

# Overweight Perception: Associations with Weight Control Goals, Attempts, and Practices among Chinese Female College Students



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## ABSTRACT

**Background** Concurrent with the dramatic cultural and economic shifts occurring as mainland China becomes increasingly “Westernized,” the weight perceptions, ideal body weight, and weight management goals and practices of Chinese females have also undergone significant changes.

**Objective** To investigate relationships between overweight status, weight perception patterns, and weight management goals and practices in Chinese female college students.

**Design/participants/setting** A cross-sectional analysis was conducted with data from 902 female subjects aged 18 to 25 years participating in the China Seven Cities Study, a health promotion and smoking prevention study conducted in mainland China in 2003.

**Main outcome measures/statistical analyses** Logistic regression models were used to explore associations between overweight status, weight perception, specific weight management goals and practices, and current levels of vigorous-intensity physical activity and food consumption.

**Results** Based on World Health Organization standards for Asian adults, 16.7% of college females were overweight or obese, although 50.8% considered themselves to be “too heavy.” Among participants perceiving themselves as overweight ( $n=458$ ), 69.2% ( $n=371$ ) were inaccurate and did not meet criteria for overweight or obese. The percentage of participants attempting weight loss was 48.2%, and 33.1% wanted to maintain their current weight. Attempts to lose or maintain weight were related to actual and perceived weight status, but not to increased vigorous-intensity physical activity or fruit and vegetable intake, nor to decreased consumption of sweets, soda, Western fast foods, and fried foods. Only 21.5% of participants desiring weight loss or maintenance reported using a combination of vigorous-intensity physical activity and a reduced-fat and -calorie diet, whereas 20.2% tried extreme methods such as fasting, using diet pills, vomiting, or smoking.

**Conclusions** Our findings underscore the need to promote healthy weight management practices among Chinese female college students, with an emphasis on diet and physical activity strategies that encourage balance rather than extremes.

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OBESITY WAS ONCE PROMINENT SOLELY IN WESTERN countries, but it has become an increasing problem across the globe.<sup>1</sup> China now finds itself among the nations greatly affected by the growing population of overweight or obese individuals, with an estimated one in six Chinese adults falling into these body mass index (BMI; calculated as  $\text{kg}/\text{m}^2$ ) classifications and childhood and adolescent obesity rates rising over the past several decades.<sup>2,3</sup> In mainland China, by the end of the 20th century, cardiovascular disease had emerged as the leading cause of death, an unfortunate consequence of diet and physical activity changes that occurred as a result of rapid economic growth and industrialization.<sup>4,5</sup> The sudden rise in obesity and related diseases among the Chinese population has been

specifically attributed to increased accessibility of fast foods, increased exposure to Western media, increased sedentary levels, and decreased physical activity levels.<sup>4,6,7</sup>

At the same time, the Chinese population has undergone a substantial transformation in its views about ideal body image. Standards of body weight, shape, and weight management practices have shifted to be in line with the increasingly Westernized sociocultural values they encounter through media exposure and peer and familial sources.<sup>8-11</sup> Embedded in this shift of ideals is the pursuit of a thin, or slim, body image for females. Although a thin figure has long been sought after in American culture, it is now also considered desirable among Chinese female youth.<sup>9,12,13</sup> During adolescence and early adulthood, the dedication to pursue this ideal

body shape tends to be even more pronounced.<sup>8,14</sup> Previous research has suggested that newfound freedom and increasing social pressures can lead to unhealthy weight management practices during adolescence,<sup>6</sup> and this may be exacerbated during the college years as both independence and stress continue to increase.<sup>15</sup> The rate of eating disorders is lower in non-Western countries, but this number appears to be rising and has already equalized in some regions.<sup>16,17</sup> A study published in 2014 examined eating disorder occurrences in female college students in the rapidly modernized city of Wuhan, China, and found that the prevalence was comparable to that of Western nations.<sup>16</sup>

Findings of “Westernized” body dissatisfaction have been previously reported in regions of Asia that experienced earlier exposure to Western culture, and this trend appears to be spreading into mainland China as well. A 1996 study in Hong Kong found that among 812 female undergraduate university students, 42.3% were unhappy about their body shape despite only 1.2% of respondents having a BMI over 25.<sup>9</sup> Similarly, a study of Taiwanese female college students in 1999 found that 60% of participants who did not fall into an overweight or obese category wanted to lose weight.<sup>18</sup> More recently, reports have emerged indicating that normal-weight and underweight individuals residing in urban areas of mainland China desire weight loss as well. A study examining food-related attitudes and behaviors of medical students in both northern and southern mainland Chinese cities in 2005 found that 65% of females with a BMI under 20 expressed a desire to be thin.<sup>19</sup>

