Atimia: A New Paradigm for Investigating How Individuals Feel When Ostracizing Others

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ABSTRACT. To date, researchers studying ostracism (being excluded and ignored) focused on examining the consequences of ostracism. However, researchers have not yet systematically investigated why individuals ostracize others. One impediment to this research is lacking multiple means to successfully induce individuals to be sources, those who ostracize others. Using Cyberball, researchers found participants ostracized a player delaying the game. To aid in systematic research on sources, we developed the game Atimia. In Atimia, players took turns solving remote associate word items and we varied the performance of a computer-controlled player to perform equal to or significantly worse than the group. Without prompting, participants ostracized a poor- versus equal-performing player more and found the poor-performing player burdensome, less likable, and less desirable to work with on a future task. Study outcomes suggest Atimia is a viable paradigm for investigating sources of ostracism.

Keywords: burden, exclusion, motives, ostracism, rejection, sources of ostracism

WHEN SOCIAL CONNECTIONS ARE BROKEN, individuals are not fulfilling their basic need to belong, which prompts a number of negative consequences. Ostracized (excluded and ignored) individuals experience thwarted satisfaction of fundamental basic needs (e.g., belonging, self-esteem) and worsened mood (e.g., Wesselmann, Wirth, Mroczek, & Williams, 2012; Williams, Cheung, & Choi, 2000; Wirth, Turchan, Zimmerman, & Bernstein, 2014). At a physiological level, rejected, compared to included, individuals have an increase in their blood pressure, experience elevated levels of stress hormones (Stroud, Tanofsky-Kraff, Wilfley, & Salovey, 2000), and regions of the brain associated with physical pain are activated (Eisenberger & Lieberman, 2004; Eisenberger, Lieberman, & Williams, 2003). Previous research on ostracism (see Williams, 2007; Williams & Nida, 2011) investigated the experiences victims of ostracism
(targets) share. Focusing on the victims of ostracism occurred in part because of the ease of ostracizing participants using Cyberball (Williams, Cheung et al., 2000).

In Cyberball, participants toss a virtual ball with two other players online, who are actually computer-controlled agents. Researchers use this paradigm to manipulate the ostracism of participants, such that participants are either included (receiving the ball about a third of the time in a three-player game) or ostracized (only receiving the ball once from each player at the beginning and then never again; e.g., Wesselmann et al., 2012; Williams, Cheung et al., 2000; Wirth & Williams, 2009; Zadro, Williams, & Richardson, 2004). Cyberball has been employed widely, with researchers utilizing the paradigm to conduct studies with over 5,000 participants (Williams & Nida, 2011). Cyberball helped researchers understand how individuals feel when they are ostracized, but paradigms also need to be developed to understand how individuals feel when they ostracize others.

OSTRACISM SOURCE PARADIGMS

What is known about how it feels to be a source of ostracism comes from studies using diverse methods. Williams, Bernieri, Faulkner, Gada-Jain, and Grahe (2000) used a daily diary method over the course of five days; each author took a turn being ostracized for a day. Over the five days participants reported how it felt to be ostracized and how it felt to ostracize a fellow colleague. The authors found being a source of ostracism was unpleasant, cognitively draining, and often reported difficulty when ostracizing others (Williams, Bernieri et al., 2000). This was especially true when the relationship was close, as demonstrated by Baumeister, Wotman, and Stillwell (1993), who found that individuals who turned down an offer of affection reported the experience as being particularly unpleasant and stressful. These results are corroborated by the unpleasantness reported by confederates in an experiment when they were asked to ostracize participants by not including them in an in-person ball-toss game (Williams & Sommer, 1997) and by participants reporting that ostracizing others was a more difficult task than conversing with them (Ciarocco, Sommer, & Baumeister, 2001).

To evaluate the consequences of being a source of ostracism, several researchers encouraged participants to reject another individual through suggestion or explicitly in the experiment instructions. For example, when researchers asked participants to assist by being the source (Ciarocco et al., 2001) of ostracism, participants experienced self-control depletion. Specifically, participants were less persistent on an unsolvable anagram task and held a handgrip for a shorter amount of time than those allowed to converse with a confederate. Individuals who were instructed to reject others, by either rejecting a job applicant, rejecting an author’s research report, or sending a negative evaluation over instant messenger, felt less of a desire to socially connect with others (Zhou, Zheng, Zhou, & Guo, 2009). In another study, participants had to reject an applicant in a competition for an outstanding thesis prize. Following this, participants reported experiencing pain which, according to the authors, was due to concerns that by rejecting another individual, they themselves (as the source of the rejection) might conversely become a future target of rejection (Chen, Poon, Bernstein, & Teng, 2014).

