

Short Communication

Dieting practices and body image perception among Lebanese university students

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Dieting is becoming a popular phenomenon among university students to achieve or maintain a healthy weight. The purpose of this study is to obtain a preliminary understanding of what dieting practices university students use in order to achieve their desirable body weight and to determine the magnitude of body dissatisfaction in relation to weight status among a sample of students (n=252) from the Lebanese American University in Beirut, Lebanon. Students filled out a self-reported questionnaire that included questions on their dieting and physical activity practices in addition to the body shape questionnaire (BSQ). Weight and height were measured to calculate body mass index. Percentage body fat was measured using *Tanita* scale body fat analyzer 300A. The outcome of this study showed that smoking and unhealthy dieting practices were not common among students (only 26% reported smoking, 8% reported taking laxatives and 4% taking diet pills). Half of the students reported practicing regular physical activity. Multivitamin intake was also not popular among students. BSQ scores indicate that the majority of students were not worried about their body image perception (64% reported not being worried, 19% were slightly worried, 12% were moderately worried and 5% were extremely worried). A gender difference was observed in the BSQ scores, as 89% of the "extremely worried" students were females. Collectively, results indicate that unhealthy dieting practices are uncommon among students. However, developing health promotion awareness' programs to promote good self image within the concept of a realistic healthy weight will be beneficial, especially among females.

Key Words: dieting, body shape questionnaire, body image, Middle East, university students

INTRODUCTION

In most of the world, the epidemic of overweight and obesity is steadily rising and it is becoming a global public health concern.¹⁻⁵ Obesity is not only associated with many diet-related chronic diseases,^{1,2} but it is also associated with intense feelings of body dissatisfaction, low-self esteem, negative body image and social stigma.⁶ Body dissatisfaction and negative body image may serve as impetus for young adults to engage in strict dieting and unhealthy eating behaviors to lose weight.^{7-9,11-15} Thus, dieting is becoming a common phenomenon among university students to achieve their desirable body weight. Previous studies have reported that male students are less likely to try to lose weight compared to female students and weight loss is almost the norm for female students.¹⁶⁻¹⁸ Female students are concerned about body weight and place high importance on appearance.¹⁹⁻²² The pressure to be thin among female students is promoted by media exposure and fashion industry.^{9,10} Societal culture puts a greater emphasis on body weight as a measure of women's beauty and social acceptance or belongingness. Women's fashion magazines and models ads picture women's thinness as the necessity to be beautiful and to attract male attention.¹⁹⁻²² Unfortunately the desire to be thin creates a pressure on female students to lose weight continuously and this might promote unhealthy weight-control behaviors such as fasting, skipping meals, taking laxatives or diet pills and food restriction.²³⁻²⁵ Besides, the

desire to be thin may result in unfavorable outcomes such as anxiety, depression, low-self esteem, low-level of self confidence, and body image dissatisfaction.^{24,25} Previous research studies reported smoking as a weight-control strategy among young women.²⁶⁻²⁸ Understanding students' dieting practices is significantly important in assessing students' need for developing appropriate educational health awareness programs to prevent unhealthy dieting behaviors among students. Besides, college age is a risky time in terms of developing body image concerns and eating disorder tendencies that may have long-term health effects. The purpose of this study was to obtain a preliminary understanding of what dieting practices Lebanese university students use in order to achieve their desirable body weight and to determine the magnitude of their body dissatisfaction in relation to their weight status in a sample of students from the Lebanese American University (LAU) in Beirut.

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MATERIALS AND METHODS

Participants

Students were recruited randomly, by a trained student accompanied by an LAU professor, from the Lebanese American University campus in Beirut during the spring 2009 semester. The response rate was high. Out of 260 students who were approached, 252 university students agreed to participate in this study.

Design and sample

This study was a cross-sectional survey. A sample of 252 students (43% male and 57% female), aged 20 ± 1.9 years participated in this study. Students voluntarily entered into the study and were provided with adequate information about the study protocol. The study was approved by the university research board. Students who agreed to participate in this study were asked to sign a consent form according to the Helsinki declaration and to come later to a laboratory classroom for filling out the questionnaires and to take anthropometric measurements.

