Examination of body checking, body image dissatisfaction, and negative affect using Ecological momentary assessment

Emily C. Stefano [a,*], Danae L. Hudson [b], Brooke L. Whisenhunt [b], Erin M. Buchanan [b], Janet D. Latner [a]

[a] University of Hawai'i at Mānoa, United States
[b] Missouri State University, United States

ABSTRACT

Research has shown that non-clinical women, particularly those with high body concern, engage in frequent body checking behaviors. The purpose of this study was to use ecological momentary assessment (EMA) to examine the frequency and correlates of body checking behavior, including its association with body image dissatisfaction and negative affect, in non-clinical women with high body concern. Undergraduate female participants with high body concern ($n = 22$) were assessed five times per day for five days via text messages sent to their smart phones. During each assessment, participants reported the number of times they engaged in eight different body checking behaviors and their current level of negative affect and body dissatisfaction. After aggregation, a total of 3064 body checking behaviors were reported by the sample during the five-day period. All participants reported engaging in body checking at least once per day, with a mean of 27.85 checking behaviors per day. Hierarchical Linear Modeling revealed that body checking significantly predicted both body dissatisfaction and negative affect. These results provide preliminary support for the cognitive behavioral theory of eating disorders, suggesting that as women engage in more frequent body checking behaviors, they also experience higher levels of body dissatisfaction and negative affect.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Body checking has been defined as any behavior intended to gain information about one's size, weight, shape, or appearance (Walker & Murray, 2012), such as weighing oneself, comparing one's body to others, or examining oneself in a reflective surface (Reas, Whisenhunt, Netemeyer, & Williamson, 2002). Body checking is generally quite brief (i.e., lasting less than 2 min) and occurs numerous times throughout the day (Walker & Murray, 2012).

Repeated checking of disliked body parts may cause excessive vigilance and result in the belief that certain parts of the body are too large. This may precipitate increased checking, negative affect, and body dissatisfaction, forming a harmful cycle that may result in disordered eating behaviors (Fairburn, Shafran, & Cooper, 1999). While body checking research has primarily been conducted with samples of women with anorexia nervosa, research has shown that the behavior occurs among non-clinical women, particularly those with high levels of shape and weight concerns (Farrell, Shafran, & Fairburn, 2004; Leahey, Crowther, & Ciesla, 2011).

Findings from several studies using non-clinical populations have underscored the fluctuating, yet potentially significant, effects of body

checking on body dissatisfaction and self-critical thoughts (Shafran, Lee, Payne, & Fairburn, 2007; Walker, Murray, Lavender, & Anderson, 2012). Due to its changeable nature and short-lived effects, it may be beneficial to examine body checking among women with high body concern using a repeated measures design in a naturalistic setting, such as ecological momentary assessment (EMA). EMA is a sampling method in which participants are repeatedly assessed in their natural environments over a period of time, often via cell phone or handheld device.

Few studies have conducted experimental manipulations or observations of body checking in a naturalistic setting, and the majority that have focused on clinical populations and one or two types of checking behaviors (Engel et al., 2013; Haedt-Matt & Keel, 2011; Lavender et al., 2013). Even fewer naturalistic studies have examined body checking in non-clinical women. Naturalistic studies are needed to provide insight into a range of body checking behaviors and the relationship between body checking, negative affect, and body dissatisfaction among non-clinical women with high body concern.

The purpose of the present study was to examine the frequency and correlates of repeated body checking behavior over time using EMA. First, this study aimed to obtain an ecologically valid assessment of the most reported body checking behaviors among non-clinical women with high body concern in a naturalistic setting. Second, this study examined the associations between multiple common body checking behaviors, body dissatisfaction, and negative affect. It was

hypothesized that higher frequencies of body checking behavior would predict higher levels of body image dissatisfaction and negative affect.

2. Method

2.1. Participants

A total of 204 undergraduate women from introductory psychology courses at a Midwestern university were screened online for high body concern. Women with high body concern and access to a smartphone were invited to participate in the EMA portion of the study ($n = 68$). A total of 23 participants consented to participate, with 22 completing the entire study. The participants had a mean age of 19.09 years ($SD = 2.59$), and 78% ($n = 18$) identified themselves as White, 8% ($n = 2$) as Asian, 4% ($n = 1$) as Black, and 4% ($n = 1$) as Hispanic. Participants received course credit for participation. Additionally, as an incentive for compliance, participants who completed at least 80% of the EMA questionnaires (86% of participants) received a $10 gift card.

2.2. Baseline measures

2.2.1. Demographic questionnaire

The demographic questionnaire assessed self-reported age, year in school, race/ethnicity, height, and weight.

