



Dietary Restriction Behaviors and Binge Eating in Anorexia Nervosa, Bulimia Nervosa and Binge Eating Disorder: Trans-diagnostic Examination of the Restraint Model



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ABSTRACT

Objective: To compare dietary restriction behaviors among adults with eating disorders involving binge eating, including anorexia nervosa-binge/purge subtype (AN-BE/P), bulimia nervosa (BN), and binge eating disorder (BED), and to examine whether dietary restriction behaviors impact binge eating frequency across diagnoses.

Method: Participants included 845 treatment seeking adults ($M = 30.42 \pm 10.76$ years) who met criteria for DSM-5 AN-BE/P (7.3%; $n = 62$), BN (59.7%; $n = 504$), and BED (33.0%; $n = 279$). All participants self-reported their past and current eating disorder symptoms on the Eating Disorder Questionnaire.

Results: Adults with AN-BE/P and BN reported significantly more dietary restriction behaviors (e.g. eating fewer meals per day, higher frequency of fasting, consuming small and low calorie meals) in comparison to adults with BED. Adults with AN-BE/P and BN who reported restricting food intake via eating fewer meals per day had more frequent binge eating episodes. However, adults with BN who reported restricting food intake via eating small meals and low calorie meals had less frequent binge eating episodes.

Discussion: This study provides mixed support for the restraint model by suggesting that not all dietary restriction behaviors are associated with higher levels of binge eating. It may be that adults with BN who report a higher frequency of eating small and low calorie meals display more control over their eating in general, and therefore also have lower frequency of binge eating. Clinicians should assess for dietary restriction behaviors at the start of treatment prior to assuming that all forms of strict dieting and weight control behaviors similarly impact binge eating.

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1. Introduction

Binge eating, defined as consuming large amounts of food in a discrete period of time while experiencing a sense of loss of control over eating (American Psychiatric Association, 2013), is a core diagnostic feature of bulimia nervosa (BN) and binge eating disorder (BED), and is frequently endorsed by individuals with anorexia nervosa (namely, those with the binge eating/purging subtype; AN-BE/P). The restraint model of binge eating theorizes that attempts at dietary restriction arising from shape and weight over concern promote binge eating,

which in turn leads to a vicious cycle of increased efforts to restrict eating again (Lowe, 1993; Polivy & Herman, 1985). The existing literature provides scientific support for the restraint model by showing that attempted dietary restriction may be associated with increased rates of binge eating episodes among individuals with BN (Davis, Freeman, & Garner, 1988; Masheb, Grilo, & White, 2011) and BED (Harvey, Rosselli, Wilson, Debar, & Striegel-Moore, 2011; Stein et al., 2007). However, little is known about the specific behaviors of dietary restriction (e.g., fasting, skipping meals, reducing caloric content or portion sizes) that may contribute to the onset of binge eating across eating disorder diagnostic subgroups. Furthermore, the literature exploring the restraint model among individuals with AN-BE/P is relatively scarce.

Previous research suggests that dietary behaviors differ across the eating disorder diagnostic spectrum. While individuals with AN

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typically follow rigid dietary behaviors (e.g., fixed meal times, reduced portion sizes, low caloric food choices) (Burd et al., 2009; Harvey et al., 2011; Huse & Lucas, 1984; Wallin, Norring, & Holmgren, 1994), individuals with BN and BED tend to have more chaotic and inconsistent dietary behaviors and greater intra-individual variability than those with AN (Goldfein, Walsh, LaChaussee, Kissileff, & Devlin, 1993; Hetherington, Altemus, Nelson, Bernat, & Gold, 1994; Masheb et al., 2011). When they are not engaging in binge eating, individuals with AN-BE/P and BN have been found to attempt to restrict their caloric intake for the purpose of weight control (Wallin et al., 1994), whereas individuals with BED have been found to be less likely to reduce their food consumption outside of binge eating with a slight tendency towards overeating (Goldfein et al., 1993; Mitchell, 2005; Mitchell et al., 2007; Raymond et al., 2012; Stein et al., 2007). However, the literature comparing dietary restriction behaviors among these three groups is relatively limited.

A few studies have compared patterns of eating among individuals with BN and BED. For example, a study investigating meal and snack patterns among women with BN, BED, and controls, found that the BN group ate significantly fewer meals per day than the other two groups, and that the BED group ate significantly more snacks per day than the control group (Masheb et al., 2011). These data have added to the current knowledge about eating behaviors and the frequency of skipping meals among individuals with BN and BED, but there is a gap in the understanding of other dietary restriction behaviors that these individuals may endorse outside of binge eating episodes. Identifying specific dietary restriction behaviors (e.g. reducing caloric intake or portion sizes) that increase risk for binge eating behaviors across eating disorder diagnoses may guide future treatment efforts. In particular, a better understanding of dietary restriction behaviors that are associated with the onset of binge eating may be helpful in tailoring treatment efforts targeted at eating disorder treatment seekers who would like to cease their binge eating behaviors (Iacovino, Gredysa, Altman, & Wilfley, 2012). Furthermore, the trans-diagnostic cognitive-behavioral treatment model (Fairburn, 2008; Fairburn & Harrison, 2003) suggests that a decrease in dietary restriction is a critical component for a successful reduction of binge eating behaviors across eating disorder diagnoses. A better understanding of dietary restriction behaviors may inform therapists using this trans-diagnostic treatment model by helping to identify the specific dietary restriction behaviors that impact binge eating behaviors.

