

Research Report

Emotional responses to food, body dissatisfaction and other eating disorder features in children, adolescents and young adults

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Abstract

We aimed to assess and compare emotional responses to different foods in relationship to eating disorder and associated features, across gender and age groups. We hypothesized that negative emotional responses to images of foods would be higher in (i) those with higher body dissatisfaction and (ii) older females.

Five hundred and thirty-six (18% Grade 5, 39% Grade 8 or 9, and 43% Grade 11 or 12) school, and 93 university students participated. Emotive responses to images of foods were assessed with a PowerPoint presentation of 16 differing food and four 'neutral' images shown over 30 s intervals. Responses were rated on three 10-cm visual analog scales measuring levels of happiness, fear and disgust. Body image concern was assessed with the nine-item body dissatisfaction subscale of the EDI and eating disorder symptoms with the Eating Disorder Examination Questionnaire.

With increasing age all three emotional responses towards food fell and body dissatisfaction increased. Compared to females, males showed significantly higher levels of a 'happy' response to food, and in adult females a fear emotive response correlated positively with eating concern and body dissatisfaction.

In men, positive emotive responses to food may be indicative of broader factors that reduce their vulnerability to eating disorders.

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Introduction

Central to an eating disorder are sufferer's thoughts, behaviors and feelings around food, and the impact of the former on weight and body image. Cognitive and behavioral aspects of eating disorders have been widely recognized as important to the identification, theoretical understanding and development of treatments. For example, key diagnostic criteria for bulimia nervosa (American Psychiatric Association, 1994) comprise cognitive and behavioral features and a specific cognitive behavioral therapy is recognized as having the 'best evidence' of any

treatment for bulimia nervosa (National Institute for Clinical Excellence, 2004). The contribution of emotional features of eating disorders has had relatively less attention although the DSM-IV criteria for anorexia nervosa include an 'intense fear of gaining weight' as a key feature, and there is a wealth of literature addressing specific emotional states for people with eating disorders. For example, many studies have reported higher rates of alexithymia, particularly in anorexia nervosa (Troop, Schmidt, & Treasure, 1995; Zonnevillje-Bender, van Goozen, Cohen-Kettenis, van Elburg, & van Engeland, 2004) but also in obese women with binge eating disorders (Pinaquy, Chabrol, Simon, Louvet, & Barbe, 2003). (Alexithymia as applied by Troop et al. (1995) and others is a psychological construct, denoting an inability to identify and express emotions, an inability to distinguish between emotional states and physical sensations, to be concrete and utilitarian in speech

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and thought, and to have a paucity of fantasy; Sifneos, 1973.) Negative emotions such as shame, guilt and disgust around binge eating and purging behaviors (e.g. Davey, Buckland, Tantow, & Dallos, 1998; Pinaquy et al., 2003) and their reinforcement of the diet–binge–purge cycle (Fairburn, 1981) have also been extensively investigated. In addition, high rates of co-morbidity with mood and anxiety disorders are reported (Blinder, Cumella, & Sanathara, 2006; Kaye, Bulik, Thornton, Barbarich, & Masters, 2004).

In contrast, there are fewer studies of direct emotional responses to foods in people with eating disorders. Davey et al. (1998) found that disgust sensitivity was related to eating disorder symptoms in 170 female students, particularly with regard to foodstuffs of animal origin. Ellison et al. (1998) have assessed the emotive responses of six anorexia nervosa patients to imagining the drinking of high calorie drinks, and found patients were significantly more anxious when doing this than controls. Neither of these studies assessed emotive responses to images of food or actual foods. Troop, Murphy, Bramon, and Treasure (2000) and Harvey, Troop, Treasure, and Murphy (2002) have investigated disgust sensitivity to foods in people with eating disorders. In their initial study, they found a positive and significant correlation between self-reported ‘drive for thinness’ and disgust sensitivity to foods on the Disgust Sensitivity Questionnaire, and a trend to higher levels of disgust sensitivity to foods in 74 eating disorder patients compared to 15 female control participants. Their later study (Harvey et al., 2002) investigated disgust using a range of 18 visual images (three of high-calorie ‘foods’: sausages and chips, alcohol and milky drinks) in 40 non-clinical females. The study found those with higher self-reported eating disorder symptoms had higher rates of both fear and disgust to the high calorie foods than those with low levels of eating disorder symptoms. Stormark and Torkildsen (2004) have also found that women with eating disorders had a delayed response to identifying the colors that a range of words (including food words) were typed in, and background colors of (i) anticipated unemotive neutral images (including pictures of a hammer, a vacuum cleaner, a house and a sofa) and (ii) anticipated emotive images (including pictures of people having a meal, cheese, a cream puff and a dinner plate).

In sum, negative emotions, such as disgust and fear, have been found to mediate responses to food in people with eating disorders, and both anxiety about food and eating and fear of weight gain are important clinical features of eating disorders. Thus, we chose to examine the specific emotions of fear (evoking a sense of tension or nervousness) and disgust (evoking a sense of aversion and dislike) as these are basic emotions (Plutchik, 1990; Power & Dalglish, 1997) that are of most direct clinical relevance, and previous study in the area of eating disorders and sufferers responses to food. In addition, we chose to study happiness as it is also a basic but positive emotion. We were interested to include a positive emotion as a contrast

to the negative emotive responses, and in the clinical setting a goal of therapy, namely to promote eating food as a normal and pleasurable activity, and not merely to remove negative affect around foods.

Effects of gender or age on emotive responsiveness in eating disorders have also been little studied. Zonnevijlle-Bender, van Goozen, Cohen-Kettenis, van Elburg, and de Wildt et al. (2004) found no differences in levels of alexithymia, depression or anxiety between 48 adolescents (mean age 15.1 years) and 23 adults (mean age 21.3 years) with anorexia nervosa. We therefore aimed to examine the emotional responses to images of food in relationship to body image concerns across age and gender groups in children, adolescents and young adults. We chose this age range as eating disorder problems are known to emerge most commonly in adolescence and young adulthood (e.g. Hay, 2003). In addition, as disordered eating occurs more frequently in women (Carlat & Camargo, 1991; Garfinkel et al., 1995; Woodside et al., 2001) and the overweight (Darby, Hay, Mond, Rodgers, & Owen, 2007; Haines & Neumark-Sztainer, 2006), we evaluated emotive responses by gender and body mass index (BMI) as well as age group. We hypothesized that negative emotive responses to foods would be greater in those with more body image concerns and eating disorder symptoms, that these associations would also be more likely present in older participants, that levels of negative emotions in response to images of foods would be higher in females than males and that the reverse would hold for a positive emotion. We anticipated that type of school may potentially bias the results (Dyer & Tiggemann, 1996; Tiggemann, 2001) and thus we studied students from a range of school types and conducted secondary analyses on single gender compared to coeducational schools and high or moderate fee versus low fee schools, controlling for gender and age of students.

Methods

Overview

Students from years 5, 8 and 11 from a range of schools in South Australia were approached by their teachers with a letter to take home to their parents explaining the study and asking them to sign a consent form to return to the school and then to the investigators. Nine schools participated, representing a range of gender mix, high and low fee schools. (In Australia low fee schools have 50–100% government support, higher fee schools have <50% government support; Department of Education Science and Training, 2004.) Two first year, first semester, undergraduate nursing and psychology university classes also participated. They attended a regional university with a high (23.4%) and higher than national average (14.5%) percent of students of lower socio-economic origin (James Cook University, 2003).

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