



## The development and validation of the food craving acceptance and action questionnaire (FAAQ)<sup>☆</sup>

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### ARTICLE INFO

#### Article history:

Received 30 September 2010  
Received in revised form 9 March 2011  
Accepted 14 April 2011  
Available online 21 April 2011

#### Keywords:

Obesity  
Acceptance  
Psychological flexibility  
Eating behaviors

### ABSTRACT

Research has suggested that mindfulness and acceptance may be important factors in the development, maintenance and treatment of both obesity and eating disorders. However, very few scales exist that apply constructs of acceptance and mindfulness to eating behavior. A measure of acceptance about food related thoughts would be especially beneficial in investigating links between acceptance and problematic eating, and in better understanding mechanisms of action of effective treatments for obesity and eating disorders. The Food Acceptance and Awareness Questionnaire (FAAQ) was developed to measure acceptance of urges and cravings to eat or the extent to which individuals might try to control or change these thoughts. The FAAQ is a self-report questionnaire made up of ten items each rated on a seven-point Likert scale (1 = *very seldom true* to 6 = *always true*). Higher scores indicate greater acceptance of motivations to eat. The FAAQ was given to a sample of 463 undergraduate students along with several other measures of eating behavior and other psychological variables. Concurrent associations with variables theorized to be closely linked (Eating Attitudes Test, EAT; the Dutch Eating Behavior Questionnaire, DEBQ; body mass index, BMI) and not very closely linked (the Depression Anxiety Stress Scale, DASS) were evaluated in order to indicate the new scale's convergent and divergent validity. These results demonstrated highly significant correlations with these measures in the expected direction, with stronger correlations for the theoretically-consistent variables than the theoretically-inconsistent variables. Exploratory factor analyses confirmed a structural two-factor model. Factor 1 seems to measure one's ability to regulate eating despite urges and cravings, and Factor 2 seems to measure desire to maintain internal control over eating thoughts. The FAAQ was also administered to a separate sample of 29 overweight or obese women enrolled in a weight loss program, and found to be predictive of weight loss. Taken together, results suggest that the FAAQ is a psychometrically sound instrument which might be a valuable tool for assessing acceptance of food related thoughts and urges.

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### 1. Introduction

The World Health Organization, 2006 reports that the number of obese individuals (BMI > 30 kg/m<sup>2</sup>) is fast approaching two billion worldwide (2006). Obesity is associated with numerous health risks ranging from osteoarthritis to heart disease, diabetes, cancer and death (Center for Disease Control & Prevention, 2009). Unfortunately, despite our best efforts to promote weight loss, current gold standard treatments produce only moderate weight loss and the weight is typically regained (Brownell, 2010). In response to this ever-growing epidemic, numerous attempts at increasing healthy eating behaviors among the overweight and obese have increased. One potential way of increasing healthy eating behaviors amongst this population is to

determine whether certain psychological variables are associated with successful weight loss and maintenance. Weight loss interventions designed to increase these psychological factors could potentially help others with their weight loss goals.

Recent research suggests that psychological flexibility, which is a concept targeted in many of the newer third generation cognitive behavioral therapies, plays an important role in eating behaviors (Byrne, Cooper, & Fairburn, 2003; Fassino et al., 2002; Rydén et al., 2003). Psychological flexibility refers to an ability to choose from a range of behavioral options based on one's personal values as opposed to being constrained by an unwillingness to experience unpleasant or distressing thoughts and feelings (Hayes, Strosahl, & Wilson, 1999). As such it depends on the related constructs of psychological acceptance (i.e., a psychological stance of openness towards the full range of experience, including difficult thoughts, emotions and physiological experiences without attempting to control, alter, suppress or avoid the experiences) and willingness (i.e., the ability to choose value or goal-consistent behaviors even when they provoke distressing thoughts and feelings). Willingness, a term used by third generation behavioral therapies such

<sup>☆</sup> The authors wish to thank Stephanie Goldstein and Janice Chubski for their help in collecting the data for this manuscript.

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as Acceptance and Commitment Therapy, refers to the ability to perform a behavior even when doing so brings with it aversive internal experience (Hayes & Strosahl, 2004).

Research has demonstrated that the extent to which an individual is able to accept unpleasant thoughts and feelings without trying to diminish the internal experience either mentally (e.g., suppression and distraction) or behaviorally (e.g., by performing an action likely to produce change in the experience, such as eating a desired food) is predictive of health and psychological outcomes. Psychological acceptance (sometimes referred to as its converse, experiential avoidance) predicts treatment-related improvements in health behaviors including binge eating (Kristeller, Baer, & Quillian-Wolever, 2006), alcohol abuse (Brown, Evans, Miller, Burgess, & Mueller, 1997; Patten, Drews, Myers, Martin, & Wolter, 2002), smoking (Gifford et al., 2004) and a range of other maladaptive health behaviors (Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

Although some previous research has investigated the relationships between eating behaviors and psychological flexibility, the literature is limited. Prior work has demonstrated that individuals who are successful at maintaining weight loss have more flexible strategies in terms of how they cope with food cravings; in contrast, individuals who are unable to maintain weight loss have a reduced ability to cope with stress or negative emotions, and over-rely on avoidance or control behaviors, such as eating in response to distressing affect (i.e., “emotional eating”; Byrne et al., 2003; Fassino et al., 2002; Rydén et al., 2003). There are theoretical reasons and empirical evidence that suggest that the inability to accept food cravings/urges and subsequent efforts to control or reduce these cravings is tied to overeating and weight gain. Emotional eating, which can be conceptualized as a learned response aimed at controlling undesirable internal states, has been linked to an inability to lose weight in a sample of 187 overweight adults who participated in a group weight loss treatment (Blair, Lewis, & Booth, 1990). Binge eating, and overeating more broadly, is often motivated by a desire to escape from an aversive emotional state or to decrease distressing thoughts (Heatherton & Baumeister, 1991). Experiential avoidance, or a desire to reduce or control distressing feelings and cognitions, more generally has been associated with increased difficulty in maintaining lost weight (Lillis, Hayes, Bunting, & Masuda, 2009). Therefore, strategies designed to increase acceptance of distressing thought and cognitions, and reduce problematic control or avoidance strategies, could theoretically decrease episodes of overeating.