Research examining correlations between dietary restriction and binge eating has focused primarily on individuals with BN and BED (Stice, Davis, Miller, & Marti, 2008). These studies suggest that individuals who restrict caloric intake (Zunker et al., 2011) or consume meals and snacks with irregular frequency (Harvey et al., 2011; Masheb et al., 2011) tend to engage in more frequent binge eating episodes. However, it is still unclear how caloric restriction and irregular meal patterns interact to increase risk for binge eating. For example, data collected via Ecological Momentary Assessment (EMA) have shown that the odds of binge eating among individuals with BN increase on the day that caloric restriction occurs (Zunker et al., 2011). These data provide preliminary support for the restraint model, but the specific dietary behaviors that are used by those individuals to restrict their caloric intake (e.g. fasting/skipping meals/specific food selections) remain unclear. Additionally, a study examining meal patterns among individuals with BED found that an irregular meal pattern of less than three meals a day is associated with more binge-eating episodes (Harvey et al., 2011). However, it is unclear if those irregular meal patterns are associated with caloric restriction among patients with BED. In spite of the growing literature examining dietary behaviors and binge eating behaviors, there has been a lack of research examining variability in dietary restriction behaviors that may impact binge eating across diagnoses. Furthermore, the literature exploring the restraint model among individuals with AN-BE/P is limited (Elran-Barak et al., 2014). It is unknown whether these relations between dietary behaviors and

binge eating hold true in AN-BE/P, and to what extent they differ among individuals with AN-BE/P, BN and BED.

The current study examines dietary restriction behaviors including fasting, skipping meals, and reducing caloric intake with an aim to answer two questions: (American Psychiatric Association, 2013) Do individuals with AN-BE/P, BN and BED differ in their dietary restriction behaviors? (Polivy & Herman, 1985) What are the associations between dietary restriction behaviors and binge eating frequency among individuals with AN-BE/P, BN and BED? Findings from this study may contribute to the understanding of the role that dietary restriction behaviors play in binge eating among individuals with eating disorders and may have implications for adaptations and new developments for treatment and prevention.

2. Method

2.1. Participants

Participants were 845 treatment-seeking adults who reported recent recurrent binge eating episodes (Table 1). Recent recurrent binge eating was defined as a minimum of one binge eating episode per week on average in the month prior to the assessment. Participants met DSM-5 (American Psychiatric Association, 2013) criteria for AN-BE/P (7.3%; $n = 62$), BN (59.7%; $n = 504$), or BED (33.0%; $n = 279$); were on average 30.4 years old ($s.d. = 10.79$) and were mostly female ($n = 785$; 92.9%) and Caucasian ($n = 726$; 85.9%).

2.2. Procedures

Data were collected as part of the initial psychological evaluation at five eating disorder treatment centers (Department of Psychiatry and Behavioral Neuroscience, The University of Chicago, Chicago, IL; Department of Psychiatry, University of South Florida, Tampa, FL; Department of Psychiatry, University of Minnesota School of Medicine, Minneapolis, MN; The Center for Balanced Eating, Worthington, OH; and the Sanford Eating Disorders and Weight Management Center, Fargo, ND). Data were collected at the baseline assessment before participants initiated treatment. Approximately 90% of clinic cases consented to participate in the study. Each data collection center received institutional review board approval for the study.

2.3. Measures

Participants self-reported their current height and weight, and past and current eating disorder symptoms, on the Eating Disorder Questionnaire (EDQ Version 9.0) (Mitchell, 2005). The EDQ is a self-report measure used to collect current and historical information on patients being evaluated for eating disorders. It consists of detailed questions about current and past eating problems, weight history, co morbid psychopathology, prior treatment, family history, alcohol and substance abuse and dependence, and includes a detailed review of medical systems. Although the EDQ was not designed as a diagnostic instrument, DSM-5 criteria (e.g., binge eating ≥ 1 times per week; regular use of compensatory behaviors for BN and absence of use of compensatory behaviors for BED; fear of weight gain) were used to generate eating disorder diagnoses (Goldschmidt et al., 2011). EDQ-generated ED diagnoses show good agreement with those derived from a semi structured interview (Eddy et al., 2009; Keel, Crow, Davis, & Mitchell, 2002; Mitchell et al., 2007).

Six EDQ items (Mitchell, 2005) were included in the analyses of the current study: (American Psychiatric Association, 2013) "On the average, how many main meals do you eat each day?"; (Polivy & Herman, 1985) "During the entire LAST MONTH, what is the average frequency that you have engaged in the following behaviors: Binge eating, Fasting (skipping meals for the entire day), Skipping meals, Eating very small meals, Eating meals low in calories and/or fat grams" (Never/ Once a

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