

**SILENCE AND SENSEMAKING: THE EFFECTS OF NEWCOMER
STATUS ON OSTRACISM**

by

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Ostracism involves being ignored and rejected by an individual or group, typically without explanation. Being accepted and valued by others is a fundamental human motivation (Baumeister & Leary, 1995). Consequently, ostracism is often a debilitating experience. This experiment was designed to test how a situational variable, namely being a newcomer to a group, can influence recovery from ostracism. Participants were included or ostracized during an online ball-tossing game. They were also led to believe that other participants playing the game were new as well, or that they were joining a group whose members had played before. I hypothesized that being a newcomer would decrease the effects of ostracism over time by providing an explanation for mistreatment. Participants that believed they were newcomers to an existing group were indeed quicker to recover from ostracism's harmful effects than were individuals that did not have this explanation for their ostracism.

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1.0 INTRODUCTION

Ostracism, a form of social exclusion, involves being ignored and rejected by an individual or group, typically without explanation. Though silence may seem benign, its effects can be devastating. Ostracism is a widely used and effective means of social control. Because of its power, it is important to understand. The goal of my research is to further our understanding of how situational variables, such as being a newcomer to a group, can play a role in ostracism. I will first describe ostracism, analyze its physiological and psychological costs, and present a model of temporal changes in those effects. I will then examine the experience of newcomers and the role that ostracism can play during socialization. Finally, I will hypothesize that being a newcomer may decrease the effects of ostracism by providing an explanation for mistreatment.

1.1 PERVASIVENESS OF OSTRACISM

The importance of ostracism arises in part from its ubiquity. Ostracism can be found throughout history and across cultures (Gruter & Masters, 1986; Williams, 1997). Ostracism is often used as a means of social control. In the workplace, for example, people may ostracize coworkers that are perceived as difficult, disruptive, or domineering (Sutton, 2007; Williams, 2001). When a boss is overly demanding of employees, one way for them to fight back is ostracism. And although whistleblowers (employees who report misconduct to appropriate authorities) are protected by law, coworkers often shun and ignore these employees (Kipnis, 1984; Miceli & Near, 1992).

In personal relationships, up to 75% of US adults admit using or being the victim of ostracism (Williams, 2001). Ostracism is often used to punish or retaliate against a spouse. People report that using ostracism gives a feeling of power and provides control by positively influencing the user's ability to work out problems (Sommer, Williams, Ciarocco, Baumeister, 2001). Unfortunately, ostracism in marriages can have negative repercussions as well. Chronic use of ostracism is often cited as a reason for marital breakups.

1.2 CONSEQUENCES OF OSTRACISM

The widespread use of ostracism is not surprising, given its strong impact on targets. Anecdotally, terms like “broken heart” or “hurt feelings” imply that ostracism is not only upsetting, but sometimes even physically painful. In fact, fMRI scans have demonstrated that people undergoing ostracism show increased activity in the dorsal anterior cingulate cortex (dACC), the same area of the brain that registers physical pain (Eisenberger & Lieberman, 2005; Eisenberger, Lieberman & Williams, 2003).

Ostracism may be linked to physical pain because of its dangerous consequences for targets. Among primates, targets of ostracism risk starvation and attack by predators (Lancaster, 1984). Among early humans, groups were critical for providing safety, comfort, and well-being; consequently, people probably became sensitive to rejection by others (Haselton & Nettle, 2006; Kerr & Levine, 2008). Painful feelings serve as an early detection system, designed to quickly alert individuals to potential exclusion and motivate behavior towards reinclusion (Williams & Zadro, 2005).

Ostracized people also report feeling alone, invisible, meaningless, withdrawn, and socially “dead” (Geller, Goodstein, Silver, and Sternberg, 1974; Williams, Shore, & Grahe,

1998). And ostracism not only influences affective states, but also social behavior. For example, Williams, Case, and Govan (2003) found that ostracized individuals were more attracted to the leader of a deviant, cult-like group. Measures of racism, such as the Implicit Association Test (IAT), show that people experiencing ostracism react more negatively to minority groups (Williams et al., 2003). Ostracized people can also show higher levels of aggression (Twenge, Baumeister, Tice, & Stucke, 2001; Warburton, Williams, & Cairns, 2005). For example, victims of ostracism have been found to evaluate other people negatively, blast innocent others with loud noise, and force others to consume large amounts of hot sauce (Tedeschi, 2001).

Reactions to ostracism are not always negative. Recent research has shown that targets of ostracism may unconsciously mimic the behavior of others, especially in-group members (Lakin, Chartrand, & Arkin, 2008). Because mimicry has been shown to increase liking, encourage helping, and promote trust (Chartrand & Bargh, 1999; Maddux, Mullen, & Galinsky, 2008; van Baaren, Holland, Kawakami, & van Knippenberg, 2004), it may help ostracized people to reconnect with others. Ostracized individuals are also more sensitive to positive social cues (DeWall, Maner, & Rouby, 2009; Maner, DeWall, Baumeister, & Schaller, 2007). For example, ostracism enhances individuals' ability to detect differences between real and fake smiles (Bernstein, Young, Brown, Sacco, & Claypool, 2008).

1.3 MODEL OF OSTRACISM

Williams (1997, 2009) hypothesized that individuals experiencing ostracism first go through a reflexive stage, which is immediate and painful. During this stage, four fundamental human needs (belonging, self-esteem, control, and meaningful existence) are threatened. This is

dangerous because these needs are essential for normal human functioning (Williams, 2001). As their initial distress subsides, individuals enter a reflective stage, in which they attend to social cues, make attributions about why they were ostracized, and attempt to fortify the threatened needs. Finally, if ostracism continues, then individuals enter a resignation stage, ultimately leading to feelings of worthlessness and despair.

