

## Brief report

# Psychological assessment of candidates for bariatric surgery

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## Abstract

**Objectives:** National Institute of Clinical Excellence guidelines indicate that pre-surgical assessment of patients wishing to undergo bariatric surgery should include consideration of psychological factors. This paper describes the psychological characteristics of a cohort of 59 patients.

**Method:** Patients were interviewed and completed the following psychometric assessments: the Hospital Anxiety and Depression Scale, the Dieting Belief Scale, the Binge Eating Scale, the Emotional Eating Scale, the Generalised Self Efficacy Scale, and the Social Support Questionnaire.

**Results:** High levels of psychological distress and binge eating were reported. Men more commonly reported a history of alcohol misuse. There was evidence to suggest that psychological distress predated obesity in the majority of cases.

**Conclusion:** Compulsive eating leading to obesity appears to be both a consequence and a cause of psychological distress. Replacing compulsive eating represents a major post-surgical challenge in the majority of cases. Psychological assessment and follow-up should be offered to each patient.

## Introduction

Since the National Institute of Clinical Excellence (NICE) guidelines<sup>1</sup> recognised the need to consider psychological factors when assessing the suitability of candidates for bariatric surgery, a small number of surgeons in the United Kingdom have invited clinical psychologists to become part of the pre-surgical assessment team. This paper aims to provide an insight into the rationale for undertaking psychological assessments with these patients and to present data on the psychological profile of a cohort on whom assessment has been carried out.

NICE guidelines stipulate that individuals should have "no specific clinical or psychological contra-indications to this type of surgery". However, further guidance on exactly what constitutes a psychological contra-indication is not provided. The literature is equally opaque. In the United States the results of pre-surgical psychological and psychiatric assessments have been published since the early 1990s. However these tend to consist of assessments utilising personality

tests or psychiatric diagnosis, and neither of these have been found to be particularly helpful in terms of predicating outcome to surgery.<sup>2</sup>

A small number of studies have suggested that the severity of pre-surgical eating disturbance predicts poorer post-surgical outcome in gastric bypass patients<sup>3</sup> although these conclusions are not supported by others.<sup>4</sup> Factors such as body image distortion and longstanding psychological disorders have also been implicated in poor post-surgical adjustment<sup>5</sup> but such findings are inconsistent.

In contrast psychological factors such as self-efficacy, locus of control and social support have all been consistently demonstrated to be important predictors of successful self-management in chronic illnesses such as diabetes.<sup>6</sup> It is hypothesised that these factors might therefore similarly predict post-surgical outcome in these patients, inasmuch that individuals are required to make adjustments to manage a life-long health related issue, involving significant life-style and emotional adaptations.

At this stage however, the majority of this cohort have not yet had surgery. This paper therefore aims to provide data on the psychological profile of surgical candidates. It is hoped of course that at some point, post-operative assessments will be undertaken and it can then be judged whether any of these factors are shown to have any predictive value.

## Patients

From May 2003 to June 2005, 74 patients were invited to attend for psychological assessment. All had been referred by a consultant surgeon who was considering treating them with a Roux-en-Y gastric bypass procedure. Of these, 13 failed to attend their appointment. One individual who attended reported that he was reluctant to undergo bariatric surgery and one person presented with symptoms typical of a florid psychotic state and assessment proved impossible. This left a cohort of 59 individuals who completed a psychological assessment.

## Method

All assessments were undertaken at the Clinical Psychology Department, Belfast City Hospital. Each assessment lasted for approximately two hours. Individuals were asked to provide details about their background history (family, childhood, schooling, vocational career, relationships); mental health history; weight history (including evidence of disordered eating); understanding of obesity and understanding and expectations of bariatric surgery.

In addition they were asked to complete a battery of standardised psychometric questionnaires, all of which have established reliability and validity:

- The Hospital Anxiety and Depression Scale<sup>7</sup> (HADS) is a

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14-item scale that is divided into two dimensions – anxiety (seven items) and depression (seven items). Respondents choose one from four responses to each item. Their scores are then summed within dimensions and a total score for each dimension is obtained. Scores for the anxiety dimension and the depression dimension are interpreted as follows: 0-7 – normal; 8-10 – mild; 11-14 – moderate; 15-21 – severe.

