REGULAR ARTICLE

# Perception of Control During Episodes of Eating: Relationships with Quality of Life and Eating Psychopathology

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**ABSTRACT**

**Objective:** Experience of loss of control (LOC) during eating is an important indicator of pathology, although this concept has not received a great deal of research attention. The present study explores how quality of life (QoL) is related to LOC during eating.

**Method:** Three hundred and thirty-nine female university students completed measures of eating pathology, general psychiatric symptomatology, and QoL. They were subsequently categorized according to the degree of LOC experienced during eating into one of five groups: no binge eating (NBE); objective overeating (OOE); objective binge eating (OBE); subjective binge eating (SBE); and a mixed OBE/SBE group (Mixed).

**Results:** Individuals who experienced LOC during eating reported significantly poorer QoL and more psychiatric symptoms.

**Discussion:** In a nonclinical female sample, LOC during eating appeared to be a more important marker of pathology and poorer self-reported QoL than the amount of food eaten. © 2011 by Wiley Periodicals, Inc.

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## Introduction

A number of authors have highlighted the importance of a sense of losing control during episodes of eating as a marker of Eating Disorder (ED) pathology in both adults and children.[1–4] Loss of Control (LOC) during episodes of overeating is also a key symptom in the diagnosis of a binge eating disorder,[5,6] and has been associated with emotional eating, depression, and anxiety.[3,4]

Within current definitions,[5] there exists a differentiation between types of eating with an associated LOC (i.e., "binge eating"). Objective Binge Episodes (OBEs) are characterized by LOC over eating and ingestion of a large amount of food. Subjective binge episodes (SBEs), by contrast, also include LOC but refer to episodes where the intake of food is not objectively large.[7] One of the most widely used ED assessment measures, the Eating Disorder Examination-Questionnaire (EDE-Q),[8] allows differentiation between OBEs with LOC and OBEs without LOC, also known as Objective Overeating Episodes (OOEs[9]). Therefore, there is potential to look at differences between groups who report LOC, and those who do not, independent of the volume of food consumed in that episode. Research looking at individuals who report both SBEs and OBEs is limited, although there is some suggestion that such individuals will report greater levels of pathology and functional impairment than those reporting just one type of binge episode.[10]

Few studies have addressed how an individual's Quality of Life (QoL) is affected by LOC over eating. Colles et al.[11] looked at the relationship between LOC and eating behaviors in patients following bariatric surgery. People who reported postsurgical episodes of LOC experienced high levels of emotional disturbance and poorer QoL than those who did not. Similar studies in the field of EDs have linked LOC to psychological sequelae, such as emotional difficulties. In a sample of 367 adolescents, Shomaker et al.[4] found that those who reported LOC during eating episodes exhibited more disor-

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dered eating attitudes and behaviors, such as weight concerns and emotional eating, than those who did not report LOC. Similar data, with a sample of 77 Spanish-speaking women of Hispanic origin, are reported by Elder et al.[1] Few studies have explicitly investigated QoL in individuals who experience LOC over eating, although results from existing studies might suggest that QoL will be impaired when this is present. Mond et al.[10] looked at QoL within a sample of women who binge eat but did not find any significant differences on a generic measure of QoL between those who reported SBEs and those who reported OBEs. Use of an ED-specific measure of QoL may provide additional detail.

In summary, studies have found that individuals who experience LOC during episodes of binge eating report higher levels of emotional distress and also more ED symptoms than those who do not report LOC. Although a link exists between ED symptoms and impaired QoL,[12] it is unclear which aspects of pathology contribute to this relationship. The current study represents an attempt to explore this relationship in the context of overeating and LOC, and it is expected that those groups identifying no LOC during eating will report better Eating Disorder-specific QoL (EDQoL) compared to those who report losses of control. Furthermore, it is hypothesized that LOC during binge eating will be associated with more symptoms of both an ED and more general psychopathology. It is expected that groups who report LOC during eating episodes (i.e., SBEs and OBEs) will report more ED symptoms than those who do not (i.e., OOEs and those who report no overeating). Those who report both SBEs and OBEs are also expected to report more symptoms than other groups.

