German version of the Multidimensional Body-Self Relations Questionnaire – Appearance Scales (MBSRQ-AS): Confirmatory factor analysis and validation

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ABSTRACT

The Multidimensional Body-Self Relations Questionnaire (MBSRQ) is a widely used questionnaire that measures body image as a multidimensional construct. The Appearance Scales (AS) of the MBSRQ (Appearance Evaluation, Appearance Orientation, Body Areas Satisfaction, Overweight Preoccupation and Self-Classified Weight) are subscales which facilitate a parsimonious assessment of appearance-related aspects of body image. The current study tested the psychometric properties and factor structure of a German translation of the MBSRQ-AS. Participants were $n = 230$ female patients with the SCID diagnosis of an eating disorder and $n = 293$ female healthy controls. In a confirmatory factor analysis, convincing goodness-of-fit indices emerged. The subscales of the questionnaire yielded good reliability and convergent and discriminant validity coefficients, with most items showing excellent characteristics. Like the English version, the German adaptation of the questionnaire can be recommended for a multidimensional assessment of appearance-related aspects of body image in both research and clinical practice.

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Introduction

In the last decades, research interest in body image has been growing (Cash, 2004). A negative evaluation of one's own appearance seems to be a problem that affects about half of women in the USA (Cash & Henry, 1995; Feingold & Mazzella, 1998) and it is also common in other societies with a high socioeconomic status (Swami et al., 2010). In German population-based surveys, about 40% of female participants in different samples reported being preoccupied with the appearance of at least one part of their body (Buhlmann et al., 2010; Rief, Buhlmann, Wilhelm, Borkenhagen, & Brähler, 2006). Moreover, body image disturbance is part of the diagnostic criteria for anorexia and bulimia nervosa in the DSM-IV-TR (American Psychiatric Association, 2000) and the DSM-5

(American Psychiatric Association, 2013) as well as the ICD-10 (World Health Organization, 1996), and it is also associated with disordered eating in nonclinical samples (e.g., Boone, Soenens, & Braet, 2011; Hutchinson, Rapee, & Taylor, 2010; Ricciardelli, Tate, & Williams, 1997).

Cash and Smolak (2011) regard body image as a multidimensional construct. In the English-language area, many self-report measures are available for the investigation of different aspects of body image (for an overview, see Thompson & van den Bergh, 2002). While the other measures concentrate on only some specific aspects of body image, the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000) has the advantage of assessing multiple aspects of body image and being a widely used instrument in the English-language area. The MBSRQ is able to differentiate between the evaluation of appearance-related aspects and the person's orientation toward these aspects (i.e., the perceived importance of appearance and its influence on the person's behavior). Another advantage of the MBSRQ is that, after nine subscales were originally developed on a conceptual basis, those subscales that could be statistically confirmed by several split-sample principal component analyses were retained (Brown, Cash, & Mikulka, 1990). Subsequently, concordance analyses revealed considerable

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stability of the components both within and between sexes (Brown et al., 1990). This evidence-based development of the MBSRQ provides a solid foundation for the subscales of the questionnaire. For many research questions in the field of eating disorders, researchers decide to only employ the Appearance Scales of the questionnaire (MBSRQ-AS; Cash, 2000), as these provide a more parsimonious possibility to assess appearance-related aspects of body image. The MBSRQ-AS has already been translated into French (Untas, Koleck, Rascle, & Borteyrou, 2009). As no German translation of the questionnaire or any other multidimensional questionnaire of comparable quality was available in the German language area, we translated the questionnaire into German.

The aim of the present study was to confirm the factor structure of the MBSRQ-AS and to gather data on the psychometric properties and validity of the German version and its translated items. For the analysis of the convergent validity of the subscales, we used the diagnostic status (participants with eating disorders or healthy control participants) and also analyzed how participants with different eating disorder diagnoses respond differently to the subscales of the MBSRQ-AS. The subscale Appearance Evaluation measures positive and negative appraisals of one's physical appearance (Cash, 2000). For individuals with anorexia nervosa and bulimia nervosa, lower scores have been found than in a psychiatric control group, which indicates a more negative evaluation of one's body image in these individuals (Hrabosky et al., 2009). The subscale Appearance Orientation measures cognitive-behavioral investment in appearance (see Cash, 2000). The Body Areas Satisfaction Scale measures the extent of satisfaction with eight body areas and attributes. Satisfaction assessed using this scale has been found to be lower in subjects with anorexia nervosa and bulimia nervosa than in psychiatric controls (Hrabosky et al., 2009), and the scale has been shown to be a valid measure of evaluative body image (Giovannelli, Cash, Henson, & Engle, 2008). The subscale Overweight Preoccupation assesses fat anxiety, weight vigilance, dieting and restrained eating (Cash, Wood, Phelps, & Boyd, 1991). It has been found to be more pronounced in subjects with anorexia nervosa and bulimia nervosa than in psychiatric controls (Hrabosky et al., 2009), and substantial evidence already exists for the validity of the English version (Cash et al., 1991). The subscale Self-Classified Weight measures self-perceived weight and beliefs about others' perceptions of one's weight.