Despite a growing body of research examining the impact that overweight self-perception has on eating behaviors, little is known about how these factors affect Chinese female college students. The limited existing literature consistently shows the presence of inaccurate self-perception of weight among female college students in both Asian and Western nations.<sup>9,17,18,20,21</sup> This population often incorrectly categorizes themselves as overweight, and they show higher levels of body dissatisfaction if they consider themselves to be overweight or obese.<sup>20</sup> The emergence of weight misperception during these years may be attributable to media or social sources influencing their opinions of what defines a normal weight status.<sup>10,22</sup> In Taiwan, a study reported that although only 16.2% of participants ( $n=1,057$ ) could be classified as overweight or obese based on their actual BMI, over 51% identified themselves as such.<sup>18</sup>

Studies also have shown significant sex differences regarding weight-related beliefs and behaviors, reporting that females are more likely than males to desire weight loss,<sup>19</sup> describe themselves as heavy or overweight when they are actually normal or underweight,<sup>10,18–20</sup> and be preoccupied with losing weight to achieve a slim figure.<sup>18</sup> Chinese females appear to have greater concern with body image and weight<sup>6,12</sup> and an increased likelihood of disordered eating attitudes and behaviors than males.<sup>13</sup> Sakamaki and colleagues<sup>19</sup> found that more than twice the number of female students (29.8%) have engaged in some form of dieting experience compared with male students (12.7%).<sup>19</sup> As such, an investigation of this specific set of issues among the female population is warranted.

Despite the focus on weight status and the desire to be thin, some concern exists that this may not translate into healthy weight management behaviors such as eating a

balanced diet and exercising regularly. A study that examined food habits, health attitude, and nutritional knowledge among 540 Chinese university students found that although more than 85% of students of both sexes reported being aware of the concept of healthy food (described as “nutritionally balanced food”), only 7% reported actually applying this knowledge when choosing foods from a menu.<sup>19</sup> Findings from a study of Spanish university students suggested that although 47.9% of participants desired weight loss, no significant dietary differences existed between those who wanted to lose weight and those who did not.<sup>23</sup> A further exploration of whether actions to achieve weight loss goals are actually implemented may provide insight into the dynamic relationship of weight perception, weight goals, and weight management behaviors.

The main focus of this study was to identify associations among overweight status, weight perception, and specific weight management goals and practices among Chinese female college students. A secondary objective was to examine whether specific healthy behaviors for weight management—vigorous-intensity physical activity and a nutritionally balanced diet—were consistent with their weight goals.

## MATERIALS AND METHODS

### Sample Selection

Data used in this cross-sectional analysis were retrieved from the second wave of a longitudinal smoking prevention and health promotion study, the China Seven Cities Study, which collected data from seven of China’s most populated urban areas from November 2003 to January 2004. The seven cities represent a spectrum of economic developmental stages occurring through the country, providing a unique opportunity to examine regional variations of the impact of Westernization and modernization. Design and sampling procedures are reported in detail elsewhere.<sup>6,24,25</sup> The study was approved by the Institutional Review Boards of China Seven Cities’ Health Bureaus and University of Southern California/Claremont Graduate University. Informed consent was obtained from participants in each city before data collection. Students in all cities except Wuhan participated in the second-wave survey.

The sample population used in this analysis was selected using the following protocol: one 3-year and one 4-year college in each city were selected from a city-level comprehensive university. Two academic majors were then randomly drawn from each of the chosen 3- and 4-year colleges. From those, one class was randomly selected from each grade (ie, 1st–3rd years and 1st–4th years in the 3- and 4-year colleges, respectively) in the selected major. The surveyed sample included 957 randomly selected females, of whom 902 provided valid weight and height measures and were used in this analysis. Participants’ ages ranged from 18 to 25 years, with an average age of 20.8 years (standard deviation of 1.4). All of the participants resided in urban areas.

### Survey Development

Questions from the US Youth Risk Behavior Surveillance System<sup>26</sup> were adapted to assess self-perception of weight status, weight management goals and practices, dietary behaviors, and physical activity among the sample population. The content of the questions was first reviewed by

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