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Ostracized and observed: The presence of an audience affects the experience of being excluded

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ABSTRACT

Does social exclusion hurt more when an audience is present to witness it? Theories of reputation management and evolutionary fitness suggest that an audience would intensify the negative effects of social exclusion. Alternatively, the known benefits of social support suggest that an audience would buffer against the negative effects of exclusion. This question was addressed with two experiments varying the presence of an audience in an online ball-throwing game (Study 1) and in a large number of scenarios (Study 2). Findings suggest that effects of an audience depend on its physical immediacy: An audience helps when it is physically or temporally remote, but an audience hurts when it is physically present at the time of exclusion.

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It is well established that humans have a fundamental need to belong (Baumeister & Leary, 1995). Social exclusion reliably causes people to feel sad, angry, and hurt. It also threatens not just belonging, but also self-esteem, control, meaningful existence, and certainty regarding the self (Hales & Williams, in press; Williams, 2009). Social exclusion is sometimes a private matter, involving only the excluding person and the excluded target. Other times social exclusion is more public, involving an audience that witnesses the experience. Just as the mere presence of an audience changes how well people perform (Zajonc, 1965), it might also change the emotional experience of social exclusion. Thus, in the present article we aim to present an initial investigation into how the presence of an audience affects the experience of social exclusion.

Research on the psychology of social exclusion, rejection, and ostracism (which we will refer to collectively as *social exclusion*) has expanded to studying not just the targets of exclusion, but also the sources of social exclusion (e.g., Rudert, Keller et al., 2020; Grahe, 2015; Zadro & Gonsalkorale, 2014), and third-party observers of exclusion (e.g., Rudert

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et al., 2018). In the present research, we return to a focus on the targets of social exclusion by examining third-party observers as an important and previously unidentified factor. The presence of an audience has the potential to both to intensify a target's pain and to aid their recovery from social exclusion.

Audience as threat amplifier

A number of theoretical perspectives suggest that the presence of an audience should strengthen the negative effects of social exclusion. It has been theorized that, in addition to the negative consequences mentioned above, rejection causes a deep and visceral shame response, and that among other factors, the presence and significance of witnesses to the rejection amplifies the intensity of this response (Thomas, 1997).

When one is excluded without observers it may be easier to engage in facework (Goffman, 1955), and politely convey that a slight was not noticed or felt (Brown & Levinson, 1987). With no third-party witnesses, the knowledge of exclusion is more likely to be *shared*, in that both parties know it occurred, rather than *common*, in that both parties know that the other knows that it occurred. The presence of an audience transforms the exclusion into a public and consensually undeniable fact: both parties know it occurred, and so does everyone else – which further confirms that the source and target are mutually aware of the offense (Thomas et al., 2014, 2018). This transition from private to public recognition has the potential to make the target feel not just rejected, but stigmatized (Goffman, 1963; Major & O'brien, 2005). Indeed, the visceral shame response to rejection is theoretically amplified by the presence and significance of witnesses (Thomas, 1997). In support of this reasoning, people tend to experience more intense negative emotions in the presence of an audience (e.g., Smith et al., 2002; Wolf et al., 2010).

In addition, the sociometer theory of self-esteem posits that people are tuned to detect changes in relational evaluation – the extent to which others regard a relationship with the target as valuable, important, or close (Leary, 1999; Leary & Baumeister, 2000). All else being equal, a public rejection poses greater threat to one's social value than a private rejection. People actively engage in self-presentation and reputation management (Baumeister, 1982; Emler, 1990; Leary et al., 1994). When social exclusion occurs publicly, the target not only fails to achieve inclusion, but also fails to represent themselves as one who is well-liked or trusted by others. Thus, the target's low relational value is signaled both to the immediate group (i.e., those doing the excluding) *and* to the observers.

In ambiguous situations or when the audience has no further information about the target, in line with the fundamental attribution error (Ross, 1977), the observing audience might suspect that the target is excluded because of a norm violation or personal fault. To err on the side of caution and avoid investing in an uncooperative exchange partner, they might sympathize with the excluding person or group and exclude the target as well (Rudert et al., 2018; Rudert, Ruf et al., 2020, Wesselmann et al., 2013). Thus, being ostracized in front of an audience could reduce the target's social value and chances of acceptance even more drastically. Further, targets may infer that bystanders are complicit with the source of social exclusion. This perception may amplify the negative effects of exclusion, as targets may feel that they are being excluded by a greater number of people. Consistent with this reasoning, people judge an individual who is included by an excluder

as likely to perpetuate social exclusion (Critcher & Zayas, 2014). In addition, because the presence of an evaluative audience can cause people to emit a dominant response (Cottrell et al., 1968), and the reflexive response to exclusion is distress (i.e., pain, negative affect, and need-threat; Williams, 2009), it follows that an audience would amplify exclusion's negative effects.

Finally, evolutionary theorizing also provides a basis for expecting an audience to amplify the negative effects of social exclusion. Humans are theorized to be sensitively tuned to detect even subtle cues of potential exclusion, for evolutionary reasons (Wesselmann et al., 2012; Kerr & Levine, 2008). Humans depended on cooperative group living for survival advantages such as shared resources and protection from predation, and therefore likely developed sensitive systems for detecting and responding to signs of exclusion (Baumeister & Tice, 1990; Spoor & Williams, 2007). However, successful adaptation requires not just survival, but also reproduction (Brown et al., 2009; Buss, 1990; Schaller et al., 2007). All else being equal, people who are known to have been socially excluded are less desirable mating partners, given that social exclusion itself protects groups and individuals from others who may be poor exchange partners or harbor communicable diseases (Kurzban & Leary, 2001). In this sense, the negative consequences of ostracism may not just be the evolutionary product of decreased likelihood of *survival*. Social exclusion may also decrease opportunities to reproduce – both as a result of isolation from the group in the case of complete ostracism, and also as a function of damage to perceived mate value (Gangestad & Simpson, 2000). Therefore, emotional responses to social exclusion should be greater when the target believes the event is witnessed by others, relative to when the target believes the event is witnessed only by the person(s) doing the excluding.