Additional research paradigms on sources include instructing participants to ostracize others in a group context. For instance, Poulsen and Kashy (2012) set up a group interaction in which
three group members were either instructed explicitly to ostracize a fourth during a group task or were given no instructions regarding how to treat any of the group members. When participants were told to ostracize others, the researchers found that sources of ostracism felt guilty for having done so. In a similar group context, researchers (Zadro, Williams, & Richardson, 2005) had participants ride the O-train, a role-playing scenario in which two participants (sources) either ostracized a third participant (a target) or argued and insulted the target who sat between the sources on the train. The researchers found sources of ostracism experienced greater need satisfaction than sources who argued. In yet another example, Legate, DeHaan, Weinstein, and Ryan (2013) examined sources of ostracism in virtual group interactions. In their first study, participants were asked to ostracize a player in Cyberball, were not given ball-toss instructions, or were instructed to include both players equally. Those instructed to ostracize reported lower levels of autonomy and relatedness and greater amounts of negative affect compared to the control groups. In a follow-up study (Legate et al., 2013), participants who were asked to ostracize others felt more guilt and shame, and lower autonomy, compared to participants who were ostracized from the group. Bastian et al. (2013; Study 2) used a similar Cyberball manipulation and found sources of ostracism felt less human than those who included the Cyberball player. Bastian et al. replicated this effect across several source paradigms.

LIMITATIONS OF PREVIOUS OSTRACISM SOURCE PARADIGMS

All of this research indicates that being the source of ostracism or rejection is an aversive experience and that it is possible to create situations where people do indeed ostracize or reject others, but these examples all have a noteworthy limitation; in each case, participants were explicitly asked to ostracize or reject a group member rather than doing it of their own accord. Although this may seem trivial, work by Sommer and Yoon (2013) suggests that the motivation for why people ostracize another individual matters. In their study, participants were less successful self-regulating when they had to ignore, versus converse with a likeable person, but the opposite effect occurred when ignoring, versus conversing with an unlikable person. This study suggests participants dislike treating others negatively without just cause, thus suggesting that motivations for ostracizing and perceptions of the target matter.

Further, asking participants to ostracize an individual could be likened to Milgram’s (1963, 1974) work on obedience. In this seminal work, an experimenter requested that participants continue to shock an individual failing to perform well on a learning task. Many participants obeyed the experimenter and shocked the victim (a confederate who was not actually being shocked) all the way to the point at which participants had reason to believe they had severely harmed confederate (potentially fatally). Importantly, their obedience to authority created a situation of blame shifting or of rationalizing their behavior (e.g., “I have to do it because he is making me”). It is possible that when experimenters or experimental instructions indicate to participants that they should ostracize another participant, this may be creating a situation of obedience to an authority at the very moment when they are requesting participants to act in an antisocial fashion. Exemplifying this point, in a study involving confederates ostracizing participants, Williams and Jarvis (2006) indicated, “the task of ignoring and excluding is an arduous one that confederates approach first with concern and sympathy, but later, seemingly, with sadistic glee” (p. 174). Part of
what researchers may find when asking participants to be sources of ostracism is the source’s negative response to recognizing that they are causing an individual pain (see Wesselmann, Williams, & Hales, 2013). Considering that participants report feeling guilty (Poulson & Kashy, 2012), less self-control (Ciarocco et al., 2001), and less autonomy (Legate et al., 2013) in response to ostracizing another person, these responses could capture an individual feeling compelled to comply with an antisocial request. Recent research paradigms address issues related to asking individuals to ostracize rather than individuals ostracizing of their own accord.

PARADIGMS FOR PARTICIPANTS ACTING AS SOURCES INDEPENDENT OF INSTRUCTION

To best assess how individuals feel when they ostracize others, researchers need a multimethod approach to study when individuals ostracize others of their own volition. Zadro and Gonsalkorale (2014) explained the current source paradigm limitations and need for alternative paradigms when they said, “Existing source paradigms focus on situations in which sources model the ostracizing behavior of others or are induced to ostracize. Thus, what is missing is a paradigm that motivates participants to engage in ostracism of their own accord” (p. 96). Thus far, few paradigms can cause participants to engage in ostracism of their own choice.

One method used previously to understand when people will ostracize or reject others is to have participants recall a time they ostracized or rejected others. For instance, Sommer, Williams, Ciarocco, and Baumeister (2001) asked participants to write a story about when the participant used the silent treatment. Other researchers (Chen et al., 2014) asked participants to recall a time they rejected another person. The approach of having participants recall a time they ostracized or rejected others is beneficial because researchers were not asking participants to ostracize or reject an individual, thereby examining ostracizing or rejecting others autonomously (acting of their own accord). However, recall paradigms can be limiting. Specifically, researchers (Schwarz, Groves, & Schuman, 1998) found that individuals tend to recall instances of an event that are extreme or highly emotional, meaning the experience of ostracizing or rejecting others that participants recalled may not be representative of typical experiences being a source of ostracism or rejection.

