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The effects of social support and stress perception on bulimic behaviors and unhealthy food consumption

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ABSTRACT

Two studies tested a model where perceived stress was the proposed mediator for the relationship between perceived social support and bulimic behaviors, and between perceived social support and unhealthy food consumption among undergraduate students. Study 1 was a longitudinal, online study in which undergraduate students completed the Multidimensional Scale of Perceived Social Support and the Bulimia Test—Revised at the Time 1 assessment, and the Perceived Stress Scale and the Eating Disorder Examination Questionnaire at the Time 2 assessment, approximately four weeks later. Study 2 was an experimental study in which female participants were randomly assigned into a group with or without social support. Stress was induced with a speech task, followed by a bogus taste task paradigm designed to assess unhealthy food consumption. Bootstrap analyses revealed an indirect effect of perceived social support on bulimic behaviors and unhealthy food consumption through perceived stress. Perceived social support was associated with lower perceived stress in both studies. Lower perceived stress was associated with less self-reported bulimic behaviors in Study 1 and greater consumption of unhealthy foods in Study 2. The negative association between perceived stress and calorie consumption in Study 2 was moderated by dietary restraint. Findings suggest that stress perception helps to explain the relationship between perceived social support and bulimic behaviors, and between perceived social support and calorie consumption. Stress perception may be an important treatment target for eating disorder symptoms among undergraduate students.

1. Introduction

Social support is a meaningful factor associated with the development and maintenance of eating disorders. It is defined as the resources provided by one's social network with the intention to increase one's coping ability (Cohen, 2004). Empirical evidence suggests a lack of social support among individuals with clinical and subclinical bulimia nervosa (BN; Ghaderi & Scott, 1999; Limbert, 2010; Rorty, Yager, Buckwalter, & Rossotto, 1999). Interestingly, the lack of social support is more apparent among individuals with BN and BN-related symptoms than among other types of disordered eating (Tiller et al., 1997), indicating the importance of specifically understanding social support in relation to bulimic symptomatology. The goal of this study was to examine the mechanism by which a lack of social support may increase bulimic behaviors and unhealthy food consumption among undergraduate students.

Findings from several longitudinal studies demonstrate the predictive role of social support with regards to bulimic symptoms. For example, Bodell, Smith, Holm-Denoma, Gordon, and Joiner (2011) found that undergraduate students with lower social support experienced greater bulimic symptoms when faced with negative life events. Moreover, the predictive role of social support was specific to bulimic symptoms and not restrictive eating, depression, or anxiety symptoms (Bodell et al., 2011), which again, suggests the relevance of social support to bulimic symptoms as compared to other psychiatric symptoms. While the majority of research findings suggest that decreased social support is associated with increased bulimic symptomatology, a major limitation is that the specific mechanism by which social support influences bulimic symptoms has not been examined. One possible mechanism is perceived stress. Stress is perceived when coping resources are deemed to be insufficient for the situational demands, leading to potential goal interference (Lazarus, 1993). Research shows that social support reduces stress perception and minimizes the negative impact of stress on physical and psychological health (Herbert & Cohen, 1993).

The extant literature suggests that there is an association between stress and eating, including disordered eating. Higher psychological stress tends to be related to higher levels of disordered eating symptoms (Costarelli & Patsai, 2012) and calorie consumption (Oliver & Wardle, 1999). The associations among social support, stress perception, and eating behaviors have been demonstrated in the literature. However, to the knowledge of the authors, no studies have examined

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the role of stress perception in mediating the effect of social support on bulimic behaviors and unhealthy food consumption.

Existing literature provides a strong rationale to examine social support, stress perception, and eating behaviors together. In the current two studies, we examined the role of stress perception in mediating the effect of perceived social support and two eating behaviors — bulimic behavior in Study 1 and unhealthy food consumption in Study 2 (Fig. 1) among undergraduate students. Bulimic behaviors and unhealthy food consumptions are particularly relevant because these behaviors are not uncommon among college students (e.g. Tanton, Dodd, Woodfield, & Mabhala, 2015; White, Reynolds-Malear, & Cordero, 2011).

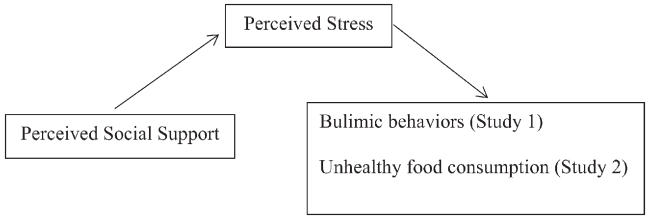

Fig. 1. The proposed mediation model. Perceived stress mediates the relationship between perceived social support and bulimic behaviors in Study 1, and unhealthy food consumption in Study 2.

