1 = *not at all*; 5 = *very*) how much they or the observed person (a) was ignored and (b) excluded ($\alpha = .978$). Furthermore, to check whether the participants had carefully read the texts, we asked them two true or false questions about the content of the texts: (a) "The situation happened in a canteen" and (b) "The students were talking about the course selections." At the end of the experiment, participants were thanked and debriefed.

Results

Manipulation check. To investigate the effectiveness of our manipulation, we calculated a 2 (imagined scenario: inclusion vs. ostracism) \times 2 (involvement: imagined self-experience vs. imagined observation) ANOVA. The analysis revealed that, overall, participants in the ostracism conditions perceived themselves or the observed person as being more excluded and ignored ($M = 4.74$, $SD = 0.72$) than did those in the inclusion conditions ($M = 1.45$, $SD = 0.83$), $F(1, 129) = 602.15$, $p < .001$, $\eta_p^2 = .824$, 90% CI = [.777, .855]. Participants in the observation conditions tended to feel slightly more excluded and ignored ($M = 3.28$, $SD = 1.82$) than did participants in the self-experience conditions ($M = 3.08$, $SD = 1.83$). However, the main effect of involvement

Table 4. Mean Mood and Need Satisfaction as a Function of Imagined Scenario and Involvement (Study 2).

Involvement	Mood		Need satisfaction	
	Ostracism	Inclusion	Ostracism	Inclusion
Self-experience	2.62 (0.62)	4.25 (0.65)	2.04 (0.64)	3.84 (0.63)
Observation	2.56 (0.61)	3.98 (0.62)	2.29 (0.63)	3.30 (0.66)

Note: n (Self-experience/Ostracism) = 34, n (Self-experience/Inclusion) = 30, n (Observation/Ostracism) = 36, n (Observation/Inclusion) = 33. SDs in parentheses.

failed to reach significance, $F(1, 129) = 3.03$, $p = .084$, $\eta_p^2 = .023$. The Imagined Scenario \times Involvement interaction was not significant, $F(1, 129) = 0.45$, $p = .506$, $\eta_p^2 = .003$.

Mood. Another ANOVA was conducted to investigate the effects on mood (see Table 4 for the descriptive statistics). The 2 \times 2 ANOVA revealed a significant main effect of imagined scenario, $F(1, 129) = 199.87$, $p < .001$, $\eta_p^2 = .608$, 90% CI = [.517, .667]. Participants in the inclusion conditions experienced more positive mood ($M = 4.11$, $SD = 0.65$) than did those in the ostracism conditions ($M = 2.59$, $SD = 0.61$). There was neither significant effect of involvement, $F(1, 129) = 2.52$, $p = .115$, $\eta_p^2 = .019$ (imagined self-experience: $M = 3.39$, $SD = 1.03$; imagined observation: $M = 3.24$, $SD = 0.94$), nor a significant interaction, $F(1, 129) = 0.96$, $p = .330$, $\eta_p^2 = .007$. Pairwise comparisons (see Table 5) further supported that imagination of observed versus self-experienced ostracism and imagination of observed versus self-experienced inclusion have similar effects on mood.

Need satisfaction. Another 2 \times 2 ANOVA was conducted to test whether imagined observed and self-experienced ostracism is more threatening than imagined observed and self-experienced inclusion (see Table 4 for the descriptive statistics). The analysis revealed a significant main effect of imagined scenario, $F(1, 129) = 160.42$, $p < .001$, $\eta_p^2 = .554$, 90% CI = [.456, .620]. Participants in the ostracism conditions reported lower need satisfaction ($M = 2.17$, $SD = 0.64$) than those in the inclusion conditions ($M = 3.56$, $SD = 0.69$). The effect of involvement was nonsignificant, $F(1, 129) = 1.74$, $p = .190$, $\eta_p^2 = .013$ (imagined self-experience: $M = 2.89$, $SD = 1.10$; imagined observation: $M = 2.77$, $SD = 0.82$). However, the interaction was significant, $F(1, 129) = 12.51$, $p = .001$, $\eta_p^2 = .088$, 90% CI = [.025, .170]. Need satisfaction was less in the observed ostracism than observed inclusion cell as well as in the self-experienced ostracism (vs. self-experienced inclusion) cell (see Table 5 for the pairwise comparisons). Furthermore, similar to Study 1, self-experienced inclusion caused higher need satisfaction than observed inclusion. Observed (vs. self-experienced ostracism) also had no effect. Again, there was a medium effect, indicating that need threat

Table 5. Pairwise Comparisons Between the Conditions of Study 2 for Mood and Need Satisfaction.