Cyberball as a Source Paradigm

As another approach to investigating sources of ostracism, researchers adapted Cyberball to aid in investigating how individuals feel when they ostracize of their own accord. For instance, Gooley, Zadro, Gonsalkorale, Williams, and Sethi (2013) had participants interact with an objectionable partner during a get-to-know-you game before playing Cyberball. In Cyberball, participants ostracized the obnoxious partner without instruction to do so, thereby successfully prompting individuals to be sources of ostracism. Prior to this study, researchers (Wesselmann, Wirth, Pryor, Reeder, & Williams, 2013) also used Cyberball to induce participants to ostracize a group member. In a slow-player game of Cyberball, participants tossed the ball with a player manipulated to hold the ball briefly (3–5 seconds), similar to the participant, or to delay throwing for a considerable amount of time (16 seconds). Participants found the slow-throwing player to be burdensome and were less likely to include this player compared to a normal-throwing player. The researchers
(Wesselmann, Williams, & Wirth, 2014) replicated these results while further investigating the motives for ostracizing. Cyberball may be one means to investigate systematically why individuals ostracize and how they feel when ostracizing. A slow-player version of Cyberball can be applied systematically because it can be administered consistently, allowing for comparisons across findings. However, an additional method for investigating sources is needed in order to create a multimethod approach to investigating sources (see also Gooley, Zadro, Williams, Svetieva, & Gonsalkorale, 2015).

**ATIMIA**

In the current research, we aimed to develop a paradigm that would achieve three central goals: (a) to replicate and extend previous work demonstrating that individuals ostracize burdensome group members and to investigate perceptions of the burdensome group member, (b) to induce individuals to ostracize others without explicitly instructing them to do so, and (c) to create another method for systematically investigating how individuals feel as sources of ostracism, thus creating a multimethod approach. To achieve these three goals, we developed a computer game called Atimia. In this game, participants take turns playing with computer-controlled agents solving Remote Associates Test (RAT) items (Bowden & Jung-Beeman, 2003; Mednick, 1968). During an RAT trial, participants are given three words and asked to find a fourth word that is related to the three other disparate words (e.g., “play,” “fold,” and “duck” are all related to the fourth word, “bill,” i.e., playbill, billfold, duckbill). During a previous study using Atimia (Wirth et al., 2014), we manipulated the performance of the computer agents to create players that performed either similar or worse than the participant and either ostracized or included the participant. The poor-performing players burdened the group due to impeding the group from achieving its goal. In the current work, we tested if a computer agent performing poorly was perceived as burdening the group and whether this motivated the participants to ostracize the burdensome player. Demonstrating this outcome would mean Atimia can be used as an additional means for studying sources of ostracism.

Specifically, we hypothesized that a poor- versus equal-performing group member will be ostracized more, perceived as more burdensome, and liked less. To further demonstrate the averseness of a poor-performing group member, we also hypothesized that a poor-performing group member will be ostracized more, perceived as more burdensome, and liked less compared to a fellow group member. We expect no differences between an equal-performing group member and the fellow group member.

**METHOD**

**Participants and Design**

A total of 56 individuals initially participated in this study, but 10 participants’ data were removed due to computer error. This left a final sample consisting of 46 participants (63% female) with a mean age of 20.65 years ($SD = 3.36$). The sample was 56.5% Caucasian, 13% African American, 13% Asian, and 13% indicating their race was different than any of the listed options. The
majority of participants (93.5%) indicated they primarily spoke English. The data and materials are available at osf.io/6fgnq.

Participants were randomly assigned to a 2 (manipulated player performance: poor-performance vs. equal-performance) × 2 (group member: nontarget [Alex] vs. target [Pat]) mixed design. Target player performance was a between-participants factor and group member was a within-participants factor.

Procedure

In groups of up to four people, participants came into the research lab and were instructed that they would play a word game, Atimia (see Figure 1). Participants were told they were playing with other students in another lab space through the campus network. This was not actually the case because participants were playing with two computer-controlled agents. They were then given instructions, including pictures, which provided information on (a) how to log into the game, (b) how the game display functioned, (c) the object of the game, (d) how to submit their answers, and (e) how to pick the next player. To log into the game, participants were instructed that they would enter in a desired screen name (that did not uniquely identify them) and then click the login button. Participants were told where in the Atimia game they would see the other players, the game information and statistics (i.e., group and participant accuracy), and the area for submitting their answer to the trials and selecting the next player. As part of these instructions,
participants were told that a player’s avatar would turn dark blue when it was their turn to solve the problem.

