



## Research report

# The moderating role of negative urgency on the prospective association between dietary restraint and binge eating



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## ABSTRACT

It is well documented that negative urgency, a personality trait characterized by a tendency to act impulsively in the face of negative emotions, and dietary restraint independently increase risk to binge eat; however, it is unclear how these factors interact to alter risk for such behavior. It may be that individuals high on negative urgency, who also engage in dietary restraint, are at a greater risk to binge eat than individuals low on negative urgency. Accordingly, we sought to investigate whether negative urgency moderated the prospective association between dietary restraint and binge eating frequency among a sample of college women. We hypothesized that women who engaged in dietary restraint would report higher binge eating frequencies across the first semester of college and that this effect would be strengthened among individuals higher on negative urgency. Results indicated that negative urgency moderated the prospective association between dietary restraint and binge eating frequency. This effect was found to be “protective but reactive,” such that low levels of dietary restraint protected against binge eating frequency at low to moderate levels of negative urgency, but this buffering effect was lost at high levels of negative urgency where binge eating frequency was equal across all levels of dietary restraint. These findings demonstrate that negative urgency and dietary restraint interact to differentially alter risk for binge eating frequency, and individuals high on negative urgency are at the greatest risk to engage in more frequent binge eating regardless of level of dietary restraint.

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## Introduction

Binge eating is a cardinal criterion for the diagnosis of both bulimia nervosa and binge eating disorder (American Psychiatric Association, 2013). Two distinct classes of binge eating have been identified, namely objective binge eating (OBE), characterized by the consumption of an unambiguously large amount of food accompanied by a sense of loss of control over eating, and subjective binge eating (SBE), defined by a perceived loss of control over eating without the necessary consumption of an objectively large amount of food (Fairburn & Cooper, 1993; Tanofsky-Kraff, Yanovski, & Yanovski, 2011). Although the DSM-5 specifies that only episodes of OBE qualify as a clinically significant threshold for binge eating, debate regarding the validity of an objective binge size as the primary pathological determinant of binge eating has arisen (Wolfe, Baker, Smith, & Kelly-Weeder, 2009). Indeed, accumulating evidence suggests that the experience of loss of control over eating, regardless of the amount of food consumed, is actually

the fundamental feature of binge eating (Beglin & Fairburn, 1992; Pratt, Niego, & Agras, 1998). Studies have shown that episodes of OBE and SBE are both associated with the development and severity of eating disorders and related psychopathology (Johnson, Boutelle, Torgud, Davig, & Turner, 2000; Mond, Latner, Hay, Owen, & Rodgers, 2010). Furthermore, a perceived loss of control over eating, independent of the actual amount eaten, has been found to be predictive of greater psychological distress (Colles, Dixon, & O'Brien, 2008; Striegel-Moore, Wilson, Wilfley, Elder, & Brownell, 1998). These findings suggest that a perceived loss of control over eating, rather than the amount of food consumed, is the most salient aspect of binge eating, and identifying indicators of impaired control may have important implications for the prevention and treatment of binge eating and associated disorders.

One such indicator of impaired control is impulsivity. Impulsivity is generally defined as a tendency to think, control, and plan insufficiently, which typically results in maladaptive behavior (Solanto et al., 2001). Indeed, binge eating is theorized to be associated with individual differences in difficulties controlling impulses (Van Strien, Engels, Van Leeuwe, & Snoek, 2005), and impulsivity has been demonstrated to confer susceptibility to

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binge eat (Hartmann, Czaja, Rief, & Hilbert, 2010; Waxman, 2009). Research has suggested that impulsive individuals are more apt to direct attention towards reward stimuli (Hou et al., 2011) and have difficulties effectively regulating emotions (Liana, Schreiber, Grant, & Odlaug, 2012). Thus, impulsive individuals may be prompted to binge eat in an attempt to quickly regulate negative affect because of the positively reinforcing (Volkow, Fowler, & Wang, 2003; Volkow & O'Brien, 2007) and easily accessible nature of palatable foods (Brownell & Horgen, 2004). However, despite the general consensus that impulsivity is associated with a heightened risk to binge eat, the operationalization of impulsivity has been widely mixed and inconsistent throughout the eating disorder literature (Bell & News, 2002; Penas-Lledo, Vaz, Ramos, & Waller, 2002; Waxman, 2009; Wonderlich, Connolly, & Stice, 2004), thereby limiting the understanding of both *who* is at risk to binge eat and *how* they are at risk for such behavior.

Whiteside and Lynam (2001) proposed a multi-factorial model of impulsivity, which suggests that constructs commonly clustered together and labeled as “impulsivity” may be better characterized by multiple distinct dispositions leading to rash action. Of these dispositions, negative urgency, the tendency to act impulsively in the face of intense negative affect, has been shown to have moderate to large associations with binge eating in both adults (Fischer, Smith, Anderson, & Flory, 2003; Fischer, Smith, & Cyders, 2008) and adolescents (Combs, Pearson, Zapolski, & Smith, 2013). Individuals with high levels of negative urgency may be vulnerable to binge eat because they are more likely to engage in negatively reinforcing and avoidant coping behaviors (Fischer, Anderson, & Smith, 2004; Fischer & Smith, 2008) under conditions of emotional distress (Anestis, Selby, Fink, & Joiner, 2007). However, negative urgency is also positively associated with a broad range of maladaptive behaviors beyond binge eating, including alcohol abuse, pathological gambling, non-suicidal self-injury, and some forms of aggressive behavior (Fischer & Smith, 2008; Fischer et al., 2004; Lynam, Miller, Miller, Bornolova, & Lejuez, 2011; Miller, Flory, Lynam, & Leukefeld, 2003; Smyth et al., 2007). Accordingly, understanding factors that prompt individuals high on negative urgency to utilize food as a mechanism to cope with negative affect rather than other reinforcing behaviors will provide important insight into how negative urgency increases risk for binge eating specifically.

