Appetite 109 (2017) 165–171

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Prevalence and correlates of binge eating disorder related features in the community

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ARTICLE INFO

Article history:
Received 6 July 2016
Received in revised form
19 November 2016
Accepted 23 November 2016
Available online 27 November 2016

Keywords:
Eating behavior
Disordered eating
Binge eating
Body mass index
Longitudinal cohort study
Weight gain
Psychological distress

ABSTRACT

Binge eating disorder (BED) is associated with high levels of obesity and psychological suffering, but little is known about 1) the distribution of features of BED in the general population and 2) their consequences for weight development and psychological distress in young adulthood. We investigated the prevalence of features of BED and their association with body mass index (BMI) and psychological distress among men (n = 2423) and women (n = 2825) from the longitudinal community-based FinnTwin16 cohort (born 1975–1979). Seven eating-related cognitions and behaviors similar to the defining features of BED were extracted from the Eating Disorder Inventory-2 and were assessed at a mean age of 24. BMI and psychological distress, measured with the General Health Questionnaire, were assessed at ages 24 and 34. We assessed prevalence of the features and their association with BMI and psychological distress cross-sectionally and prospectively. More than half of our participants reported at least one feature of BED; clustering of several features in one individual was less common, particularly among men. The most frequently reported feature was 'stuffing oneself with food', whereas the least common was 'eating or drinking in secrecy'. All individual features of BED and their clustering particularly were associated with higher BMI and more psychological distress cross-sectionally. Prospectively, the clustering of features of BED predicted increase in psychological distress but not additional weight gain when baseline BMI was accounted for. In summary, although some features of BED were common, the clustering of several features in one individual was not. The features were cumulatively associated with BMI and psychological distress and predicted further increase in psychological distress over ten years of follow-up.

1. Introduction

Binge eating is a form of disordered eating, defined as eating large quantities of food accompanied by a sense of loss of control. It is often triggered by negative emotions and followed by feelings of guilt and shame (Haedt-Matt & Keel, 2011; Leehr et al., 2015; Munsch, Meyer, Quartier, & Wilhelm, 2012). When binge eating is regular and accompanied by additional features, such as distress, eating alone due to embarrassment, and feeling very guilty afterward, diagnostic criteria for binge eating disorder (BED) are met (American Psychiatric Association, 2013).

The population prevalence of clinical BED is <1%–3.5% (Hudson, Hiripi, & Pope HGKessler, 2007; Kessler et al., 2013; Mustelin, Raevuori, Hoek, Kaprio, & Keski-Rahkonen, 2015; Preti et al., 2009; Smink, van Hoeken, Oldehinkel, & Hoek, 2014), but up to 15% of adolescents and young adults report some loss of control or binge eating (Abebe, Lien, Torgersen, & von Soest, 2012; Goldschmidt et al., 2015; Sonneville et al., 2013), the core behavioral feature of BED. Eating alone and experiencing secrecy (Tanofsky-Kraff et al., 2007) and negative emotions both preceding and following eating (Goldschmidt, Crosby, Cao et al., 2014; Haedt-Matt & Keel, 2011) have been shown to associate with loss of control and binge eating, but how common such associated behaviors and cognitions are in the community is not yet known.

Clinical BED is associated with high levels of obesity (Striegel-Moore et al., 2001; de Zwaan, 2001) and psychiatric comorbidity, particularly major depression (Grilo, White, & Masheb, 2009; Javaras et al., 2008; Mustelin et al., 2015; Striegel-Moore et al.,

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http://dx.doi.org/10.1016/j.appet.2016.11.032
0195-6663/

2001). The behavioral component of BED, binge eating, is also associated both with long-term weight gain and depressive symptoms (Sonneville et al., 2013; Tanofsky-Kraff et al., 2009, 2011). Less is known about the accompanying behaviors and cognitions and how they relate to body weight and psychological distress in the population at whole.

We investigated seven eating-related behaviors and cognitions similar to the defining features of BED (American Psychiatric Association, 2013) in a community sample of young adults. The investigated traits, hereafter referred to as 'features of BED', included the defining behavioral characteristics of binge eating - overeating and a sense of loss of control (Wolfe, Baker, Smith, & Kelly-Weeder, 2009) - but also associated features, such as eating alone due to embarrassment and negative feelings associated with eating episodes.

The aims of this study were to explicate 1) how common features of BED are in a population-based cohort of young adults, 2) how they cluster together in individuals, and 3) whether individual features or their clustering are associated with BMI or psychological distress cross-sectionally or prospectively over 10 years. We hypothesized that endorsing only one or two features would be relatively harmless, but that endorsing several features would be associated with weight gain and psychological distress.

