

BMI as a moderator of perceived stress and emotional eating in adolescents

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Abstract

Emotional eating has often been linked to overweight and/or obesity. Multiple group SEM analyses were conducted using cross-sectional data from 517 minority students in Los Angeles County. Results showed no differences in emotional eating between normal weight and overweight students. Perceived stress was indeed a significant correlate of emotional eating, independent of BMI status, as indicated by the lack of a modifying effect of BMI status. Findings highlight the fact that emotional eating is not an issue only for overweight and obese persons. This study shows that some children in this population at increased risk for obesity and related chronic disease have already incorporated emotional eating as a learned response to stress by the time that they enter adolescence.

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1. Introduction

Within the domain of emotional eating there is a subset of literature on stress-induced eating. Two models of thought exist within this body of literature, the General Effects and Individual Differences models (Greeno & Wing, 1994). The former has been tested predominantly in animals and the latter has exclusively been studied in humans. According to the General Effects Model, all organisms will increase intake in response to stress. The Individual Differences Model posits that certain factors of the individual will dictate whether or not stress leads to eating. One of the main hypotheses of the Individual Differences Model that has been tested is that obese individuals are more likely to engage in stress-induced eating than normal weight individuals (Greeno & Wing, 1994).

In their review of stress-induced eating, Greeno and Wing (1994) concluded that stress does indeed often lead to overeating, and that future studies should continue on the individual differences model and explore this phenomenon in samples with males, non-adult populations, and in non-lab settings. Michaud et al. (1990) found that stress increased

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food intake in a sample of French high school students and concluded that this behavior could bring about increased body weight over time. A lab study of 8–11-year olds reported the moderating effect of restraint on the association between stress and snacking, where those higher in restraint (conscious control of energy intake) were more likely to eat in the face of stress, which could lead to weight gain when restraint was broken (Roemich, Wright, & Epstein, 2002). Cartwright et al.'s (2003) examination of seventh graders in London revealed that higher perceived stress was related to higher consumption of fat and unhealthy amounts of snacking. The authors concluded that this behavior could result in obesity.

The theory from which most discussions of emotional eating stem is the Psychosomatic Theory of Obesity. According to this theory, food is used as an emotional defense in the face of negative affect, which causes overconsumption which, in turn, leads to obesity (Kaplan & Kaplan, 1957). In addition, it is posited that obese individuals excessively eat in response to these negative emotional states, while normal weight persons do not eat in the face of distress and instead employ other coping mechanisms (Faith, Allison, & Geliebter, 1997). For this reason, many emotional eating studies focus on obese persons.

However, support for the Psychosomatic Theory has not been consistent. Emotional eating was not related to body mass index (BMI) in a British adolescent sample, however findings did show that perceived fatness was related to emotional eating (Wardle et al., 1992). A study of binge-eating and obesity found that emotional eating was positively associated with binge-eating, and binge-eating was predictive of obesity (but negative affect alone was not related to BMI) (Stice, Presnell, & Spangler, 2002). In a sample of 9–12-year olds from Belgium, Braet and van Strien (1997) found that overweight and obese children scored significantly higher on emotional eating than normal weight children.

Of the studies cited above, only two were conducted in the United States and none were conducted within minority populations. Latinos are a population at high risk for overweight and obesity (Hedley et al., 2004). Considering the focus on weight and body appearance in the U.S. and the high risk for overweight in Latino populations, it seems warranted to explore emotional eating as a potentially modifiable risk factor in this population.

In order to examine the Psychosomatic Theory and the Obesity Hypothesis of the Individual Differences Model of Stress-induced Eating in a minority adolescent population, a cross-sectional analysis of the moderating effects of BMI on the relationship between perceived stress and emotional eating was undertaken. According to theory, it is expected that perceived stress will be significantly associated with emotional eating in overweight and obese students only. This association is not expected to be significant for the normal weight group. The conceptual model for these analyses is presented in Fig. 1. It was further anticipated that overweight participants would be more likely to emotionally eat than those of normal weight and that there would be a larger proportion of emotional eaters in the overweight group than the normal weight group.

2. Method

2.1. Sample

Six-hundred and seventeen students from public and private Los Angeles County middle schools provided data for the present analysis. Students were primarily of Latino ethnicity and were in grades seven and eight. Confidential questionnaires were administered, assessing demographics, psychosocial factors and behavior, including perceived stress and emotional eating.

2.2. School selection

School selection aimed to obtain a predominantly Latino sample from the underlying Los Angeles County population. Data from the California Board of Education and Roman Catholic Archdiocese were employed to identify ethnic distributions of the school. A school sample representing the range of socioeconomic status was desired; therefore this data was also used in the selection criteria for schools in order to obtain a sample of mostly Latino students and a wide range of SES. Eight of nine schools that fit selection criteria agreed to participate. Just prior to the commencement of data collection, one school was unable to participate due to school district mandates for time spent in remedial reading, therefore, a total of seven schools participated in the study.

2.3. Student recruitment

Classrooms were identified by approaching instructors of physical education classes. Only one of the teachers approached was unable to participate due to scheduling issues. All students in the seventeen classes that agreed to participate were invited to take part in the study. The study was explained to potential participants and parental consent forms were distributed on the first day of recruitment. On the third day of recruitment, separate parent refusal forms were distributed to those that had not returned a parental

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