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**EATING  
BEHAVIORS**

Eating Behaviors 4 (2003) 159–171

## The relationship between eating behaviors and obesity in African American and Caucasian women

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### Abstract

The primary goal of this study was to determine the relevance of four self-reported eating behaviors (eating before bedtime, eating between meals, feeling hungry within 3 h of eating, and eating beyond satiation) as risk factors for overweight and obesity. The sample consisted of 35- to 49-year-old, premenopausal African American ( $n = 580$ ) and Caucasian ( $n = 398$ ) women, randomly selected from the membership of a large urban prepaid health plan. Eating beyond satiation was the only behavior associated with body mass index (BMI). The odds of becoming obese increased 6-fold for Caucasian women and 15-fold for African American women who ate beyond satiation everyday compared to those who rarely or never ate beyond satiation. Additionally, eating beyond satiation was also the only eating behavior associated with the age of obesity onset. Focusing on this eating behavior in weight loss programs may be important.

Published by Elsevier Science Ltd.

*Keywords:* Obesity; Eating behaviors; Ethnicity; Overweight

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### 1. Introduction

The worldwide obesity epidemic is a growing concern (Nicklas, Baranowski, Cullen, & Berenson, 2001). In the United States, 34% of adults are overweight (defined as a body mass index [BMI] of 25–29.99 kg/m<sup>2</sup>) and 27% are obese (defined as a BMI of  $\geq 30$  kg/m<sup>2</sup>)

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(Wadden, Brownell, & Foster, 2002). These rates are over 50% higher than they were 30 years ago (Hays et al., 2002). The prevalence of this disorder increases with age (Laitinen, Power, & Jarvelin, 2001) and affects a higher percentage of women than men (Blocker & Freudenberg, 2001). Of women, African Americans are at especially high risk (Blocker & Freudenberg, 2001).

Control of eating behavior is complex and subject to influences from biological processes, environmental processes, self-imposed modulations, and attempted self-control (Blundell & Gillett, 2001). Coupled with a culture that discourages physical activity (Wadden et al., 2002), eating behaviors may be increasing the prevalence of obesity (Hays et al., 2002). Various eating behaviors have been described in the literature as being problematic and possibly contributing to obesity. This study focuses on the following four eating behaviors:

1. Eating before bedtime.
2. Eating between meals.
3. Feeling hungry within 3 h of eating.
4. Eating beyond satiation.

Although many studies report differences in eating behavior between obese and nonobese persons, few studies address the above four behaviors, with most targeting diet composition (Ortega, Redondo, Zamora, Lopez-Sobaler, & Andres, 1995; Togo, Osler, Sorensen, & Heitmann, 2001). Furthermore, no studies could be found that examine differences in these eating behaviors for overweight and obese persons of different ethnic backgrounds. Studies examining ethnicity and eating behaviors tend to target eating disturbance and body dissatisfaction (Wildes, Emery, & Simons, 2001).

While it is popularly believed that eating before bedtime contributes to weight gain, results of a study by Kant, Ballard-Barbash, and Schatzkin (1995) refute this belief. In that study, BMI was not associated with percent energy from food intake after 8:00 p.m. Similarly, Dreon et al. (1988) found no correlations between distribution of food intake and BMI or percent body fat in obese men. Sometimes eating before bedtime is a symptom of a serious eating disorder known as night eating syndrome (Napolitano, Head, Babyak, & Blumenthal, 2001). However, the study reported herein made no attempt to assess the presence of this eating disorder.

Between-meal eating (or snacking) has been shown to provide around 15–23% of total energy intake in adult Americans (Drummond, Crombie, & Kirk, 1996; Summerbell, Moody, Shanks, Stock, & Geissler, 1995; Zizza, Siega-Riz, & Popkin, 2001). Studies of the association between snacking and obesity are mixed. In some, snacking and/or eating more frequently has been negatively associated with body fatness (Bray, Davidson, & Drenick, 1972; Fabry & Tepperman, 1970; Wahlqvist, Kouris-blazos, & Wattanapenpaiboon, 1999). On the other hand, when Swedish obese women were compared with women randomly recruited from the Swedish population, the obese women were found to consume more meals per day than the reference women (Berteus Forslund, Lindroos, Sjostrom, & Lissner, 2002). In another study, obese women who snacked were more likely to be in an ascending phase of

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