Audience as threat dampener

For the reasons outlined above, we began this research hypothesizing that an audience would intensify negative emotional reactions to exclusion. Alternatively, however, there are also reasons to expect that an audience might actually serve as a social resource that bolsters basic needs following exclusion, at least in situations where the audience is perceived to be supportive. The unexpected results of the first experiment caused us to also consider these reasons in more detail.

For the reasons outlined above, it is plausible that an audience would intensify negative emotional reactions to exclusion. Alternatively, however, there are also reasons to expect that an audience might actually serve as a social resource that bolsters basic needs following exclusion, at least in situations where the audience is perceived to be supportive. We began this research hypothesizing that an audience would have harmful effects. However, the unexpected results of the first experiment caused us to also consider ways in which an audience could actually help.

Social support from others is beneficial for both mental and physical health, especially in stressful situations (Taylor, 2011; Uchino et al., 1996). Victims of transgressions are generally motivated to have their victimhood acknowledged (e.g., Shnabel & Nadler, 2010). The presence of a supportive audience could have a bolstering effect by instilling a sense that the wrongdoing did not go unnoticed.

Targets of social exclusion may reasonably assume that third-party observers will take their perspective and support them rather than the source of exclusion. Generally, people tend to engage in naïve realism, assuming they see the world accurately (Ross & Ward, 1996), and that anyone who disagrees is mistaken. People are further motivated to view themselves as beneficent (Greenwald, 1980). In the context of interpersonal conflict and transgression, perpetrators tend to construe the wrongdoing as provoked and minimally harmful, while victims construe it as unprovoked and more harmful (Baumeister et al., 1990; Adams, 2016). This dynamic has been documented in responses to ostracism, specifically. When people recall both a time they used ostracism and a time they received ostracism, they characterized the ostracism more negatively and resentfully when occupying the target role. When occupying the source role, however, people characterized the ostracism more positively and reported that the issue had been resolved (Sommer et al., 2001). Based on these findings, targets of social exclusion likely believe they are being unfairly treated, especially when they do not agree with the reasons for why they are being ostracized (Rudert & Greifeneder, 2016; Tuscherer et al., 2015). Because people tend to infer other people's attitudes and beliefs egocentrically from their own (Epley et al., 2009, 2004; Nickerson, 1999), people likely construe an audience as supportive, and therefore could benefit from its presence.

Finally, there are reasons to believe that neutral observers actually do tend to sympathize with targets, at least when social exclusion is clearly unprovoked, or directed toward vulnerable or sympathetic targets (Bernstein et al., 2018; Rudert, Reutner et al., 2017; Rudert et al., 2018; Wesselmann et al., 2009). Targets of social exclusion may well be justified in assuming that an audience sympathizes with their perspective, and their presence may even suggest the comforting possibility of future social connection.

Overview

In the current research, we complement existing research on how third-party observers respond to social exclusion by asking: *How does the presence of third-party observers change the experience of social exclusion for the target?* In Study 1 participants were socially excluded from a ball-throwing game (Cyberball; Williams et al., 2000) that either had no audience or a virtual audience. Participants then reported their basic needs satisfaction, affect, and embarrassment. Responses to ostracism are theorized to be more susceptible to moderation after targets have transitioned from experiencing reflexive pain to reflecting on the event (Williams, 2009). Because of this, measures of these outcomes were collected both immediately and following a short delay.

Study 2 employed a complementary research method to examine the effects of an audience across a wide range of inclusion and exclusion scenarios. The procedure used in Study 2 allows us to explore moderating characteristics of the audience and scenarios while increasing generalizability across a range of stimulus materials (Wells & Windschitl, 1999). Materials, data, and analysis code for both studies are available online (https://osf.io/4z7ry/?view_only=b10860338a914aa78ffab5dc2283ee27). Both studies were preregistered (Study 1: https://osf.io/av5rs/; Study 2: https://osf.io/4c8ju/).

Study 1

Method

Participants

Participants were 162 introductory psychology students who reported to the laboratory and completed the experiment for partial course credit (51.9% females, M_{Age} = 19.17, SD_{Age} = 1.76). Eight participants reported having played Cyberball before; as outlined in the preregistration, these cases were included in primary analyses. Sample size was determined with an a priori power analysis showing that 76 participants per condition are necessary for 80% power to detect an effect size of d =.46 (which was observed in a separate small pilot study).

Design

As an initial test of the hypothesis that an audience affects the experience of being ostracized, in Study 1, all participants in all conditions were fully ostracized. Based on random assignment, half were ostracized with no audience present (as in typical ostracism studies; n = 81) and half were ostracized *with* a 6-person audience present (six observers; n = 81). We hypothesized that the presence of an audience would slow recovery from social exclusion. As dependent variables, we measured participants' basic needs satisfaction, positive affect, and embarrassment both immediately after the game and following a one-minute delay (reflexive and reflective reactions to ostracism, see Williams, 2009).

Procedure

After consenting to participate, participants completed a five-item filler questionnaire designed to bolster the cover story, which claimed that the study was on the effects of mental visualization (e.g., "If I try hard enough I can picture most scenes in my mind").

Participants then engaged in two games of Cyberball: in the first game all participants were assigned the role of "observer;" in the second game they were all assigned the role of "player." In the first game participants witnessed all players being included evenly. The purpose of the first game was to bolster the cover story that real people were observing them in the second (key) game. Following the second game, participants completed additional filler measures to reinforce the cover story. They rated the degree to which they engaged in mental visualization and liked each of the players, then provided open-ended responses about their visualization and impressions of the players.

The preliminary game of Cyberball was included in the procedure based on the results of a pilot study, which indicated that a single game was insufficient to induce a sense that one is being observed. In the pilot study, participants played a single game of Cyberball and did not act as spectators. They accurately reported seeing the audience members (as indicated by a report of the number of spectators present, $t(254) = 19.91$, $p < .001$, $d = 2.49$), but they did not report actually feeling observed during the game (as indicated by affirmative endorsement of the single item "During the game did you feel like you were being observed," $t(184) = 1.42$, $p = .156$, $d = .21$). Therefore, in the current study the preliminary game was added to bolster the cover story and induce a stronger sense that

participants were observed. According to manipulation checks (reported below), it appears that these additional means to bolster the cover story were successful.

