

How low can you go? Ostracism by a computer is sufficient to lower self-reported levels of belonging, control, self-esteem, and meaningful existence[☆]

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Abstract

Previous research has demonstrated self-reports of lower levels of four fundamental needs as a result of short periods of face-to-face ostracism, as well as short periods of Internet ostracism (Cyberball), even when the ostracizing others are unseen, unknown, and not-to-be met. In an attempt to reduce the ostracism experience to a level that would no longer be aversive, we (in Study 1) convinced participants that they were playing Cyberball against a computer, yet still found comparable negative impact compared to when the participants thought they were being ostracized by real others. In Study 2, we took this a step further, and additionally manipulated whether the participants were told the computer or humans were scripted (or told) what to do in the game. Once again, even after removing all remnants of sinister attributions, ostracism was similarly aversive. We interpret these results as strong evidence for a very primitive and automatic adaptive sensitivity to even the slightest hint of social exclusion.

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Ostracism—the act of being excluded and ignored (Williams, 2001)—is ubiquitous. Reviewing the ethological, anthropological, and social psychological literature reveals that ostracism is used by many species, by children and adults, in primitive tribes and modern industrialized societies, as a formal method of reprimand among nations, institutions, and organizations and as an informal emergent reaction on playgrounds and hallways, with large groups, small groups, and dyads.

Ostracism is also powerful. Studies have shown that people subjected to ostracism for a short period of time report worsened mood, anger, and lower levels of four state measures of needs proposed by Williams (1997,

2001) to be threatened by ostracism: belonging, control, self-esteem, and meaningful existence. These studies consisted largely of a laboratory-based ball-tossing paradigm, in which participants partook in a spontaneous ball-toss game with two other confederate participants. When the other two individuals began tossing the ball just between themselves, ostracized participants slumped in their chairs, looking despondent, after only 4 min. Studies of long-term ostracism report incidences of attempted suicide and depression (Williams & Zadro, 2001), and even mass-shootings (Leary, Kowalski, Smith, & Phillips, 2003).

Recently, Williams, Cheung, and Choi (2000) reported that individuals who played a virtual ball-toss game on the computer, ostensibly with others who were logged on to the website, also reported worsened mood and lower need levels. Additionally, if given the opportunity to make spatial judgments with a new group of individuals, ostracized participants were more likely to conform to this group's unanimously incorrect answers.

One goal of the Williams et al. (2000) research was to first establish a baseline condition in which ostracism

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would have no effects, and then to add on necessary factors until ostracism had a negative impact on the four needs. The authors were surprised to find out that what they thought would be the baseline turned out to be sufficiently adverse. One goal of the present studies, therefore, was to create conditions even less meaningful than those in the Williams et al. (2000) studies, in order to determine the necessary and sufficient conditions for ostracism to have an aversive impact. To the extent that such a baseline can be established, then we can gain a clearer idea what aspects of ostracism are essential.

Study 1

In Study 1, participants were either ignored or included during Cyberball—a cyber analogue of a ball-tossing game (Williams et al., 2000, 2002)—by two other players whose identity was manipulated. Targets were told that they were playing Cyberball with either two computer-generated players or two human players prior to the start of the game. If the identity of the source is an important component in determining the aversiveness of ostracism, then targets who are ostracized by two human players should report lower levels of primary needs than targets who are ostracized by two computer-generated players or targets who are included in the game. If the identity of the source is not important—rather, the very act of ostracism is aversive enough to induce deleterious psychological effects—then targets who are ostracized by humans or computers should both report lower levels of mood and of the four primary needs when compared to targets who are included in the game.

Method

Participants and design

Eighty first-year undergraduates enrolled in introductory psychology at the University of New South Wales were randomly assigned to a 2 (inclusionary status: ostracism vs. inclusion) \times 2 (attributed source: computer-generated players or human players) between-S design. Participants volunteered to take part in the experiment in return for course credit. Eighteen participants were excluded because of technical difficulties with the computers and the Internet connection, thus the final experiment consisted of 62 participants (20 males, 42 female, M age = 19.9, SD = 2.7).

Procedure

One participant per session arrived at the laboratory, and was seated in front of a computer.¹ Participants

were told that the study involved the effects of mental visualization, and that to assist them in practicing their skills at mental visualization they would be playing an Internet ball-toss game on the computer. They were told that performance in the game was unimportant, and instead, the game was merely a means for them to engage their mental visualization skills. They were asked to visualize the situation, themselves, and the other players. The game was accessed via the Internet (a downloadable version of this game is available at: <http://www.psy.mq.edu.au/staff/kip/Announce/cyberball>). The game depicts three ball-tossers, the middle one representing the participant. The game is animated and shows the icon throwing a ball to one of the other two. When the ball was tossed to the participants, they were instructed to click on one of the other two icons to indicate their intended recipient, and the ball would move toward that icon. The game was set for 40 total throws (the game lasted approximately 6 min). Once the instructions were read, the participant clicked the “Next” link and the program randomly assigned them to one of the four conditions. At the end of the game, the website instructed participants to inform the experimenter that they had finished, and they were then instructed to fill out a post-experiment questionnaire.

Inclusion/ostracism manipulation. If assigned to the *inclusion* condition, participants received the ball for roughly one-third of the total throws. If assigned to the *ostracism* condition, participants received the ball twice at the beginning of the game, and for the remaining time, never received the ball again.

Sources manipulation. Half the participants were told that they were playing with two other individuals who were stationed in similar laboratories at two other universities in Sydney. This cover story was augmented by staged phone calls to the other experimenters making sure that their participants were ready to go. The other half were told that they were playing the game with a computer.

Dependent measures. The questionnaire contained several manipulation checks for inclusion/ostracism: “What percent of the throws were thrown to you?,” “To what extent were you included by the other participants during the game?,” and a 9-point bipolar scale (“accepted/rejected”). The questionnaire also contained a number of questions that asked participants to assess their levels of four needs that they felt during the game. These needs were: *belonging* (“I felt poorly accepted by the other participants,” “I felt as though I had made a “connection” or bonded with one or more of the participants during the Cyberball game,” “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,” “I felt somewhat frustrated during the Cyberball game,” “I felt in control during the Cyberball game”), *self-esteem* (“During the Cyberball

¹ In both studies, cardiovascular measures were taken periodically, but only the self-report data are reported in the present paper.

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