Based on previous findings and the fact that overweight preoccupation is part of the diagnostic criteria of eating disorders, we predicted that scores for Appearance Evaluation and Body Areas Satisfaction should be lower in subjects with eating disorders than in healthy controls, and that scores for Appearance Orientation and Overweight Preoccupation should be higher in subjects with eating disorders than in healthy controls. We did not hold a directed hypothesis for the scale Self-Classified Weight, as this is influenced not only by a potential distortion of perception in eating disorders (for a meta-analysis, see Cash & Deagle, 1997), but also by the actual weight, which is related to the type of the eating disorder (e.g., lower weight in anorexia nervosa).

Additionally, with the Eating Disorder Inventory-2 (EDI-2; Garner, 1991; Thiel, Jacobi, Horstmann, Paul, Nutzinger, & Schüßler, 1997) and the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Bèglin, 1994; Hilbert & Tuschen-Caffier, 2006), we applied two widely used self-report measures to assess symptoms, feelings, behavior and cognitions related to eating disorders that were available in the German-language area. The EDI-2 and the EDE-Q were used for convergent validity purposes. We only used the first three subscales of the EDI-2 as these are specific to eating disorders. For the analysis of discriminant validity, we applied two measures for the assessment of general psychopathology. The Beck Depression Inventory (BDI; Beck, 1978; Hautzinger, Bailer, Worall, & Keller, 1994) was chosen as it is one of the most widely used

self-report measures to assess depression (Quilty & Bagby, 2008) and is parsimonious to use. Additionally, a short version of the Symptom-Checklist (SCL-9-K; Klaghofer & Brähler, 2001) was used as it provides a parsimonious assessment of general distress caused by psychopathology.

Method

Participants

Altogether, MBSRQ-AS data were available for $n = 523$ female participants who took part in different studies at the Ruhr-University Bochum (Germany) and the Johannes Gutenberg-University Mainz (Germany). Participants comprised $n = 230$ patients with eating disorders and $n = 293$ controls. Most of the controls were students, as participants were recruited via bulletins in the two universities. Participants with eating disorders were also recruited via local media and outpatient facilities of the universities. Of the participants with an eating disorder, $n = 60$ (26.1%) participants were diagnosed with anorexia nervosa, $n = 92$ (40%) participants were diagnosed with bulimia nervosa, and $n = 78$ (33.9%) participants were diagnosed with an eating disorder not otherwise specified. Of the participants with an eating disorder, $n = 129$ (56.1%) had at least one comorbid diagnosis that was not an eating disorder, and $n = 42$ (19.6%) had at least two comorbid diagnoses that were not eating disorders. All diagnoses were based on a German version of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; Wittchen, Zaudig, & Frydrich, 1997) and all interviews were administered by clinical psychologists who were trained in the use of the SCID-I and experienced in the diagnosis and treatment of eating disorders. Students who participated in the study received course credits. There were no other incentives for participation.

Measures

Multidimensional Body-Self Relations Questionnaire – Appearance Scales. The Appearance Scales of the Multidimensional Body-Self Relations Questionnaire (MBSRQ-AS; Cash, 2000) consist of 34 items which assess only appearance-related aspects of body image. The questionnaire contains the scales Appearance Evaluation (7 items), Appearance Orientation (12 items), Body Areas Satisfaction (9 items), Overweight Preoccupation (4 items) and Self-Classified Weight (2 items). Items are rated on a 5-point Likert scale. Most items measure agreement (1 = *definitely disagree* to 5 = *definitely agree)*, satisfaction (1 = *very dissatisfied* to 5 = *very satisfied*) or frequency (1 = *never* to 5 = *very often*). The Self-Classified Weight scale has five specific response options (1 = *very underweight* to 5 = *very overweight*). Adult norms for the questionnaire were derived from $n = 996$ males and $n = 1070$ females (Cash, 2000). In the female sample, Cronbach's alpha ranged from $\alpha = .73$ to $\alpha = .89$ for the different subscales (Cash, 2000). The one-month test–retest reliabilities of the MBSRQ-AS subscales ranged from $r_{tt} = .74$ to $r_{tt} = .91$ in the female sample (Cash, 2000). MBSRQ-AS scores were available for all participants who were included in our analysis.

Eating Disorder Examination Questionnaire. The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Bèglin, 1994; Hilbert & Tuschen-Caffier, 2006) is a self-report measure to assess eating disorder symptoms and relevant characteristics of eating disorders that have occurred during the last 28 days. The German version of the questionnaire (Hilbert & Tuschen-Caffier, 2006; Hilbert, Tuschen-Caffier, Karwautz, Niederhofer, & Munsch, 2007) contains 28 items and uses scales from 0 to 6 to quantify the frequency (e.g., 0 = *no days*, 3 = *13–15 days* and 6 = *every day*) or