

Original article

An outbreak of body weight dissatisfaction associated with self-perceived BMI and dieting among female pharmacy students

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Abstract

Some reports indicate that in various groups of society living in the highly developed countries a body weight perception and weight satisfaction tend to be inappropriate when compared with body mass index (BMI) calculated from estimated actual weight and height. Thus in present studies a relationship between body weight perceptions, measured actual BMI, gender, and dieting practices in a sample population of pharmacy students in Poland were examined to verify hypothesis that their incorrect self-perception would provoke occasional, seasonal and permanent eating disorders. Height and weight data of 178 pharmacy students (mean age 22.6 ± 2.4 years) in Bydgoszcz, Poland, were collected and validated by completed self-reported questionnaire assessing their self-perceived body weight, desired body weight and past/current dieting practices. Only 34.4% of female and 37.1% of male pharmacy students was satisfied with their current body weight. Statistical analyses revealed significant differences in estimated BMI status ($\chi^2 = 28.5$; $p = 0.0001$), desired body weight ($\chi^2 = 15.6$; $p = 0.0004$) and past dieting ($\chi^2 = 7.6$; $p = 0.0050$) by gender. In the male sub-group of students ($n = 27$) unclear association ($\chi^2 = 6.1$; $p = 0.046$) between measured actual BMI status and self-perceived body weight have been presented. Moreover, in male students a significant relationship ($\chi^2 = 4.9$; $p = 0.0261$) between actual BMI status and both past as well as current weight control behavior in the form of dieting practices was exhibited. In case of a sub-group of female students ($n = 151$) a diffuse association of actual BMI and self-perception of their body weight ($\chi^2 = 69.5$; $p = 0.0001$) was obtained. However, a close relation ($\chi^2 = 16.9$; $p = 0.0007$) between actual BMI and only past dieting practices was observed in females. Furthermore, in this last sub-group of students the significant relationship ($\chi^2 = 53.9$; $p = 0.0001$) between measured actual BMI and desired body weight was also demonstrated. The study showed an evidence of distorted self-perception of body weight in both sub-groups of considered pharmacy students. There was a tendency to overestimate of body weight in female students, and to underestimate in male students. These results suggest common dissatisfaction of body weight, especially among females, who were more often engaged in dieting, despite not being overweight or obese according to measured actual BMI status.

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Keywords: Young adults; Obesity; Body weight control; Weight loss; Adverse health effects; Nutritional status; Eating behaviors

1. Introduction

The prevalence of overweight and obesity as the major risk factor for multiple chronic degenerative diseases and various human malignancies is still increasing in many countries all over the world [1]. As a result, a lot of programs are being developed to prevent, reduce and care an overweight and obesity at personal, family, local society, national and multinational level [1–9]. Simultaneously, in western communities there is a strong social pressure to be thin and demonstrate fit physiques [10]. Social judgment of appearance is partly responsible for unrealistic

Abbreviations: BMI, body mass index; GUTS, Growing Up Today Study; MEBBIE, Male Eating Behavior and Body Image Evaluation; MORGEN, Monitoring Project on Risk Factors for Chronic Diseases; NHANES III, National Health and Nutrition Examination Survey III; ONSO, Office of National Statistics' Omnibus Survey; SES, socioeconomic status; YA, young adults; YRBS, Youth Risk Behavior Survey.

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weight goals sought by young adults which is reflected in widespread dieting to lose weight, especially among women of all ages, race/ethnicity, sexual orientation and country-standardized deciles of body mass index (BMI) [11–22]. Numerous surveys, summarized partly in Table 1 with representative examples, have shown that dieting among women is so common that became normative and reached an “epidemic” proportion, with as many as 60–80% women indicated that they had been on diet in the last 12 months [23–25]. It was frequently observed that many individuals who attempted dieting are of normal weight for their height [12,23,26–28]. Multiple previous work, as presented in Table 2, indicates that there is strong association between perceived weight status and weight control behavior, especially, weight perception is a better predictor than actual weight to start body weight control by healthy dieting practices (i.e. eat reduced fat foods, avoid sweets and junk food, count or limit amount of food, eat fruits and vegetables) or perform exercise to lose weight [26,29–32]. However, individuals who are underweight or normal weight but perceive themselves as overweight would be engaged to negative behaviors such as unnecessary dieting, fasting, using diet pills and laxatives, skipping breakfast, binge eating, using “extra protein” supplements, purging or self-induced vomiting [12,13,30,33,34]. On the other hand, overweight or obese individuals who believe that they have normal weight may not feel the need to diet or exercise for control and management of their weight [26,20,29,30]. A lot of surveys have shown that body weight perception tend to be inappropriate when compared with BMI calculated from measured weight and height [26,35,36]. Moreover, dissatisfaction and misperception of body weight is very common among adolescents, young adults and adults from various sociodemographic groups in most of Europe, Pacific Asia, South and North America countries [15–22,26,30,31,33,37–42]. By current health recommendation for both male and female it is undesirable to be overweight, but for male it is also undesirable to be not sufficiently muscular [33,43,44]. Irrespective of residence area, age, race/ethnicity, education, income level and sexual orientation men are more likely to perceive themselves as underweight and to engage in weight-gaining activities [16,18,33,39,44–48], whereas for women overestimation of body weight and inappropriate body image are commonly prevalent [16,17,19,26,29,35,49–52]. Concern with body image and chronic dieting, especially among underweight individuals, may be a predictor of an eating disorder, higher risk of nutritional deficiencies and adverse effects on health [11,22,15].