2.2.2. Trait body dissatisfaction

The BSQ (Cooper, Taylor, Cooper, & Fairburn, 1987) is a 34-item self-report measure of trait body dissatisfaction. The BSQ was administered to screen for participants with high body concern. The cutoff score for "high body concern" used for initial screening of participants was 109, which was derived from the original development and validation study in which the "high body concern" group obtained a mean score of 109 on the BSQ (Cooper et al., 1987). In the current sample, Cronbach's alpha was .97.

2.3. EMA measures

2.3.1. Body checking behaviors

Participants were asked to report the number of times they engaged in specific body checking behaviors since they were last contacted. Eight frequently reported body checking behaviors were chosen: (1) weighing oneself; (2) feeling thighs for fatness; (3) sucking in stomach; (4) feeling/pinching stomach to measure fatness; (5) comparing one's body to others (6) checking body size in a reflective surface; (7) checking for fat jiggling; and (8) checking to see if thighs spread while sitting down.

2.3.2. State body dissatisfaction

Participants were asked to indicate how they feel "right now, at this very moment" about various aspects of their body image using the Body Image States Scale (BISS; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). Lower scores on the BISS indicate higher body dissatisfaction. In the current sample, Cronbach's alpha was $\alpha = .84$.

2.3.3. Negative affect

The Positive and Negative Affect Schedule — Expanded Form (PANAS-X; Watson & Clark, 1994) is a 60-item self-report inventory intended to measure various emotions with higher scores indicated greater negative affect. For the present study, only the General Negative Affect subscale was used. In the current sample, Cronbach's alpha was $\alpha = 0.89$.

2.4. Procedure

This study was approved by the Institutional Review Board of a large Midwestern university. Participants completed the demographic questionnaire and BSQ via the external survey website, Qualtrics during the prescreening prior to the EMA portion of the study.

The EMA portion of the study consisted of one practice day and five experimental days in which participants were contacted five times per day via text messages sent to their cell phones. The messages were sent at randomly selected times throughout the day between the hours of 9:00 AM and 10:00 PM, but were constrained to be at least 120 min apart. Each text message contained a hyperlink to an online questionnaire via Qualtrics. If the participant did not submit the questionnaire within 30 min of receiving the text, a reminder text message was sent. During the practice day, participants were sent a questionnaire similar in length and question-type to the experimental questionnaire but with content unrelated to the present study. For the experimental days, participants were sent the questionnaire that included body checking frequency questions, the BISS, and the General Negative Affect subscale of the PANAS-X. The chosen time period of the five experimental days was modeled after similar EMA studies involving body checking and eating disorder assessment (Heron & Smyth, 2012; Ridolfi, Myers, Crowther, & Ciesla, 2011).

3. Results

3.1. Descriptive and compliance statistics

The 22 participants in the EMA portion of the study obtained a mean score of 138.00 ($SD = 17.30$) on the BSQ and a mean BMI of 26.70 ($SD = 5.50$). Across all participants, a total of 550 survey text messages were sent. The overall compliance rate during the 5-day EMA protocol was 89%.

Results indicated that 100% of participants reported engaging in at least one instance of body checking during the five-day period of assessment. After aggregation, a total of 3064 checking behaviors were reported by the sample. The total number of checking behaviors reported over the course of the study per participant ranged from 26 to 457, with a mean of 139.27 ($SD = 101.00$) over the 5-day period (27.85 per day). See Table 1 for an aggregate breakdown of each checking behavior type.

3.2. Multilevel Analyses

Hierarchical Linear Modeling (HLM; Bryk & Raudenbush, 1992) was the primary method of analysis used to investigate the relationship between body checking, body dissatisfaction, and negative affect. Level 2 consisted of 22 individuals, and Level 1 consisted of a total of 482 time points. The data yielded an Intraclass Correlation Coefficient (ICC) of 0.45, which indicated that 45% of the total variability is related to between group variability. Bryk and Raudenbush (1992) suggest that HLM is appropriate when the ICC is greater than 0.10.

Table 1
Aggregate breakdown of reported body checking frequencies over 5-day study period.

Behavior type	Reported frequency	Number of participants[a]	Percentage of participants endorsed
Weighed self	40	$n = 7$	32%
Felt thighs for fatness	150	$n = 16$	73%
Sucked in stomach	692	$n = 20$	91%
Felt/pinched stomach	325	$n = 20$	91%
Compared body to others	700	$n = 22$	100%
Checked body in reflective surface	782	$n = 22$	100%
Checked for fat jiggling	173	$n = 14$	64%
Checked if thighs spread	202	$n = 21$	95%

[a] Number of participants endorsing a specific body checking behavior at least one time.