Data collection

Data collection took place in two steps. In the first step, students were asked to fill out a questionnaire regarding their dieting practices, physical activity, and smoking habits in addition to the 34 items of the body shape questionnaire (BSQ). In the second step, students' anthropometric measurements were performed. The BSQ questionnaire is a self administered questionnaire developed by Cooper et al. in England to measure body shape concerns.²⁹ The BSQ consists of 34 items used to assess students' level of preoccupation with weight and body shape by ranking students' responses from 1 to 6. The sum of responses generates a score. Accordingly, students were divided into four categories: not worried about body image (<80), slightly worried (81-110), moderately worried (111-140), and extremely worried (>140). BSQ score cut-off values were based on previously published research studies that were conducted among university students (in Brazil and in Spain).^{30,31} The BSQ questionnaire was pilot-tested on a randomly selected group of 30 students. These students were then excluded from the study. The BSQ questionnaire was tested, standardized and validated to be used among university students in a previously published study.³⁰ Prior to questionnaire administration, students were informed by an LAU professor about the study in details. They were given instructions on how to fill out the questionnaire completely and truthfully. After filling out the questionnaire, anthropometric measurements were done the day after. Weight, percentage body fat and body mass index measurements were determined using *Tanita* scale body fat analyzer 300A. As fluctuations in body hydration status may affect body composition results, *Tanita* scale measurements were taken in the morning (within three hours after waking up) and students were instructed to fast and to refrain from any heavy physical activity before taking the measurements. Students were asked to wipe off the bottom of their feet before stepping onto the measuring platform, since unclean foot pads may interfere with scale conductivity. Height measurements were taken with a secured metal ruler. Body mass index (BMI) was used to assess students' weight status. Accord-

ing to the guidelines stated by the National Institutes of Health, weight status was classified into four categories: underweight (BMI ≤ 18.5), normal weight (BMI between 18.5-24.9), overweight (BMI between 25-29.9), and obese (BMI ≥ 30).³¹ Normal range for percentage body fat was considered as follow: 10-20% for males and 20-30% for females (based on *Tanita* scale body composition analyzer values).

Data Analysis

Statistical analyses were performed using SPSS (version 13.0, SPSS, Inc) software. ANOVA was used to examine differences in the anthropometric characteristics. Results were expressed as means \pm SD. Numerical variables were analyzed using Students' *t*-test or ANOVA. Chi-square tests were conducted for categorical variables. All reported *p* values were made on the basis of 2-sided tests and compared to a significance level of 5%.

RESULTS

Participants' Characteristics

A total of 252 students (108 males and 144 females) participated in this study. Mean age of the participated male students was 20.5 ± 1.7 years and 20 ± 2.0 years in the female group. The average weight and height of the participated students were 67.1 ± 15.4 kg and 170 ± 9.0 cm, respectively. Mean BMI and percentage body fat were 23.0 ± 4.0 (kg/m²) and 23.1 ± 8.2 (%), respectively. Majority of students were of normal weight (86.8% of females and 54.6% of males). Results of the BSQ scores indicated that the majority of students were not worried about their body shape. The total mean BSQ score of the sample was 76.4 ± 33.9 . Female students had higher BSQ score compared to males. The mean BSQ scores among male students was 64.8 ± 25.9 and among females 84.9 ± 36.8 .

Body shape concerns by gender

Results of BSQ scores indicated that 64% of students reported not being worried about their body shape, 19% were slightly worried, 12% were moderately worried and 5% were extremely worried. A gender difference was observed in the BSQ scores. Male students were less worried about their body shape compared to female students. Eighty one percent of male students reported not being worried about their body shape compared to 52% of females. Female students reported higher BSQ scores compared to male students in all BSQ categories. The percentages of female students who reported being moderately and extremely worried about their body shape were 17% and 8% respectively compared to 6% and 1% in males ($p < 0.01$) (Figure 1).