- The Dieting Belief Scale<sup>8</sup> (DBS) measures weight locus of control from responses to 16 statements on a six point Likert type scale ranging from “not at all descriptive of my belief” to “very descriptive of my belief”. It is used to establish to what degree individuals believe ‘internal’ factors, ‘external’ factors and ‘fate’ influence their weight.
- The Binge Eating Scale<sup>9</sup> (BES) is a 16-item scale designed to assess the severity of binge eating behaviour. Respondents choose one from a choice of either three or four possible responses to each item. Responses are summed across the 16 items and interpreted as follows: mild or no bingeing  $\leq 17$ ; moderate bingeing 18-26; serious bingeing  $\geq 27$ .
- The Emotional Eating Scale<sup>10</sup> (EES) measures the use of eating to cope with negative mood. Respondents are asked to rate the strength of their urge to eat (in one of five categories ranging from ‘no urge to eat’ to ‘overwhelming urge to eat’) in relation to 25 different emotions. The emotions presented can be divided into three sub-groups: anger/frustration, depression and anxiety.
- The Generalised Self Efficacy Scale<sup>11</sup> (GSE) is designed to assess a general sense of perceived self-efficacy and to predict coping with daily hassles as well as adaptation following stressful life events.
- Social Support Questionnaire<sup>12</sup> (SSQ) asks the respondent to list the individuals on whom they can rely for support in six specific situations and to specify their general level of satisfaction with this support. Scores of the number of supports and the degree of satisfaction can be obtained. Scores for the former range from 0-54 and the latter 6-36. These scores are not categorical but relative, as there are no norms for the SSQ<sup>8</sup>.

## Results

### Demographics

Of the total group of 59, 47 (79.7%) were female and 12 (20.3%) were male. Thirty (50.8%) were married, 13 (22%) were separated or divorced and 16 (27.1%) were single.

Table 1 provides an age breakdown of the group (n = 59). The mean age was 40.7 years.

Table 2 provides a self-reported BMI breakdown of the group (n = 59). The mean self-reported BMI was 53.5 (SD 8.6; range 36-74). These figures are based on self-report data and should be regarded as an approximation.

### Mental health

One individual was unable to complete the HADS due to limited intellectual ability and a further eight required help due to literacy difficulties. Of the 58 who responded, 31 (52.6%) reported moderate to severe levels of anxiety and 24 (40.7%) reported moderate to severe levels of depression.

On the BES 53 (89.8%) of the 57 who completed this assessment reported serious levels of binge eating behav-

Table 1: Age breakdown (n = 59)

Age Group (years)	n	%
20-29	4	6.8
30-39	27	45.8
40-49	16	27.1
50-59	8	13.6
60+	4	6.8

Table 2: BMI breakdown (n = 59)

BMI (range)	n	%
36-40	1	1.7
41-45	10	16.9
46-50	13	22.0
51-55	15	25.4
56-60	8	13.6
61-65	7	11.9
66-70	3	5.1
71+	2	3.4

our. Total score on the BES was significantly correlated with scores on the HADS anxiety sub-scale ( $r = 0.362^{**}$ ,  $p = 0.006$ ,  $n = 57$ ), the HADS depression sub-scale ( $r = 0.352^{**}$ ,  $p = 0.007$ ,  $n = 57$ ), the EES anger/frustration sub-scale ( $r = 0.620^{**}$ ,  $p < 0.001$ ,  $n = 56$ ), the EES anxiety sub-scale ( $r = 0.565^{**}$ ,  $p < 0.001$ ,  $n = 56$ ), and the EES depression sub-scale ( $r = 0.655^{**}$ ,  $p < 0.001$ ,  $n = 56$ ).

Individuals were asked about whether they had experienced pre-obesity sexual, emotional or physical abuse. In total 30 (62.7%) reported that they had experienced some form of abuse prior to the age at which their weight problem developed. However only eight participants (13.6%) specifically mentioned that they were victims of sexual abuse.

In relation to treatment received for mental ill health, 42 (71.2%) have been treated for anxiety and depression or other mental health difficulties in the past. This treatment ranged from being prescribed anti-depressants or tranquillising medication by their general practitioner right through to referral to and long-term contact with specialist mental health teams. Sixteen (27.1%) reported a past or current history of alcohol misuse. Statistically this was significantly more likely in male patients (Pearson  $\chi^2 = 3.99$ ;  $p = 0.046$ ).

### Potential predictive variables

Respondents mean scores approximated to the midpoint on all DBS scales, although on average, they showed a tendency to score higher than the midpoint on the internal scale and lower than the midpoint on the other DBS scales. However there is no normative data available for the DBS, which makes comparison of dietary locus of control of this group with other populations impossible.

Normative data for the GSE accumulated from 1,660 German adults has been reported.<sup>13</sup> The mean GSE score for

the German sample was 29.3 (SD = 4.6). Although the mean score in this sample was slightly, but not significantly, lower, scores were arranged over a broad continuum and have the potential therefore to be used as a potential predictor of post surgical adjustment.

