Journal of Experimental Social Psychology 74 (2018) 38–42

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

FlashReport

Revisiting the Cyberball inclusion condition: Fortifying fundamental needs by making participants the target of specific inclusion☆

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1. Introduction

The need to belong is a fundamental human motivation that has vital consequences on mental and physical health (Baumeister & Leary, 1995; Cacioppo & Cacioppo, 2012). Various studies have investigated the effects of experiencing rejection/exclusion/ostracism and have shown that these effects cause individuals to feel hurt, depressed, lonely, emotionally numb, anxious, frustrated or helpless (DeWall & Baumeister, 2006; MacDonald & Leary, 2005; Williams & Zadro, 2001). These deleterious effects are the result of a conspicuous lack of social bonding that threatens four fundamental needs: belonging, self-esteem, control, and meaningful existence (Williams, 1997; Williams & Zadro, 2001). While there is a wealth of knowledge on the effects of social exclusion, there are very few paradigms that specifically study social inclusion. In fact, most experiments compare an inclusion condition to an exclusion condition and, thus, without a neutral or control group, conclusions regarding the unique effects of being *included* will be difficult to draw. The most prevalent evidence for this comes from studies using the Cyberball paradigm.

1.1. Cyberball inclusion

Cyberball is a popular paradigm with over one thousand citations. It consists of an online ball-tossing game with two or more other players where participants in the inclusion condition receive the ball, with an equal share of the throws, and those in the exclusion condition receive two tosses initially and no other toss for the remaining part of the game (Williams, Cheung, & Choi, 2000). To date, the Cyberball paradigm has been used in > 250 studies (Williams, 2016), however authors of this growing list of articles assigned various names to the "inclusion condition" and describe its various functions. To some authors, it is referred to as a *control* condition (c.f., Oaten, Williams, Jones, & Zadro, 2008; Weik, Maroof, Zöller, & Deinzer, 2010) or an *inclusion* condition (c.f., Beekman, Stock, & Marcus, 2016; Buelow, Okdie, Brunell, & Trost, 2015) and is treated as a comparison condition to the exclusion condition. To others, it is referred to as an *inclusion* condition (c.f. Bernstein, Sacco, Young, Hugenberg, & Cook, 2010; Hermann, Skulborstad, & Wirth, 2014; Hillebrandt, Sebastian, & Blakemore, 2011) or an *acceptance* condition (c.f. Chester, DeWall, & Pond, 2016; DeWall, Twenge, Bushman, Im, & Williams, 2010) and is treated as though the condition influences fundamental needs.

Given these different interpretations, it is reasonable to question whether the Cyberball Inclusion condition is in fact a "control" condition or if it truly fortifies one's fundamental needs. On one hand, the Cyberball Inclusion condition can be construed as a social participation task (i.e., taking part in a ball-tossing game with other people), without necessarily increasing one's fundamental needs, thereby making it a good comparison to the exclusion condition since it controls for the social participation effect. On the other hand, it is also possible that being 'included' in the ball-tossing game actually improves participants' fundamental needs. However, to date there is actually little evidence of the latter assumption. Gross (2009) for example measured state self-esteem before and after participants participated in either the Cyberball Inclusion or Cyberbal Exclusion condition, and showed that the inclusion condition did not significantly increase state self-esteem. Unfortunately, there is no knowledge of the effects of the Cyberball Inclusion condition on the needs of belonging, meaning, and control because these subscales were not measured in this study. Furthermore, of the numerous Cyberball studies investigating the affective responses of ostracism, only 1 study (to our knowledge) incorporated a waiting control/no task condition, although this study did not measure fundamental needs (Brown, Young, Sacco, Bernstein, & Claypool, 2009). Other studies have used variations of the Cyberball paradigm as comparison conditions, such as an implicit social exclusion condition (c.f., Yanagisawa et al., 2011; Nishiyama et al., 2015) or an over-inclusion condition (c.f., Niedeggen, Sarauli, Cacciola, & Weschke, 2014; Williams et al., 2000), however none of these studies help clarify the unique effects of the Cyberball Inclusion condition on fundamental needs because they did not incorporate a neutral/control condition to which the Cyberball Inclusion condition may be compared. Hence, despite the impressive contribution of Cyberball to the field of social ostracism, its potential as a method for studying social inclusion is yet

☆ This research was supported by a Social Sciences and Humanities Research Council of Canada (410-2011-2313) grant (SSHRC) and the Fonds de Recherche du Québec – Santé (FRQS) (24622).

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http://dx.doi.org/10.1016/j.jesp.2017.08.002
Received 18 October 2016; Received in revised form 12 June 2017; Accepted 15 August 2017

to be fully explored.

1.2. The current research

The first aim of the present study was to ascertain whether the Cyberball Inclusion condition actually improves the four fundamental needs by comparing its effects to a neutral, non-social participation task. The second aim was to investigate whether states of fundamental needs can indeed be improved with a condition (that we call Überball) that clearly identifies the participant as the target of preferential or "exclusive" inclusion. The third aim was to ascertain whether the effects would be moderated by personality traits related to social information processing such as participants' fear of negative evaluation, self-esteem, or need to belong.

