



Psychometric properties of the Body Checking Questionnaire in college women



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ABSTRACT

While the Body Checking Questionnaire (BCQ; Reas et al., 2002) is the most commonly-used measure of body checking behaviors, findings on the factor structure in nonclinical samples are mixed. This study investigated the factor structure and psychometric properties of the BCQ among nonclinical college women. In Study 1 ($n = 326$), an exploratory factor analysis indicated factors corresponding to (a) behavioral and (b) visual checking. In Study 2 ($n = 1013$), a confirmatory factor analysis revealed adequate fit for these factors, better than the original or total score solutions. Scales based upon the two factors demonstrated good internal consistency, convergent validity with measures of eating pathology, and sensitivity for detecting at-risk eating pathology. Results suggest an alternate two-factor solution that differs from the original three-factor solution.

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Introduction

Repeatedly checking one's body shape or size is referred to as *body checking*. Common body checking behaviors include measuring or pinching certain body parts (e.g., waist, thigh), repeatedly monitoring one's shape in the mirror, trying on clothes to gauge fit, or feeling for protruding bones (Mountford, Haase, & Waller, 2006). While engaging in some body checking behaviors may be considered normative (e.g., weighing oneself regularly), body checking is not always benign: Researchers conceptualize frequent body checking as a behavioral enactment of the overevaluation of weight and shape that is a core diagnostic feature of eating disorders (Shafran, Fairburn, Robinson, & Lask, 2004). Although originally identified as a feature of restricting-type eating disorders like anorexia nervosa, body checking is found across the spectrum of clinical eating disorders (Reas, Grilo, Masheb, & Wilson, 2005; Shafran et al., 2004), as well as in individuals without diagnosable eating pathology (e.g., nonclinical college students or community samples; Grilo et al., 2005; Haase, Mountford, & Waller, 2011; Latner, 2008; Reas, White, & Grilo, 2006; Smeets et al., 2011; Vallance, Latner, & Gleaves, 2011).

Studying body checking behavior in college women is particularly important because although only a small percentage of college-age women have a diagnosable eating disorder (1–3%), a

much larger percentage of these women (10–30%) are at risk for developing an eating disorder over their college careers (Mintz, O'Halloran, Mulholland, & Schneider, 1997). Body checking behavior in nonclinical women is of interest to clinicians and researchers because the behavior is common and associated with eating pathology (Haase et al., 2011; Meyer, McPartlan, Rawlinson, Bunting, & Waller, 2011). For example, women who report body checking are more likely to score high on standardized measures of eating pathology (White & Warren, 2013); engage in disordered eating behaviors like binge eating, purging, excessive exercise, and restrictive eating (Haase et al., 2011); and experience significant weight- and shape-related disturbance (Haase et al., 2011; Reas, Whisenhunt, Netemeyer, & Williamson, 2002; Smeets et al., 2011). Women who engage in body checking also report more severe eating pathology than those with fewer or less severe body checking behaviors (Mountford et al., 2006; Shafran et al., 2004); endorse cognitions that indicate overevaluation of weight and shape (Reas et al., 2002; Shafran et al., 2004); and report beliefs about the utility of body checking behaviors (e.g., "body checking helps control my weight;" Meyer et al., 2011). Finally, body checking is associated with clinical impairment (Latner, Mond, Vallance, Gleaves, & Buckett, 2012; Vallance et al., 2011; White & Warren, 2013). Overall, these findings suggest that body checking in nonclinical samples is associated with negative psychological consequences.

Body Checking Questionnaire

Given the importance of examining body checking behavior, Reas et al. (2002) developed a brief self-report measure

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of body checking behaviors: the Body Checking Questionnaire (BCQ). Results of the original exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) suggested three components reflecting (a) general, unspecified body checking behaviors, such as comparing one's weight to another's – overall appearance checking (BCQ-OA), (b) checking of individual body parts, such as measuring one's leg diameter – specific body parts checking (BCQ-SP), and (c) unusual or atypical body checking behaviors, such as lying on the floor to see if one's bones touch it – idiosyncratic checking (BCQ-IC).

While researchers and clinicians frequently use the BCQ to assess body checking behaviors and numerous studies have been published using this measure, only two studies have examined the factor structure of the BCQ in nonclinical samples. The first of these studies (Reas, von Soest, & Lask, 2009) found support for the original, three-factor structure for the Norwegian translation of the BCQ among nonclinical women. However, a more recent factor analysis among college women (Lydecker, Cotter, & Mazzeo, 2014) suggested a different three-factor solution than in the original factor analysis. These discrepancies suggest the need for additional research to determine whether the original, three-factor structure is tenable in nonclinical samples.