Following this, participants were given a clear explanation of the objective of the game. Participants were told, “The objective of Atimia is to enter the word that links or relates the three words in the word list.” Specifically, in Atimia, participants attempted to complete Remote Associates Test (RAT) items (Bowden & Jung-Beeman, 2003; Mednick, 1968). In this task, participants identify a word that links three separate words together, such as the solution word “girl” can be added to the words “flower,” “friend,” and “scout” (i.e., flower girl, girlfriend, girl scout). Participants went through several examples and we noted that the solution word could come before or after the three given words. Participants were instructed that during the game they could put their solution in the response box and hit submit to see if they were correct. After each response the game statistics updated (i.e., round number, participant accuracy, group accuracy, and question/question total). Last, participants learned that they should click on boxes marked with the names of the other players to select the next player to take a turn.

During the game we varied the performance of one of the computer agent players to manipulate the presence of a burdensome group member. Participants played with two computer-controlled players named Alex and Pat. Pat was the manipulated player whose performance we manipulated to be either approximately equal to the group (equal-performing Pat), getting 75% of the answers correct (nonburdensome) or performing worse than the group (poor-performing Pat), getting approximately 13% correct (burdensome). Alex was the nonmanipulated player whose performance was designed to always be comparable to the participant’s performance. Pilot testing found participants were correct approximately 75% of the time. Therefore we set Alex, the nonmanipulated player, to perform similarly to how we expected participants to perform given the pilot data. Throughout the game, each computer-controlled player equally selected the participant or the other computer-controlled player in a random fashion. Participants played Atimia until the group answered 20 RAT items correctly and then participants went on to answer several questions about the other players and their game-playing experience.

Dependent Measures

For all of the self-report measures, participants answered questions about both of the computer-controlled players (Pat and Alex) separately. For each measure, participants answered all questions about one of the players before going on to the other player. Throughout the separate measures, we counterbalanced whether participants answered questions first about Pat or Alex and within each measure we randomized the order items were presented.

**Ostracism of the target player.** We evaluated how much participants ostracized Pat, the manipulated player, in three ways. First, as a behavioral measure of ostracism, we assessed how much participants ostracized Pat during the game, by analyzing the log files of Atimia, which recorded how often the participant selected each computer-controlled player. This method of recording behavioral ostracism is similar to the approach used with Cyberball (Wesselmann, Wirth et al., 2013; Wesselmann et al., 2014) where ostracism was operationalized as the number of the participant’s tosses to the target player. Similarly, we evaluated what percent of the time the participant selected Pat.
Second, participants self-reported how much they ignored and excluded (i.e., ostracized) each player during the Atimia game on a 1 (Not at all) to 7 (Very much so) scale (Spearman-Brown Coefficients ≥ .74; Eisinga, Te Grotenhuis, & Pelzer, 2013). As a third measure of ostracism, we asked participants how much they would like to work with Alex or Pat on a future task on a 1 (Not at all) to 7 (Very much so) scale (Wesselmann et al., 2014). This measure was intended to demonstrate the participant’s future ostracism intentions within the confines of the experiment interaction.

Perception of group member burdensomeness. To assess how much participants found each player to be burdensome, we asked participants to make ratings on five items: “I felt like the presence of Alex/Pat threatened the group’s success,” “Alex/Pat was burdensome to the group,” “Alex/Pat kept the group from achieving its goals,” “Alex/Pat failed the group,” and “Alex/Pat contributed to the group,” (reverse scored). Participants completed their ratings on a 1 (Not at all) to 7 (Very much so) scale (αs ≥ .85).

Liking of the players. We also asked participants how much they liked each of the players on a 1 (Not at all) to 7 (Very much so) scale. This item was intended to assess global feelings of dislike of a target player.

Manipulation Check

As a manipulation check, to see how well participants perceived each players’ performance, participants responded to the statement “Alex/Pat made mistakes,” on a 1 (Not at all) to 7 (Very much so) scale.

RESULTS

With the exception of analyzing the behavioral ostracism, we conducted the analyses by using a 2 (Manipulated Player Performance: poor-performance vs. equal-performance) × 2 (group member: nontarget [Alex] vs. target [Pat]) mixed ANOVA with group members as the repeated factor and manipulated player performance as a between-participant factor. To evaluate our hypotheses directly, we used an independent-samples t test, to examine if poor-performing Pat (a burdensome group member) caused more aversive responses than equally performing Pat (a nonburdensome group member).

