



## The measurement of impairment due to eating disorder psychopathology

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### ABSTRACT

Eating disorders have a profound and highly specific impact on psychosocial functioning. The aim of this research was to develop a measure of such secondary impairment. A 16-item, self-report instrument was developed, the Clinical Impairment Assessment (CIA), which was designed to measure such impairment overall and in three specific domains (personal, cognitive, social). The psychometric properties of the instrument were evaluated using data collected in the context of a transdiagnostic treatment trial. The findings consistently supported the utility of the instrument with the CIA being shown to have high levels of internal consistency, construct and discriminant validity, test–retest reliability, and sensitivity to change. The CIA should be of value to clinicians when assessing patients with eating disorders and their response to treatment. It should also help inform epidemiological research.

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### Introduction

The assessment of psychopathology requires not only an evaluation of the nature and severity of particular features, but also an assessment of the impact of these features on the person's psychosocial and physical functioning. This is important for at least two reasons: first, it is often impairment that leads people to seek help and a goal of treatment should therefore be to reduce it; and second, the presence of clinically significant impairment is required to make a diagnosis of a mental disorder (American Psychiatric Association, 1994). Despite this, measures of psychopathology have tended to focus on the psychopathology itself and not the impairment that it causes. Recently this tendency has been countered to an extent with the increasing use of measures of "health-related quality of life" to supplement the assessment of symptoms. Although valuable, these generic measures, developed originally to assess the impact of physical illnesses on everyday functioning (Ware, Kosinski, & Keller, 1996; Ware, Snow, Kosinski, & Reese, 1993; WHOQOL Group, 1998), may miss important sources of impairment that are peculiar to psychopathology and to the characteristics of particular psychiatric disorders.

Eating disorders are a case in point for they have profound and specific effects on psychosocial functioning. For example, these patients' over-evaluation of shape and weight and its expressions,

the so-called "core psychopathology" (Fairburn, 2008), has a marked effect on their ability to be with others and to form intimate personal relationships. Similarly, their concerns about eating, and its expressions, prevent them from eating healthily, affecting their mood, cognitive function and family relationships. Secondary effects of this type can be extremely disabling yet are likely to be missed by generic measures of health-related quality of life (Doll, Petersen, & Stewart-Brown, 2005). For this reason disorder-specific measures are required.

Four eating disorder-specific measures of health-related quality of life have recently been developed (Abraham, Brown, Boyd, Luscombe, & Russell, 2006; Adair et al., 2007; Engel et al., 2006; Las Hayas et al., 2006). However, none of the four measures is entirely satisfactory as a measure of impairment secondary to the whole range of eating disorder psychopathology. The main problems are as follows. First, three of the instruments confound the measurement of eating disorder psychopathology with the assessment of impairment and fail to ensure that the impairment assessed is secondary to eating disorder psychopathology (Abraham et al., 2006; Adair et al., 2007; Las Hayas et al., 2006). Second, three instruments omit to assess the impact of the patients' extreme concerns about their shape (Abraham et al., 2006; Engel et al., 2006; Las Hayas et al., 2006) and as a result are likely to underestimate the extent of the secondary impairment. Third, sensitivity to change was only examined in one of the four studies (Abraham et al., 2006). Fourth, none of the instruments have been validated against independent assessments of the extent of secondary impairment and none has been evaluated in terms of its ability to predict case status.

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The aim of the present study was to develop a clinically useful measure of the psychosocial impairment that results from eating disorder features and to test its reliability, validity, sensitivity to change and ability to predict case status.

## Methods

### *Development of the CIA*

It was decided a priori that the instrument should have certain properties to ensure it would function as an easy-to-use measure of psychosocial impairment secondary to eating disorder features. First, it needed to be a self-report questionnaire. Second, it needed to be compatible with a current-state measure of eating disorder features so that together the two instruments would provide an assessment of psychopathology and its resulting impairment. The Eating Disorder Examination Questionnaire (EDE-Q) (Fairburn & Beglin, 1994) was chosen as the measure of eating disorder psychopathology as it is widely used and has been extensively validated (Peterson & Mitchell, 2005). Thus the new measure of impairment, named the Clinical Impairment Assessment (CIA), was designed to have the same Likert-style response format as the EDE-Q and the same time frame (covering the previous 28 days) so that respondents could easily move from completing one instrument to the completion of the other. Third, it was decided that the CIA should be relatively brief so that the two instruments could be completed together in a short period of time (approximately 10 min). Fourth, to maximise clinical utility, it was decided that the instrument should generate a single, readily-calculated, overall score indicative of the severity of secondary impairment, although the possibility of generating domain-specific scores was to be explored. Lastly, it was decided to focus exclusively on secondary psychosocial impairment rather than the physical effects of eating disorder psychopathology as the subjective physical consequences of an eating disorder (e.g., weakness, feeling faint or cold, palpitations, muscle twitches and spasms) are mostly non-specific in character and difficult for the individual to ascribe to their way of eating.