	Mood					Need satisfaction				
	ΔM	SE	p	d	95% CI	ΔM	SE	p	d	95% CI
Observed Inclusion vs. Ostracism	1.42	.15	< .001	-2.32	[-2.92, -1.71]	-1.01	.15	< .001	-1.58	[-2.18, -1.12]
Self-experienced Inclusion vs. Ostracism	1.63	.16	< .001	-2.59	[-3.25, -1.92]	-1.80	.16	< .001	-2.84	[3.43, -2.14]
Observed vs. Self-experienced Inclusion	0.28	.16	.080	0.04	[-0.06, 0.94]	0.54	.16	.001	0.84	[0.32, 1.35]
Observed vs. Self-experienced Ostracism	0.07	.15	.659	0.11	[-0.36, 0.58]	-0.25	.15	.109	-0.39	[-0.86, 0.09]

Note. CI = confidence interval.

might differ between the imaginations of observed vs. self-experienced ostracism.

Discussion

Study 2 exactly replicated the pattern of results found in Study 1. Merely imagining a scenario describing observed or self-experienced ostracism caused need threat and negative mood. Thus, imagination is sufficient to induce empathic responses and to activate the ostracism detection system. No visual input is needed. Similar to Study 1, the ANOVA yielded no significant effect of involvement on mood. Regarding need threat, the effect size and its confidence interval again indicated that imagination of observed ostracism might be slightly less threatening than imagination of self-experienced ostracism.

Combined Effects of Study 1 and 2

Both studies revealed nonsignificant but medium-sized effects of involvement on need threat in the ostracism conditions ($d = -0.431$ and $d = -0.388$, respectively). To obtain a more robust estimate of this effect, we ran a meta-analytic synthesis across both studies (calculated with the R package metafor; Viechtbauer, 2010). The meta-analysis revealed a significant effect of involvement in the ostracism conditions on need threat, $d = 0.401$, $SE = 0.171$, $z = 2.351$, $p = .019$, $CI = [.067, .736]$. Thus, when synthesizing the data from both studies, we found that observed (vs. self-experienced) ostracism led to less need threat.

For the sake of completeness, we also calculated meta-analyses for the effect of involvement on mood in the ostracism conditions and on need fulfillment and mood in the inclusion conditions. The meta-analysis revealed no significant effect of involvement in the ostracism conditions on mood, $d = -0.010$, $SE = 0.169$, $z = -0.060$, $p = .952$, $CI = [-.342, .321]$. Regarding the simple main effect of involvement in the inclusion conditions, we found a significant effect on need satisfaction, $d = -0.632$, $SE = 0.176$, $z = -3.587$, $p < .001$, $CI = [-.977, -.286]$. A final meta-analysis revealed no significant effect of

involvement in the inclusion conditions on mood, $d = -0.157$, $SE = 0.253$, $z = -0.621$, $p = .535$, $CI = [-.653, .339]$. Thus, these additional meta-analyses confirmed the findings of the two single studies.

General Discussion

The present studies examined whether we “feel the pain of others’ ostracism as our own” (Wesselmann et al., 2009, p. 1308). Taken together, our findings suggest that the mere occurrence of ostracism in a perceiver’s environment is sufficient to cause emotional distress, regardless of whether the perceiver is the target of ostracism. Irrespective of self-involvement, the confrontation with ostracism dampened participants’ need satisfaction and mood in comparison with the inclusion conditions. In each individual study, need threat did not significantly differ between the involvement conditions (self vs. observed other). However, a meta-analytic synthesis across both studies revealed that need threat, but not mood, differed between observed ostracism and ostracism directed at oneself. Specifically, participants who observed or imagined observing another person being ostracized exhibited less need threat than did participants who experienced or imagined experiencing ostracism. Interestingly, no such differences emerged for mood. The latter finding is consistent with the equal-distress account outlined in the introduction.

Overall, these findings cannot be explained by potential demand characteristics. Demand characteristics should have led to differences in mood between the observation and personal involvement conditions as well. In addition, both observation conditions (inclusion and ostracism) should have triggered similar decreases in need satisfaction and mood given the lack of personal involvement in both conditions. However, our findings do not support this demand-characteristics account.

In contrast, the findings largely support the equal-distress account, which is based on the notion that responses to ostracism are driven by a monitoring system that automatically detects ostracism (Kerr & Levine, 2008; Spoor & Williams,

2007). The primary function of this detection system is to allow perceivers to quickly notice and avoid situations involving ostracism. Because of the potential costs and consequences of ostracism, the system has evolved to operate with high sensitivity. Thus, it responds quickly to cues indicating ostracism, irrespective of whether the target of ostracism is the self or another person.

