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A cognitive-behavioural comparison of binge eating and non-binge eating in a non-clinical population

Abstract

Binge eating episodes occur in a significant proportion of the non-clinical population, although only a small proportion of these individuals progress to developing disabling eating disorders. The purpose of this research was to examine the nature of binge eating episodes versus non-binge eating episodes and the nature of subjective binge eating episodes and objective binge eating episodes as they occur in a non-clinical population. This study consisted of 113 undergraduate psychology students who completed a range of self-report measures including the Eating Disorder Inventory-2 (EDI-2), demographics questionnaire and binge diary. Sixty-seven percent reported that they had experienced a binge-eating episode in the previous 12 months, whilst only 40% had experienced a binge-eating episode as measured by DSM-IV criteria. The results indicate that the Bulimia, Body Dissatisfaction and Interoceptive Awareness subscales of the EDI-2 differentiate between binge eating episodes and non-binge eating episodes. Furthermore these results replicate findings that there is no difference between a subjective and objective binge-eating episode. These findings have important implications for the cognitive-behavioural treatment of binge eating.

Keywords

cognitive, behavioural, comparison, binge, eating, non, binge, eating, non, clinical, population

Disciplines

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A Cognitive-Behavioural Comparison of Binge Eating and Non-Binge Eating in a Non-Clinical Population

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Abstract

Binge eating episodes occur in a significant proportion of the non-clinical population, although only a small proportion of these individuals progress to developing disabling eating disorders. The purpose of this research was to examine the nature of binge eating episodes versus non-binge eating episodes and the nature of subjective binge eating episodes and objective binge eating episodes as they occur in a non-clinical population. This study consisted of 113 undergraduate psychology students who completed a range of self-report measures including the Eating Disorder Inventory-2 (EDI-2), demographics questionnaire and binge diary. Sixty-seven percent reported that they had experienced a binge-eating episode in the previous 12 months, whilst only 40% had experienced a binge-eating episode as measured by DSM-IV criteria. The results indicate that the Bulimia, Body Dissatisfaction and Interoceptive Awareness subscales of the EDI-2 differentiate between binge eating episodes and non-binge eating episodes. Furthermore these results replicate findings that there is no difference between a subjective and objective binge-eating episode. These findings have important implications for the cognitive-behavioural treatment of binge eating.

Binge Eating

Definition

Common definitions for the term binge eating usually takes some form of 'unrestrained consumption of food'. When used in the clinical and research practices of eating disorders the term binge eating is defined as the consumption of abnormally large amounts of food, accompanied by a sense of loss of control over eating (Fairburn & Wilson, 1993).

The DSM-IV defines a large amount of food as eating within a discrete time interval an amount of food that is

“definitely larger than most people would eat during a similar period of time in similar circumstances” (APA, 2000 p. 594). This definition thus takes into account the person’s context, where, when and with whom the eating took place. The DSM-IV defines loss of control over eating as “feeling that one cannot stop eating or control what or how much one is eating” (APA, 2000, p. 594).

Prevalence

The estimated prevalence of binge eating in the general population appears to be quite high. One estimate suggests that 50 to 67% of female college students admit to binge eating at least occasionally (Lyubomirsky, Casper, & Sousa, 2001). However, only 3% of young women go on to develop an eating disorder (Shisslak, Crago, & Estes, 1995).

Binge eating is not restricted to a particular eating disorder, it can be seen across all of the diagnostic categories. Bulimia Nervosa (BN) is characterised by repeated episodes of binge eating followed by inappropriate compensatory behaviours such as self-induced vomiting, misuse of laxatives or excessive exercise. The lifetime prevalence of BN is 1-3%. The DSM-IV also proposed, for further study, an eating disorder diagnosis of Binge Eating Disorder (BED) that is characterised by recurrent binge eating without compensatory weight control measures. The lifetime prevalence rate of BED is 0.7-4% (APA, 2000).

Characteristics

Body Image Disturbance Binge eating is characterised by a dissatisfaction with body image. Looking at the rates of body dissatisfaction of overall shape and size as measured by the Eating Disorders Inventory-2’s Body

Dissatisfaction subscale (Garner, 1991) it was found that BN and BED clients were especially dissatisfied with their bodies, with BED clients significantly more dissatisfied with their bodies than BN clients. (Santonastaso, Ferrara, & Favaro, 1999). The authors hypothesised that body dissatisfaction in those with BED was likely associated to a significantly higher body weight.