Experiments, using various techniques, have provided considerable support for Williams' model. Early experimental studies used a face-to-face, ball-tossing paradigm in which some participants were included, while others were ostracized (Williams, 1997; Williams & Sommer, 1997). In 2000, Williams, Chung, and Choi developed Cyberball, a computerized version of this ball-tossing game. The game leads participants to believe that they are interacting online with two other people in a "mental visualization experiment." In reality, the behavior of the other two players is programmed by the experimenter. A virtual ball is tossed among participants and some of them are included, while others are ostracized. Williams and his colleagues found that ostracized participants reported threatened needs and conformed more to group decisions. Participants in other Cyberball experiments have consistently reported lowered levels of belonging, self-esteem, control, and meaningful existence, even when told that they were playing against a computer (Zadro, Williams, Richardson, 2005), or that their own Cyberball character was not really connected to those of the other players (Eisenberger, Liebermann, & Williams, 2003), or that their "partners" were members of despised out-groups, such as the Ku Klux Klan (Gonsalkorale & Williams, 2007).

Other research methods have produced similar results. For example, when participants are ignored in chat rooms or during cell phone text exchanges, they report lower levels of need satisfaction (Smith & Williams, 2004; Williams, Govan, Croker, Tyanan, Cruickshank, & Lam

2002). Using a role-playing technique, in which participants performed scripted roles, Zadro, Williams, and Richardson (2005) found that ostracized participants still reported threatened needs and higher levels of anxiety, even though all participants were aware that their behavior was mandated by the experimenter.

These experiments demonstrate that the immediate effects of ostracism are automatic and powerful. After experiencing these effects, however, targets may move on to a reflective stage. Research has shown that reflection is sensitive to personality and situational characteristics. For example, Zadro, Boland, and Richardson (2006) examined the effects of personality characteristics on coping with ostracism. Participants were pre-tested for levels of social anxiety, and then were included or ostracized using Cyberball. The results replicated the immediate painful effects of ostracism, but demonstrated that after a 45-minute period, levels of need satisfaction among normal participants returned to pre-ostracism levels. After the same amount of time, however, socially anxious participants still showed lower levels of need satisfaction.

Recently, Wirth and Williams (2009) examined how situational factors can affect the reflection process. They demonstrated that if ostracism occurs because of some permanent personal characteristic, then participants' need satisfaction scores are slower to recover. In this research, participants that were excluded as a result of a temporary characteristic (type of clothing) reacted no differently at first from participants that were excluded because of a permanent characteristic (gender). Only after a period of reflection did differences in reactions emerge. The need satisfaction scores of participants ostracized as a result of a temporary characteristic recovered, whereas the scores of participants ostracized as the result of a permanent characteristic remained the same.

1.4 NEWCOMER SOCIALIZATION

My goal is to demonstrate that other situational factors can also play a role in coping with the effects of ostracism. One context in which ostracism occurs is the entry of new members to a group. Group membership is not static. As time goes by, people enter groups, experience changes in their relationships with other group members, and eventually leave groups.

Ostracism could occur at any point during this process.

Moreland and Levine (1982) have developed a model that both describes and explains the passage of individuals through groups. The individual can pass through five phases of group membership (investigation, socialization, maintenance, resocialization, and remembrance), separated by four role transitions (entry, acceptance, divergence, and exit). My research focuses on the early phases of group membership. Group membership begins with a period of investigation. A prospective member engages in reconnaissance, seeking to determine whether the group can meet his or her personal needs. During this period, the group also evaluates whether the prospective member will help to achieve the group's goals. If feelings of commitment on both sides reach their entry criteria, then entry occurs and the socialization phase begins. During this phase of membership, the new member attempts to change the group (accommodation) so that it can better meet his or her needs. At the same time, the group attempts to change the individual (assimilation), so that he or she can better contribute to the achievement of group goals.

Socialization can be viewed as a kind of struggle between the group and the newcomer (Moreland & Levine, 1989). This struggle occurs even for the "best" newcomers, because all newcomers pose a threat to the groups that they join (Ziller, 1965). Newcomers may ask provocative questions, suggest surprising and possibly unwelcome ideas, affect commitment to

group decisions, disrupt group performance, or change intragroup relations, (Choi & Levine, 2004; Feldman, 1994; Sutton & Louis, 1987). Newcomers may also seem less trustworthy (Moreland & Levine, 2002), due to other group memberships, a relative lack of knowledge, or low levels of commitment. Given all this, it is not surprising that newcomers are often ignored, devalued, or rejected by the groups in which they seek acceptance (see Dodge, Pettit, McClaskey, & Brown, 1986; Dodge, Schlundt, Schocken, & Delugach, 1983; Feshback & Sones, 1971; Keating, Pomerantz, Pommer, Ritt, Miller, McCormick, 2005).

Even if newcomers are not treated badly, they may “think” that they are mistreated by oldtimers. Moreland (1985) demonstrated that newcomers can categorize themselves as an "ingroup" whose outgroup is the oldtimers. He created discussion groups of five unacquainted participants that met once a week for three weeks. Two people, randomly chosen, were told privately that they were newcomers joining a group of oldtimers. The other three people correctly believed that everyone was new to the group. The “newcomers” showed significant affective, cognitive, and behavioral biases that favored one another against the oldtimers. They also felt less satisfied with the group, viewed one another as the most pleasant members, and believed that discussions were unfairly influenced by seniority. These negative effects proved to be long-lasting. Only during the third week, when their self-categorization as newcomers was less salient, did the “newcomers” come to behave like the “oldtimers,” who showed none of these effects and always treated all group members equally.