We also made a series of comparisons (paired t tests) between Pat and Alex. To further demonstrate the averseness of a poor-performing Pat, a burdensome group member, we conducted a paired-samples t test comparing poor-performing Pat to Alex (the nonmanipulated group member). We also conducted a paired-samples t test to demonstrate that equal-performing Pat, a nonburdensome group member, was evaluated similarly to Alex. Comparisons between Pat and Alex were made in their respective within-participants condition.

Manipulation Check

We evaluated the manipulation check using a mixed ANOVA. Overall, participants reported that Pat made more mistakes than Alex, F(1,44) = 5.01, p = .030, ηp2 = .10. This main effect was
qualified by the expected significant interaction between the manipulated player performance and group member, \( F(1,44) = 26.62, p < .001, \eta_p^2 = .39 \). Specifically, participants indicated that Pat made more mistakes when performing poorly compared to performing equal with the group, \( t(44) = 5.79, p < .001, d = 1.71, 95\% \text{ CI} = [1.58, 3.27] \). Also by design, participants reported that poor-performing Pat made more mistakes than Alex \( (t(20) = -4.91, p < .001, d = 1.58, 95\% \text{ CI} = [-2.92, -1.18]) \). Although not our intention, participants also indicated that Alex made more mistakes compared to an equal-performing Pat \( (t(24) = 2.40, p = .024, d = 0.53, 95\% \text{ CI} = [0.12, 1.56]) \). There were no remaining significant differences between the players, \( ts \leq -1.04, ps \geq .31, ds \leq 0.31 \).

Ostracism of the Target Player

**Behavioral ostracism.** We found, using an independent samples \( t \)-test, that participants were significantly less likely to select a poor-performing Pat \( (M = 27.18\%, SD = 21.47) \) compared to an equally performing Pat \( (M = 45.66\%, SD = 14.24) \), Levene’s Test of Equality of Variance, \( F = 6.86, p = .012; t_{\text{adjusted}}(33.68) = -3.37, p = .002, d = 1.02, 95\% \text{ CI} = [-0.30, -0.07] \). We used an independent samples \( t \) test, rather than a mixed ANOVA, because the number of times the nontarget was selected is a function of the number of times that the target player was selected, therefore making the results nonindependent of each other.

**Self-reported ostracism.** Using a mixed ANOVA, we found in general that participants self-reported that they ostracized Pat more than Alex, \( F(1,44) = 22.10, p < .001, \eta_p^2 = .33 \). Central to our analysis, we found this main effect was again qualified by a hypothesized significant manipulated player performance \( \times \) group member interaction for how much participants reported ostracizing the players, \( F(1,44) = 10.53, p = .002, \eta_p^2 = .19 \). Supporting our hypothesis, we found participants self-reported ostracizing poor-performing Pat more than equally performing Pat, \( t_{\text{adjusted}}(37.30) = 2.53, p = .016, d = .77, 95\% \text{ CI} = [0.33, 3.00] \) (See Table 1 for descriptive statistics and Figure 2 for interaction graphs). Further demonstrating the ostracism of poor-performing Pat, participants also self-reported ostracizing poor-performing Pat more than Alex \( (t[20] = -4.83, p < .001, d = 1.50, 95\% \text{ CI} = [-3.75, -1.49]) \). Lastly, there was no significant difference in self-reported ostracism of equal-performing Pat compared to Alex \( (t[24] = -1.21, p = .239, d = 0.32, 95\% \text{ CI} = [-1.30, -0.34]) \).

**Future ostracism intentions.** Based on a mixed ANOVA, we found that in general participants had less of an intention to work on a future task with Pat compared to Alex, \( F(1,44) = 6.42, p = .015, \eta_p^2 = .13 \). This main effect was qualified by our hypothesized interaction between manipulated player performance and group member, \( F(1,44) = 32.34, p < .001, \eta_p^2 = .42 \). Breaking down this interaction, we found support for our hypothesis such that participants were less intent on working with poor-performing Pat than an equally performing Pat, \( t(44) = -2.43, p = .019, d = 0.72, 95\% \text{ CI} = [-2.63, -0.24] \). Further, participants had less of an intent to work with poor-performing Pat than Alex \( (t[20] = 4.65, p < .001, d = 1.22, 95\% \text{ CI} = [1.21, 3.17]) \). We also found that participants were less interested in working with Alex compared to an equally performing Pat \( (t[24] = -2.93, p = .007, d = 0.46, 95\% \text{ CI} = [-1.43, -0.25]) \).
<table>
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<tr>
<th>Manipulated player’s performance</th>
<th>Variable</th>
<th>Alex Equal-performing Pat (n = 25)</th>
<th>Alex Poor-performing Pat (n = 21)</th>
<th>Alex Total</th>
<th>Pat Equal-performing Pat (n = 25)</th>
<th>Pat Poor-performing Pat (n = 21)</th>
<th>Pat Total</th>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
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<td>1.57</td>
<td>3.86</td>
<td>1.42</td>
<td>4.11</td>
<td>1.51</td>
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<td>0.96</td>
<td>1.05</td>
<td>0.15</td>
<td>1.30</td>
<td>0.75</td>
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<td>Future ostracism intention</td>
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<td>1.79</td>
<td>5.48</td>
<td>1.40</td>
<td>4.61</td>
<td>1.80</td>
<td>4.72</td>
</tr>
<tr>
<td>Perceptions of burdensomeness</td>
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<td>1.32</td>
<td>1.23</td>
<td>0.36</td>
<td>1.86</td>
<td>1.16</td>
<td>2.08</td>
</tr>
<tr>
<td>Liking of the players</td>
<td>4.12</td>
<td>1.59</td>
<td>5.19</td>
<td>1.29</td>
<td>4.61</td>
<td>1.54</td>
<td>4.64</td>
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</table>
FIGURE 2 Manipulated player performance × group member interactions for the four primary dependent variables. Manipulated player performance was a between-participants factor and group member was a within-participants factor. Higher values indicate increasing amounts.