Next, participants completed a second (key) game of Cyberball, in which they were assigned to the role of *player*. In this game all participants were completely ostracized, receiving no throws for about 2 min. In the no-audience condition, only the two other players were depicted along with the participant. In the audience condition, the players were depicted along with six ostensible audience members (See Figure 1).

Immediately following the game, to continue to bolster the cover story, participants responded to an open-ended question asking what they mentally visualized during the game. Next, they reported their levels of 1) basic needs satisfaction, 2) positive affect, and 3) embarrassment in terms of how they felt "during the game" (reflexive measures). They were then instructed to wait for 1 min as the next set of questions loaded (as in Wirth & Williams, 2009). This delay was intended to allow time for participants to enter the reflective stage of ostracism and begin to recover their basic needs satisfaction. Following this delay, participants again reported their levels of the same three outcome variables at the moment (reflective measures). Finally, participants responded to manipulation checks, process checks, and demographics measures before being fully debriefed and dismissed.

Measures

All outcome measures were assessed using agreement ratings on scales from 1 (Not at all) to 5 (Extremely). Basic needs satisfaction was measured with 12 items (Williams, 2009); three for each need: belonging (e.g., "I felt [feel] like an outsider," reversed), self-esteem (e.g., "I felt[feel] good about myself"), control (e.g., "I felt [feel] powerful"), and meaningful existence (e.g., "I felt [feel] invisible," reversed). These items were averaged into a single reliable composite measure (reflexive α = .86; reflective α = .96).

Positive affect was measured by having participant rate the extent to which they felt (or feel) each of eight emotions (with reverse coding of negative items): good, bad, friendly, unfriendly, angry, pleasant, happy, and sad (reflexive α = .83; reflective α = .93).

Embarrassment was measured by having participant rate the extent to which they felt (or feel) each of four states: embarrassed, humiliated, self-conscious, and ashamed (reflexive α = .90; reflective α = .94).

To verify that participants generally felt ostracized (even though ostracism was not manipulated), we had them rate the extent to which they felt "ignored" and "excluded"

No Audience Condition Audience Condition

Figure 1. Images of the two conditions in Study 1.

during the key game, which were averaged together as an ostracism check (Spearman-Brown $r = .77$). They also reported percentage of throws they received during the game.

As a basic perceptual manipulation check, participants were asked, "Aside from the players, were there any **spectators** watching the second game? Note: A spectator is a figure that is able to watch the game, but not throw or receive ball tosses." Response options were "No" and "Yes (if so, how many?)," from which we calculated the reported number of audience members.

As a *process check*, to assess whether we induced the psychological state of feeling observed, participants rated agreement with four items (1) "I felt like the game was being watched by other people," (2) "I felt like others could see what was happening," (3) "I felt like there were witnesses," (4) "I felt like I was being observed." Items were averaged to form a scale ($\alpha = .95$).[1]

Results

Manipulation and process checks

Participants generally reported feeling ignored and excluded on the five-point scale ($M = 4.62$, $SD = .82$). They also correctly reported receiving almost no ball throws ($M = 1.07$, $SD = 5.99$). Neither of these measures were affected by the audience manipulation, stronger $t(160) = 1.40$, $p = .164$, $d = .22$.

In general, participants also were able to correctly report the number of audience-members in both the no-audience condition ($M = .07$, $SD = .26$), and the audience condition ($M = 6.4$, $SD = 1.11$), $t(158) = 50.14$, $p < .001$, $d = 7.88$. In the audience condition, participants reported feeling observed more strongly compared to the no-audience condition ($M = 3.61$, $SD = 1.21$ vs. $M = 2.26$, $SD = 1.28$), $t(160) = 6.89$, $p < .001$, $d = 1.08$.

Effect of audience on basic needs, positive affect, and embarrassment

For each dependent variable, we performed a 2 (audience condition: no audience v. audience) x 2 (stage: reflexive x reflective) mixed analysis of variance, with stage assessed as repeated measures.

For all three dependent variables there were strong main effects of stage, indicating that overall, people recovered substantially during the delay in terms of their basic needs satisfaction, $F(1, 160) = 218.54$, $p < .001$, $\eta_p^2 = .58$, positive affect, $F(1, 160) = 148.00$, $p < .001$, $\eta_p^2 = .48$, and embarrassment, $F(1, 160) = 64.72$, $p < .001$, $\eta_p^2 = .29$. (see Table 1 for means and standard deviations by condition at each stage). There were also indications of main effects of an audience increasing basic needs, $F(1, 160) = 6.54$, $p = .012$, $\eta_p^2 = .04$, positive affect, $F(1, 160) = 7.15$, $p = .008$, $\eta_p^2 = .04$, and, marginally, embarrassment, $F(1, 160) = 2.81$, $p = .096$, $\eta_p^2 = .02$.

These main effects of stage were qualified by interactions with the audience condition (see Figure 2), indicating that the presence of an audience produced greater recovery of basic needs, $F(1, 160) = 5.91$, $p = .016$, $\eta_p^2 = .04$, greater recovery of positive affect, $F(1, 160) = 6.63$, $p = .011$, $\eta_p^2 = .04$, and reduced embarrassment, $F(1, 160) = 4.67$, $p = .032$, $\eta_p^2 = .03$. In the reflexive stage, basic needs affect and embarrassment were not significantly affected by the audience condition (all ts < 1). However, following the delay participants in the audience condition reported higher basic needs satisfaction compared to the no-audience condition, t

Table 1. Mean levels of basic needs satisfaction, positive affect, and embarrassment by condition at each stage in Study 1.