1.5 MY RESEARCH

The fact that ostracism is often a part of the socialization process suggests an experiment.

Because joining a group can be confusing (Louis, 1980; Wanous, 1976), newcomers are often

eager to make sense of what is happening to them. Experiencing ostracism might be less painful to newcomers if their mistreatment were attributed to their status in the group, not to something about them as individuals. Because ostracism is a common part of group socialization, newcomers should be less likely than other group members to take ostracism personally. Therefore, although their immediate reactions to ostracism are likely to be negative, newcomers should regain their sense of belongingness, control, self-esteem, and meaningful existence after they have had some time to think things through. In contrast, people that do not view themselves as newcomers have no explanation for ostracism and should thus continue to show its negative affects over the same period of time.

Participants in my research were recruited for a laboratory experiment on “mental visualization.” At the beginning of the experiment, half of the participants were told that they were newcomers joining a continuing laboratory group (cf. Moreland, 1985). The other half received no such information. Everyone was told that the experiment consisted of several tasks. The first task was the online game Cyberball, which participants believed they would play online in groups. Though all of the throws in that game were actually programmed, Cyberball’s instructions were designed to lead each participant to believe that he or she was playing with two other people in the room. During Cyberball, participants were either ostracized or included.

After the game ended, participants completed a questionnaire measuring their levels of belongingness, self-esteem, control, and meaningful existence. Then they performed a series of filler tasks related to mental visualization. These tasks not only enhanced the cover story, but also gave participants time to reflect on their Cyberball experience. Afterwards, participants completed a second questionnaire that again measured their need satisfaction scores. Ostracized participants that believed they were newcomers in existing groups were expected to show less

distress than participants that believed everyone was new, but only after they had time to think about the situation. During that reflection, the presence of a potential situational cause for mistreatment should lead these participants to discount (cf. Kelley, 1972) possible internal causes for their ostracism, returning their need levels to normal. In contrast, ostracized participants that did not view themselves as newcomers had no such situational explanation and might thus be more likely to believe that their mistreatment had some internal cause. So, these participants were expected to show lower levels of need satisfaction, even after time passed.

2.0 PILOT STUDY

2.1 OVERVIEW

Before beginning the main experiment, a pilot study was conducted to see whether people realize that newcomers are often ostracized by oldtimers. Participants in the study completed a brief group socialization questionnaire. In the first section of that questionnaire, they were asked to identify the most likely reasons why someone might be ignored by a group that he or she hopes to join. In the second section, participants were asked to rate the likelihood of several potential reasons for such ostracism.

2.2 METHOD

2.2.1 Participants

Participants ($N = 153$) were undergraduates enrolled in Introductory Psychology classes at the University of Pittsburgh. They came from exactly the same participant population that would later be used in the main study. Participants were recruited to complete a survey related to newcomers in groups. Up to 12 participants were recruited for each session. Sessions were run at a campus computer lab, where participants worked at individual computers. Questionnaires were completed anonymously on the computers, and responses were sent to me via email. Each session lasted less than one hour.

2.2.2 Questionnaire

Each questionnaire contained an open-ended section and a rating section. In the open-ended section, participants were asked to imagine trying to join a group of previously acquainted people playing a game of Frisbee on a campus lawn. They were alone at the time and did not know any of the group's members. Their attempts at entry were ignored by the group. The participants' task was to explain why the group ostracized them in this way. In addition, they were asked whether such treatment was a common or uncommon experience for people attempting to join an unfamiliar group.

In the rating section, participants were asked to imagine the same situation again, but this time they were given a list of seven potential reasons why they were ignored. Six of these reasons involved specific problems with the newcomer or the group (e.g., the newcomer was too aggressive, physically unattractive, demographically different from oldtimers, or lacking in ability; the group was uninterested in adding new members or disliked the newcomer's personality), but the seventh reason involved the simple fact that the person was new. Participants were asked to rate the likelihood (1 = not likely, 7 = very likely) that each reason was correct.

2.2.3 Procedure

When everyone arrived at the laboratory, participants were given brief instructions regarding the questionnaire. They were then allowed to begin, and worked at their own pace. When all questionnaires were completed, participants were debriefed and given a chance to ask questions. They were then thanked and dismissed.

2.3 RESULTS

Responses to the open-ended portion of the questionnaire were first broken down into individual sentences ($N = 498$). Those sentences were then coded into two content categories, one including explanations that referenced newcomer status and another including all other explanations. Sentences were coded first by me, and then independently by a research assistant unfamiliar with the project. A Cohen's Kappa test showed acceptable reliability (0.76) in our coding (see Landis & Koch, 1977). Over 60% of the explanations provided by participants involved aspects of the newcomer role. For example, one participant reported that “Because they have already met one another and have begun to find comfort in each other, I am being singled out as the ‘newcomer.’ They do not necessarily want to avoid being my friend, but it is more difficult to branch out when they already know people in the group.” Moreover, most of participants (73%) believed that ostracism is a common reaction among oldtimers toward newcomers.