Further analysis indicates that body dissatisfaction predicts an increase in dieting over time. Stice et al. (1998) found body dissatisfaction to be the most significant risk factor of dieting, over and above body mass. This indicates that an individual's perception of body shape is more important than actual body shape. Furthermore, dietary restraint models of binge eating argue that excessive dieting and self-control increases the likelihood of binge eating (Lowe, 1993). Given that 90% of female American college students have been on a diet (Lyubomirsky et al., 2001) it follows that high levels of body dissatisfaction and thus binge eating would also be found among these populations.

Affect Regulation Affect regulation has been found to play an important role in binge eating. Affect regulation models propose that emotional disturbances (distress, anxiety, depression, stress) and the individual's inability to cope with these, increase the likelihood of a binge episode (Grilo & Shiffman, 1994).

Support for the role of affect in triggering binge episodes in individuals with BN has come from studies that have compared mood before eating episodes determined to be binges and those determined to be non-binges. These studies have repeatedly shown that negative affect precedes binge eating episodes in BN (Davis, Freeman, & Garner, 1988; Grilo, Shiffman, & Carter-Campbell, 1994) and in BED (Agras & Telch, 1998).

There is a small amount of literature suggesting that positive affect may also have a role in triggering binge episodes. Sanftner and Cwoner (1998) found that when binge episodes were preceded by positive affect and increased self-esteem women in a non-clinical population consumed more calories. It is hypothesised that after a period of controlled eating, mild binges may be considered as rewarding and what starts out as a food reward turns into uncontrolled bingeing.

Subjective Binge Episodes Vs Objective Binge Episodes

The literature makes a distinction between subjective, or perceived, binge eating and objective, or actual, binge eating. It has been well established that many of the episodes of overeating described as binge episodes do not meet the DSM-IV criteria of food consumption that is definitely larger than that of most people. For example Rossiter and Agras (1990) examined 343 self-reported binge episodes and found in 17% of cases participants had consumed more calories than most

normal people in 24 hours. The remaining 83% could not be classified as a binge episode using the DSM-IV criteria. It was found that these episodes of eating appear to be characterised by the consumption of dessert and snack foods that were viewed as forbidden.

Objective binge episodes are thus characterised by both loss of control and amount of food consumed, whereas subjective binge episodes are characterised by a loss of control when eating alone. To date there has been no significant research outlining a difference in the nature of subjective and objective binge episodes.

Aims

The aim of this study is to explore binge eating among a non-clinical population, in particular to determine what differentiates binge eating from non-binge eating. It is hypothesised that there will be a difference between measures of body image disturbance and affect regulation for these two groups. Furthermore this study aims to investigate if there is any difference between subjective and objective binge eating episodes.

Method

Participants

One hundred and thirteen University of Wollongong undergraduate psychology students were included in this study. Participation was voluntary and completion resulted in partial subject accreditation. The 113 participants were made up of 97 female and 16 males. The average age was 20.7 years ($SD = 5.6$). The Body Mass Index (BMI) of the participants ranged from underweight (4.5%), normal weight (75.7%), overweight (17.1%) to obese (2.7%). Of the 113 participants, 76 (67.3%) self-reported experiencing a binge-eating episode and 45 (39.8%) met the DSM-IV criteria for a binge-eating episode. Three participants had previously sought treatment.

Instruments

Eating Disorder Inventory –2 (EDI-2) The widely used 91-item EDI-2 (Garner, 1991) was used to assess psychological characteristics and symptoms associated with disordered eating. Each item is rated on a six-point scale ranging from 'always' to 'never'. The EDI-2 yields 11 subscales. Three of the subscales were designed to measure attitudes and behaviours toward weight, body shape and eating (Drive for Thinness, Bulimia and Body Dissatisfaction). The remaining subscales assess general psychological characteristics such as Ineffectiveness, Perfection, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation and Social Insecurity.

The EDI-2 has been shown to be reliable. Garner (1991) reports that coefficient alphas for all subscales range from .69 to .93, with the exception of Maturity

fears (.65) and Asceticism (.40) in a group of non-clinical subjects. The EDI-2 also shows good concurrent validity. Correlations ranging from .67 to .78 were found when comparing EDI-2 subscale scores with other measures of eating disorder behaviours and attitudes.

Demographics Questionnaire A self-report demographics questionnaire measured the individual's eating behaviour. This questionnaire also included questions to assess the DSM-IV criteria of a binge-eating episode and a binge-eating diary to explore triggers to binge, frequency and amount of food consumed and any compensatory behaviours.

Procedure

Each participant was required to make an appointment to receive take home self-report questionnaire packages. Participation was determined upon successful completion and return of questionnaires.