			Simple effect of an audience within each stage		
	No-Audience	Audience	*t*(160)	*p*	*d*
Reflexive Stage					
Basic Needs Satisfaction	1.65 (.60)	1.71 (.68)	.58	.561	.09
Positive Affect	2.07 (.71)	2.13 (.69)	.56	.584	.09
Embarrassment	3.14 (1.20)	3.10 (1.19)	−.20	.844	−.03
Reflective Stage			*t*(160)	*p*	*d*
Basic Needs Satisfaction	2.66 (1.03)	3.12 (.93)	2.97	.003	.46
Positive Affect	2.86 (1.00)	3.35 (.92)	3.23	.001	.49
Embarrassment	2.53 (1.25)	2.05 (1.07)	−2.63	.009	−.40

Note. $N = 81$ (per condition). Standard deviations are in parentheses. Responses on all scales are on a scale from 1 (not at all) – 5 (extremely). The Stage x Condition interaction is significant for all three outcomes: Basic Needs Satisfaction, $F(1, 160) = 5.91$, $p = .016$, $\eta_p^2 = .04$, Positive Affect, $F(1, 160) = 6.63$, $p = .011$, $\eta_p^2 = .04$, and Embarrassment, $F(1, 160) = 4.67$, $p = .032$, $\eta_p^2 = .03$.

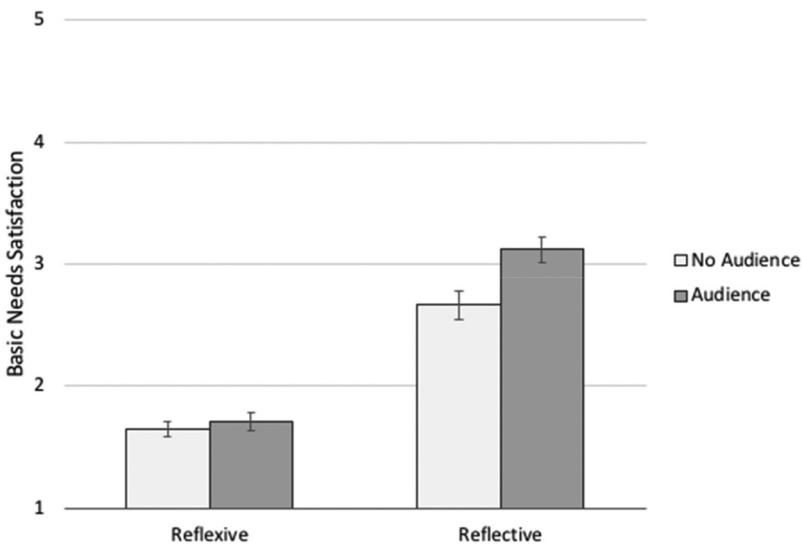

Figure 2. Effects of an audience on mean levels of basic needs satisfaction in Study 1. Note, high scores represent greater basic needs satisfaction on a scale from 1 (not at all) to 5 (Extremely), $N = 162$. The interaction between audience condition and ostracism stage is significant, $F(1, 160) = 5.91 = .016$, $\eta_p^2 = .04$. Basic needs satisfaction was not significantly affected by the audience in the reflexive stage, $t(160) = .58$, $p = .561$, $d = .09$, but those in the audience condition had recovered significantly more in the reflective stage, $t(160) = 2.97$, $p = .003$, $d = .46$.

(160) = 2.97, $p = .003$, $d = .46$, higher positive affect, $t(160) = 3.23$, $p = .001$, $d = .49$, and less embarrassment, $t(160) = -2.63$, $p = .009$, $d = -.40$.

Discussion

Contrary to our original prediction, the presence of an audience helped speed recovery from ostracism. Rather than demonstrating that an audience will amplify the negative effects of ostracism, the current study demonstrates that an audience can be beneficial, at least under the circumstances we created in this experiment. It seems likely, therefore,

that participants construed the audience as somewhat supportive. As the procedure first had participants assume the role of audience members themselves, it might have been easier for them to later believe that the audience members identified with them rather than the other players (which is in fact consistent with how neutral observers respond to witnessing ostracism in Cyberball; Wesselmann et al., 2009).

It is also possible, however, that the audience boosted recovery from ostracism because the audience also did not receive any ball throws. Thus, participants may have perceived the observers as being excluded as well. The current experiment cannot rule this out; it is possible that the originally hypothesized effect would have emerged had the audience been depicted as more distant from the game (e.g., watch from sports stands). However, participants were able to correctly respond to the manipulation check item which specified, "A spectator is a figure that is able to watch the game, but not throw or receive ball tosses." This suggests at least some awareness that the game was structured such that audience members were not eligible to be thrown the ball. As people are usually sensitive to whether or not exclusion experiences can be attributed to certain rules, norms or technical reasons (Eisenberger et al., 2003; Rudert & Greifeneder, 2016), it would be surprising if participants had not considered this crucial difference between themselves and the audience members.

Additionally, it is important to note that this experiment asked participants to self-report the main dependent variables twice (in the reflexive vs. the reflective stage). The repeated measurement allowed us to probe effects of the manipulation at different stages according to the temporal need-threat model of ostracism. While this approach is common in ostracism research (e.g., Hales et al., 2016; Wirth & Williams, 2009), it is also an important potential boundary condition. Specifically, responding to the first set of questions may have amplified the effect of the audience by prompting additional deliberation about the game and its contents. Participants in the audience condition may have had more to deliberate about, thus leading to greater benefits, relative to if participants had only been asked to respond to the reflective measures without answering any prior reflexive questions.

Study 2

Study 2 was designed to extend the findings from Study 1 using methods that complement the strengths and weaknesses of Study 1. While Cyberball evokes strong and reliable social exclusion effects, it represents a highly specific and somewhat artificial situation. In contrast, in real-life people can be excluded in a variety of ways ranging from trivial to extreme. In Study 2, we thus exposed people to a variety of social exclusion scenarios with the aim of providing some assurance that our conclusions generalize not only to a broader population of participants, but also to a broader population of social exclusion events (Judd et al., 2012; Wells & Windschitl, 1999).

