



Research report

Impact of simulated ostracism on overweight and normal-weight youths' motivation to eat and food intake

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ABSTRACT

There is growing evidence that the experience of being ostracized can impair individuals' abilities to self-regulate, which in turn, leads to negative health behaviors, such as increased unhealthy eating. Research has focused on adults, but deficits in eating regulation in response to ostracism may be particularly detrimental for overweight or obese youth. This study examines the effects of a brief episode of ostracism on the motivation to eat and food intake of overweight and normal-weight young adolescents (*M* age = 13.6 years). A computerized ball-tossing game (Cyberball) was used to induce ostracism or inclusion. Following the inclusion/ostracism manipulation, all participants completed an operant computer task to earn points exchangeable for portions of food or for time socializing with an unfamiliar peer. Participants' responses for food and their subsequent energy intake were recorded. As hypothesized, ostracized overweight participants responded more for food and had a greater energy intake than overweight participants in the inclusion/control condition; whereas this was not the case for normal-weight participants. These results are important as studies indicate that overweight and obese youth may be at risk of social isolation and peer difficulties. Social adversity, if left unchanged, may increase the difficulty of promoting long-term changes in overweight youths' health behaviors.

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Introduction

Ostracism is the intentional ignoring and excluding of individuals or groups by individuals or groups (Williams, 2007). Ostracism is quite common, with most individuals reporting at least one episode of ostracism each day (Williams, Wheeler, & Harvey, 2001). Studies consistently show that single episodes of ostracism are extremely stressful, as indexed by both self-report and physiological measures of stress and reactivity (Eisenberg, Neumark-Sztainer, & Story, 2003; Stroud, Tanofsky-Kraff, Wilfley, & Salovey, 2000; Zadro, Williams, & Richardson, 2004), and can negatively impact self-esteem, cognition, and mood (Bastian & Haslam, 2010; Boyes & French, 2009). The effect of ostracism appears to be so powerful because it undermines fundamental acceptance and belonging needs, which leads to negative emotional and psychological reactions (Williams, 2007).

There is growing evidence that the experience of being ostracized can impair individuals' abilities to self-regulate, leading to negative health behaviors, such as unhealthy eating (Baume-

ister, DeWall, Ciarocco, & Twenge, 2005; Oaten, Williams, Jones, & Zadro, 2008). One explanation for this impairment is that ostracism focuses attention and evokes threat responses (Williams, 2007), which causes attention and effort to be drawn away from self-monitoring and self-regulatory processes. It is well-established that self-regulation requires self-monitoring (Carver & Scheier, 1998) and that controlled eating requires self-monitoring (Saelens & McGrath, 2003; Yon, Johnson, Harvey-Berino, Gold, & Howard, 2007). Thus, it seems likely that ostracism interferes with an individual's capacity for self-monitoring, thereby disrupting the regulatory processes needed for controlled healthy eating. Recent studies in adults support this model, in that brief episodes of ostracism lead to increased consumption of unhealthy and energy dense foods (Baumeister et al., 2005; Oaten et al., 2008).

Impairment in self-regulation as a result of ostracism may be particularly detrimental for overweight or obese youth. Overweight children and adolescents are more likely to be ostracized, rejected, and marginalized than normal-weight youth, and are more likely to encounter difficulties and negative interactions with the larger peer group (Andreyeva, Puhl, & Brownell, 2008; Brownell, Puhl, Schwartz, & Rudd, 2005; Friedman & Brownell, 1995; Puhl & Brownell, 2001; Puhl & Brownell, 2003b; Puhl, Moss-Racusin, Schwartz, & Brownell, 2008b). As a result of these

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problematic peer experiences, overweight youth may be especially likely to choose solitary and comforting activities (i.e., eating) and to avoid social situations involving unknown peers when ostracism occurs. Furthermore, evidence indicates that overweight youth find food more reinforcing than their normal-weight peers, which raises the possibility that the strong motivation to eat in obese youth helps to explain their positive energy balance (Temple, Legierski, Giacomelli, Salvy, & Epstein, 2008). The greater reinforcing value of food (greater wanting or motivation to eat) for overweight youth may also lead them to turn to food when adverse events occur.

One possible mechanism moderating the relationship between ostracism and food intake is emotional distress, as research has shown that both positive and negative mood increase eating compared to neutral mood (Patel & Schlundt, 2001) and studies suggest that obese individuals are more likely to overeat in response to emotional reactions (Greeno & Wing, 1994; Wing, Blair, Epstein, & McDermott, 1990). Yet, the hypothesis that emotional distress mediates or moderates the behavioral effects of social exclusion has not been supported in many recent studies – at least in those studies that rely on self-report measures of emotional states (Twenge, Baumeister, Tice, & Stucke, 2001; Twenge, Catanese, & Baumeister, 2002; Twenge, Catanese, & Baumeister, 2003).