Results

Descriptive Statistics

DSM-IV Criteria Examination of participants' responses to questions assessing the DSM-IV characteristics of a binge-eating episode showed that at least once in the previous 12 months they had an eating episode where 75% believed they ate more in a 2 hour period than most people, 51% felt they lacked control over their eating, 81% ate more rapidly than normal, 92% ate until they felt uncomfortably full, 66% ate large amounts when not hungry and 65% felt disgusted, depressed or guilty after overeating.

Compensatory Behaviours Of the 76 participants who reported a binge-eating episode 6.5% reported they always or often vomited after the binge, 6.5% always or often skipped 3 or more main meals and 18% always or often exercised excessively immediately after the binge.

Family History Exploring the history of mental health problems in participants' immediate family revealed that 6.6% had a family history of eating disorders, 22% obesity, 37% mood disorders and 20% substance abuse disorders.

Binge Eating Vs Non-binge Eating

To determine whether binge eaters and non-binge eaters, in a non-clinical population, differed on measures of disordered eating a one-way between-group multivariate analysis of variance was performed using objective binge-episodes as the independent variable and the eleven EDI-2 subscales as the dependent variables.

There was a statistically significant difference between binge eaters and non-binge eaters overall on the EDI-2: $F(11, 101) = 3.65, p = .000$; Wilks' Lambda = .72; partial eta squared = .28. When the results for the

EDI-2 subscales were considered separately, the only differences to reach statistical significance, using a Bonferroni adjusted alpha level of .005, were the Bulimia: $F(1, 154) = 23.72, p = .000$, partial eta squared = .18, Body Dissatisfaction: $F(1, 785) = 12.19, p = .001$, partial eta squared = .10 and Interoceptive Awareness: $F(1, 215) = 18.43, p = .000$, partial eta squared = .14 subscales. An inspection of the mean scores for each subscale, as illustrated in Figure 1, indicated that non-clinical binge eaters reported higher, although not significant, levels on all EDI-2 subscales compared with non-binge eaters.

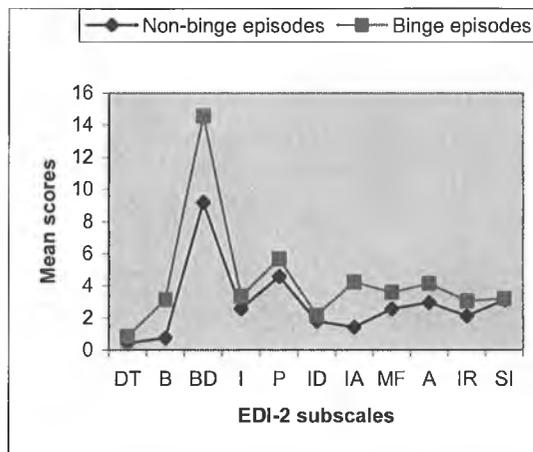


Figure 1: Mean EDI-2 subscale scores for binge eating and non-binge eating episodes.

Looking at the normative data for the EDI (Garner, 1991) we can see that the binge eating group of this non-clinical sample has a mean score slightly higher on Bulimia, Body Dissatisfaction and Interoceptive Awareness when compared to the female non-binge eating normative sample, these scores are however eating significantly less than that of the normative clinical sample. This is illustrated in Figure 2.

Subjective Binge Episodes Vs Objective Binge Episodes

A one-way between-groups multivariate analysis was also completed to investigate any differences on scores of the EDI-2 subscales for participants who reported a subjective binge-eating episode compared with those who reported an objective binge-eating episode. There was no statistically significant difference between subjective and objective binge-eating episodes on the EDI-2: $F(11, 64) = 1.30, p = .247$, Wilks' Lambda = .82, partial eta squared = .18.

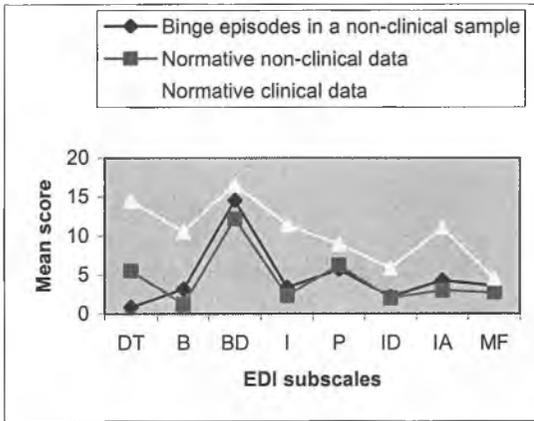


Figure 2: Mean EDI subscale scores for normative samples and binge eating episodes.

