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Applicability of the dual pathway model in normal and overweight binge eaters

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ABSTRACT

Binge eating is a significant problem in both eating disordered and community populations alike. Extensive support exists for the dual pathway model of binge eating in both adolescent and adult clinical and nonclinical populations. However, the restrained eating pathway to binge eating in particular has failed to be confirmed in some studies. In particular, the dual pathway model may not be applicable to overweight binge eaters. The current study examined the applicability of the dual pathway model in a sample of healthy and overweight binge eaters. A total of 260 (115 healthy weight; 145 overweight or obese) adult binge eaters completed an online survey. Mediation analyses indicated support for both the dietary restraint and negative affect pathways in the healthy weight sample but only the latter pathway was supported in the overweight sample. Therefore, the full dual pathway model may only be applicable to healthy weight binge eaters.

Introduction

Binge eating or the consumption a large amount of food in a short time period accompanied by the loss of control over eating is a key feature of the eating disorders bulimia nervosa and binge eating disorder as well as occurring in some individuals with anorexia nervosa (American Psychiatric Association, 2013). However, binge eating is not restricted to those with an eating disorder; in community populations many adults (Hay, Mond, Buttner, & Darby, 2008) and adolescents (Goossens, Soenens, & Braet, 2009; Stice, Marti, Shaw, & Jaconis, 2009) also report engaging in regular binge eating episodes. In a recent population-based study of 6000 Australians aged 15 and over, nearly 7% reported subthreshold binge eating disorder (Hay, Girosi, & Mond, 2015) Similarly, a longitudinal study of over 2000 young adults found self-reported binge eating increased in females from 9.9% in middle adolescence to 14.1% in young adulthood and from 3.0% to 5.9% in males (Neumark-Sztainer, Wall, Larson, Eisenberg, & Loth, 2011). Therefore, binge eating is a widespread and distressing behaviour.

While numerous models of binge eating have been developed (e.g., Heatherton & Baumeister, 1991; Polivy & Herman, 1985), the sociocultural dual pathway model of bulimic behaviour (Stice, 1994, 1998, 2001; Stice, Ziemba, Margolis, & Flick, 1996) has received significant research attention. The model proposes that higher BMI in conjunction with perceived pressure to be thin and internalisation of societal ideals regarding the desirability of thinness predict body dissatisfaction. Body dissatisfaction then influences the development of bulimic symptoms such as binge eating via two separate pathways. In the first pathway, body dissatisfaction results in dietary restraint in an attempt to lose weight which leads to binge eating due to disinhibition following intake restriction and breaking of strict dietary rules (Polivy & Herman, 1985). In the second pathway, body dissatisfaction leads to high levels of negative affect to which the individual responds by binge eating as a way of regulating their affect (Heatherton & Baumeister, 1991).

There is extensive support for the dual pathway model in cross-sectional studies of nonclinical adolescents (Shepherd & Ricciardelli, 1998; Stice, Ziemba, et al., 1996) and adults (Stice, Nemeroff, & Shaw, 1996; Stice, Ziemba, et al., 1996). Similarly, prospective studies in nonclinical adolescent samples (Allen, Byrne, & McLean, 2012; Dakanalis et al., 2014; Stice, 2001; Stice, Shaw, & Nemeroff, 1998) provide longitudinal support for the model. Furthermore, recent studies in nonclinical adult females support its prediction of actual food consumption (Ouwens, van Strien, van Leeuwe, & van der Staak, 2009) and disordered eating at a state-based level using experience-sampling methodology (Holmes, Fuller-Tyszkiewiscz, Skouteris, & Broadbent, 2014).

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However, not all studies are supportive of the dual pathway model. In particular, the restrained eating pathway to binge eating has failed to be confirmed in a cross-sectional study of both clinical and nonclinical females (van Strien, Engels, van Leeuwe, & Snoek, 2005) and longitudinal study of nonclinical adolescents (Stice, 1998). While it has been argued that these inconsistencies may be due to methodological issues such as study design and the validity of dietary restraint measures as indicators of actual dietary restriction (Dakanalis et al., 2014; Stice & Presenell, 2010), it is also possible that the model may not be applicable to all populations. One such population may be obese binge eaters. Carrard, Van der Linden, and Golay (2012) found that while obese and non-obese women meeting clinical or subclinical criteria for binge eating disorder showed similar levels of eating symptomatology, the non-obese group reported higher levels of dietary restraint. Similarly, Goldschmidt et al. (2011) found in a sample meeting criteria for binge eating disorder that healthy weight binge eaters reported greater levels of exercise, skipping meals, and avoiding certain foods for weight control purposes as well as a trend towards more frequent dieting attempts than obese binge eating disordered individuals.