2. Subjects and methods

2.1. FinnTwin16 birth cohorts

This nationwide longitudinal cohort study of health behaviors in twins and their families (Kaprio, Pulkkinen, & Rose, 2002) identified twin births in 1975–79 from the central population register of Finland. The FinnTwin16 cohort was restricted to those pairs who were alive and resided in Finland at age 16. Data collection and analysis were approved by the ethics committee of the Department of Public Health of University of Helsinki.

The twins and their parents were sent baseline self-report questionnaires when the twins were 16 y (Wave 1). Follow-up questionnaires were mailed to the twins when they were 17 y (Wave 2), 18 y (Wave 3), 22–27 y (Wave 4), and finally 31–37 y (Wave 5). The cohort and Waves of data collection have been previously described in detail (Kaprio, 2006, 2013; Kärkkäinen, Mustelin, Raevuori, Kaprio, & Keski-Rahkonen, 2016). The analyses in the present study were restricted to individuals who participated in Wave 4 (2825 women and 2423 men), when disordered eating was assessed. Of them, 74% participated in Wave 5.

2.2. Assessment of features of binge eating disorder

The Wave 4 questionnaire included three subscales of the Eating Disorder Inventory-2 (EDI): Bulimia, Drive for Thinness, and Body Dissatisfaction (Garner, 1991). In this study we focused on seven items similar to the defining features of BED (American Psychiatric Association, 2013): six items from the Bulimia subscale: 'I eat when I'm upset', 'I stuff myself with food', 'I have gone on eating binges where I have felt that I could not stop', 'I think about bingeing (overeating)', 'I eat moderately in front of others and stuff myself when they're gone', 'I eat or drink in secrecy' and one item from the Drive for Thinness subscale: 'I feel extremely guilty after overeating'. Each item was scored on a 5-point Likert scale ranging from 'never' to 'always'. Internal consistency of the resulting 7-item scale was good (Cronbach's alpha = 0.802). The timeframe for the endorsement of the items was not specified, but questions were in present tense.

To estimate prevalences of features of BED and group individuals according to presence or absence of each feature, we dichotomized each item so that subjects were defined as positive if they reported it either sometimes, often, usually, or always, and negative if their answer was 'rarely' or 'never'.

To assess the cumulative number of features of BED, we created a summary score summing the total number of positive items the participants reported. Because of the small number of individuals reporting all seven behaviors, we combined the two uppermost categories. The resulting summary score had seven categories ranging from 'no features' to 'six or seven features'.

2.3. Assessment of BMI

We calculated BMI from self-reported height and weight at Wave 4 (22–27 y), and Wave 5 (31–37 y). In the whole cohort, as previously reported, mean BMI at Wave 4 was 22.2 kg/m^2 (SD 3.5) for women and 23.9 (SD 3.1) for men. At Wave 5, the respective mean BMIs were 23.5 (SD 4.6) and 25.7 (SD 3.7) (Kärkkäinen et al., 2016).

2.4. Assessment of psychological distress

Psychological distress was measured with the 12-item General Health Questionnaire (GHQ-12) using four-point Likert scoring (0-1-2-3) (Goldberg et al., 1997; Penninkilampi-Kerola, Miettunen, & Ebeling, 2006). The internal consistency of the scale was good both at age 24y (Cronbach's alpha 0.86) and 34y (Cronbach's alpha 0.87).

2.5. Statistical analyses

We estimated prevalences and 95% confidence intervals for each individual feature of BED and calculated mean BMI at age 24 and 34 for those endorsing and not endorsing each feature at age 24. We used Pearson correlation to investigate how the features were intercorrelated and calculated the proportions of participants endorsing different numbers of features.

We used ordinary least-squares linear regression to estimate how the number of features of BED at age 22–27 was associated with BMI and psychological distress. We examined a) their cross-sectional relationship at Wave 4 and b) whether Wave 4 binge-eating summary score predicted 10-year change (delta) in psychological distress independent of baseline psychological distress, BMI, and BMI change. Because of the different distributions of the binge eating features and their clustering among women and men in the cohort, we conducted all analyses separately for women and men. Very few participants (<1%–3%), were missing data for the used variables; we therefore performed a complete-case analysis (Langkamp, Lehman, & Lemeshow, 2010). We found no evidence of selective attrition in respect to features of BED between Waves 4 and 5 (full attrition analysis available from the authors). To account for correlation within twin pairs, we used robust variance estimation for clustered data (Williams, 2000). All analyses were conducted using Stata 13.

3. Results

3.1. Prevalence and distribution of features of binge eating disorder

After exclusion of 121 individuals missing data on any feature of BED, our analyses included 5137 individuals (2762 women and 2375 men). The distributions of each individual binge-eating feature among women and men are presented in Fig. 1. Of the dichotomized items, the most common was 'stuffing oneself with food'; 45% of women and 49% of men reported doing it at least