Body weight, image and self-esteem evaluation questionnaire: development and validation of a new scale

A. George Awad*, Lakshmi N.P. Voruganti

Department of Psychiatry, Humber Regional Hospital, 1575 Keele Street, Toronto, Canada M6M 3Z4

Received 24 June 2003; received in revised form 10 November 2003; accepted 10 December 2003
Available online 4 March 2004

Abstract

This report describes the development of a new questionnaire designed to capture and quantify the psychosocial impact of weight gain associated with psychotropic drug use, and presents results of a preliminary validation study. Based on a review of literature, consultations with experts, interviews with individual patients and focus groups, themes relevant to weight gain and its psychosocial consequences were identified. A 12-item self-report questionnaire was designed and administered to a heterogeneous group of psychiatric outpatients (n = 141) receiving antipsychotic and other adjunctive medications. The scale could be self-administered in 2–3 min with minimal assistance. Correlational analysis showed a high internal consistency (Cronbach’s α 0.79) and fair split half reliability (Spearman–Brown coefficient of 0.76). The total scores were able to distinguish groups of people with higher and lower body mass index (BMI) (χ² = 16.4, p < 0.001), suggestive of good discriminant validity. Repeated administration of the scale in 56 subjects on 2 occasions with a gap of 1 week in between revealed a test–retest reliability coefficient of 0.81 (p < 0.001). These preliminary findings indicate that body weight, image and self-esteem evaluation questionnaire (B-WISE) is a potentially useful instrument for clinical trials to measure the psychosocial consequences of weight changes associated with psychotropic drug use, and also in monitoring the impact of various intervention programs aimed at minimizing or preventing weight gain.

© 2004 Elsevier B.V. All rights reserved.

Keywords: Psychotropic drugs; Antipsychotic drugs; Outcomes; Weight gain; Self-image; Quality of life

1. Introduction

Physiological functions such as appetite, food consumption and body weight are intricately linked to psychological constructs such as body image, self-esteem and psychosocial adjustment. Obesity, anorexia, bulimia and dysmorphophobia are examples of psychiatric disorders involving some of these dimensions. Iatrogenic weight gain related psychotropic drug use (e.g., antipsychotic drugs and lithium) is a common but under-recognized problem until recently. Increasing public awareness about the risks of obesity in general, and the incremental weight gain associated with the use of atypical antipsychotic drugs in particular, has brought this issue into a sharp focus. There is...
empirical evidence indicating that weight gain could lead to poor compliance with medications not only in psychiatric patients but also in medical populations (Weiden et al., 2000; VanSeumeren, 2000). Similarly, weight gain has been found to be associated with poor quality of life, reduced well being and vitality (Rumpel et al., 1994; Angermeyer and Matschinger, 2000; Allison et al., 2003). Numerous studies are being carried out to understand the mechanisms of antipsychotic drug induced weight gain, its metabolic and cardiovascular complications, and various pharmacological and psychosocial interventions to minimize or prevent it (Allison and Casey, 2001). The outcome parameters in these studies are often limited to physical and biochemical indices such as weight, body mass index, glucose and lipid levels, cardiac function studies, etc. Currently, there are no suitable measures to quantify and monitor the psychosocial impact of iatrogenic weight gain in psychiatric populations.

A number of rating scales and questionnaires are already available to quantify weight-related issues in the field of eating disorders (Rush et al., 2000). A review of the existing scales indicates that their content reflects a very detailed exploration of disorder-specific symptoms and behaviours, such as eating and purging, body shape, weight and image perception (Cooper et al., 1987; Garner and Garfinkel, 1979; Gormally et al., 1982; Mizes and Klesges, 1989). Aspects of self-esteem and self-image evaluation were also included in two of the rating scales relevant to the psychiatric populations (Drug Attitude Inventory (Awad et al., 1996) and Personal Evaluation of Transitions in Treatment (Voruganti and Awad, 2002)). However, there are no comprehensive scales or questionnaires available at present to measure exclusively the psychosocial impact of changes in body weight in non-eating disorders psychiatric populations. This report presents a preliminary report on the development, field testing and psychometric properties of a new scale, which was designed to address this need. The new questionnaire, which is the body weight, image and self-esteem evaluation questionnaire, will be referred to as B-WISE (its acronym) or Body-WISE in the rest of the paper, to facilitate easy communication.

2. Theoretical foundations

Weight gain is easy to measure and monitor in clinical practice, though tracking the antecedents and consequences of weight gain is more complex. A common clinical scenario involves themes such as the use of a psychotropic medication followed by weight gain, failure to recognize the side effect until it becomes prominent, personal distress, behavioural and social consequences, health education, trials of various interventions with partial success and non-compliance with medications in some instances. During the course of the development of B-WISE, details of these clinical events were systematically recorded from clinical populations through individual interviews with patients, direct care providers and focus groups of patients being treated with antipsychotic drugs, antidepressants and mood stabilizers. A list of themes that emerged from this preliminary work was compiled and compared with the content of the existing questionnaires reviewed earlier.

3. Development of B-WISE

About a dozen recurring themes were identified through patient interviews, focus groups, experts’ opinions and the review of literature. These included personal distress, negative intrusive thoughts, energy, activity level, controlling hunger/craving, confidence, self-esteem, self-image in interpersonal context, social withdrawal, knowledge and awareness, and treatment and prevention. Items were constructed centred on these themes.