To this end, we adapted scenario paradigms that have been used in social exclusion research (Howe & Dweck, 2016; Pfundmair et al., 2015), as well as research examining the impact of an audience on emotional reactions (Wolf et al., 2010). We build on this method by exposing participants to 32 scenarios, providing the opportunity to explore moderating features of the scenarios. In addition, Study 2 builds on Study 1 by adding inclusion status as a manipulated factor, in a full 2 (inclusion status: included v. excluded) x 2

(audience: present v. not specified) within-subjects design. Finally, Study 2 also measures perceived support as a potential moderator and includes exploratory analyses of features of the situation and audience that may affect the extent to which an audience helps or hurts.

First, as discussed above, targets may feel that they are unfairly ostracized and believe that the audience might side with them. On the other hand, there is the threat of potential stigmatization from the audience. One important factor might be the target's construal of the audience: If a target perceives that the audience might be supportive, they might feel more secure knowing that the episode will not damage their reputation. On the other hand, if a target perceives the audience as critical from the start, concerns about stigmatization might be more salient.

Second, characteristics of the audience may moderate its effects. The design of Study 2 deliberately contained variation in the types of situations and the nature of the audience. Although we did not conceive the hypotheses a priori, in an exploratory analysis we used social impact theory to organize the scenarios and explore potential moderating factors. Social impact theory (Latané, 1981) identifies three dimensions on which sources of influence (in this case, an audience) can vary: strength (i.e., the importance of the observers), immediacy (whether the observers are physically present, versus remote), and number (size of the audience). Study 2 explored these factors as variables that may moderate the effects of an audience on basic needs.

Method

Participants

Participants were 201 university students who completed the study online for partial course credit (68.48% women, M_{Age} = 18.65, SD_{Age} = .90). As preregistered (https://osf.io/4c8ju/), participants who failed an attention check (n = 16; Maniaci & Rogge, 2014) were excluded from analyses, and the responses from one participant who did not complete the survey were included in the analysis. Sample size was determined with an a priori power analysis using Pangea (Westfall, 2015), showing that 200 participants each responding to 32 stimuli provides adequate power (95%) to detect a two-way interaction with an effect size of d = .35.

Design

Each participant read and responded to 32 scenarios, 18 of which were adapted from the rejection sensitivity questionnaire (Downey & Feldman, 1996), and depict instances of clear social rejection or (as adapted for this study) acceptance. The remaining 14 scenarios were generated to represent instances of ostracism – ignoring and excluding as a more passive behavior compared to the rejection scenarios in which rejection was explicitly communicated. A complete list of scenarios is provided in the Appendix.

Procedure

Participants were informed that the research concerns the ways in which people respond to social situations. They were instructed to read the 32 scenarios carefully and to "take a moment to reflect on how you would feel in that situation, and respond to the questions."

The 32 scenarios were presented in random order without replacement. Each scenario had four variants corresponding to the 2 × 2 within-subjects design. Thus, on each trial participants would see a scenario, randomly determined to depict either inclusion or exclusion, and to either specify the presence of an audience, or not. On each trial, participants provided responses to the three dependent variables outlined below.

After responding to all 32 scenarios, in order to measure perceived support from the audience, participants were again shown the subset of scenarios for which they had been randomly assigned to the audience-present version, and asked to report how supportive they construed the audience to be (see below).

Measures

On each trial, participants complete three different dependent variables. First, they responded to four items forming a composite index of basic needs satisfaction (adapted from Rudert, Hales et al., 2017). Following the prompt, "I would feel … ", participants responded to semantic differential scales from 1 to 10 indexing belonging (1 "rejected" – 10 "accepted"), self-esteem (1 "bad about myself" – 10 "good about myself"), control (1 "powerless" – 10 "powerful"), and meaningful existence (1 "invisible" – 10 "recognized"). For each trial, responses to these four items were averaged into an index (average α across 32 scenarios = .97).

Next, participants rated their level of self-certainty, a fifth need theorized to be threatened by ostracism (Hales & Williams, in press; Hogg, 2007; Williams et al., 2019). Because this need is newer and less well established in the literature, we analyzed it separately. Responses were made from 1 "uncertain about myself" to 10 "certain about myself". Finally, we measured hurt feelings (Leary & Leder, 2009), with responses from 1 "like my feelings were hurt" to 10 "like my feelings were okay."

After participants provided responses to all 32 scenarios, they rated the perceived supportiveness of each audience. The subset of audience-present trials were displayed again, along with instructions to "indicate how you interpreted the scenario *when you first read it*." Participants responded to the question, "When you first read this, how did you imagine [audience specified in scenario]?". Responses ranged from 1 "Relatively judgmental towards me" to 10 "Relatively supportive of me."

Analysis

Results were analyzed with mixed effects models, using the lme4 software package in R (Bates et al., 2015). Several of the preregistered models failed to converge. In these cases, we removed the random slopes for lower-order/main effect terms to achieve convergence, as this has been shown not to increase Type I errors for interaction tests (Barr, 2013). As a result of the varied random-effects structures, degrees of freedom vary throughout the results. Inferential tests were conducted using Satterthwaite's degrees of freedom in the lmerTest package (Kuznetsova et al., 2017).

Results

Primary analyses

Compared to inclusion, exclusion strongly reduced basic needs satisfaction and self-certainty, and increased hurt feelings, weakest main effect, $b = -4.58$, $t(37.55) = -13.87$,

$p < .001$. There were also main effects of audience, with more negative outcomes when an audience was specified, weakest main effect, $b = -.19$, $t(32.28) = -3.15$, $p = .004$. The interaction between Inclusion Status and Audience was not significant for any outcome: basic needs, $b = .30$, $t(34.05) = 1.93$, $p = .062$, self-certainty, $b = .23$, $t(32.92) = 1.68$, $p = .102$, hurt feelings, $b = .20$, $t(181.97) = 1.79$, $p = .077$.

As planned, we tested the simple effects of audience within each inclusion status condition. Within rejection trials, audience did not have a detectable effect for any of the three outcomes, strongest effect, $b = -.14$, $t(30.92) = -1.42$, $p = .166$. Within acceptance trials, the audience produced lower basic needs satisfaction, self-certainty, and greater hurt feelings, weakest effect, $b = -.30$, $t(36.50) = -2.91$, $p = .006$.