A within-subjects ANOVA, conducted on responses to the rating section of the questionnaire, indicated that significant differences existed among the likelihood ratings for the seven explanations of ostracism, $F(1, 152) = 2826.03, p < .01$. Planned contrasts showed that the newcomer explanation was rated significantly more likely ($p < .01$) than all the others, except for the explanation about being demographically different from oldtimers. Further support for the importance of newcomer status came from one-sample t-tests that compared the mean rating for each potential explanation to the midpoint of the rating scale (4.00). Means for being a newcomer ($M = 4.54, SD = 1.70$), and for being demographically different from oldtimers ($M = 4.45, SD = 1.54$), were significantly higher than the scale midpoint, whereas means for lacking ability ($M = 3.87, SD = 1.79$), or trying to enter a group that was uninterested in adding new

members ($M = 3.96$, $SD = 1.53$), did not differ from that midpoint. Means for disliking the newcomer's personality ($M = 2.44$, $SD = 1.46$), the newcomer being too aggressive ($M = 3.55$, $SD = 1.79$), and newcomer unattractiveness ($M = 3.50$, $SD = 1.74$), were significantly below the scale's midpoint ($p < .01$).

2.4 CONCLUSION

The pilot study demonstrated that people do see the newcomer role as perilous, believing that ostracism is a common reaction among oldtimers toward newcomers. This supports an assumption underlying the main project, namely that ostracized participants that viewed themselves as newcomers might see that status as a possible cause for their exclusion by oldtimers.

3.0 MAIN STUDY

3.1 METHOD

3.1.1 Participants

Participants were 150 students (64 males, 86 females) enrolled in Introductory Psychology classes at the University of Pittsburgh. They were recruited to participate in an experiment examining the “ability to visualize things in their minds.” Participants were told that the experiment would involve several visualization tasks, carried out both alone and in groups. Up to 12 participants were recruited for each session. Sessions lasted approximately 90 minutes each.

3.1.2 Design

The experiment utilized a 2 (Included versus Ostracized) X 2 (All New versus Joining Oldtimers) X (2) (Time 1 versus Time 2) mixed-effects design, where the first two factors varied between participants and the third factor varied within participants. In about half of the experimental sessions ($N = 78$), participants were led to believe that they were joining a group that had previously met. Participants in the other sessions ($N = 72$) were told that everyone was new to the experiment. About half of the participants within each of these conditions were randomly assigned to the ostracism ($N = 75$) or the inclusion condition ($N = 75$) for the Cyberball game.

3.1.3 Cyberball

The instructions for Cyberball led each participant to believe that he or she was playing an online ball-tossing game with two other people in the room. Participants could choose to whom the ball would be tossed by clicking on another person's avatar. All other throws were programmed by me. Participants in the ostracism conditions only received one throw, at the start of the game. Participants in the inclusion conditions received 33% of the throws, mixed throughout the game. The game included 40 throws in all and lasted approximately three minutes.

To make newcomer status salient during game play, each Cyberball character was labeled with an identification code. These six-character codes provided information about each person's week of participation, as well as his or her identification number (e.g., w1n236, w3n190). The first part of the code (w1 or w3) indicated how many weeks a person had already played Cyberball. Participants that were led to believe (correctly) that everyone was new saw two other players that were marked with "w1," indicating that this was their first week. Participants that were led to believe that they were newcomers joining oldtimers saw two other players that were marked with "w3," indicating that this was their third week. The second part of the code, the identification number, was explained simply as a random number assigned to each participant. The program required everyone's code to be entered before gameplay could begin.

3.1.4 Questionnaires

Once Cyberball was completed, participants were forwarded by the computer to a questionnaire regarding their Cyberball experience. The questionnaire included 12 items (Zadro, Williams, & Richardson, 2004) that are often used to test the impact of ostracism (see Table 1).

Table 1: Need Satisfaction Questions

Need	Question
Belongingness	I felt poorly accepted by the other participants.
Belongingness	I felt as though I had made a “connection” or bonded with one or more of the participants during the Cyberball game.
Belongingness	I felt like an outsider during the Cyberball game.
Control	I felt that I was able to throw the ball as often as I wanted during the game.
Control	I felt somewhat frustrated during the Cyberball game.
Control	I felt in control during the Cyberball game.
Self-esteem	During the Cyberball game, I felt good about myself.
Self-esteem	I felt that the other participants failed to perceive me as a worthy and likeable person.
Self-esteem	I felt somewhat inadequate during the Cyberball game.
Meaningful existence	I felt that my performance [e.g. catching the ball, deciding whom to throw the ball to] had some effect on the direction of the game.
Meaningful existence	I felt non-existent during the Cyberball game.
Meaningful existence	I felt as though my existence was meaningless during the Cyberball game.

Three items focused on each of four psychological needs (belongingness, control, self-esteem, and meaningful existence). Responses were made on 9-point scales, where 9 meant “very much so,” and 1 meant “not at all.” The questionnaire was given immediately after Cyberball ended, and then again later on, after the completion of two filler tasks. In order to enhance the cover story, several open-ended questions involving mental visualization were also included in both questionnaires (“What type of environment did you imagine you were playing in?” “Did you imagine any sounds during the game of Cyberball?”). Manipulation check questions were also included, such as whether participants believed that they were playing Cyberball with others in the room, if the other players had met previously, and what percentage of throws the participants received.

3.1.5 Filler tasks

The next portion of the experiment included two filler tasks involving mental visualization. The first of these was an object rotation task. Participants viewed a geometric shape for five seconds. They were then forwarded by the computer to a new page displaying four shapes, each a rotation of the original. Participants were asked to think about the original shape, rotate it in their minds, and then choose which new shape matched this rotation. There were 20 of these rotation questions.