Perception of Group Member Burdensomeness

When we analyzed how much participants perceived each player as being burdensome, we found a pattern of results similar to the self-reported ostracism findings. Overall, participants rated Pat as more burdensome than Alex ($F(1,44) = 24.29$, $p < .001$, $\eta_p^2 = .36$), but similar to before this result was qualified by a hypothesized significant manipulated player performance × group member interaction ($F(1,44) = 36.13$, $p < .001$, $\eta_p^2 = .45$). When we further examine this interaction, we again find support for our hypothesis; participants reported that a poor-performing Pat was more burdensome than an equal-performing Pat, $t_{\text{adjusted}}(37.87) = 4.02$, $p < .001$, $d = 1.21$, 95% CI = [1.14, 3.46]. Further, participants found poor-performing Pat as more burdensome than Alex ($t[20] = -6.87$, $p < .001$, $d = 2.07$, 95% CI = [−4.11, −2.20]). There was no significant difference between equal-performing Pat and Alex on how burdensome participants perceived each group member ($t[24] = 0.86$, $p = .396$, $d = 0.21$, 95% CI = [−0.43, 1.06]).

Liking of the Players

When we evaluated how much participants liked each of the players, we found overall that participants liked Pat less than Alex ($F(1,44) = 4.41$, $p = .042$, $\eta_p^2 = .09$). Central to supporting our hypothesis, we found the main effect of liking was qualified by a hypothesized significant manipulated player performance × group member interaction ($F(1,44) = 15.42$, $p < .001$, $\eta_p^2 = .26$).
Further specific analyses supported our hypothesis. Participants liked poor-performing Pat less than an equally performing Pat, \( t[44] = -2.21, p = .032, d = 0.65, 95\%\ CI = [-2.22, -0.10] \). Participants also liked poor-performing Pat less than Alex \( t[20] = 3.58, p = .002, d = 1.27, 95\%\ CI = [0.72, 2.71] \). Last, we found no difference in liking between equal-performing Pat and Alex \( t[24] = -1.57, p = .131, d = 0.30, 95\%\ CI = [-1.21, 0.17] \).

**Exploratory Analyses**

**Perceptions of Alex.** When Alex played with a poor-versus well-performing Pat, participants reported including Alex more, wanted to work with Alex more on a future task, perceived Alex as less burdensome, and liked Alex more \( (ps \leq .023, ds \geq 0.66) \).

**Interaction with participant gender.** Contrary to initial investigations (Williams, Wheeler, & Harvey, 2001), we found no significant interaction between manipulated player performance and participant gender on behavioral ostracism, \( F(1,42) = 0.14, p = .713, \eta^2_p < .01 \).

**Mediation analyses.** We found no consistent mediation of the relationship between manipulated player’s performance and ostracism outcomes by the potential mediators of perceived burdensomeness and liking. This may be due to all measures being assessed after playing Atimia.

**DISCUSSION**

To fully understand the experience of ostracism, researchers need to consider not only the impact of being ostracized, but also the experience of ostracizing others. To increase our understanding of sources of ostracism, we had three principle goals: (a) to replicate and extend previous research where participants ostracized a burdensome group member and to understand the perceptions of the burdensome group member, (b) to create a situation where participants autonomously ostracized a group member, and (c) to generate a multimethod approach to systematically investigate sources of ostracism. Our results suggest we achieved all three goals.