Perceived support

Perceived support was generally associated with more positive outcomes, weakest main effect, $b = .15$, $t(34.32) = 6.10$, $p < .001$. Perceived support interacted with inclusion status in predicting basic needs, $b = -.14$, $t(39.81) = -2.97$, $p = .005$, and self-certainty, $b = -.08$, $t(79.54) = -2.40$, $p = .019$, but not hurt feelings, $b = -.05$, $t(57.30) = -1.38$, $p = .172$. The nature of this interaction was such that perceived support was associated with more positive outcomes in both the exclusion trials and the inclusion trials, however, this association was generally stronger for inclusion (needs, $b = .14$, $t(41.36) = 5.34$, $p < .001$, self-certainty, $b = .18$, $t(1428) = 8.45$, $p < .001$, hurt feelings, $b = .16$, $t(1427) = 7.75$, $p < .001$), compared to exclusion (needs, $b = .08$, $t(1389) = 4.30$, $p < .001$, self-certainty, $b = .11$, $t(31.48) = 4.40$, $p < .001$, hurt feelings, $b = .12$, $t(1395) = 5.62$, $p < .001$).

Audience characteristics

After conducting the analyses reported above, we speculated that effects of audience may be contingent on the characteristics of sources of influence outlined by social impact theory (Latané, 1981). Accordingly, on an exploratory basis, we classified each of the scenarios according to the strength of the audience (friends/family, k = 13 versus strangers/unspecified k = 19) and the immediacy of the audience (audience is immediately present during episode, k = 13 versus audience is remote and learns about it later, k = 19). The scenarios did not contain sufficient detail to categorize meaningfully based on number of audience members (see Appendix).

Audience strength showed weak signs of a 3-way interaction with needs, $b = .36$, $t(2646) = 1.91$, $p = .056$, self-certainty, $b = .50$, $t(285.25) = 2.33$, $p = .020$, and hurt feelings, $b = .36$, $t(3773) = 1.66$, $p = .097$ such that the audience tended to be especially hurtful for inclusion trials in which the audience was remote. However, the simple interaction within exclusion was not significant for any outcome, strongest effect, $b = .19$, $t(164.68) = 1.46$, $p = .145$.

Audience immediacy significantly interacted with inclusion status and audience presence: 3-way interaction for needs, $b = -.79$, $t(200.20) = -3.90$, $p < .001$, self-certainty, $b = -.76$, $t(187.27) = -3.36$, $p = .001$, and hurt feelings, $b = -.91$, $t(266.87) = -4.02$, $p < .001$. In the social exclusion scenarios, the effect of the audience depended on whether the scenario depicted the audience as immediately present versus remote (see top panels of Figure 3), simple two-way interactions: needs, $b = -.47$, $t(181.97) = -4.12$, $p < .001$, self-certainty, $b = -.47$, $t(199.65) = -3.63$, $p < .001$, and hurt feelings, $b = -.55$, $t(1914) = -4.27$, $p < .001$. When the audience was remote/learned about the event later (top right panel), it

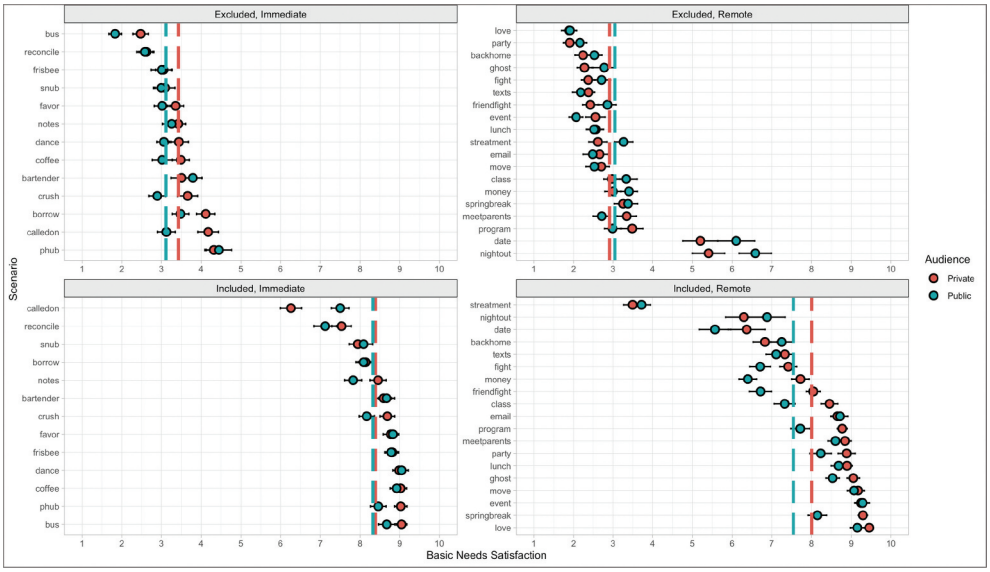

Figure 3. Average basic needs satisfaction in each scenario, by inclusion status (Excluded versus Included), audience presence (private versus public), and audience immediacy (immediately present vs remote). Error bars represent plus or minus one standard error of the mean. Audience x immediacy interaction for rejection (upper panels): $b = -.46$, $t(181.97) = -4.12$, $p < .001$. Audience x immediacy interaction for inclusion (lower panels): $b = .35$, $t(172.49) = 3.05$, $p = 0.003$.

had no detectable effect on any self-certainty or hurt feelings, strongest effect, $b = .10$, $t(167.36) = 1.17$, $p = .246$, $d = .05$, and a positive effect on basic needs, $b = .18$, $t(165.57) = 2.47$, $p = .015$, $d = .09$.

In contrast, when the audience was immediately present (top left panel), it had a significantly harmful effect on all three outcomes: Basic needs, $b = -.29$, $t(158.43) = -3.80$, $p < .001$, $d = -.18$, self-certainty, $b = -.37$, $t(11.74) = -2.99$, $p = .012$, $d = -.18$, and hurt feelings, $b = -.50$, $t(146.83) = -4.66$, $p < .001$, $d = -.23$.