The second task involved visualizing several food dishes, based on their recipes. Participants were asked to read each recipe and describe various attributes of the dish, including its smell, taste, texture, preparation time, or country of origin. Each recipe was displayed for two minutes. Participants were then automatically forwarded by the computer to the next recipe. There were 10 of these recipe evaluations.

These filler tasks not only supported the cover story, but also provided time for excluded participants to think about why they were ostracized. The tasks were neither overly complex nor social in nature. It was critical to give participants an opportunity to think about why ostracism occurred, and more complex tasks might have disrupted such thoughts. And social situations could have reminded ostracized participants of their mistreatment during the Cyberball game. Research has shown that social pain is reexperienced more easily and intensely than physical pain, and can disrupt cognitively difficult tasks (Chen, Williams, Fitness, & Newton, 2008).

3.1.6 Procedure

When they arrived for their session, participants were directed to one of several designated computers in the room. These computers were marked with index cards bearing the participants' names. At least one computer was left open between each pair of participants, so that people could not see one another's monitors. After all of the participants had arrived, informed consent forms were distributed and participants were reminded that the experiment was designed to explore various aspects of mental visualization. In the condition involving newcomers joining previously formed groups, the experimenter remarked to everyone that it was good to see some of the participants again, and he welcomed those who were "new." In the other condition, everyone was simply welcomed, with no further remarks that might imply some people were "old" and others "new."

Participants in all conditions were told that the experiment included several activities involving the ability to visualize things in their minds. Each task was first described orally. Participants were then prompted to read the identification codes on the back of their index cards. They were told that these codes provided information about how many weeks each group member had participated and what identification number he or she was assigned. Participants

were told that the codes would be used to identify the players in the Cyberball game and to track the responses they provided during the experiment. They were then asked to enter their codes into a box on the screen. After entering their codes, participants were automatically forwarded by the computer to written instructions for Cyberball. Participants were given two minutes to read those instructions, after which they were prompted to begin playing the game.

When the Cyberball game was over, participants were automatically forwarded to the first questionnaire. When they finished, participants were forwarded to a webpage giving brief written instructions for the rotation task. After 90 seconds, they were automatically forwarded to the first such task. After completing the rotation tasks, participants were forwarded to a webpage giving brief written instructions for the recipe tasks. As before, participants were automatically forwarded to the first such task after 90 seconds. After completing the recipe tasks, participants were then given the second questionnaire. They were told that the questions were the same as before, but that it was not a memory task; they were supposed to answer the questions according to how they felt right now. Afterwards, participants completed a series of manipulation check questions, and then were asked to wait until everyone had finished the experiment.

When everyone had finished, the participants were carefully debriefed, both orally and in writing. It was emphasized that assignment to conditions were random and that no one was singled out to be ostracized. The ostracism was thus meaningless. It was also emphasized that because the experiment involved deception, participants should not tell the true purpose of the experiment to anyone who might participate in the future. After any questions the participants had were answered, the participants were thanked and dismissed.

3.2 RESULTS

3.2.1 Manipulation checks

Participants were asked whether they believed they had played Cyberball with other people in the room. Although the majority of participants (60%) did indeed believe this, some of them did not believe it or were not sure. Thus, the manipulation was not completely effective.

In contrast, participants were well aware of whether they were included or excluded during Cyberball. A 2 (Included versus Ostracized) X 2 (All New versus Joining Oldtimers) X 2 (Time 1 versus Time 2) ANOVA was conducted to evaluate whether included participants would report receiving a higher percentage of ball throws than would ostracized participants. A significant main effect of inclusion was found, $F(1, 146) = 473.20, p < .01$. Included participants reported receiving more throws ($M = 36.2\%$, $SD = 9.4\%$) than did ostracized participants ($M = 5.4\%$, $SD = 8.2\%$). No other significant effects were found in the analysis.

Participants also knew whether the other members of their Cyberball groups had met before. A chi-squared test showed a significant association between newcomer status and whether other group members were believed to have met before $\chi^2(1) = 12.98, p < .01$. Most participants in the Joining Oldtimers condition (74%) that believed that the other Cyberball players had met before. Most participants in the All New condition (75%) believed (correctly) that everyone playing the Cyberball game was new.

3.2.2 Data preparation

Responses to the need satisfaction items were reverse-scored when necessary. The Cronbach's alpha scores for the separate needs (at Time 1 and Time 2) ranged from .78 to .83, indicating acceptable scale reliability. However, the four scale scores were often highly correlated, both at Time 1 and Time 2. A principle components analysis (using a varimax rotation) was thus

performed on need satisfaction scores at Time 1 and Time 2 to see if four distinct needs were actually measured. A factor loading of .40 was used as the cut-off point for identifying the key items for each factor. At both Time 1 and Time 2, two factors had eigenvalues over 1.0. Scree plots also indicated two factors at both time periods. However, the two factors seemed to reflect an irrelevant measurement factor (whether questions were reverse-scored), so following the method used in previous ostracism research (see Wirth & Williams, 2009; Zadro et al., 2006), I created a single, overall need satisfaction scale by averaging the responses to all 12 need items together. Higher scores on this scale indicated more distress (less need satisfaction). Cronbach's alpha scores for this overall scale were .94 at Time 1 and .94 at Time 2.