## Method

### *Design and Participants*

Three hundred and thirty-nine female students completed a questionnaire pack, after informed consent, as part of a study on eating behaviors and QoL for credit in undergraduate psychology courses. Three UK universities and one university in the Midwestern United States participated in the study, which was approved by Ethics Review Boards independently at each site. In addition to the questionnaires, participants were also asked to indicate their age, weight, and height.

## Material

The *EDE-Q*[8] is a 36-item self-report measure of ED pathology, based on the EDE interview.[7] It has good psychometric properties, particularly on attitudinal aspects of eating pathology.[13] The EDE-Q asks participants to report on ED pathology experienced in the last 28 days, including behavioral features (frequency of bingeing, vomiting) and cognitive features (e.g., shape and weight concerns), and can generate a global score.

The Clinical Impairment Assessment[14] is a self-report measure with 16 items assessing impairment occurring secondary to ED symptoms. Participants rate the extent to which eating problems have interfered with various aspects of their life over the preceding 28 days. A total score is generated, with higher scores denoting greater QoL impairment.

The Brief Symptom Inventory[15] is a 53-item self-report measure of current psychiatric symptomatology. Respondents indicate on a five-point Likert scale how much certain symptoms (e.g., "feeling fearful") have bothered them in the last 7 days. The measure yields a total score (General Severity Index; GSI) with higher scores indicating greater distress.

### *Statistical Analyses*

Based on self-report data from the EDE-Q, participants were assigned to five different groups: (1) the "Non-Binge Eating" (NBE) group included those individuals who did not report any incidence of overeating over the last 28 days; (2) the OOE group included those individuals who reported episodes of overeating without a LOC during these episodes; (3) the OBE group refers to individuals who reported eating an objectively large amount of food accompanied by a sense of LOC; (4) the SBE group included individuals who reported eating episodes with LOC but without consuming an objectively large amount of food; and (5) a Mixed Group included individuals who reported both SBEs and OBEs. All groups were mutually exclusive in that participants could only be assigned to one group. Participants were assigned to the relevant group if they reported the presence of that particular form of eating in the absence of any other form of eating. Where two forms of binge eating were present, this necessarily precipitated inclusion in the Mixed group.

One-way analysis of variance was used to compare groups on continuous data; post hoc comparisons were performed with Tukey B. Data were analyzed using SPSS 17.0 for Windows, adopting an $\alpha$-level of .05.

## Results

Of the 339 participants, 145 (42.8%) reported no episodes of binge eating in the past 28 days (NBE

**TABLE 1. Descriptive statistics for the sample, spilt by groups**

| Variable | Mean (SD) | | | | | | $F$ | $p$ |
|---|---|---|---|---|---|---|---|---|
| | Total sample ($n$ = 339) | NBE ($n$ = 145) | OOE ($n$ = 55) | OBE ($n$ = 52) | SBE ($n$ = 40) | Mixed ($n$ = 46) | | |
| Age | 19.35 (2.21) | 19.31 (2.26) | 19.37 (1.99) | 19.27 (1.49) | 19.14 (0.77) | 19.73 (3.48) | .074 | .79 |
| BMI | 22.24 (3.60) | 21.70 (3.24) | 21.85 (3.19) | 23.46 (4.47) | 22.13 (3.61) | 23.23 (3.55) | 9.174 | .009 |

*Note*: NBE, Non-Binge Episode Group; OOE, Objective Overeating Group; OBE, Objective Binge Episode Group; SBE, Subjective Binge Episode Group; Mixed, Mixed Group; BMI, Body Mass Index.

group). Fifty-five (16.2%) comprised the OOE group, 52 (15.3%) the OBE group, 40 (11.8%) the SBE group, and 46 (13.6%) the Mixed group. Demographic data are presented in **Table 1**.

