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## Assessing eating disordered behaviour in overweight children and adolescents: bridging the gap between a self-report questionnaire and a gold standard interview

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**Keywords** Assessment · binge eating · childhood · obesity · ChEDE · ChEDE-Q

The current study compared two measurements assessing eating disorder psychopathology in overweight children and adolescents: an interview and a self-report questionnaire. An adjusted version of the Child Eating Disorder Examination Questionnaire (ChEDE-Q) was compared with the Child Eating Disorder Examination interview (ChEDE), which is considered the gold standard. Thirty-eight overweight children and adolescents (aged 8-14) participated in the study. Regarding objective bulimic episodes, the current study found that using smaller chunks of information decreased the discrepancy between interview and questionnaire. The chances are that the gap between ChEDE-Q and ChEDE can be reduced if more attention is paid to children's abilities concerning the understanding of complex concepts. (*Netherlands Journal of Psychology*, 63, 102-106)

Overweight and obesity are becoming the most significant public health issues of the 21st century. In the Netherlands, 46% of all adults are overweight, of which 11% are obese. At the same time, overweight and obesity are increasingly prevalent in children and adolescents. Currently, one out of eight Dutch children are overweight or obese (CBS, 2005; Visscher, Kromhout & Seidell, 2002). Because of severe physical and

psychological health consequences, treatment is necessary. However, prior to treatment, it is important to assess potentially disordered eating behaviours such as binge eating and purging, as the occurrence of these behaviours complicates treatment (Elfhag & Rossner, 2005).

Among the adult overweight population, binge eating seems a common behaviour. Research suggests that 20 up to 46% of all treatment-seeking obese adults report eating binges (Bruce & Wilfley, 1996; de Zwaan & Mitchell, 1992). In addition, binge eating episodes are reported by 20 to 30% of obese children (Decaluwé, Braet & Fairburn, 2003). An eating binge is defined as eating an amount of food that is larger than most people would eat during a short period of time, during which loss of control is experienced (APA, 1994). Binge eating is an ambiguous concept and therefore hard to diagnose (Fairburn & Wilson, 1993; Jansen, van den Hout & Griez, 1990).

At present, various instruments are used to diagnose eating disorders and binge eating. The Eating Disorder Examination (EDE; Fairburn & Cooper, 1993) is considered the gold standard for assessing specific eating psychopathology. As the EDE should be administered by a trained interviewer (Cooper & Fairburn, 1987), this method is far more time-consuming and more expensive than, for example, a self-report questionnaire (Black & Wilson, 1996). Another disadvantage might be that a semi-structured interview such as the EDE allows less anonymity, which might lead to a lower degree of honesty, especially when it comes to delicate issues (Carter, Aimé & Mills, 2001).

The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) was developed as a possible substitute for the EDE. A study by Luce and Crowther (1999) suggests that the subscales of the EDE-

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Q have high levels of internal consistency (Cronbach's  $\alpha$  ranged from 0.78 to 0.93). However, the EDE-Q proved to have difficulties in identifying more complex conceptual issues, such as binge eating (Black & Wilson, 1996; Fairburn & Beglin, 1994).

The same problems arise when the children's versions of these instruments are compared. In a study by Decaluwé and Braet (2004), the child version of the EDE (ChEDE; Bryant-Waugh et al, 1996) and the child version of the EDE-Q (ChEDE-Q; Decaluwé, 1999) were compared. It was found that the four subscales of the ChEDE correlated significantly with the corresponding subscales of the ChEDE-Q ( $r$  ranging from 0.42 to 0.76). However, scores on the ChEDE-Q subscales were found to be consistently higher than scores on the ChEDE subscales. When comparing the ChEDE and the ChEDE-Q in assessing objective bulimic episodes the researchers did not find any significant correlation between the two instruments. The ChEDE-Q produced significantly higher scores with respect to binge eating. The discrepancy between the ChEDE and ChEDE-Q thus concerns binge eating behaviour in particular. The probable cause of these results lies in the fact that it is very difficult to identify bulimic episodes and the concepts involved.

Because of the major advantage of saving expenses and time when using questionnaires, improving the ChEDE-Q seems to be of great value. With respect to a complex conceptual issue like binge eating, the consistency between the two instruments might well be improved by explaining ambiguous concepts in the questionnaire.

Passi, Bryson & Lock (2003) examined whether adding information for adults led to a smaller discrepancy between EDE and EDE-Q. This research showed that adults studied the extra information and used it when filling in the questionnaire. Yet, because of the small number of participants ( $n=28$ ), no firm conclusions could be drawn.

In the current study we attempt to further reduce the gap between the EDE interview and questionnaire for children by appending information explaining ambiguous concepts such as 'binge eating', 'loss of control' and 'large amounts of food'. It is hypothesised that the addition of this information results in a smaller discrepancy between the two instruments in children, especially with respect to objective bulimic episodes.