Two main considerations governed decision-making regarding the content of the CIA. First, it needed to assess the influence of all the main elements of eating disorder psychopathology on a person's functioning. Hence it was decided that the CIA should open with the following stem question: "Over the past month, to what extent have your eating habits, exercising or feelings about your eating, shape or weight affected...". We decided not to include purging in the stem question as "eating habits" includes vomiting and laxative misuse in most patients' minds and, having just completed the EDE-Q, participants will have these forms of behaviour in their mind. Second, it was decided that the CIA should ask about the main aspects of life that are affected by eating disorder psychopathology. These were identified by KB, ZC, CGF and RLP on the basis of their clinical experience, the content of generic measures of health-related quality of life, and the responses of eating disorder patients to exploratory interviews focused on the presence and nature of any secondary psychosocial impairment that they were experiencing (Bohn, 2006). Examples of impairment within the identified domains of life were specified resulting in the eventual development of a 22-item instrument with 7 items directed at effects on mood and self-perception, 4 at effects on cognitive functioning, 7 at impairment of interpersonal functioning, and 4 at effects on work performance. Each item was rated on a 4-point Likert scale, where 0 ("Not at all") was equivalent to no impairment and 3 ("A lot") to severe impairment. The total score ('global CIA score') was designed to provide an overall index of severity of current secondary psychosocial impairment. This preliminary version of the CIA was evaluated using data collected in the context of a treatment trial.

### *Assessment of the psychometric properties of the CIA*

#### *Participants*

CIA data were collected from 123 of 170 patients who were participating in a transdiagnostic cognitive behaviour therapy trial based in two eating disorder clinics in the UK (Oxford and Leicester) (Fairburn et al., in press). Both clinics provide the only secondary adult eating disorder service for the locality. Patients were included if they met the following criteria: aged 18–65 years, judged to have an eating disorder of clinical severity by one of three senior specialists in the field (ZC, CGF or RLP), and had a body mass index between 16.0 and 39.9. The CIA data of patients who were diagnosed as suffering from a severe co-existing clinical depression were excluded as some of their impairment might have been secondary to the clinical depression rather than their eating disorder features. Details of how this judgement was made are provided elsewhere (Fairburn, Cooper, & Waller, 2008).

The CIA was introduced after 120 of the 170 patients had started treatment with the consequence that pre-treatment CIA data were collected on only 50 of the patients. A further 73 patients contributed data between the end of treatment and end of their post-treatment follow-up. Of these 123 patients, 27 (22.0%) completed the CIA once, 44 (34.9%) twice, 30 (24.4%) three times, 17 (13.8%) four times, and 5 (4.1%) five times, with there being 298 CIA ratings in total over all patients and assessment points. The baseline DSM-IV diagnoses of the 123 patients were as follows: anorexia nervosa – 8 (6.5%); bulimia nervosa – 48 (39.0%); eating disorder NOS – 67 (54.5%). Full details of the complete sample and its response to treatment are provided elsewhere (Fairburn et al., in press).

#### *Assessments*

Each patient underwent a research assessment at the beginning and end of their treatment, and at 20, 40, 60, 104 and 208 weeks post-treatment. At each point they completed the EDE-Q and, immediately afterwards (from the time of its introduction), the CIA. In addition, a trained research assistant administered the Eating Disorder Examination (EDE) interview (Fairburn & Cooper, 1993) together with an investigator-based interview designed to identify secondary functional impairment (Bohn, 2006). In Oxford, ZC and CGF also independently assessed (using an unstructured clinical interview) the extent to which the patient's eating disorder features had been interfering with their psychosocial functioning over the previous 28 days and rated this on a seven-point severity scale (0–6, with 0 being equal to no secondary impairment and 6 being equal to severe impairment). Finally CGF determined whether the patient should be viewed as suffering from an eating disorder of clinical severity. This decision was based upon ratings on the EDE and the investigator-based impairment interviews, and was made blind to the patient's identity, point of follow-up and responses to the EDE-Q and CIA. A second CIA was administered to a subset of 43 participants three days after they had completed an initial one. This addressed the same 28-day period.

#### *Statistical methods*

Unless otherwise stated, the analyses used the data from the first CIA completed by each participant so as not to violate the assumption of statistical independence. When data collected across multiple assessments were used to increase statistical power, a variety of multilevel models, with a random effect for subject, were fitted to allow for correlation between repeated assessments and to assess the impact of statistical non-independence (Singer & Willett, 2003). Statistical significance was taken throughout at two-tailed  $p < 0.05$ .

*Internal consistency and dimensionality.* Cronbach's alpha and item-total correlations were used to assess internal consistency.

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