There were no significant differences between groups on age. The OBE group reported a significantly higher BMI than the NBE group, $F(4,332) = 9.174$, $p = .009$, although there were no other significant differences.

### Differences between groups in psychopathology

Groups differed on EDE-Q global score, $F(4,333) = 49.711$ and GSI, $F(4,332) = 17.801$, $p$'s $< .001$. Individuals reporting OBEs, SBEs, or both (Mixed group) reported higher scores on measures of both ED psychopathology and general psychopathology than groups who did not report any losses of control over eating (i.e., NBE and OOE) (see **Figs. 1A** and **1B**).

### Differences between groups in QoL

Clear differences were also found between groups in reported EDQoL [$F(4,333) = 48.269$, $p < .001$]. Both the NBE and OOE groups reported better EDQoL than the other groups, which reported similar levels of impairment to each other (see **Fig. 1C**).

## Discussion

The current study investigated ED-specific quality of life (EDQoL) and psychiatric symptoms among nonclinical female students classified according to the occurrence of binge eating. Specifically, it was hypothesized that those who report LOC during eating would report poorer EDQoL and more psychiatric symptoms than individuals who do not report LOC. The findings confirm these hypotheses and also provide support for existing findings suggesting that LOC is associated with ED symptoms and general psychological distress.[1,3]

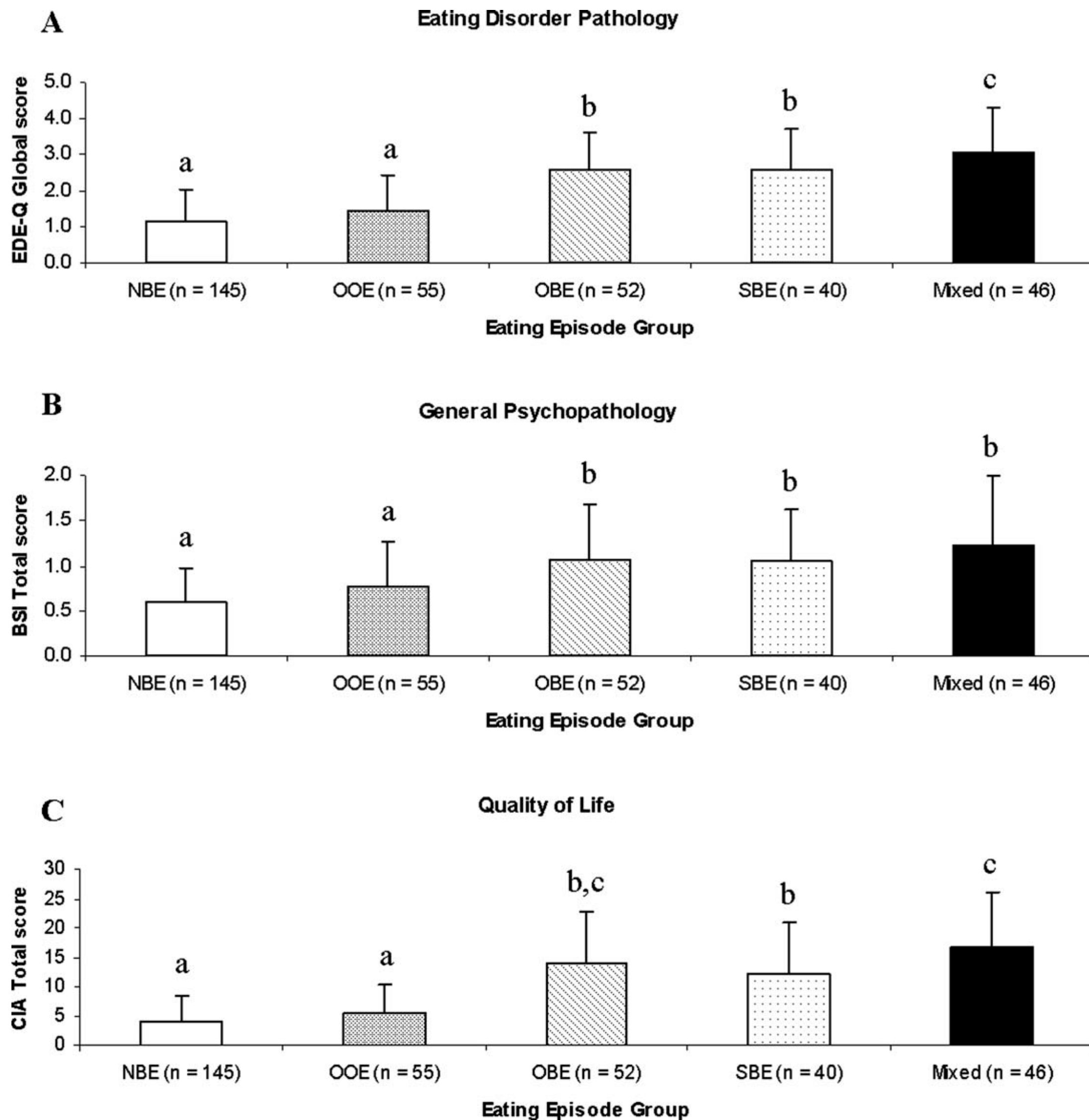
The present study is the first to address differences in EDQoL between individuals varying in LOC during eating episodes. The study compared different groups with and without LOC during eating on measures of QoL and psychiatric symptoms. EDQoL was poorest for individuals who reported episodes of objective or subjective overeating accompanied by a feeling of LOC. The current data suggest that it is the experience of LOC, rather than the amount eaten per se that is associated with poorer EDQoL. Regarding general psychopathology, individuals who did not report LOC during overeating reported fewer psychiatric and ED symptoms, similar to previous studies.[3] Overall, the data are similar to those recently reported by Shomaker et al.[4] in a sample of adolescents, suggesting that the effects may extend into early adulthood. Longitudinal studies will be required to test the veracity of this assumption.