The aim of this study was to examine: (1) the association between BMI (calculated from actually measured values) and self-perceived body weight; (2) the relationship between BMI, self-perceived body weight and dieting practice; and (3) the relationship between BMI and desired body weight in exemplary population of pharmacy students in Poland.

2. Methods

The study was a quasi-experimental design. The sample of convenience included students enrolled in the first and fourth year of undergraduate drug-store pharmacy course provided at

the Faculty of Pharmacy, Collegium Medicum, Nicolaus Copernicus University in Bydgoszcz, Poland, and invited to participate during the spring semester of 2005 and 2006. The participants were informed about the aim of this study and signed a written consent approved by local Bioethical Committee before data collection. The final sample size studied included 178 students (151 female and 27 male). Male student fraction was 15.16% of the surveyed sample of pharmacy students. This gender fraction appeared to be representative for the whole population of undergraduate pharmacy students in Bydgoszcz, especially in relation to the actual percentage of male enrollment which is in range 14–18%, and is not different from a mean level of male pharmacy students observed in Poland during last 15 years [6]. All participants were Caucasian and the mean age of the studied group was 22.4 ± 2.0 years. None of the participants reported pregnancy, age greater than 25 years and BMI less than 18 kg/m^2 .

A single trained person took weight and height measurements. Weight was determined to the nearest 0.1 kg using a digital electronic scale (Radwag, Radom, Poland) with the subjects wearing light indoor clothing and no shoes. Height was measured to the nearest 0.5 cm using a height scale (Radwag). Body mass index (BMI, kg/m^2) was then calculated. According to WHO recommendation [2,5] participants were classified into four weight categories: underweight ($\text{BMI} < 18.5 \text{ kg/m}^2$), normal weight ($18.5 \leq \text{BMI} \leq 24.9 \text{ kg/m}^2$), overweight ($\text{BMI} \geq 25 \text{ kg/m}^2$) and obese ($\text{BMI} \geq 30 \text{ kg/m}^2$).

Participants were given a short questionnaire to answer and a general explanation was given before the questionnaire was completed. The questionnaire had been previously pilot tested and validated, thus minor revision was made in their content based on comments and responses collected during past pilot study [6–8]. Forty-seven university students participated in a pilot test of the questionnaire. The response of 40 students completing the questionnaire again after 2 weeks was similar to their first response. Minor revision was made to the questionnaire based on comments and responses collected during pilot study. The questionnaire was used to collect information about female students' self-perceived weight, self-body image and dieting practice. Perceived weight was assessed by asking participants if they considered themselves to be “underweight”, “normal weight”, “overweight”, or “obese”. Students were asked to report whether they were currently trying to lose weight (possible response “yes/no”) and whether they have ever been on diet (possible response “yes/no”). Desired body weight was measured by the response to the question, “How is your desired body weight: “less”, “the same” or “increased”?”

Data were analyzed by the software Statistica PL v. 6.1 (Stat-Soft, Inc., Tulsa, OK, USA). Differences between groups were tested by Pearson Chi-square test (χ^2) with the significance level $p \leq 0.05$. The results of descriptive statistics are presented as the mean value with standard deviation ($\bar{x} \pm \text{SD}$).

3. Results

The mean BMI was 21.1 ± 2.8 and $24.2 \pm 2.0 \text{ kg/m}^2$ in case of all female and male students, respectively. According

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