4. Questionnaire description

The B-WISE is a 12-item self-report questionnaire, and items are drafted as first person statements describing a subject’s personal appraisal of the changes in body weight and issues related to psychosocial adjustment in the preceding 2 weeks (the list of items are enclosed as Appendix A). Answers are chosen from a three-point frequency-based Likert scale (i.e., never, sometimes and all the time). The answers are assigned a rating of 1, 2
or 3, with potential total scores ranging between 12 and 36, higher scores indicative of better adjustment. The scoring key varies from item to item, depending on the positive or negative direction of the item. The 2-week time period was adopted since it appeared to be an appropriate time frame for noticing any significant and sustained changes in weight during psychotropic drug use. The responses are also likely to be more accurate and valid if the period of recall is limited to 1–2 weeks. The wording of the statements is at about grade 8 level in order to minimize the cognitive burden to the subjects.

5. Results of field trials

Originally, a 16-item questionnaire was developed and administered to a heterogeneous group of outpatient psychiatric population. The results were subjected to principal components analysis, which resulted in exclusion four items. The present report consists of results of preliminary validation studies on the 12-item questionnaire. One hundred and forty-one subjects completed the questionnaire on one occasion and 56 subjects on two occasions with a gap of 1 week in between.

The sample consisted of 75 men and 66 women; their mean age was 41.5 years and mean illness duration was 7.3 years. The diagnoses of the participants were as following: schizophrenia \((n=83)\), schizo-affective disorder \((n=36)\) and mood disorder \((n=17)\) and others \((n=5)\). The range of their prescribed medications included antipsychotic drugs \((n=136)\), antidepressants \((n=48)\), mood stabilizers \((n=36)\), benzodiazepines \((n=96)\) and others. Height and weight were collected on all the participants. Eighty-one subjects \((57.4\%)\) reported gaining weight during the 2 weeks preceding the completion of questionnaire, while 60 maintained a stable weight or reported minimal weight loss \((i.e.,\ about\ 1–2\ lb)\).

This sample of subjects was drawn from an outpatient psychiatric clinic affiliated with a teaching hospital. Only competent and consenting subjects were included in the study. People with acute psychosis exhibiting uncooperative and unpredictable behaviour and also those experiencing severe mood states were not asked to participate in the study. The project was reviewed and approved by the institutional ethics review board.

6. Feasibility issues

The questionnaire was acceptable since majority of the participants were able to complete it within 2–3 min without any difficulty. Feedback from the participants indicated that the scale was easy to understand and complete, with minimal assistance required. Participants preferred filling out the questionnaire rather than subjecting themselves to the (often humiliating) task of weighing themselves on the scales!

7. Internal consistency and test–retest reliability

Cronbach’s \(\alpha\) coefficient of internal consistency was calculated from the data obtained on 141 subjects, and the result \((0.79)\) was found to be satisfactory. Split half measure of reliability yielded a Spearman–Brown coefficient of 0.76. Pearson’s correlations were computed between the test and retest scores obtained from 56 subjects, which yielded a coefficient of 0.81, \(p<0.001\). The intra-class correlation coefficient was 0.80, which could be considered as moderately high.

8. Discriminant validity

The total sample of 141 subjects was arbitrarily categorized into 4 groups based on their body mass index (BMI)—normal weight \((BMI<24.9)\) \([n=35]\), over-weight \((BMI\ 25.0–29.9)\) \([n=46]\), obese \((BMI\ 30.0–34.9)\) \([n=43]\) and extreme obesity \((BMI>40.0)\) \([n=17]\). Also, based on the total scores obtained on the scale, the sample was arbitrarily categorized into three groups—those with mild \((12–20)\), moderate \((21–28)\) and severe \((29–36)\) psychosocial impact. A \(4 \times 3\) contingency table was devised and \(\chi^2\) was computed to assess the relationship between the body mass index and the B-WISE scores. The B-WISE scores were able to independently distinguish the four groups as differ-
ent, and the differences were statistically significant ($\chi^2 = 16.4, df = 6, p < 0.001$).

9. Discussion

Obesity is now being considered as a major public health problem in North America. The risk of weight gain and its consequences are further increased in psychiatric populations due to psychotropic drug use, lack of exercise, reduced physical activity, poor nutritional habits, poverty, lack of awareness, disorganization and restricted access to services. There is an urgent need to develop interventions that are aimed at minimizing or preventing weight gain during treatment; and these strategies should be tailored to the needs of the mentally ill keeping in mind their cognitive limitations and other special needs. Monitoring weight changes and their psychosocial impact remains a priority, even with or without any specific interventions. Hence, the need for a custom-built scale to monitor the impact of weight changes in psychiatric populations is long overdue. Based on the preliminary data, it seems that B-WISE could meet this need timely and adequately. Coupled with regular weight monitoring, B-WISE would equip health care professionals to comprehensively monitor the issues related to weight gain during antipsychotic drug therapy. Preliminary results also indicate that the scale could be useful in psychiatric populations with varied diagnoses, using different medications.

There is a need for additional validation studies on the new scale. Sequential administration of the scale during the course of psychotropic drug therapy will be helpful in documenting the scale’s sensitivity to changes in body weight, and also alert clinicians. Careful monitoring of actual body mass indices would allow for an evaluation of any relationships between self-concept and BMI. Importantly, issues that might lead to treatment non-adherence might be forthcoming and the risk of relapse minimized. Also, data collected from larger patient populations will be helpful in examining the factorial structure of the scale. These data will facilitate its use in clinical trials as well as other outcome evaluation studies.

Appendix A. Body weight, image and self-esteem evaluation (B-WISE) scale items

1. I am upset with my present weight
2. I feel active and energetic
3. I am going out to enjoy myself more often
4. I am not able to control my hunger and craving for food
5. I dislike the way I look
6. I am self-conscious in the company of others because of my weight
7. I am reminded of my body shape and appearance during the day
8. I am avoiding friends and relatives because I am out of shape
9. I know why I put on weight, and I know how to lose it
10. I believe that excess weight is not good for my general health
11. I am taking steps to control my weight
12. Generally, I am feeling good about myself

References