2. Study 1

Study 1 examined the effect of perceived social support on bulimic behaviors (i.e., binge eating and inappropriate compensatory behaviors) using a naturalistic study design. It was hypothesized that low social support at Time 1 (T1) would lead to greater bulimic behaviors at Time 2 (T2) through increased stress perception.

2.1. Method

2.1.1. Participants

This longitudinal study was advertised on a secure online system and recruitment was conducted during a fall and a spring semester. Undergraduate students enrolled in psychology courses at a public Midwestern university had access to the secure online system. Interested participants who were 18-years and above and with English fluency were eligible to participate in exchange for course credit. A total of 792 undergraduate students participated at T1, and 47.2% ($N = 374$; 43.6% men) returned to complete the T2 assessment.[1] Two-hundred-ninety-seven (107 male) of these returners had complete data available for analyses. These participants ranged in age from 18 to 26 years old ($M = 19.22$, $SD = 1.32$), and the majority were White (92.9%), followed by Asian or Pacific Islander (2.8%), Hispanic or Latino (1.4%), Other (1.1%), Black or African American (0.7%), and American Indian or Alaskan Native (0.7%). Participants who had participated in Study 2 were excluded from participation in Study 1.

2.1.2. Procedure

Participants provided informed consent and completed this two-part study through a secure online system. Participants provided demographic information and completed the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) and the Bulimia Test—Revised (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) at T1 assessment. They were provided with a password in an email invitation to take part in T2 assessment four weeks after the completion of their T1 assessment. During T2 assessment, participants completed the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) and the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994). This study was approved by the Institutional Review Board at North Dakota State University.

2.1.3. Measures

Perceived social support was measured by the 12-item Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988). Respondents rate their agreement with each statement on a 7-point Likert scale, ranging from 1 (very strongly disagree) to 7 (very strongly agree). All items are summed and averaged. Adequate reliability and validity of the MSPSS have been demonstrated (Canty-Mitchell & Zimet, 2000; Zimet et al., 1988). Cronbach's alpha for the MSPSS was .95 in the present study.

The Bulimia Test—Revised (BULIT-R; Thelen et al., 1991) was used to measure the composite bulimic symptomatology at T1 as a potential confounding variable. The BULIT-R is a self-report measure assessing cognitive, behavioral, and attitudinal features of bulimia nervosa. Participants are instructed to choose one of the five answer choices presented in a Likert format (1 to 5) for each of the 28 items. Sample items include "Do you feel you have control over the amount of food you consume" and "I am obsessed about the size and shape of my body". Adequate reliability and validity of the BULIT-R have been demonstrated (Thelen et al., 1991; Vincent, McCabe, & Ricciardelli, 1999). The Cronbach's alpha for the current sample was .94.

The Perceived Stress Scale (PSS; Cohen et al., 1983) is a 10-item self-report measure that assesses global stress perception. Participants rate the extent of their perceived stress in the past month on a 5-point Likert scale, ranging from 0 (never) to 4 (very often). Adequate reliability and validity have been shown (Cohen & Williamson, 1988), including adequate reliability in the current study (Cronbach's alpha = .84).

The frequency of bulimic behaviors (i.e., binge eating and inappropriate compensatory behaviors) was assessed with the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994). Participants indicated how many times bulimic behaviors had occurred in the past four weeks on four open-ended questions (Question 15–18). These questions were used at T2 assessment because they assess the frequency of key bulimic behaviors, which are more prone to contextual changes (e.g., lack of social support) in a one-month period than attitudinal and cognitive symptoms that are also measured by the BULIT-R used at T1 assessment. A frequency score for bulimic behaviors was calculated by summing the four items. Adequate reliability and validity of this measure have been demonstrated (Fairburn & Beglin, 1994; Peterson et al., 2007).

2.2. Results

Descriptive statistics and bivariate correlations for all variables are shown in Table 1. Simple mediation analysis was conducted with the PROCESS (Hayes, 2013) macro to examine the indirect effect of perceived social support on bulimic behaviors through perceived stress with baseline bulimic symptoms and sex as covariates. The PROCESS macro uses bootstrapping to test the indirect or mediated effects, which were estimated via bootstrap analysis using 10,000 randomly generated samples. Mediation was established if the 95% bias-corrected confidence interval for the indirect parameter estimate did not contain zero. All statistical analyses were conducted using SPSS 19.0 version.

As predicted, bootstrap analysis revealed an indirect effect of perceived social support on bulimic behaviors through perceived stress, point estimate = −0.17, 95% CI = −0.46, −0.03 (Table 2). Lower perceived social support at T1 predicted greater bulimic symptoms at T2 through higher stress perception.

[1] Statistical analyses revealed no significant difference between those who returned and those who did not on variables assessed at T1 (i.e., age, sex, body mass index, perceived social support, and baseline bulimic symptomatology).