Discussion

General Findings

Descriptive Statistics The results indicate that a large proportion of the sample reported that they had experienced a binge-eating episode (76%). This is slightly higher than the 50 – 67% reported in other studies targeting a university population, however this study included participants who reported as few as one binge episode in the previous 12 months as opposed to the ‘occasionally’ criteria used by Lyubomirsky et al. (2001).

A large percentage of the population indicated that when binge eating they had experienced some of the characteristics proposed by the DSM-IV for the diagnosis of BED. This suggests there is some degree of normality in these eating characteristics and behaviours and perhaps it is best to view each individual as lying on a continuum from ‘normal’ to ‘disordered’ or ‘non-clinical’ to ‘clinical’ (Stice, Killen, Hayward, & Taylor, 1998).

Binge Eating Vs Non-binge Eating Investigation into the psychological characteristics and symptoms of binge eaters and non-binge eaters shows statistically significant differences, even among a non-clinical sample. The Bulimia subscale of the EDI-2 was significantly higher in participant’s who self-reported binge eating than those who did not.

The Bulimia subscale measures an individual’s tendency to think about and engage in episodes of uncontrollable overeating, and as such a high score on this subscale would be expected to differentiate a binge-eater from a non-binge eater. This also suggests that the binge diary included in the demographic questionnaire was an adequate assessment of binge eating.

The Body Dissatisfaction subscale of the EDI-2 measures dissatisfaction with the overall shape of the body and the size of particular areas of the body (i.e.,

stomach, hips, thighs and buttocks). The significant difference found between the binge eating and non-binge eating groups in the non-clinical sample on this subscale supports the wealth of literature that purports a disturbance in body image is an important predictor of binge eating within eating disorders (Santonastaso et al., 1999).

The last significant difference found between the binge eating and non-binge eating groups was on the EDI-2 subscale of Interoceptive Awareness. This subscale measures confusion and apprehension in recognizing and appropriately responding to emotional states. Additionally this subscale measures uncertainty in physical sensations related to hunger and satiety. This indicates that those who had experienced a binge episode differed in the way they experienced or dealt with affect and bodily sensations when compared with those who hadn’t experienced a binge episode. Given that the clinical research indicates that an individual’s inability to cope with emotional disturbances increases the likelihood of a binge episode (Grilo & Shiffman, 1994), it is likely that affect regulation is also an important factor for binge eating in a non-clinical population.

The mean EDI-2 scores for the binge-eating group were higher than that of the non-binge eating group across all 11 subscales, despite lacking in statistical significance. This lends credence to the theory that eating behaviours are best viewed on a continuum, with higher scores indicating they are further along on the continuum. It also suggests that the EDI-2 can be used as a screening tool in non-clinical samples to establish those individuals who may be at risk of developing binge-eating behaviours.

Subjective Binge Episodes Vs Objective Binge Episodes The comparison of EDI-2 subscale scores for individual’s who had experienced a subjective binge episode and those who had experienced an objective binge episode revealed that there was no difference between the two classifications. This suggests that regardless of the amount of food consumed the experience of the binge-eating episodes were similar.

This result, which replicates the findings of clinical samples such as Rossiter & Agras (1990), challenges the DSM-IV criteria of binge-eating that requires the amount of food to be consumed in an episode be larger than that of most people. It has been suggested that this criteria be abandoned (Garner, Shafer, & Rosen, 1992). It is proposed that the individual’s perceived distress of the amount or type of food being consumed is an important factor to be considered in the diagnosis of a binge-eating episode. Furthermore if this finding is accurate it suggests that the focus of treatment for subjective binge episodes should be on changing the client’s perception of their eating behaviour as opposed to their actual eating behaviour.

Limitations

The main limitation of this study is that it relied solely on retrospective self-report data. It is often necessary to rely on subjective reports due to the private nature of binge eating clients'. However, because binge eating frequently occurs in the context of negative emotions it may be difficult for clients to provide reliable retrospective reports of eating behaviour (Grilo, Masheb, & Wilson, 2001). Besides memory recall problems, data may be biased by the client's personal theories and feelings about bingeing and/or purging. Self-monitoring with the use of food diaries may also be problematic as shame and guilt may affect reports of eating behaviour.

The generalisability of these results is limited because of the nature of the sample. Findings need to be restricted to non-clinical samples and further research is required to establish if there is any significant differences among non-clinical samples taken from universities compared to the general population.

Future Direction

Further research replicating this study would be useful to determine whether the 3 significant EDI-2 subscales, Bulimia, Body Dissatisfaction and Interoceptive Awareness, are found to be significant in differentiating binge eating from non-binge eating in other non-clinical and clinical samples. In addition it would be important to replicate the comparison of subjective and objective binge episodes with a clinical population to contribute to the debate surrounding binge-eating diagnosis.

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