Body shape concerns in relation to percentage body fat and weight status

Results of BSQ scores in relation to percentage body fat showed that there was a significant relationship between percentage body fat and students' level of concern ($p < 0.01$). As percentage of body fat increases, students' level of concern increases. A similar trend was observed with weight status as there was a significant relationship between students' weight status and their levels of concern: students' levels of concern increased as values of their

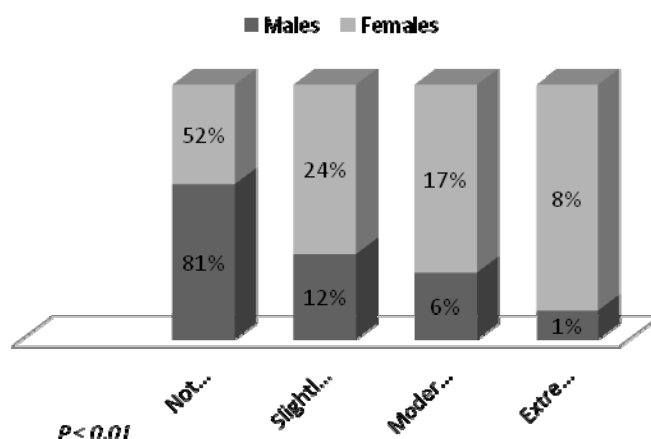


Figure 1. Body shape concerns by gender. Not worried (BSQ score ≤ 80), slightly worried (BSQ score between 81-110), Moderately worried (BSQ score between 111-140), extremely worried (BSQ score > 140)

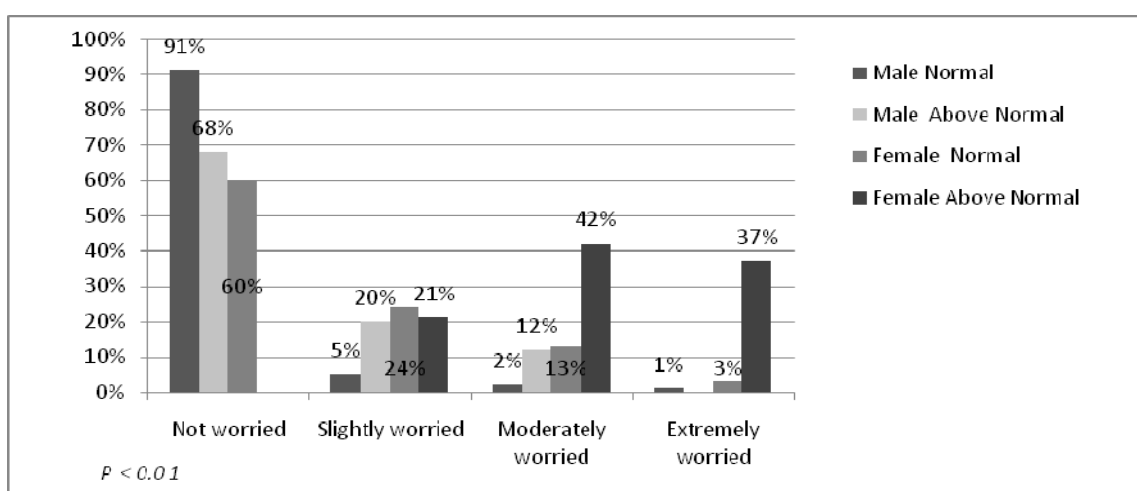


Figure 2. Body shape concerns by students' weight status and gender. Normal (BMI between 18.5-24.9); Above Normal (BMI ≥ 25)

body mass index increased ($p < 0.01$). Gender differences were observed in terms of levels of concern among the studied sample. Female students reported being “more worried” about their body shape than male students and their levels of concern varied in accordance to their weight status. In the studied sample, male students regardless of their weight status were less worried than females. BSQ scores of students with normal body weight showed that 60% of the female students reported not being worried about their body shape compared to 91% of male students; whereas, none of the female students who were overweight reported being “not worried” about their body shape compared to 68% of male students (Figure 2). Overweight male students showed an opposite trend in terms of their levels of concern since none of them reported being extremely worried about their body shape compared to 37% of overweight females who reported extreme levels of concern. Contrary to male students, female students' levels of concern showed to increase with an increase in body mass index: none of the overweight female students reported not being worried, 21% of them reported being slightly worried and 42% reported being moderately worried (Figure 2).