In the case of inclusion (lower panels of Figure 3), the effect of the audience also depended on whether the scenario depicted the audience as immediately present, but did so in a different way than exclusion, weakest simple two-way interaction, $b = .35$, $t(177.95) = 2.70$, $p = .008$. When the audience was remote/learned about the event later (lower right panel), it had significant negative effects on all three outcomes, weakest effect, $b = -.45$, $t(20.84) = -3.14$, $p = .005$, $d = -.18$. In contrast, when the audience was immediately present (lower left panel), it had no detectable effects, strongest effect, $b = -.09$, $t(1099.22) = -.98$, $p = .327$, $d = -.05$.

Discussion

The results of Study 2 suggest that an audience makes the experience of social exclusion worse, *but only when they are present to directly witness it*. Conversely, an audience also makes the experience of social inclusion worse, *but only when they learn about the event later*.

Importantly, this study provides initial evidence for the original hypothesis that an audience can intensify the negative effects of social exclusion. It appears, however, that

this is only the case for situations in which the audience is immediately present. An immediately present audience bears direct witness to one's exclusion, which may put pressure on a target to regulate emotional expressions and avoid behaving in a way that produces further exclusion. Simultaneously, targets are unable to exercise reputational control by choosing how the event is later described to others (Emler, 1990). As the moderating role of audience immediacy was not predicted a priori, future research is necessary to confirm this finding. However, the current results suggest an interesting and non-trivial pattern of an audience having the initially predicted effect under circumstances that are theoretically sensible. Additionally, social impact theory distinguishes between physical immediacy and temporal immediacy (Latané, 1981). In the current experiment the two were largely confounded. Future work can disentangle which dimension of immediacy plays a greater role in amplifying the negative effects of exclusion in the presence of an audience.

Unexpectedly, the presence of an audience had an overall stronger, and negative, effect in inclusion situations compared to exclusion situations. We offer two possible interpretations of this finding. First, the presence of an audience may have caused participants to discount the sincerity of the inclusion, attributing the source's behavior to the external pressure of an audience (i.e., targets assume they were included, not because they are liked, but because it would appear socially undesirable to for the sources exclude; Heider, 1958). Second, because many of the scenarios involved the audience learning about the event after it occurred, participants may have felt uneasy about presumably being the topic of gossip. Even when positive, gossip represents a situation where one' reputation is out of their control (Emler, 1990), and may also quickly turn negative. Moreover, some of the situations were not altogether flattering toward the target, even if they were included (e.g., asking one's parents for money). While both interpretations are plausible, the second is supported by the higher-order interaction with audience immediacy. An audience only had negative effects in inclusion situations when they learned about the event later. While there was some evidence that perceived audience support moderated the effect of social exclusion, the nature of this interaction was surprising. Specifically, perceived support mattered more for inclusion situations than exclusion situations. A limitation of this study is that perceived audience support was measured after participants had already responded to all of the scenarios, and thus ratings of perceived support could have been contaminated by responses on the primary dependent variables. Future research can address this limitation by manipulating the apparent supportiveness of the audience directly.

General discussion

A growing body of research addresses the question of how third-party observers react to ostracism. One reaction is to experience *vicarious* ostracism, in which the observer feels threats to their own basic needs, especially when they deliberately take the perspective of the target of ostracism (Wesselmann et al., 2009; Wesselmann, Williams et al., 2013). Similarly, people who witness an unprovoked ostracism event report a greater desire to affiliate with the target (Bernstein et al., 2018). Finally, research has investigated how moral blame is assigned following ostracism, considering factors such as the facial

appearance of the sources and targets, as well as the similarity between the sources and targets (Rudert, et al., 2017; Rudert et al., 2018).

In the present research we examine how the existence of an audience changes the target's experience, rather than examining how the audience responds to social exclusion. Study 1 indicated that a virtual audience can help people recover more quickly from exclusion. Study 2, alternatively, indicated that an audience can enhance the negative effects of ostracism, at least when it is directly present to witness the event.

Those contradictory findings are not entirely surprising, given that the exclusion situations used in Study 1 are fundamentally different than those used in Study 2. In contrast to the real-life scenarios in Study 2, exclusion in Cyberball is short-term, anonymous, and does not cause any long-lasting potential consequences for the target. Thus, directly comparing the studies to identify common patterns is a challenge. However, it is not uncommon for different theoretically operationalizations of similar constructs to yield sharply different results (Landy et al., 2020). In fact, the differences may be highly informative as they highlight boundary conditions under which certain effects may show or not. We thus consider the current contradictory findings an invitation for more research and theory to understand the complex interplay between targets, sources, and observers. In the spirit of informed speculation, we offer the following possibilities.

First, the exploratory analyses of Study 2 offer an important hint: the audience only hurt when it was present, not remote. Cyberball involves a literal remote connection to other players, mediated through a computer. That is, although the avatars were depicted as immediately present, the humans, of course, were not. As a consequence, participants in Study 1 may not have felt any *immediate* pressure to regulate their emotional expression in socially desirable ways, and were thus able to enjoy the beneficial social support of the audience. There was no particular pressure on participants to regulate their verbal and nonverbal responses, and following reflection they were free to benefit from the (assumed) supportive presence of the audience. In a computer-mediated interaction there is no way for participants to behave awkwardly or incorrectly, or somehow further jeopardize their relational value. Moreover, both the participant and the audience remained completely anonymous within the game; from the perspective of the participants, additional negative consequences of low relational value are less likely.

Similarly, in Study 1, the audience only positively affected responses to exclusion in the reflective stage, after a delay when participants were temporally remote from the exclusion experience. This accords nicely with the finding in Study 2 that the effect of the audience was only present when the audience was remote, and presumably learned about the event later. In this case, it is plausible that participants were responding in terms of how they would have felt in the reflective stage, after a delay, rather than the immediate moment.