To date, the dual pathway model has received only limited attention in this population. Gagnon-Girouard et al. (2009) examined its applicability in weight-preoccupied overweight women, 30% of whom met the cutoff for a significant level of binge eating on the Binge Eating Scale (Gormally, Black, Daston, & Rardin, 1982) but had not been diagnosed with an eating disorder. While the body dissatisfaction–negative affect–overeating pathway was supported, body dissatisfaction was not related to restraint, nor was restraint related to negative affect. However, both body dissatisfaction and restraint were both related to overeating. Therefore, the dual pathway hypothesis was only partially supported. However, as only 30% of the sample reported being binge eaters and there was an absence of a non-obese comparison group, further examination is warranted in order to enhance our understanding of the casual mechanisms behind binge eating.

Therefore, the current study aimed to examine the applicability of the proposed pathways of the dual pathway model (Stice, 1994, 2001) in a sample of healthy and overweight individuals who engaged in binge eating. Based on the existing research reviewed above, it was hypothesised that the negative affect pathway would be supported in both healthy weight and overweight binge eaters but that the restraint pathway would only be supported in healthy weight binge eaters.

Method

Participants

A total of 298 adults recruited from eating disorder-related websites providing eating disorder information and support services who self-identified as binge eaters in an anonymous online survey participated in the study. Fifteen participants reported infrequent binge eating episodes (less than once a week over the previous six months) and were excluded.

While participants were not formally assessed for a DSM-5 (American Psychiatric Association, 2013) eating disorder, it is likely that the majority met the criteria for binge eating disorder, bulimia nervosa or the subclinical (other specified) variants of these disorders. Participants reported engaging in binge eating (eating an unusually large amount of food with associated loss of control) a mean of 4.43 ($SD = 3.81$) times a week in the previous 3 months. On the BULIT (Smith & Thelen, 1984), 58.5% scored above the recommended cutoff of 102 for significant bulimic symptomatology with 65.4% reporting intentional vomiting after eating at least once a week.

Based on the Australian Government's Department of Health weight guidelines (2008), 23 participants reporting a BMI below 19 were classified as underweight and excluded so as to enable comparison of healthy weight and overweight/obese groups. This left a total of 260 participants (20 males and 240 females) ranging in age from 18 to 67 years ($M = 28.19$, $SD = 9.38$). More than half of the participants reported living in Australia (61%); just over a fifth in the United States (22%) and the remaining from Europe, UK, South East Asia, the Middle East and Africa (17%). Over 40% of the participants self-identified as students with other occupations listed including office-worker, retail, information technology, stay-at-home mothers, and teachers and academics. The majority reported being Caucasian (88%). Based on the Department of Health guidelines (2008), participants were divided into two weight categories: 115 (44.2%) of the sample were in the healthy weight range (BMI 19–25) and 145 (55.8%) were in the overweight or obese range (BMI > 25).

Measures

Demographics. Participants provided demographic information regarding height, weight, occupation, gender, country of residence (and state if from Australia) and ethnicity.

Eating Disorders Diagnostic Scale (EDDS). Four items of the 22-item EDDS (Stice, Telch, & Rizvi, 2000) were used. Two items were implemented as screening measures to assess current engagement in binge eating. These were 'During the past 6 months have there been times where you felt you have eaten what other people would regard as an unusually large amount of food (e.g., a quart or a litre of ice cream) given the circumstance?' and 'During the times when you ate an unusually large amount of food, did you experience a loss of control (feel you couldn't stop eating or control what or how much you were eating)?' The other two items asked about average number of days and times per week the participant engaged in binge eating in order to assess the frequency of binge eating in the past three months. Stice, Fisher, and Lowe (2004) reported a mean Cronbach's alpha for the full EDDS over four studies of .89 and a test–retest reliability of .87.

Bulimia Test (BULIT). Bulimic symptoms including binge eating were measured with the Bulimia Test (Smith & Thelen, 1984), a 36-item scale rated on a 5-point Likert scale with item content-specific response options. Only 32 of these items are scored with higher summed scores indicating higher levels of bulimic symptoms. The BULIT has high test–retest reliability and correlates highly with other measures of binge eating (Smith & Thelen, 1984), including the revised version, the BULIT-R (Thelen, Farmer, Wonderlich, & Smith, 1991). Cronbach's alpha in the current study was .92, demonstrating excellent internal consistency.

Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ). Internalisation of the thin ideal was assessed utilising the Internalization-General subscale of the SATAQ-3 (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). The nine-item subscale measures the degree to which participants accept media messages regarding unrealistic ideals of physical appearance. Responses were scored on a 5-point Likert scale ranging from 'definitely disagree' to 'definitely agree'. Excellent construct validity and high internal consistency for the internalisation scale has been demonstrated (Cronbach's alpha = .92) (Thompson et al., 2004). High internal consistency was found for the current study (Cronbach's alpha = .91).