Several preliminary analyses were conducted to explore possible violations in the data of ANOVA assumptions. A series of Kolmogorov-Smirnov tests examined the normality of need satisfaction scores in each condition, both at Time 1 and Time 2. Only the overall need satisfaction scores at Time 1 for “newcomers” that were included by “oldtimers” failed to meet the condition of normality, $D(40) = .17, p < .05$. And a Levine's test showed that need scores for all participants violated the assumption of homogeneity at Time 2, $F(1, 146) = 2.99, p < .05$. Several transformations of these data were attempted, with a square root transformation working best. The main analyses were repeated after this transformation, but there was no significant change in the results. Consequently, only raw data were used for the final set of analyses.

One outlier was also detected in the need satisfaction scores, but deletion of this case did not alter the results either. And several potential covariates, including participant gender, session attendance, and whether participants were currently newcomers in a real group, were examined. None of these covariates was related to need satisfaction, so they were not included in later analyses.

3.2.3 Primary analysis

I hypothesized that after Cyberball, the needs of ostracized individuals would be more threatened than those of included individuals, regardless of newcomer status. To test this, a 2 (Included versus Ostracized) X 2 (All New versus Joining Oldtimers) ANOVA evaluating need satisfaction at Time 1 was conducted. The only significant effect in this analysis was a main effect for Inclusion, $F(1, 146) = 251.30, p < .01, \eta_p^2 = .63$, an effect that supported my hypothesis. Included participants were less distressed ($M = 3.55, SD = 1.28$) than ostracized participants ($M = 7.00, SD = 1.36$). One-sample t-tests showed that each of these means differed significantly from the midpoint (5.00) of the need satisfaction scale.

To test the hypothesis that having time to reflect would help some ostracized participants to use their status as newcomers to buffer themselves from ostracism's negative effects, a 2 (Included versus Ostracized) X 2 (All New versus Joining Oldtimers) X (2) (Time 1 versus Time 2) mixed-effects ANOVA was conducted. A main effect was found for Inclusion, $F(1, 146) = 272.64, p < .01, \eta_p^2 = .65$. Included participants were less distressed at both time periods (Time 1, $M = 3.56, SD = 1.28$; Time 2, $M = 3.28, SD = .95$) than were ostracized participants (Time 1, $M = 7.00, SD = 1.36$; Time 2, $M = 6.62, SD = 1.53$). There was also a main effect of Time, $F(1,146) = 21.68, p < .01, \eta_p^2 = .13$. Participants were more distressed at Time 1 ($M = 5.28, SD = 2.17$) than at Time 2 ($M = 4.96, SD = 2.14$). No significant two-way interactions were found. However, the three-way interaction of interest, namely Inclusion X Newcomer Status X Time, was marginally significant $F(1, 146) = 3.19, p < .08, \eta_p^2 = .02$.

To explore this interaction, the data were divided into two subsets on the basis of Inclusion (see Table 2).

Table 2: Mean Need Satisfaction Scores by Inclusionary Status for all Participants

Condition	Time 1	Time 2
Ostracized		
All new	6.93 (1.47)	6.68 (1.72)
Joining oldtimers	7.03 (1.26)	6.56 (1.36)
Included		
All new	3.60 (1.46)	3.14 (1.23)
Joining oldtimers	3.52 (1.11)	3.40 (0.95)

Note. Standard deviations appear in parentheses. Higher means indicate greater distress.

A (2) (Time 1 versus Time 2) X 2 (All New versus Joining Oldtimers) mixed-effects ANOVA was conducted on each subset. A significant interaction effect for ostracized participants was predicted. Participants that had a plausible explanation (newcomer status) for ostracism should recover more quickly than those that had no such explanation. No interaction was predicted for included participants.

Among participants that were ostracized during Cyberball, there was a main effect of Time $F(1, 73) = 15.53, p < .01, \eta_p^2 = .17$. Participants were less distressed as time passed (Time 1, $M = 7.00, SD = 1.36$; Time 2, $M = 6.62, SD = 1.53$). No main effect of Newcomer Status was found, $F(1, 73) = .01, p > .10$. Unfortunately, the interaction between Newcomer Status and Time was not significant either, $F(1, 73) = .817, p > .10$. These results suggest that newcomer status did not help to buffer participants from the negative effects of ostracism.

Among participants that were included during Cyberball, there was again a main effect of Time, $F(1, 73) = 7.35, p < .01, \eta_p^2 = .09$. Participants were less distressed as time passed (Time 1, $M = 3.56, SD = 1.28$; Time 2, $M = 3.28, SD = 1.09$). There was no main effect of Newcomer Status, $F(1, 73) = .16, p > .10$, nor was there an interaction between Newcomer Status and Time, $F(1, 73) = .42, p > .10$.

3.2.4 Primary analysis (II)

Preliminary analysis showed that some participants did not believe they were playing Cyberball with others in the room, so the data were divided into two subsets, based on participants' beliefs about this matter. The original 2 (Included versus Ostracized) X 2 (All New versus Joining Oldtimers) X (2) (Time 1 versus Time 2) mixed-effects ANOVA was run again. Among participants that did not believe they played the game with others, or were not sure about this, a significant main effect was found for Inclusion $F(1, 55) = 207.80, p < .01, \eta_p^2 = .50$. Included participants were less distressed at both time periods (Time 1, $M = 3.77, SD = 1.11$; Time 2, $M = 3.51, SD = 1.05$) than were ostracized participants (Time 1, $M = 6.95, SD = 1.44$; Time 2, $M = 6.51, SD = 1.66$). There was also a main effect of Time, $F(1, 55) = 8.75, p < .05, \eta_p^2 = .14$. Participants were more distressed at Time 1 ($M = 6.14, SD = 1.95$) than at Time 2 ($M = 5.74, SD = 2.00$). No other significant effects were found.