For this study, the 4-player version of the Cyberball Inclusion condition was adapted so that the preprogramed players included the participant (i.e. received an equal share of throws) but excluded one of the *other* players. This created a context where the group does not indiscriminately include everyone – the group "chooses" or targets the participant for inclusion. Research on relational value, the degree to which one infers that others value them as a group member, suggests that inclusion alone does not necessarily lead to better self-esteem and more positive affect, but that one's perception of their relational value to other people does (Leary, 2001, 2005). Relational value stems from perceiving others behaving in socially positive ways toward oneself, therefore it is hypothesized that the self-esteem and fundamental needs of participants would be fortified by being the targets of "exclusive" inclusion in the Überball Inclusion condition. In addition, it is hypothesized that this effect may be moderated by participants' trait levels of social self-worth whereby participants scared of rejection or overly concerned by social evaluation would benefit most from being the targets of preferential inclusion. Though this paradigm was used by Wesselmann, Wirth, Pryor, Reeder, & Williams, 2013 to focus on participants' ball-tossing behaviour and its effect toward a fellow game player that was excluded, the current study focused on participants' own affective responses to being the target of conspicuous inclusion.

2. Method

2.1. Participants

Based on comparable studies (for example, Brown et al., 2009; Gross, 2009; Williams et al., 2000) the effect size for the current study was approximated at $f = 0.15$ (in the small to medium range). Thus, with an alpha level of 0.01 and a power of 0.80, G * Power's sample size calculator suggests a total sample of 624 participants. A total of 794 participants were recruited from Amazon's Mechanical Turk platform to participate in an online study on "mental visualization". Data from 25 participants were excluded due to incomplete data or technical difficulties and 20 due to failed manipulation checks (12 in Überball, 14 in Cyberball Inclusion, and 13 in Control condition. See Supplementary Materials for details). Data analyses were conducted on 755 participants (449 females), with a mean age of 37.44 years (SD = 12.02 years). All measures and conditions are reported below and in the Supplementary Materials.

2.2. Conditions

2.2.1. Cyberball inclusion condition (N = 243)

Participants took part in a 4-player Cyberball Inclusion condition where participants received approximately 33% of throws (Williams et al., 2000). See Supplemental material for specific task instructions.

2.2.2. Überball inclusion condition (N = 214)

Participants also took part in a 4-player ball-tossing game and received approximately 33% of throws. However, after approximately 5 throws, one of the other players (the player to the right) stopped receiving throws from the preprogramed players. The participant was nevertheless free to throw the ball to any of the other players, including the "excluded" player. If the excluded player received a throw (from the participant), the ball would then be thrown to one of the preprogrammed players and *not* to the participant. Both Cyberball Inclusion and Überball Inclusion conditions consisted of 50 throws, which lasted for approximately 5 min and were programmed using Inquisit Web software (Inquisit, 2016).

2.2.3. Control task (N = 298)

Participants were asked to classify 24 words (e.g. bicycle, purple) in the following 4 categories: animals, colours, foods or vehicles. The control task was designed to act as a comparison for the "participatory" and "positive" (i.e. being included) components of the Cyberball Inclusion and Überball Inclusion conditions. First, since the control task is completed alone, it acts as a comparison for the participatory and social nature of the Cyberball Inclusion and Überball Inclusion conditions. Second, since participants are exposed to neutral words (e.g. soup, purple, boat), it acts as a comparison for the "positive" component of being included in the Cyberball Inclusion and Überball Inclusion conditions.

2.3. Dependent variables

2.3.1. Mood

An 8-item mood questionnaire taken from Wolf et al. (2015) was used to assess participants' mood on a 5-point scale ("*not at all*" to "*extremely*"), with the extent to which they felt good, bad, friendly, unfriendly, angry, pleasant, happy, and sad being reported. Higher scores reflect positive mood ($\alpha = 0.91$).

2.3.2. Fundamental needs

Participants' state levels of belonging, self-esteem, meaningful existence, and control measured on a 5-point scale was used to assess fundamental needs (Jamieson, Harkins, & Williams, 2010). Items (5 for each subscale) included "I felt I belonged to a group" (belonging, $\alpha = 0.89$), "I felt secure" (self-esteem, $\alpha = 0.87$), "I felt meaningless" (meaningful existence, $\alpha = 0.80$), and "I felt I had the ability to significantly alter events" (control, $\alpha = 0.65$). Higher scores indicate higher levels for each need.

2.4. Procedure

After reading the study's description and providing their informed consent, participants completed trait measures of the Rosenberg Self-Esteem Scale (Rosenberg, 1965), Fear of Negative Evaluation brief version (Carleton, McCreary, Norton, & Asmundson, 2006), Social Avoidance and Distress Scale, (Watson & Friend, 1969), and the Need to Belong Scale (Schreindorfer, Leary, & Keith, 1996). These trait measures were used as moderator variables in the analyses. Participants were then randomly assigned to the Cyberball Inclusion, the Überball Inclusion or the Control condition and then automatically redirected to a survey page where outcome measures of fundamental needs, mood and other ancillary outcome measures (see Supplemental Material for more details) were completed. Participants were finally debriefed, thanked for their participation, and compensated with $1.50 each through their MTurk account.

3. Results

Preliminary analyses showed that all groups were equivalent on trait measures, F's < 2.85, *ns*. Supplementary Table 1 provides means and standard deviations of all measures for the entire sample and across all conditions.