On average, respondents recorded that they were fairly satisfied with the levels of social support they experience. The SSQ also does not have norms available, but the scores provide a relative measure, which can be used as a potential dependent variable in a follow-up study.

### Discussion

Demographically this group was very similar to published data from North America<sup>14,15</sup> suggesting that there was nothing unusual in the demographic composition of the group.

Unsurprisingly levels of anxiety and depression were high. Indeed the degree of psychological distress reported by this group was higher than that reported in cohorts attending specialist obesity services<sup>16</sup> and even those being treated for cancer.<sup>17</sup>

In accordance with other studies, the majority of individuals assessed reported a high prevalence of binge eating, which was highly correlated with emotional eating and psychological distress. It would appear therefore that many morbidly obese patients who wish to undergo bariatric surgery eat compulsively and do so in response to psychological distress rather than for physiological reasons. Nearly two-thirds reported experiencing some form of abuse prior to obesity onset, and emotional abuse in particular has been noted to play a significant role in predicting disordered eating patterns.<sup>18</sup>

It would appear therefore that many were experiencing significant psychological distress before their weight was an issue, and it is important to note that in these cases obesity is secondary to psychological distress and not vice versa. As such, morbid obesity might be regarded as a symptom, rather than a cause of the underlying psychological problem. Surgery may not therefore deal with the underlying issues, which might manifest themselves in some other type of unhealthy behaviour if not dealt with. Given the above it is perhaps unsurprising that nearly three-quarters of this group have been treated for mental ill health.

A history of alcohol misuse was reported in a quarter of cases, and was more likely to be an issue for men. Bariatric surgery does not prevent alcohol misuse in the same way that it prevents bingeing on food, so consideration should be given to providing additional post-surgical support to those with a previous history of alcohol misuse.

It is clear that the majority of these patients will have to replace compulsive eating in their coping repertoire. After surgery they will be unable to engage in this behaviour and, if they do, post-surgical adjustment will obviously be jeopardised. Although for the majority this might mean nothing more than initiating simple strategies, such as doing regular exercise, for a proportion it will require them to resolve longstanding psychological issues.

It is important that compulsive eating is not replaced by an equally unhelpful behaviour such as smoking, alcohol consumption, drug use or any other form of compulsive behaviour.

Many patients believe that once they have surgery all their

**Table 3: The age at which weight problems reportedly first developed (n = 59)**

Age Range (years)	n	%
< 7 years	5	8.5
7-14	21	35.6
15-21	19	32.2
22-30	10	16.9
> 30	4	6.8

**Table 4: Descriptive statistics for responses on the DBS, the GSE and the SSQ**

Scale	n	Mean	SD	Range
DBS - Internal	57	30.2	6.6	14-42
DBS - External	57	17.9	4.6	8-29
DBS - Fate	57	10.1	3.9	3-18
GSE	56	28.0	5.1	16-38
SSQ - total	53	15.7	9.9	0-47
SSQ - satisfaction	52	29.3	7.0	7-36

stress will disappear. Of course this is simplistic and inaccurate, and it is important that patients acknowledge that they might benefit from support to resolve problems and to develop new methods of coping.

Little normative data is available in relation to self-efficacy, locus of control or perceived social support, and therefore it is impossible to say for certain how this group compares to the general population or other clinical groups. Nevertheless undertaking assessments with this group of individuals does allow for ideas to be generated. Many strikingly lack self confidence and social support and it may well be that post-surgical adjustment is more challenging for these individuals.

These factors have been demonstrated to predict outcome in chronic disease management and, although the data is not currently available to support this hypothesis, it may well be that this is true in bariatric surgery. Post-surgical follow up of this cohort will of course clarify whether this is true. However it is interesting to note that bariatric surgeons often report that they look for 'grit' in the personality of surgical candidates. This translates to 'self-efficacy' in psychological language.

There are of course limitations to the conclusions that can be drawn from this data. If more time were available formal assessments of body image dissatisfaction, obesity-related quality of life and perhaps an assessment of intellectual functioning would have been desirable.

Nevertheless there seems little doubt that psychological factors do play a significant role in determining post-surgical outcomes such as weight loss, improvements in quality of life or mental health. As such, pre-surgical psychological assessment should be undertaken with all potential candidates.

Moreover given that in the majority of cases psychological morbidity predates obesity the psychological impact of bariatric surgery should be considered when considering post-surgical outcome. It is therefore recommended that, as a minimum, a clinical psychologist, or other suitably qualified

professional, should review every patient six to nine months after they have had bariatric surgery.

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