Research report

Emotional eating, depressive symptoms and self-reported food consumption. A population-based study[☆]

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ARTICLE INFO

ABSTRACT

We examined the associations of emotional eating and depressive symptoms with the consumption of sweet and non-sweet energy-dense foods and vegetables/fruit, also focusing on the possible interplay between emotional eating and depressive symptoms. The participants were 25–64-year-old Finnish men ($n = 1679$) and women ($n = 2035$) from the FINRISK 2007 Study (DILGOM substudy). The Three-Factor Eating Questionnaire-R18, Center for Epidemiological Studies Depression Scale, and a 132-item Food Frequency Questionnaire were used. Emotional eating and depressive symptoms correlated positively ($r = 0.31$ among men and women), and both were related to a higher body mass. Emotional eating was related to a higher consumption of sweet foods in both genders and non-sweet foods in men independently of depressive symptoms and restrained eating. The positive associations of depressive symptoms with sweet foods became non-significant after adjustment for emotional eating, but this was not the case for non-sweet foods. Depressive symptoms, but not emotional eating, were related to a lower consumption of vegetables/fruit. These findings suggest that emotional eating and depressive symptoms both affect unhealthy food choices. Emotional eating could be one factor explaining the association between depressive symptoms and consumption of sweet foods, while other factors may be more important with respect to non-sweet foods and vegetables/fruit.

Introduction

Psychological eating style is one factor that has been suggested to account for individual differences in the susceptibility to gaining weight in the current obesogenic environment of modern societies. Restrained eating, referring to the tendency to consciously restrict food intake in order to control body weight, has been investigated extensively, whereas specific overeating tendencies such as emotional eating have received less attention. The concept of emotional eating implies the tendency to eat in response to negative emotions and derives originally from psychosomatic theory (Bruch, 1973; Kaplan & Kaplan, 1957). Emotional over-eating is considered to be an inappropriate response to distress (Heatherton, Herman, & Polivy, 1991). According to psychosomatic theory, it is a consequence of the inability to distinguish hunger from other aversive internal states, or of using food to reduce emotional distress, probably because of early learning experiences. It has been suggested that emotional eating increases the consumption of sweet and high-fat foods in particular (Macht, 2008).

Some experimental studies have shown that emotional eaters consume more energy-dense foods in response to negative emotions than non-emotional eaters (Oliver, Wardle, & Gibson, 2000). However, only a few studies have examined the associations between emotional eating and habitual food consumption and the results have been contradictory. Emotional eating was unrelated to total energy and macronutrient intake in the studies of Lluch, Herbeth, Mejean, and Siest (2000) and Anschutz, Van Strien, Van De Ven, and Engels (2009) whereas de Lauzon et al. (2004) and Elfhag, Tholin, and Rasmussen (2008) found that emotional eaters had a higher consumption of energy-dense sweet snacks. Two factors distinguishing these studies could partly explain the contradictory findings: the measurement level of food consumption and the measure used to assess emotional eating. The studies (Anschutz et al., 2009; Lluch et al., 2000) finding no association assessed energy and macronutrient intake while specific food groups (i.e., energy-dense snacks) were examined in the studies with positive findings (de Lauzon et al., 2004; Elfhag et al., 2008).

With respect to the measure of emotional eating used, three out of four studies (including the two studies with negative findings) used the Dutch Eating Behaviour Questionnaire (Van Strien, Frijters, Bergers, & Defares, 1986), which asks for desire to eat in response to negative emotions while de Lauzon et al. (2004) used the Three-Factor Eating Questionnaire R-18 (TFEQ-R18) (Karlsson, Persson, Sjöström, & Sullivan, 2000) assessing perception of eating more in response to negative emotions.

The concept of emotional eating specifically suggests that emotional distress triggers emotional eating, but none of the above-mentioned studies included any measure of negative emotions or distress. Indeed, a recent study (Ouwens, van Strien, & Leeuwe, 2009) investigated the associations between emotional eating and depressive symptoms and found them to be positively related. One possible symptom of major depression is appetite change, which may take the form of increased or decreased appetite, but less severe depressive symptoms have received little research attention in relation to habitual food consumption. The few studies that have been conducted have generally found depressive symptoms to be related to a less healthy diet: two community surveys found that higher levels of affective/depressive symptoms were associated with lower likelihood to follow dietary recommendations (Sarlio-Lähteenkorva, Lahelma, & Roos, 2004) and a lower fish consumption (Tanskanen et al., 2001). In addition, among women higher psychological distress has been related to consuming fewer vegetables and less fruit (Cohen, Kristal, Neumark-Sztainer, Rock, & Neuhouser, 2002), and higher depressive symptoms to consuming more energy-dense sweet foods and less energy-dense non-sweet and low-energy foods (Jeffery et al., 2009). Nevertheless, no previous studies have examined the possible factors that could explain the relationships of depressive symptoms with unhealthy food choices, and emotional eating could be one such factor.