If it proves possible to increase the agreement between the two instruments, the ChEDE-Q might be welcomed as a useful alternative for the time-consuming and costly ChEDE.

## Method

### Subjects

Thirty-eight children and adolescents (30 girls and 8 boys) participated in the current study. The mean age of the participants was 11.3 years ( $SD = 1.43$ , range 8-14 years) with a mean BMI percentile of 94.49 ( $SD = 5.81$ , range 75.2 -99.6).

All children had been participating in a free outpatient treatment programme for overweight, provided by Maastricht University. The current research was integrated in one of the follow-up measurements. Informed consent was obtained from the children's parents. After completing the measurements, the children were allowed to choose a small present.

### Measurements

#### *Child Eating Disorder Examination*

The ChEDE (Bryant-Waugh, Cooper, Taylor & Lask, 1996) is a version of the adult EDE adapted for children (Fairburn & Cooper, 1993). It consists of four subscales; *restraint*, *eating concern*, *shape concern* and *weight concern*. Furthermore, the ChEDE measures overeating (*objective bulimic episodes*, *subjective bulimic episodes* and *objective overeating episodes*) and methods of weight control (*self-induced vomiting*, *laxative misuse*, *diuretic misuse* and *intense exercising*). The ChEDE consists of 35 items that are scored on a seven-point (0-6) rating scale. Higher scores indicate greater seriousness or frequency of the given feature.

#### *Child Eating Disorder Examination Questionnaire*

The Child Eating Disorder Examination Questionnaire (ChEDE-Q; Decaluwé, 1999) is based on the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) for adults. It is a self-report questionnaire measuring the existence and frequency of eating disorder psychopathology. The EDE-Q consists of 30 items, each corresponding to an item of the original EDE. The ChEDE-Q also consists of 30 items, using a seven-point rating scale.

For the current study, some adjustments were made to the ChEDE-Q. The adjusted questionnaire did not make use of seven response possibilities, but of 28: each of the 28 boxes represented one of the past 28 days the questionnaire asks about. This was done to visually enhance children's notion of the past 28 days. The children had to

colour the number of boxes (that is, days) on which they had experienced the feature asked about. Afterwards, the investigator transcribed these scores into the original seven-point rating scores. Furthermore, another important change was the insertion of definitions of the ambiguous concepts used in the ChEDE-Q: 'loss of control', 'eating binge', 'eating in secret', 'large amount of food' and 'intense exercising'.

In the present study the Cronbach alpha coefficients for each subscale were 0.53 for 'restraint', 0.65 for 'eating concern', 0.57 for 'weight concern' and 0.83 for 'shape concern' respectively. These are comparable with alphas found in other studies (Decaluwé & Braet, 2004).

## Procedure

The interview and questionnaire were both administered during the same follow-up measurement and therefore related to the same preceding 28-day period. As Decaluwé and Braet (2004) recommended, a 28-day diary was used to enhance recall during the administration of both the questionnaire and the interview. The adapted version of the ChEDE-Q was administered at the beginning of the measurement. Subsequently, the child completed a number of other questionnaires which were irrelevant for this study. Then, the ChEDE was administered. Finally, the child was measured and weighed. The order in which the ChEDE-Q and ChEDE were administered was not counterbalanced. As previous studies (Black & Wilson, 1996; Decaluwé & Braet, 2004; Fairburn & Beglin, 1994) have argued, administering the interview first could elucidate key concepts and consequently influence scores on the adjusted ChEDE-Q.

## Results

### Data reduction and analysis

To establish the degree of correspondence between the ChEDE and ChEDE-Q, first the subscale scores of both

measures were calculated. Correlations and t-tests were computed to compare the subscale scores, the global score as well as overeating and compensatory behaviour. The level of agreement was also calculated for all these variables. Agreement is met when the ChEDE-Q score lies within a one-scale point range of the ChEDE score. With respect to the ChEDE-Q, an eating binge can be diagnosed in two ways. Item 8 comprises both the concepts of eating a large amount of food and the loss of control in a single question ('Have you had episodes of binge eating?'), whereas items 16 and 17 address these two concepts separately (item 16 focuses on eating a large amount of food whereas item 17 enquires about loss of control).

Consequently, an eating binge can be diagnosed by an affirmative response to item 8 or by affirmative responses to both items 16 and 17. Regarding the results of the present study we examined both ways of diagnosing eating binges.

### Subscales

Table 1 shows the scores of both the interview and the questionnaire. The four subscales of the ChEDE and ChEDE-Q were all significantly correlated, with correlations ranging from 0.40 to 0.78. Comparisons of the subscales show that scores on the interview and the questionnaire are significantly different with respect to 'eating concern' and 'shape concern'; questionnaire scores are significantly higher than interview scores. Regarding the other two subscales, 'restraint' and 'weight concern', there were no significant differences between interview and questionnaire. The level of agreement is rather high for all four subscales, ranging from 73 to 92% agreement within one scale-point.