The results of Study 2 suggest that the perception of an actual ostracism event is not necessary to trigger responses from that detection system. Rather, the system also responds with warning signals when ostracism, directed at oneself or others, is merely imagined. Thus, the activation of the system does not require low-level processes based on bottom-up sensory input from external events.

Across both studies, the magnitude of negative mood responses did not differ between observed and self-experienced ostracism, whereas need threat responses were slightly smaller after observed ostracism. These findings are consistent with the notion that negative mood responses (vs. need threat responses) are more easily triggered by the ostracism detection system. According to mood-as-information accounts (Schwarz & Clore, 1983, 1996), negative mood is a basic and spontaneous signal of potentially harmful or problematic events in one's environment; to serve its function efficiently and quickly, it is not associated with the triggering source event (Clore et al., 1994). In the present case, the potentially precarious event in the environment is a violation of social inclusion norms. In contrast, need threat responses, as assessed in ostracism studies (e.g., with items like "I felt like an outsider" "I felt the other players decided everything"), require awareness of the source of threat, specifically, of the ostracism episode. To answer the need threat items, participants need to remember the ostracism event and to take the perspective of the ostracized player. Thus, the ostracism detection system might warn the individual somewhat more directly via mood responses.

This being said, it is clear that need threat was affected by (actually perceived or imagined) observed ostracism. As argued above, participants need to take the perspective of the ostracized target when responding to need threat items. It is widely established that there are two types of perspective-taking strategies (Batson et al., 1997). One strategy is to imagine how the other person feels in the given situation (i.e., imagine-other); the other strategy is to imagine how oneself would feel in the situation (i.e., imagine-self). When observers adopt the imagine-self strategy, they are more likely to experience personal distress. In contrast, perspective taking of the imagine-other type is more likely to evoke empathic concern, that is, feelings *for* the other person, rather than feelings of *personal* distress. In our studies, we did not include any perspective-taking instructions. It is possible that our participants did not fully imagine themselves in the observed situation, but rather imagined how the target player must have felt. This would explain why observed ostracism triggered somewhat less need threat than did personally

experienced ostracism. Similarly, in the observing inclusion conditions, participants might have imagined how the target player must have felt, enhancing their need satisfaction. Because these participants might not have imagined themselves in the situation, they reported lower need satisfaction than did participants in the personal inclusion conditions.

Finally, our findings extend prior research using scenario manipulations to examine responses to ostracism. Previous studies showed that reading a text about social exclusion elicits some reactions (e.g., negative mood and aggression) that are typically observed after actual, or "real" ostracism experiences (e.g., Aydin et al., 2010; Pfundmair et al., 2015). However, the effect of a scenario-based exclusion manipulation on fundamental needs has not been investigated so far. Our findings suggest that a scenario describing ostracism may be sufficiently potent to trigger need threat. Thus, it is possible that merely being exposed to ostracism or social exclusion in fictional media, such as novels or movies, can trigger a sense of need threat. Future research should investigate this possibility.

Overall, our findings demonstrate that we really do feel the pain of others' ostracism as our own. Irrespective of whether we directly observe or imagine observing ostracism, the ostracism detection system alerts the individual by inducing negative mood. To the extent that the ostracism detection system responds reflexively and automatically (Kerr & Levine, 2008; Spoor & Williams, 2007), it would be interesting for future research to investigate long-term consequences of observed ostracism. Do responses to observed ostracism start to differ from responses to personal ostracism after a longer delay, providing the opportunity for reflection and coping? Which coping processes do observers of ostracism engage in to reduce the negative impact of the observed experience? How do these strategies differ from those adopted after self-experienced ostracism? Do the strategies differ in their efficiency? Research by Lau, Moulds, and Richardson (2009) demonstrated that remembering self-experienced ostracism from an observer perspective impedes the processing of that negative event and thereby maintains its negative effects. Do observers of ostracism similarly engage in less emotional processing, preventing recovery? Answers to these questions would suggest techniques to help people cope with ostracism that they tend to experience on a frequent basis (Williams, 2001).

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Notes

1. After the manipulation check and before the end of the study, other dependent measures, not relevant for the present article, were assessed.
2. The data files for both studies can be found at the Open Science Framework (osf.io, project name: Observed vs. Personal Ostracism).
3. Noncompletion did not vary by condition. The specific distribution of participants who preliminarily ended the study can be found in the supplemental material.
4. Excluding nonstudents from the analyses had no meaningful influence on the interpretation of the findings. See the supplemental material for more details.

Supplemental Material

Supplementary material is available online with this article.

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