**Replicate and Extend Previous Research**

Our current results replicated previous research and extended research on sources by investigating ostracism of a burdensome player and how participants perceived a burdensome group member. Similar to previous research (i.e., Wesselmann, Wirth et al., 2013; Wesselmann et al., 2014), participants ostracized the burdensome group member by selecting that group member less than a nonburdensome group member. Similar to the current results, participants acknowledged ostracizing the burdensome group member through self-report. Further supporting previously demonstrated effects (Wesselmann et al., 2014), we found that the ostracism of the burdensome group member extended beyond the confines of the Atimia game; participants also had less of an intent on doing an immediate new task with the burdensome player. We also found that in addition to finding a poor-performing group member to be more burdensome (see also Wesselmann, Wirth et al., 2013; Wesselmann et al., 2014; Wirth et al., 2014), participants also liked this group member less than an group member who performed equally as well as the participant. We were
able to replicate and extend previous findings while inducing participants to ostracize without explicit instructions to do so.

Autonomously Ostracizing a Group Member

Part of our intent for developing Atimia was to create a paradigm where participants are induced to ostracize, rather than being told explicitly to do so or have ostracism behavior modeled for them. This paradigm answers the call Zadro and Gonsalkorale (2014) put forth and it allows researchers to investigate what motivates ostracism of an individual and to investigate autonomous ostracism, an everyday experience of ostracizing others through one’s own volition. Up to this point, researchers could only observe sources of ostracism using Cyberball. In one case, participants had a negative interaction with an individual, before ostracizing this person during a subsequent game of Cyberball (Gooley et al., 2013) and in another case, participants ostracized a Cyberball player modified to take a long amount of time before deciding to throw the ball (Wesselmann, Wirth et al., 2013; Wesselmann et al., 2014). Similarly, our paradigm showed individuals will also ostracize an individual without being given any instructions about whom to choose in the game; participants autonomously ostracized a player performing poorly on the task. In fact, if we compare the effect sizes of behavioral ostracism ($d = 1.02$) and perceptions of burdensomeness ($d = 1.21$) as a result of playing with a poor performer in Atimia, we see that they are large effect sizes, just like the results of slow-player (16-second delay) Cyberball studies of Wesselmann, Wirth et al. (2013; $d = 1.27$, $d = 2.18$) and Wesselmann et al. (2014; $d = 1.77$, $d = 1.55$). This suggests that utilizing Atimia will help create a multimethod approach that is an ideal standard for understanding individual’s behavior.

LIMITATIONS

The conclusions we can draw from the current research are limited by examining only one type of group task, one motivation for ostracism, and an unexpected finding with the manipulation. Participants engaged in a conjunctive task, where group performance is dependent on the weakest member (Steiner, 1966). Tasks that rely less on the weakest link (i.e., disjunctive, complementary) may not replicate the current effects, but additive or compensatory tasks might. In addition to the group task, the motivation for ostracizing is important. Williams (1997) outlines several motivations for ostracism: punitive, not ostracism, role prescribed, defensive, or oblivious. We may have most closely examined punitive ostracism, “acts of ignoring that are perceived to be or intended to be deliberate and aversive” (Williams, 1997, p. 145). Individuals may ostracize for a host of reasons as outlined by Williams or for additional reasons such as revenge or to establish power within a group. Unexpectedly, participants indicate differences in the number of mistakes between Pat and Alex (the manipulation) in the control condition where no differences should have emerged. This led to differences in future ostracism intentions, but no differences in behavioral ostracism ($t[24] = 1.52$, $p = .140$, $95\%\ CI = [-0.03, 0.20]$), self-reported ostracism, or perceptions of burden. This outcome suggests small amounts of burden could be tolerated within the immediate interaction (Wesselmann, Wirth, Pryor, Reeder, & Williams, 2015). The current research has these limitations that could be addressed in future research.
FUTURE DIRECTIONS: ATIMIA AS A METHOD FOR SYSTEMATICALLY INVESTIGATING SOURCES OF OSTRACISM

The Atimia paradigm may generate numerous research opportunities to systematically investigate sources of ostracism. Researchers could apply Atimia to investigate the experience of ostracizing another individual, individual differences influencing when one becomes a source of ostracism, and finally, situations that may influence when an individual becomes a source of ostracism.

The Experience of Ostracizing Another Individual

We believe Atimia can be used to continue the investigation of outcomes associated with ostracizing others. For instance, Atimia could be used to examine whether there is variation in the extent to which individuals are aware that they are harming the target of the ostracism. Wesselmann, Williams et al. (2013) found that individuals feel the same effects of being ostracized when they are merely watching an individual be ostracized, especially if they take the perspective of the ostracized individual. This suggests sources of ostracism are aware that they are harming the target of their ostracism and the degree to which participants are empathetic may affect an individual acting as a source of ostracism. Researchers might also examine how the perceptions of the group change from the source’s perspective. Gruter and Masters (1986) contend that the group becomes closer when it ostracizes a group member, in part because of the group having to coordinate their efforts to remove the group member. Along similar lines of future work, researchers could examine how sources feel when they ostracize alone or with other group members. Based on social impact theory (Latané, 1981), sharing the role of ostracizing with others may diminish the aversive impact of harming the target. Atimia could be implemented to investigate these questions and how individual differences could impact being a source of ostracism.