Among participants that did believe they played the game with others, a significant main effect was found for Inclusion, $F(1, 87) = 503.33, p < .01, \eta_p^2 = .69$. Included participants were less distressed at both time periods (Time 1, $M = 3.50, SD = 1.32$; Time 2, $M = 3.22, SD = 1.12$) than were ostracized participants (Time 1, $M = 7.06, SD = 1.24$; Time 2, $M = 6.78, SD = 1.34$). There was also a main effect of Time, $F(1, 87) = 9.19, p < .05, \eta_p^2 = .10$. Participants were more distressed at Time 1 ($M = 4.72, SD = 2.13$) than at Time 2 ($M = 4.43, SD = 2.07$). No two-way

interactions were found, but the three-way interaction of interest, namely Inclusion X Newcomers Status X Time, was significant, $F(1, 87) = 5.94, p < .05, \eta_p^2 = .06$.

To explore this interaction, the data were again divided into two subsets, on the basis of Inclusion (see Table 3).

Table 3: Mean Need Satisfaction Scores by Inclusionary Status for Participants that Believed they were Playing Cyberball with other Participants

Condition	Time 1	Time 2
Ostracized		
All new	7.31 (1.30)	7.31 (1.40)
Joining oldtimers	6.77 (1.14)	6.14 (0.97)
Included		
All new	3.58 (1.56)	3.12 (1.31)
Joining oldtimers	3.43 (1.07)	3.31 (0.91)

Note. Standard deviations appear in parentheses. Higher means indicate greater distress.

A (2) (Time 1 versus Time 2) X 2 (All New versus Joining Oldtimers) mixed-effects ANOVA was conducted on each subset. As before, a significant two-way interaction for ostracized participants was predicted. Participants with a plausible explanation for ostracism (their status as newcomers) were expected to recover from it more quickly than participants without such an explanation.

Among participants that were ostracized during Cyberball, there was a main effect of Time $F(1, 29) = 6.49, p < .05, \eta_p^2 = .18$. Participants were less distressed as time passed (Time

1, $M = 7.07$, $SD = 1.24$, Time 2, $M = 6.78$, $SD = 1.34$). The interaction between Newcomer Status and Time was also significant, $F(1, 29) = 6.49$, $p < .05$, $\eta_p^2 = .18$. Ostracized participants that believed they were joining an existing group showed a greater decline in distress from Time 1 ($M = 6.77$, $SD = 1.14$) to Time 2 ($M = 6.14$, $SD = .97$) than did ostracized participants that believed everyone was new (Time 1, $M = 7.31$, $SD = 1.30$; Time 2, $M = 7.31$, $SD = 1.40$). This supports the hypothesis that newcomer status can help to buffer people from the negative effects of ostracism.

Among participants that were included during Cyberball, there was a main effect of Time, $F(1, 58) = 5.03$, $p < .05$, $\eta_p^2 = .08$. Participants showed less distress as time passed (Time 1, $M = 3.50$, $SD = 1.32$, Time 2, $M = 3.22$, $SD = 1.12$). No other significant effects were found.

3.3 DISCUSSION

Consistent with previous research on ostracism, the reflexive response to exclusion was found to be painful. Ostracized participants experienced lower need satisfaction levels than did included participants. This occurred even when ostracized participants had a potential explanation for why ostracism had occurred. Past research has explored a number of potential moderators to the painful reflexive affects of ostracism, including exclusion due to group membership (Wirth & Williams, 2009), exclusion by a despised outgroup (Gonsalkorale & Williams, 2007), exclusion that is personally profitable (van Beest & Williams, 2007), and exclusion by computer (Zadro, Williams, & Richardson, 2004). None have produced changes in the initial effects of ostracism. This study provides further evidence that reflexive reactions to ostracism are painful and automatic.

This study also adds to the growing literature on how individuals cope with ostracism's negative affects. During the reflective stage, personality variables can influence the speed of recovery, and people can also consider situational factors that help explain why they were excluded. In my study, for example, participants ostracized by “oldtimers” in existing groups showed recovered need scores, after having time to reflect. Participants that were ostracized, but lacked a situational explanation for it, showed no such recovery. Without a potential explanation for mistreatment, the negative affects of ostracism remained, even after time passed. Having a plausible reason why ostracism occurred apparently helped ostracized participants recover from their initial, reflexive shock.

Although a situational explanation can help people to cope with ostracism, there are situations in which such explanations could be harmful. Wirth and Williams (2009), for example, found that individuals attributing their ostracism to a permanent characteristic were slower to recover than were individuals that attributed their ostracism to a temporary characteristic. Because few studies on the reflective stage of ostracism exist, it is too soon to make definitive conclusions about how and when individuals use discounting information as a buffer against ostracism. For example, it is unclear how long a newcomer attribution would remain useful. Believing that ostracism is due to one's status in the group may be helpful at first, but if a newcomer is repeatedly ostracized, then that explanation might become less helpful as time passes, or even harmful at some point. It is also unclear how the presence of other newcomers could influence the reflection process. It is possible that other newcomers might help each other to cope with their experience (Moreland & Levine, 1989). However, if other newcomers are not treated equally, then it is unclear how that might be interpreted. A newcomer may expect to be ostracized, but if some newcomers are included and others ostracized, then

newcomer status might seem like a less compelling explanation. More research on ostracism's reflective stage is clearly needed.