### Objective bulimic episodes

Table 1 shows the binge eating scores of the interview and questionnaire. Because the ChEDE did not determine

**Table 1** Comparison of the ChEDE and ChEDE-Q (n = 38).

	ChEDE <sub>M</sub> (SD)	ChEDE-Q <sub>M</sub> (SD)	M (SD) of difference between ChEDE-Q and ChEDE	R	t	% Agreement within 1-scale point
Restraint	1.18 (0.97)	1.20 (0.85)	0.016 (1.00)	0.40*	-0.10	77.9
Eating concern	0.25 (0.26)	0.47 (0.55)	0.324 (0.46)	0.55**	-4.29**	92.1
Weight concern	1.53 (0.99)	1.62 (1.05)	0.137 (0.68)	0.78**	-1.19	73.4
Shape concern	0.73 (0.79)	1.29 (1.05)	0.557 (0.69)	0.75**	-4.90**	76.7
Objective bulimic episodes <sup>1</sup>	0.0 (0.00)	1.03 (2.37)				76.3
Objective bulimic episodes <sup>2</sup>	0.00 (0.00)	0.26 (0.89)				94.7

<sup>1</sup> An objective bulimic episode was scored when the response to item 8 was affirmative. <sup>2</sup> An objective bulimic episode was scored when both eating large amounts of food and loss of control were reported (affirmative responses to item 16 as well as item 17). \*  $p < 0.05$ , \*\*  $< 0.01$ .

any binge eating episodes in all 38 participants, no correlation with ChEDE-Q scores could be calculated nor could a t-test be performed. However, it is noteworthy that the results indicate an evident difference between the two scoring methods of the ChEDE-Q. When binge eating is assessed by ChEDE-Q items 16 and 17 instead of item 8, the scores resemble the ChEDE scores to a higher degree, resulting in less false-positives.

## Discussion

The aim of the current study was to improve the ChEDE-Q (Decaluwé, 1999) by providing clarification of complex concepts used in questions and modifying the response possibilities. To determine whether these alterations were actually improvements, the ChEDE-Q scores were compared with the ChEDE scores in 38 overweight or obese children.

Earlier research findings have shown that there is a substantial discrepancy between the interview and questionnaire: scores on all four subscales differ significantly between the two measures. In addition, the most salient difference between the two measurements is found with respect to the assessment of objective bulimic episodes: the questionnaire proves to overestimate the number of eating binges in comparison with the interview (Decaluwé & Braet, 2004).

By adapting the ChEDE-Q in the current study through exemplifying certain concepts, inserting definitions and adapting the response format, this discrepancy decreased. When the questionnaire and the interview were compared, the four subscales were all significantly correlated. The correlations obtained are comparable with those found by Decaluwé and Braet (2004). In other words, in general, scores on the questionnaire appeared higher than scores on the interview. With regard to the subscales 'eating concern' and 'shape concern', these differences were significant. However, the discrepancy found in the current study is not as considerable as the discrepancy found by Decaluwé and Braet (2004), who found that all four subscales differed significantly between interview and questionnaire. With respect to objective bulimic episodes, it was shown that the discrepancy between interview and questionnaire was reduced from 1.03 to 0.26 points when an eating binge was scored based on affirmative responses on both item 16 (eating large amounts of food) and 17 (loss of control) instead of solely on item 8 (episodes of binge eating). Agreement between the two measures was 76.3% based on item 8 and 94.7% based on the combination of items 16 and 17.

These results indicate that the adjustments made are indeed improvements to the ChEDE-Q, in that the scores resemble those of the ChEDE more closely. Concerning the future use of self-report questionnaires measuring eating disordered behaviour (in children, but possibly also in adults), it would be recommended to further examine the effects of clarifying vague concepts, questioning these concepts in manageable and meaningful chunks (for example splitting binge eating into loss of control and eating large amounts of food) and modifying response possibilities.

Obviously, this study shows some limitations. First, the results are based on a fairly small sample ( $n = 38$ ). Therefore, these findings need to be replicated in a larger sample. Secondly, being an allied problem, the diagnosis of bulimic episodes was not made according to the gold standard in any of the participating overweight or obese children.

A larger sample size could probably solve this problem as well. A third limitation, which is connected to the previous one, might be that the study was carried out with children who had already completed treatment. It would be better to carry out this research before participants start treatment. Yet, the question is whether this really causes problems for interpreting the results as within-group differences implicate an improvement when questions are subdivided into smaller chunks.

In conclusion, the current study found that adjustments to the ChEDE-Q reduce the gap between interview and self-report questionnaire. Adding up that self-report questionnaires are less time consuming, do not require a trained interviewer, cost less, possibly result in more sincere answers to delicate issues and do not bring about an instrumentation effect, it seems worthwhile to consider investing time and money in further improving and refining the ChEDE-Q.

## Author's note

Main fields of interest: childhood obesity, treatment, parental control, eating behaviour in children.

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