Individual differences in eating behaviors are widely varied (Blundell & Cooling, 2000) and have been shown to differentially alter liability for binge eating (Brownell & Fairburn, 2005). In particular, individuals who engage in dietary restraint have been found to be at a heightened risk to binge eat (Baucom & Aiken, 1981; Goldschmidt et al., 2008; Grilo & Shiffman, 1994; Markowitz, Butryn, & Lowe, 2008; Pankevich, Teegarden, Hedin, Jensen, & Bale, 2010; Racine, Burt, Iacono, McGue, & Klump, 2011; Savage & Birch, 2010; Stice, 2001; Stice, Presnell, & Spangler, 2002). Researchers have speculated that the prolonged overcontrol of eating attitudes and behaviors associated with dietary restraint potentiates a loss of control over eating that predisposes restrained eaters toward binge eating (de Ridder, Lensvelt-Mulders, Finkeauer, Stok, & Baumeister, 2012; Muraven, Tice, & Baumeister, 1998). In addition, research has indicated that dietary restraint is associated with a reduced capacity to effectively cope with negative affect (Dallman, 2010; Heatherton & Striepe, 1998; Pankevich et al., 2010; Polivy, Heatherton, & Herman 1988; Stein et al., 2007; Stice, 2001), and restrained eaters who report experiencing higher levels of negative affect have been found to engage in more frequent episodes of binge eating and display greater levels of eating disorder psychopathology (Grilo, Masheb, & Berman, 2001; Masheb & Grilo, 2008; Stice, 2001; Stice & Agras, 1998; Stice & Fairburn, 2003). It has been further demonstrated that restrained eaters who display more severe disordered eating patterns in

response to negative affect generally report higher levels of impulsivity (Grilo, Masheb, & Wilson, 2001), and emerging evidence indicates that such individuals are characterized by higher levels of negative urgency specifically (Carrard, Crepin, Ceschi, Golay, & Van der Linden, 2012). This finding suggests that individuals high on negative urgency who engage in dietary restraint may be at an elevated risk to binge eat; however, the understanding of how negative urgency interacts with dietary restraint to increase risk for binge eating remains unclear.

In short, past research has demonstrated that individuals high on negative urgency, *who* tend to act rashly when experiencing negative affect, are at higher risk for binge eating, and binge eating is more likely to occur *when* individuals engage in dietary restraint. However, no research has integrated these models of risk to understand *how* some individuals are at greater risk for binge eating. Engaging in dietary restraint involves avoiding specific foods and suppressing thoughts about food, which may in turn deplete an individual's capacity to regulate his or her behavior when confronted with negative affect (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Brooks, Prince, Stahl, Campbell, & Treasure, 2011; Calitri, Pothos, Tapper, Brunstrom, & Rogers, 2010; Muraven et al., 1998). Thus, dietary restraint may serve as a cue that directs individuals towards food to provide both comfort and distraction from negative affect (Bekker, van de Meerendonk, & Mollerus, 2004), and individuals high on negative urgency, who characteristically respond to negative affect impulsively, may be more likely to binge eat as a result. As such, individuals high on negative urgency, who also engage in dietary restraint, may be at an increased risk to binge eat compared to individuals low on negative urgency. Accordingly, the aim of the current investigation was to test whether the prospective association between dietary restraint and binge eating was strengthened among individuals high on negative urgency. We tested this aim using a large sample of women enrolled in their first semester of college. Because females have significantly higher risk for disordered eating symptoms (Mazzeo & Bulik, 2009), particularly during young adulthood (Striegel-Moore et al., 2003; Striegel-Moore et al., 2009), we chose to restrict data collection by only sampling from female college students.

Previous studies indicate that the first year of college is associated with an increase in health problems and negative moods, indicative of poor adjustment to the stressors of this period (Pritchard, Wilson, & Yamnitz, 2007). Although individuals may cope with stress in different ways, several cultural factors make it more likely that emerging adult women may use disordered eating behaviors to cope with adjustment to college life. Adolescent and emerging adult women may be particularly vulnerable to pressure from peer groups, heightened exposure to mass media and the subsequent potential exacerbation of internalization of the thin ideal, and increased pressure to feel sexually attractive (Levine & Murnen, 2009). Additionally, many young women may fear weight gain over the first year of college and initiate dieting in an attempt to forestall the “freshman 15” (Jung, Bray, & Ginis, 2008). Thus, the first semester of college may be a particularly good time to examine individual differences in dietary restraint and risk for subsequent binge eating. Moreover, the first semester of college for women in emerging adulthood may be particularly well-suited for examining the influence of personality on changes in disordered eating behavior as binge eating often initiates during this time period (Stice, Marti, Shaw, & Jaconis, 2009; Striegel-Moore et al., 2003), and individual differences in personality may have particularly salient influences on behavior at this developmental stage (Caspi & Moffitt, 1993; Caspi, Roberts, & Shiner, 2005). Despite the intense role and developmental changes characteristic of this time (Arnett, 2000), personality at the trait level exhibits high stability in the period of young adulthood (Caspi et al., 2005; Roberts & Delvecchio, 2000). Thus, we assessed personality

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