Finally, psychosomatic theory (Bruch, 1973; Kaplan & Kaplan, 1957) also proposes that obese individuals are more likely to overeat when they experience negative emotions because this kind of eating pattern is seen to have a relevant role in the etiology of obesity. Obese individuals have indeed been observed to score more highly on the measures of emotional eating than normal weight individuals (de Lauzon-Guillain et al., 2006; Konttinen, Haukkala, Sarlio-Lähteenkorva, Silventoinen, & Jousilahti, 2009; Van Strien, Herman, & Verheijden, 2009). We continue these analyses further in the present study by examining whether associations of emotional eating with food consumption differ according to body mass level.

The aim of the present study was thus to examine the associations between emotional eating, depressive symptoms and the self-reported consumption of sweet energy-dense foods, non-sweet energy-dense foods and vegetables/fruit. We chose to examine energy-dense foods as there is suggestive evidence from the previous studies that emotional eating is specifically related to the higher consumption of these foods, while vegetables and fruit were included to investigate a healthier aspect of the diet. Emotional eating was assessed as a perception of eating more in response to negative emotions (using the TFEQ-R18). A measure of restrained eating was also included in order to control for its effects, because psychological eating styles are usually interrelated (see e.g., Bryant, King, & Blundell, 2008). Moreover, we were interested in the possible interplay between emotional eating and depressive symptoms: first, does emotional eating account for the associations between depressive symptoms and energy-dense foods? Secondly, do those with high scores on both emotional eating and depressive symptom scales have the highest consumption of these foods? Finally, we analysed whether the relationships between emotional eating

and food consumption were similar at all levels of BMI and waist circumference.

Methods

Participants

The participants took part in two phases of the National Cardiovascular Risk Factor Survey (The FINRISK Study) conducted in 2007 (Peltonen et al., 2008). The ethical committee of the National Institute for Health and Welfare and the hospital districts gave their approval of the study protocols, and all the participants gave their informed consent. A random sample of 10,000 people aged 25–74 years was drawn from the Finnish population register in five geographic areas. The sample was stratified by sex, 10-year age group and area. The participants received, by mail, an invitation to participate to a medical examination and a self-administered health questionnaire including questions about sociodemographic factors, health behaviour, and medical and disease history. They filled in the health questionnaire at home and returned it when they came to the health centre for the medical examination. This first study phase took place from January to March and involved a total of 6258 subjects (a response rate of 63%).

All those who participated in the first study phase ($n = 6258$) were invited to continue in the second phase conducted in April–June 2007, the aim of which was to investigate the Dietary, Lifestyle and Genetic Determinants of Obesity and Metabolic Syndrome (DILGOM substudy). The response rate for this phase was 84% (2325 men and 2699 women). The subjects completed questionnaires concerning psychosocial (e.g., eating styles and depressive symptoms) and lifestyle (e.g., physical activity) factors and a 132-item Food Frequency Questionnaire (FFQ) in the course of a health examination at a health centre. During the health examination specially trained research nurses measured the weight, height and waist circumference of the subjects. All of the variables used in this study, except years of education, were from the second study phase. The present analyses were restricted to 25–64-year-old (1679 men and 2035 women) subjects, as retirement and diseases related to older age can affect the associations of interest in this study.

Measures

The emotional eating and cognitive restraint scales of the shortened and revised 18-item Three Factor Eating Questionnaire (TFEQ-R18) (Karlsson et al., 2000) were used to assess *emotional and restrained eating*. The TFEQ-R18 was developed on the basis of factor analyses of the original 51-item TFEQ (Stunkard & Messick, 1985) in a large sample of obese subjects (Karlsson et al., 2000), and has also been found to be applicable to the general population (de Lauzon et al., 2004). The emotional eating scale consists of three items, e.g., "When I feel blue I often overeat", and the cognitive restraint scale includes six items, e.g., "I consciously hold back at meals in order not to gain weight". Most of the items are rated on a four-point scale (from, 1, does not describe me at all, to, 4, describes me exactly). The mean score for both scales was calculated if the respondent had answered at least half of the items, and these raw scores were transformed to a 0–100 scale (Karlsson et al., 2000). The Cronbach's alphas for the emotional eating and cognitive restraint scales were 0.88 and 0.72, respectively, indicating reasonable internal consistency. The cut-off points for the emotional eating quartiles were 0.0–0.0 for the first, 11.1–22.2 for the second, 33.3–33.3 for the third, and 44.4–100.0 for the fourth quartile in men, and 0.0–22.2 for the first, 33.3–33.3 for the second, 44.4–55.6 for the third, and 66.7–100.0 for the fourth quartile in women.