There were no significant differences between groups in terms of demographic data, although the mean BMI of the OBE group was significantly higher than those in the NBE group. This is likely to reflect the amount of food consumed during overeating and is similar to results previously reported.[10] Comparison of the prevalence of ED behaviors with other studies[5,16] demonstrates comparable rates of pathology, suggesting that results are in line with existing data.

The current study also extends previous studies both by the use of different comparison groups[10] and the use of an ED-specific QoL measure. The occurrence of binge eating documented in the current sample represents a useful starting point for similar studies using clinical populations and the use of an ED-specific measure of QoL represents an important advantage over previous studies in this area. Examination of a group of individuals who report the significant occurrence of both SBEs and OBEs ("Mixed") adds to the small group of studies, which have included such individuals.

The study is limited by its use of self-report data, which is likely to overestimate elements of ED pathology.[17] Indeed, concordance between self-report and interview versions of the EDE has been disputed regarding the assessment of binge eating, particularly SBEs,[13] and so conclusions based on such data must consider this. Despite the prevalence of ED behaviors in this sample,

**FIGURE 1 Means for different eating episode groups (NBE, no binge eating; OOE, overeating; OBE, objective binge eating; SBE, subjective binge eating; Mixed, presence of both OBE and SBE) on: A: EDE-Q Global; B: BSI Total; and C: CIA Total. Different superscripts indicate significant post hoc Tukey B tests ($p < .05$). *Note*: EDE-Q, Eating Disorder Examination-Questionnaire; BSI, Brief Symptom Inventory; CIA, Clinical Impairment Assessment.**




the use of a clinical comparison with more reliable measures will be required to make more relevant conclusions regarding the assessment and treatment of EDs.