Individual Differences

Individual characteristics may influence when one becomes a source of ostracism. As with many social interactions, the five factor model (Costa & McCrae, 2009) may also play an important role. In the case of ostracizing others, highly agreeable individuals (i.e., those who want to minimize conflict; Jensen-Campbell & Graziano, 2001), may be less likely to create conflict by ostracizing an individual. Similarly, conscientious individuals may be especially aware of the hurt they are causing the ostracized individual and therefore be hesitant to do so. Conversely, personality traits consistent with Machiavellianism, part of the Dark Triad (which also includes narcissism; Paulhus & Williams, 2002), may lead to increased use of ostracism to manipulate an individual, similar to how groups enforce norms through ostracism (e.g., Dijker & Koomen, 2007). Additionally, individuals high in psychopathy may also ostracize others. These individuals are characterized by being manipulative, egocentric, impulsive, deceitful, irresponsible, arrogant, and also having a superficial charm and shallow affect (Cleckley, 1941; Hare, 1991). Because individuals high in psychopathy are impulsive and have low empathy and anxiety, they may be quick to ostracize individuals due to lack of concern for harming the target. Last, while exploratory analyses did not find that gender affected the source’s ostracism ball-toss behavior, a study designed specifically to investigate this question may be warranted. Researchers could use Atimia
to present scenarios where there is motivation to ostracize a group member and investigate if these individuals differences play a moderating role.

Situational Factors

Finally, we believe Atimia could be used to investigate situational factors that could increase or decrease the likelihood of sources ostracizing a group member. A basic situational factor to investigate is whether male or female burdensome targets are more likely to be ostracized. Similarly, researchers could investigate if a target from a minority social group (ethnic/racial) is more likely to be ostracized than a target from a majority social group. Individuals from a minority social group generally have a greater likelihood of social exclusion than majority group members (e.g., Kurzban & Leary, 2001). A second situational factor could involve manipulations designed to increase burden tolerance, therefore causing individuals to be more likely to include the burdensome group member. One manipulation might be increasing one’s compassion for others through cognitive-based compassion training (CBCT; Mascaro, Rilling, Tenzin Negi, & Raison, 2013; Ramsey & Jones, 2015). Researchers could investigate the differences for sources when they ostracize others without prompting compared to being asked to ostracize a particular group member (e.g., Legate et al., 2013). Based on the research by Sommer and Yoon (2013), sources may feel less distress ostracizing others when the target deserves the treatment compared to when it is undeserved. Features of Atimia (see Wirth et al., 2014) may be used effectively to look at any one of these situational factors and potential others.

CONCLUSION

Ostracism researchers are now taking a full perspective in their investigation of an ostracism episode by not only looking at how it feels to be ostracized, but also what it feels like to be the one doing the ostracizing. Researchers demonstrated that individuals who are ostracizing others are not free from feeling harmed, but rather can also feel similarly negative as the individual being ostracized. Given that ostracism occurs on nearly a daily basis (Nezlek, Wesselmann, Wheeler, & Williams, 2012) and both the individual being ostracized and the individual doing the ostracism feel negative, it is imperative to understand why individuals ostracize in an effort to reduce how badly both parties involved in ostracism feel. By creating Atimia, a paradigm that can be easily implemented in a systematic way, we hope to increase the amount of research being conducted investigating sources of ostracism.
ACKNOWLEDGMENTS

Researchers can request the Atimia program, without any cost, or ask any questions by contacting James H. Wirth at wirth.48@osu.edu. We would like to thank Paul Turchan for his input on this research.

NOTES

1. The name for the game, Atimia, is derived from the ancient Greek practice of atimia, which was the penalization of the atimos, individuals who were in debt to the city of Athens (Allen, 2000).
2. The original experiment design included an additional between-participants manipulation where we manipulated whether players could freely choose which player would go next or the computer assigned what player would go next in a round-robin format. There were no significant interactions with this factor, so we focused on the performance manipulation and omitted participants in the round-robin conditions.
3. We calculated separate Spearman-Brown coefficients for the target (Pat) and nontarget group players (Alex).
4. For each of the scales, we created a separate Cronbach’s alpha for questions about Pat and Alex.
5. Confidence intervals are calculated based on mean differences between conditions.

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Received December 1, 2014
Accepted May 26, 2015