An alternative potential mechanism moderating the relationship between ostracism, reinforcing value of food, and impairment in self-regulation is dietary restraint. Restrained eaters attempt to restrict their eating by dieting or inhibiting their intake of desired, but forbidden foods (Heatherton, Herman, & Polivy, 1992; Herman & Polivy, 1980, 1984). However, because dietary restraint and self-regulation both rely on a limited supply of regulatory resources, restrained eaters may be more vulnerable to impairment in self-regulation when factors disrupt regulatory processes. Conceivably, overweight youth might display greater dietary restraint and attempt to inhibit their intake of palatable food. Because ostracism impairs regulatory resources, overweight youth may be especially susceptible to a “restraint breakdown” or a restraint failure in response to ostracism (Braet & Wydhooge, 2000; Shunk & Birch, 2004).

The present research

Few studies of ostracism and eating have focused on overweight adolescents. This research gap is important because there is some indication that the mental and behavioral costs of ostracism may be greater during adolescence relative to adulthood (Kloep, 1999; Sebastian, Viding, Williams, & Blakemore, 2010). The importance of being accepted and fears of being rejected are the greatest during adolescence, and especially the early adolescent developmental period, or 10–14 years (Rubin, Bukowski, & Parker, 2006).

This study assesses the effect of a brief episode of simulated ostracism on overweight and normal-weight young adolescents' motivation to eat and food intake. After being exposed to either an ostracism or inclusion/control manipulation, overweight and normal-weight participants had the opportunity to work for servings of a preferred unhealthy snack food and/or time for social interaction with an unfamiliar peer of their age and sex. At the end of the experimental paradigm, participants had the opportunity to consume the food that they earned or interact with the peer. The main outcome variables of interest were the number of responses participants performed to earn servings of snack foods and subsequent food intake in kilocalories.

We used the reinforcing value and consumption of unhealthy, palatable snacks as a measure of self-regulatory failure. This procedure has been used previously in research on the impact of ostracism on self-regulation in adults (Baumeister et al., 2005;

Oaten et al., 2008; Oliver, Huon, Zadro, & Williams, 2001). The rationale for using this paradigm is that the over consumption of unhealthy snack foods is a widely recognized contributing factor to the worldwide obesity epidemic. People are attracted to the pleasant taste of fattening foods and must therefore overcome their desire to eat these snacks (Baumeister et al., 2005). Curtailing or inhibiting the consumption of snack foods qualifies as self-regulation and consuming a large amount of unhealthy palatable snacks is tantamount to impairment in self-regulation.

Consistent with the research by Baumeister and Sommer (1997) as well as Oaten et al. (2008), we predicted that relative to included/control, ostracized participants would consume greater energy from unhealthy palatable snacks. This is the first study on the effects of ostracism in overweight and normal-weight youth, and so predictions regarding weight status differences were tentative. However, previous findings indicated that overweight youth often experience negative peer experiences and that dietary restraint and reinforcing value of food are greater among overweight than normal-weight youth. Therefore, we predicted a greater impairment in self-regulation and as a result greater motivation to eat and greater energy intake in ostracized overweight youth than included overweight participants; whereas no differences were expected between included and ostracized normal-weight participants.

Method

Participants

Participants were 59 young adolescents (29 girls; *M* age = 13.55 years) between the ages of 12 and 14 years. Adolescents were screened over the phone, with a semi-structured interview, to assess their eligibility for the study. Adolescents were excluded from participating if they reported having any food allergies, intolerances to the experimental foods or any medical conditions that would affect their eating or if they had upper respiratory illness that would affect their sense of smell or taste. Adolescents were also excluded if they reported that they were underweight (<5th BMI percentile), if they endorsed any diagnosed psychological disorders, if they reported being on a special diet or eating plan, or if they reported any behavior indicative of eating pathology as assessed by questions of the Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994; Luce & Crowther, 1999; Mond, Hay, Rodgers, Owen, & Beumont, 2004). Also during the phone screening, participants' favorite unhealthy snack food from our snack options was determined by asking participants to rate on a 5-point scale their preference for each snack (see Table 1 for snack food options). Adolescents were only eligible if they reported liking (score equal or greater than 3 for liking) for at least one of the unhealthy snack foods offered.

Table 1
Experimental foods used in the experiment.

Foods	Serving (g)	Kilocalories	Fat (g)	Carbohydrates (g)	Protein (g)
Potato chips ^a	19	103	6.7	10.0	1.3
Cool Ranch Doritos ^a	20	100	5.0	12.9	1.4
M & M's ^b	20	100	5.0	14.3	1.0
Twix ^b	16	80	5.0	10.0	1.0
Kit Kat ^c	14	67	4.8	9.0	1.0
Butterfingers ^d	19	85	4.5	13.5	1.0

^a Frito-lay™.

^b Mars.

^c The Hershey Company.

^d Nestle.

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