Current research has shown the promise of acceptance-based interventions at increasing physical activity (Butryn, Forman, Hoffman, Shaw, & Juarascio, 2011), managing food cravings (Forman et al., 2007), and maintaining weight loss (Forman, Butryn, Hoffman, & Herbert, 2009). Other work has shown that one of the strongest predictors of reducing binge eating in obese adults was the amount of time spent engaging in eating-related mindfulness (Kristeller et al., 2006). However, despite the reported effectiveness of acceptance-based interventions at improving eating-related and weight loss behaviors, no reliable method exists for reliably measuring levels of acceptance regarding thoughts and feelings that arise in a food rich environment. Previous research has demonstrated that measures of acceptance that are better targeted to the specific concepts of interest are more sensitive than more generalized measures such as the Acceptance and Action Questionnaire (AAQ; Gifford, Antonuccio, Kohlenberg, Hayes, & Piasecki, 2002; Piasecki, Lillis & Hayes, 2008; Sandoz, Wilson, & Merwin, in progress; Shawyer et al., 2007; Westin, Hayes, & Andersson, 2008). While general acceptance measures do exist, a food-specific measure may be more sensitive, as previous research has indicated that specific measures designed for other health-related behaviors (e.g., smoking and pain) are highly predictive of success in interventions for those behaviors. A measure of psychological flexibility that assessed acceptance and willingness to experience food-related thoughts would be especially beneficial in investigating links between acceptance and

problematic eating, and in better understanding mechanisms of action of effective treatments for obesity. To address this need the Food Craving Acceptance and Action Questionnaire (FAAQ) was developed. The FAAQ was developed to measure psychological flexibility in a food-rich environment by assessing psychological acceptance of, versus a need to control, aspects of food-related experience (i.e., cravings and urges to eat). The scale was designed to measure both acceptance of distressing internal experiences and willingness to take action and eat in a healthy manner even when doing so brings with it aversive internal experience. This paper will review three preliminary studies which investigate the reliability and validity of the FAAQ.

## 2. Method and results

### 2.1. Scale creation

The FAAQ is based on Chronic Pain Acceptance Questionnaire (CPAQ; McCracken, Vowles, & Eccleston, 2004), which is itself based on the Acceptance and Action Questionnaire-2 (AAQ-II; Bond et al., submitted for publication). The CPAQ is a 20-item measure assessing acceptance of chronic pain (McCracken et al., 2004) that has been well-validated (Vowles, McCracken, Mcleod, & Eccleston, 2008). Therefore, it appeared to be suitable for adaptation for use with eating urges and eating behaviors. The items to be modified were chosen by two of the authors (EMF, MLB) who had prior experience with both third generation cognitive behavioral treatments and weight loss treatment. The modified version, referred to as the Food-related Acceptance and Action Questionnaire (F-AAQ) contains 10-items (e.g., “I need to concentrate on getting rid of my urges to eat unhealthily,” reversed scored) which are rated on a 6-point Likert scale (1 = very seldom true to 6 = always true). A summary score is calculated by summing the ten items. Higher scores indicate greater acceptance of motivations to eat.

### 2.2. Study 1

Study 1 was designed to examine convergent and divergent validity. This was accomplished by administering the FAAQ and several questionnaires that assessed variables that are theoretically similar (general psychological acceptance, food susceptibility, disordered eating, and body image dissatisfaction) and dissimilar (depression, self-esteem, and alexithymia) to the FAAQ.

#### 2.2.1. Participants

Study 1 utilized a community ( $n=240$ ) and undergraduate student ( $n=705$ ) sample of 955 participants. Community participants were recruited via a number of on-line web sites devoted to psychological research; as such, participants were anonymous and did not receive compensation. The average BMI of community participants was 24.28 ( $SD=6.03$ ) and the average age was 26.88 ( $SD=10.39$ ). The mean age of the student sample was 19.38 ( $SD=4.32$ ), with a mean BMI in the normal weight range ( $M=25.09$ ,  $SD=2.99$ ). The total sample was 56.40% female and primarily Caucasian (78.80%, African American: 8.60%, Hispanic: 3.00%, Asian: 6.50%, Other: 3.1%).

#### 2.2.2. Measures

2.2.2.1. *Acceptance and action questionnaire-II (AAQ-II, Bond et al., submitted for publication)*. The AAQ-II is a 10-item measure designed to assess psychological flexibility and acceptance of internal experiences. Higher scores for the total scale indicate a greater degree of psychological flexibility. Cronbach's alpha in this sample was 0.84.

2.2.2.2. *Body shape questionnaire (Cooper, Taylor, Cooper, & Fairburn, 1987)*. The BSQ is a 34-item questionnaire that measures the extent to

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