3.3.1 Limitations

Unfortunately, not all of the participants in my study believed that they were playing Cyberball with other participants in the room. This skepticism may be due to the fact that up to 12 participants were run each session, yet Cyberball only included 3 players. Not knowing exactly who they were playing with may have led to suspicions among participants that the game was “rigged.” If sessions been run with only three participants at a time, then the manipulation might have worked better.

Another limitation is that participants were not ostracized by real groups. It is likely that being ostracized by a real group is more painful than being ostracized by a temporary, artificial group. For example, pledges to Greek organizations have been forced to silently wait for hours in dark, cold, places, or to pose in painful physical positions (Finkel, 2002). It is unclear that attributing such ostracism to newcomer status would be enough to buffer someone against its painful effects.

Another potential limitation of my study was that no personality variables were measured. Recent studies have shown that social anxiety (Oaten, Williams, Jones, & Zadro, 2008; Zadro, Boland, & Richardson, 2006) and rejection sensitivity (Ayduk, Gyurak, & Luerssen, 2008) can influence an individual's recovery from ostracism. Participants that rated themselves high on these variables showed continuing impairments (including decreased self-regulation and increased aggression) after being ostracized. It may be that when newcomers are especially high in social anxiety, or rejection sensitivity, even an attribution of ostracism to their

newcomer status would not be helpful. Future research should explore the interaction between personality variables and situational variables when it comes to coping with ostracism.

Finally, my conclusions are based on somewhat indirect evidence about what was going through the minds of the ostracized participants that believed they were newcomers. No questions regarding attributions for ostracism were included in the study. I feared that asking such questions could influence the reflection process by evoking attributions that participants might not have made on their own. So, a pilot study was conducted to test whether newcomers might attribute ostracism to their status in a group. The results confirmed that people believe that newcomers are often ostracized by oldtimers. As a result, I believed that participants in the main study would attribute ostracism to their newcomer status.

3.3.2 Future directions

My study provides some insights into how newcomers make sense of their experience. Because participants met just once, however, I do not know how newcomers' interpretations of ostracism might change over time. Ostracism may be interpreted differently depending on the phase of group socialization. In the investigation phase, for example, prospective members often attempt to conduct a reconnaissance of groups that they might join. Recent research suggests that social exclusion can serve as an entitativity cue (Wyer, 2008). After seeing individuals exclude another person, Wyer found that people evaluated sources of ostracism as emotionally closer to one another. Participants also differentiated among group members less after witnessing ostracism. So, ostracism during investigation may actually help prospective members to distinguish between mere collections of people and real groups. How ostracism is interpreted during the maintenance, resocialization, and remembrance phases is yet to be explored.

Another potential line of research would be to explore how having a situational explanation for mistreatment influences other negative consequences of ostracism. Rejected individuals often show impairments in higher-order cognitive processing and self-regulation. For example, deficits have been observed in problem solving, logical reasoning, and impression management (e.g., talking too much, making overly intimate disclosures) (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Baumeister, Twenge, & Nuss, 2002; Vohs, Baumeister, & Ciarocco, 2005). These impairments may be influenced by attributions that explain why ostracism has occurred and whether future inclusion can be expected. DeWall, Baumeister, and Vohs (2008), for example, found that task framing influences performance during various tasks involving self-regulation (e.g., hand-eye coordination, physical endurance, persistence solving anagrams and math problems). Participants in their study showed impairments in performance after being excluded, but when tasks were framed as diagnostic of future inclusion, those impairments disappeared. Being able to efficiently process information and to self-regulate would probably be helpful when joining a group. If ostracized newcomers believe that their mistreatment due to their role, and that they will be included in the group later on, then they may not show cognitive and behavioral impairments. Future research should assess how attributions made during ostracism influence the ability of newcomers to process information and regulate behavior.

My research did not address when or why groups use ostracism. Ostracism may allow a group to indicate that it is prestigious, making it more attractive to both current and potential members. Groups may also use exclusion to communicate group boundaries and manage group composition (Levine, Moreland, & Hausmann, 2005). And ostracism can be used as a means of assimilating newcomers. The ostracism of newcomers may help to explain the passive, dependent, and conforming behaviors that they often display (see Moreland & Levine, 1989).

Although such behaviors have traditionally been considered part of the newcomer role, they may also be a reaction to ostracism (or perceived ostracism).

Another potential line of research would be to investigate how ostracism influences newcomer entry tactics. It remains unclear whether targets of ostracism react in positive or negative ways towards sources (cf. Williams & Govan, 2005). Differences in reactions may stem from evaluations of potential inclusion or the type of need that is threatened. When first encountering a group, an important part of the newcomer's evaluation process is predicting future interactions. I found that newcomers can use their role in the group as a means of protection; however, reactions towards sources of exclusion may vary depending on expectations about future inclusion. When no future interaction is expected, newcomers may have little opportunity or desire to produce group accommodation. Instead, they may lash out against the group as a way of fortifying threatened needs. When future interaction is expected, newcomers may have a chance to produce group accommodation. In that case, belongingness and self-esteem needs are more likely to be threatened. As a result, ostracized newcomers might act in a servile way toward the group as a way to maintain positive interactions and demonstrate their commitment.

3.3.3 Conclusion

Being accepted and valued by others is a fundamental human motivation. Exclusion is therefore a debilitating and dangerous experience. This study provided insight on how newcomers to groups react towards ostracism. Individuals that believed they were newcomers to a group were quicker to recover from ostracism's harmful affects than individuals that did not have this explanation for their exclusion. More research on these issues is needed, however. Further study

of the reflective, sensemaking process will help to clarify the cognitive, affective, and cognitive consequences of ostracism.

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