These results have important theoretical and practical implications. Social exclusion does not occur in a vacuum; bystanders often witness it as it occurs (and indeed the line between "excluder" and "observer of exclusion" may itself be blurry, especially in the mind of the target; Critcher & Zayas, 2014). By expanding the scope of actors considered in the situation, this research identifies an important factor that appears to play a role in how people respond to social exclusion. Future research should address additional factors that may exacerbate the negative or positive effects of an audience. For example, public breakups between romantic partners may be especially distressing, as might situations

in which one is rebuffed after making an explicit request, as opposed to being excluded as they go about their regular behaviors. Future research should also attend to the possible mechanisms whereby an audience helps or hurts. For example, public rejection may be more painful because the presence of an audience makes salient others who have more social connections, producing an upward social comparison that may cause individuals to feel worse (e.g., Deri et al., 2017). Alternatively, there may be times when the presence of an audience is perceived as helpful merely because they offer the comforting possibility of future connection (which indeed may be true; Bernstein et al., 2018).

Finally, the present research also suggests a new and helpful answer to the question of how to help people cope with social exclusion (Eck et al., 2016). Instead of aiming to prompt the targets to engage in proactive coping behaviors (e.g., Hales et al., 2016), or the sources to exclude in the least harmful way (e.g., Freedman et al., 2016; Rudert et al., 2017), an available source of support may well be bystanders who have the power to help, but also the power to hurt. The present findings suggest that the best time to offer this support might well be after the initial episode has passed, and the target has had time to reflect on the event.

Notes

1. Studies 1 and 2 also included a measure of individual differences in *person orientation* as an exploratory potentially moderating variable (Graziano et al., 2011; McIntyre & Graziano, 2016). Person orientation did not play a moderating role in either study, likely because both studies involved situations that involved only people, without any competition in the environment from things. Person orientation is more likely to express itself as an important factor in complex environments where social and nonsocial content compete for attention (e.g., McIntyre & Graziano, 2016).

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix: Stimulus Materials in Study 2

Adapted from the Rejection Sensitivity Questionnaire (Downey & Feldman, 1996)

(1) You ask someone in class if you can borrow his/her notes [in front of several other classmates]. He/she rejects [accepts] your request.
(2) You ask your partner to move in with you. They say yes [no] and [all your friends hear the news].
(3) You ask your parents for help deciding what programs to apply to and they [do not] want to help you [and the rest of your family learns about their decision].
(4) You ask someone you don't know well out on a date and they [turn you down] accept your offer [and word gets around about it].

(5) Your romantic partner has plans to go out with friends tonight, but you really want to spend the evening with him/her, you tell him/her so and they [go out anyway] stay in with you [and the whole group of friend finds out about it].
(6) You ask your parents for extra money to cover living expenses and they say yes [no], and the rest of your family finds out about it.
(7) After class you tell your professor that you have been having some trouble with a section of the course and ask if he/she can give you some extra help, and they agree to [and they decline to]. Word gets around to the rest of the class that this happened.
(8) You approach a close friend to talk after doing something that seriously upset him/her [in front of a group of your mutual friends]. They refuse [agree] to talk to you.
(9) You ask someone in one of your classes to coffee and they accept [decline] your invitation [in front of a group of people].
(10) After graduation you can't find a job and ask your parents if you can live at home for a while and they [agree] refuse. [The rest of your family learns about their decision].
(11) You ask your friend to go on vacation with you over spring break and they say yes [no], [and all of your mutual friends find out].
(12) You call your partner after a bitter argument and tell him/her that you want to see him/her and they agree [refuse] to meet with you. [Everyone finds out about this.].
(13) You ask a friend if you can borrow something of his/hers, and they say no [yes] [in front of everybody].
(14) You ask your parents to come to an occasion important to you and they do [don't] attend. All of your friends and family find out.
(15) You ask a friend to do you a big favor and they say no [yes] [in front of all your mutual friends].
(16) You ask your romantic partner if he/she really loves you and they say no [yes] [and everyone finds out.]
(17) You go to a party and notice someone on the other side of the room and then you ask them to dance and they say yes [no], [and several people nearby notice].
(18) You ask your romantic partner to come meet your parents and they say no [yes], [and everyone finds out about it].

Ostracism Scenarios, Generated for this research

(1) You are at the park, and two people include you in their frisbee game. [But then, without explanation, they stop throwing you the frisbee]. [Several onlookers notice you being left out [being included]].
(2) You are at the store one day and you bump into someone who is in one of your classes. You say hi, and they say hi back [pretend not to notice you]. [The cashier sees this moment.]
(3) You are on the bus and see two friends from work. You sit with them and when you join their conversation they pay attention and involve you [ignore and exclude you]. [All the while a person seated in front of you is noticing the situation.]
(4) You find out that there is a party that all your work friends are going to, and you are [not] invited. [The invitation list is publicly posted so everyone knows who is and isn't going].
(5) You get in a disagreement with your romantic partner. The next day you send them several text messages and they [do not] respond and [or] continue the conversation. [All of your friends find out about this].
(6) You raise your hand to ask a question in class, and the professor calls on you [ignores you]. Everyone is paying close attention and notices. [No one is really paying attention, so no one notices].
(7) You get in a fight with your best friend. Over the next week they keep answering your phone calls and you try to work things out [they stop answering your phone calls and the fight continues]. [All of your other friends find out about this].
(8) A group of people at work is going out to lunch, and they [do not] invite you to come along. [Word gets around the office that this happened].

(9) Your boss at work sends out an e-mail about an upcoming project and includes you on it [does not include you on it]. [Everyone notices that you were left out.]
(10) You are at home for the holidays, and end up getting in a fight with your parents [and they give you the silent treatment]. [All of your close friends and the rest of your family find out about this].
(11) You got out on a date with someone and it seemed to go pretty well [but then they ghost you and don't respond to any of your messages]. [All your friends know this happened].
(12) You are out at a restaurant having a conversation with a good friend, and they give you their full attention [begin checking their smart phone during the conversation]. [The person waiting your table happens to observe how your conversation is going].
(13) You are out a bar on a crowded night, and when you go to get a drink the bar tender notices you and are served quickly [the bar tender does not notice you even though you are trying to get their attention]. [All of your friends see this happen].
(14) You have a crush on someone in one of your classes and you always have good conversations where they connect with you [and they never seem to notice you]. [The others in the class notice how your crush [does not] talk to you.]