In light of previous equivocal findings regarding its factor structure, the overarching purpose of the present studies was to examine the psychometric properties of the BCQ in an ethnically diverse group of nonclinical college women. Specifically, we examined the factor structure that underlies the items on the BCQ and the goodness-of-fit for this factor solution. Given that the BCQ is the most widely used and one of the only existing measures of body checking, it is important to investigate its utility. Thus, we also examined internal consistency reliability, convergent validity, and the sensitivity of the derived factors for detecting at-risk levels of eating pathology. For each of these analyses, we compared our results with the original three-factor solution and a one-factor (total score) solution to determine if one scoring system confers greater utility than the others.

Study 1

Participants

Three hundred twenty-six college women, age 18 and older, participated in this study.¹ Participants self-identified ethnically as European American ($n = 132$, 41%), Asian American ($n = 69$, 21%), Latina ($n = 66$, 20%), African American ($n = 28$, 9%), Native American ($n = 2$, 0.5%), or other/more than one ethnicity ($n = 27$, 8%), and two participants (0.5%) failed to report their ethnicity. Participants were recruited throughout the academic year via the Psychology Department subject pool and received research credit in exchange for their voluntary participation. The average age of participants was approximately 20 years old ($M = 20.61$, $SD = 4.80$, range 18–55) and most participants were normal weight, with an average BMI of approximately 23 ($M = 22.91$, $SD = 4.39$, range 14.50–41.01).

Measures

Participants self-reported their age, ethnicity, height, and weight on a demographic questionnaire. BMI was calculated from height and weight information.

In addition, participants completed the Body Checking Questionnaire (BCQ; Reas et al., 2002), a 23-item measure of body

checking behaviors. Participants report body checking frequency on a scale from *never* (1) to *very often* (5), with higher BCQ total scores (range 23–115) indicating more frequent body checking. The BCQ is comprised of a total score and three subscales as originally published: overall appearance checking (Items 3, 5, 8, 11, 12, 13, 15, 17, 21, 22), specific body parts checking (Items 1, 2, 6, 9, 10, 14, 16, 19), and idiosyncratic checking (Items 4, 7, 18, 20, 23). The BCQ has demonstrated good test-retest reliability over a two-week period ($r = .94$) and acceptable internal consistency ($\alpha = .95$ for total score; .87 for overall appearance; .91 for specific body parts; and .76 for idiosyncratic checking subscales; Reas et al., 2006). Comparable levels of internal consistency were obtained in the present study ($\alpha = .95$ for total score; .88 for overall appearance; .92 for specific body parts; and .84 for idiosyncratic checking).

Procedure

All data were collected online via a computerized data collection system. Participants were provided with a website link, which directed them to an online battery of questionnaires. These studies complied with the ethical treatment of human participants and were reviewed and approved by the university institutional review board.

We conducted an EFA using maximum likelihood extraction. We used two criteria to determine the number of factors: Parallel Analysis (Horn, 1965) and the MAP test (Velicer, 1976). We chose these two methods because of their consistency (e.g., they have no systematic bias to either over- or under-estimate the number of factors) and accuracy (they are usually accurate within one factor; Zwick & Velicer, 1986). We examined several different factor rotations and selected the one that came closest to the ideal of simple structure using the criteria of low number of complex items, high hyperplanar count, and low correlation between the factors (Thurstone, 1947). To determine if individual loadings were salient, we used a minimum factor loading of .45, which Comrey and Lee (1992) consider a “fair” indicator of whether the variable is a pure measure of the factor, as this value indicates 20% variance overlap between the variable and factor.

Results

Although the original (Reas et al., 2002) and more recent (Lydecker et al., 2014; Reas et al., 2009) factor analyses found evidence of a three-factor structure, we conceptualized that two dimensions underlie the BCQ: normative and severe body checking behaviors. We hypothesized that some specific checking behaviors (e.g., checking how one's ring fits) would indicate greater severity compared to more general, and perhaps normative, visual checking (e.g., looking at one's appearance in a reflective surface). Thus we hypothesized that two factors would emerge. Accordingly, results of Parallel Analysis (Horn, 1965) and the MAP test (Velicer, 1976) both indicated two factors. Therefore, we extracted two factors using maximum likelihood extraction. We selected a Promax Kappa 3 rotation as it came closest to the ideal of simple structure (Thurstone, 1947). The pattern matrix, communalities, and matrix of factor intercorrelations are given in Table 1.

The items with salient coefficients on the first factor dealt with behavioral types of body checking: Most of these were very tactile behaviors, such as checking that a ring fits. This factor was given the more general label of Behavioral Checking (BCQ-BC). The items with the largest pattern matrix coefficients on the second factor were related to visually checking one's body – for example, checking one's reflection in glass doors or car windows. This factor was therefore labeled Visual Checking (BCQ-VC). These two factors had a moderate correlation ($r = .54$) and internal consistency

¹ Data used for this study were gathered as part of a large, ongoing project. Although data from some of these participants have been presented elsewhere (Claudat, Warren, & Durette, 2012; White & Warren, 2013), the analyses presented here have not been published previously.

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