The findings suggest that a significant proportion of females attending university experience frequent symptoms of an ED[18] and that QoL is also affected. In line with other authors,[10,19] results suggest that the amount of food eaten during a binge is a less important indicator of ED pathology than whether the subject experiences LOC during an episode of eating. The present study suggests that recognition of the subjective impact of binge eating may be an important component in the assessment and treatment of EDs.[1]

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## References

1. Elder KA, Paris M Jr, Añez LM, Grilo CM. Loss of control over eating is associated with eating disorder psychopathology in a community sample of Latinas. Eat Behav 2008;9:501–503.
2. Goossens L, Braet C, Decaluwé V. Loss of control over eating in obese youngsters. Behav Res Ther 2007;45:1–9.
3. Latner JD, Hildebrandt T, Rosewall JK, Chisholm AM, Hayashi K. Loss of control over eating reflects eating disturbances and general psychopathology. Behav Res Ther 2007;45:2203–2211.

4. Shomaker LB, Tanofsky-Kraff M, Elliott C, Wolkoff LE, Columbo KM, Ranzenhofer LM, et al. Salience of loss of control for pediatric binge episodes: Does size really matter? Int J Eat Disord 2010;43:707–716.
5. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders,4th ed. Washington, D.C.: American Psychiatric Association, 2000.
6. Wolfe BE, Wood Baker C, Smith AT, Kelly-Weeder S. Validity and utility of the current definition of binge eating. Int J Eat Disord 2009;42:674–686.
7. Fairburn CG, Cooper Z. The eating disorder examination. In: Fairburn CG, Wilson GT, editors. Binge Eating: Nature, Assessment, and Treatment,12th ed. New York: Guilford Press, 1993, pp.317–360.
8. Fairburn CG, Beglin SJ. Assessment of eating disorders: Interview or self-report questionnaire? Int J Eat Disord 1994;16:363–370.
9. Kenardy J, Mensch M, Bowen K, Green B, Walton J, Dalton M. Disordered eating behaviours in women with Type 2 diabetes mellitus. Eat Behav 2001;2:183–192.
10. Mond JM, Latner JD, Hay PH, Owen C, Rodgers B. Objective and subjective bulimic episodes in the classification of bulimic-type eating disorders: Another nail in the coffin of a problematic distinction. Behav Res Ther 2010;48:661–669.
11. Colles SL, Dixon JB, O'Brien PE. Grazing and loss of control related to eating: Two high-risk factors following bariatric surgery. Obesity 2008;16:615–622.
12. Jenkins PE, Hoste RR, Meyer C, Blissett JM. Eating disorders and quality of life: A review of the literature. Clin Psy Rev 2011;31:113–121.
13. Mond JM, Hay PJ, Rodgers B, Owen C, Beumont PJV. Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. Behav Res Ther 2004;42:551–567.
14. Bohn K, Fairburn CG. The Clinical Impairment Assessment questionnaire (CIA). In: Fairburn CG, editor. Cognitive Behavior Therapy and Eating Disorders. New York: Guilford Press, 2008, pp.315–317.
15. Derogatis LR. The Brief Symptom Inventory (BSI): Administration, Scoring, and Procedures Manual. Minneapolis, MN: National Computer Systems, 1993.
16. Mond JM, Hay PJ, Rodgers B, Owen C. Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. Behav Res Ther 2006;44:53–62.
17. Black CMD, Wilson GT. Assessment of eating disorders: Interview versus questionnaire. Int J Eat Disord 1996;20: 43–50.
18. Carter PI, Moss RA. Screening for anorexia nervosa and bulimia nervosa in a college population: Problems and limitations. Addict Behav 1984;9:417–419.
19. Niego SH, Pratt EM, Agras WS. Subjective or objective binge: Is the distinction valid? Int J Eat Disord 1997;22:291–298.