Body shape concerns in relation to dieting practices, smoking, and physical activity

Results of students' dieting practices indicated that unhealthy dieting practices were not common among students. Only 8% of students reported taking laxatives and 4% reported taking diet pills. Smoking was not common among students as only 26% of students reported smoking regularly. Fifty percent of the students reported that they exercise regularly (Table 1) and 19% reported taking multivitamin supplements. The mean BSQ scores of students who reported taking laxatives and diet pills were much higher than those students who reported regular smoking and exercising or taking multivitamins (125 ± 35.9 , 121 ± 38.4 , vs. 77.3 ± 33.9 , 72.6 ± 34.6 , 83.4 ± 42.5 respectively). There was no difference in the mean of BSQ scores of students who reported regularly smoking and exercising compared to those students who reported not smoking and exercising regularly. Similarly, the mean BSQ scores of multivitamins intake among students were not significantly different. Whereas, the mean BSQ scores of students who reported taking laxatives and diet pills were statistically significant ($p < 0.01$) compared to those students who reported not taking laxatives and diet pills.

Table 1. Distribution of students' dieting practices, smoking & physical activity by BSQ scores

Behavioral practices	Yes			No			p value
	n	%	BSQ (Mean ± SD)	n	%	BSQ (Mean ± SD)	
Do you take laxatives	20	8	125 ± 35.9	232	92	72.1 ± 30.3	<0.01
Do you take diet pills	11	4	121 ± 38.4	241	96	74.3 ± 32.3	<0.01
Do you smoke regularly	65	26	77.3 ± 33.9	187	74	76.0 ± 34.0	NS
Do you exercise regularly	125	50	72.6 ± 34.6	127	50	79.9 ± 32.9	NS
Do you take multi-vitamins	48	19	83.4 ± 42.5	204	81	74.9 ± 31.4	NS

DISCUSSION

The purpose of this study was to obtain a preliminary understanding of what dieting practices Lebanese university students use in order to achieve or maintain their desirable body weight and to determine the magnitude of their body dissatisfaction in relation to weight status based on gender. Gaining a preliminary understanding of dieting strategies among students is an important health concern not only because of the popularity of unhealthy dieting practices among young adults but also because of their potentially long-term health effects.^{14,15,19}

Dieting practices

Intake of laxatives and diet pills

Previous studies reported an emerging trend of unhealthy dieting practices among college students.^{34,35} A previous study conducted by Malinaukas *et al.* to identify dieting practices among 185 American female college students, aged between 18 to 24, reported that 83% of their participating students used dieting for weight loss, 31% used artificial sweeteners, 32% skipped breakfast, and 9% of their students used cigarette smoking as a weight loss strategy.³⁴ The emerging trend of dieting was also observed among Irish adolescent females.³⁵ In our study, the results indicated that unhealthy dieting practices were not common among our students, specifically intake of laxatives and diet pills as only 8% of them reported taking laxatives and 4% reported taking diet pills.

Smoking

Several previous studies reported that smoking was used by young women as a weight control or dieting strategy to replace food intake.^{27,28,36-38} A recent study conducted among 300 students at University of Kansas to examine the association between smoking and weight control reported that current smoking among their students was related to weight loss intention.³⁹ In our study, smoking was not common among students. Our results indicated that only 26% of students reported smoking regularly.

Physical activity

The National Heart, Lung and Blood Institute Clinical Guidelines recommended a combination of physical activity and a reduced calorie diet as part of a successful weight loss strategy.⁴⁰ Data from the Massachusetts Youth Risk Behavior Survey revealed that 61.5% of their female students and 21.5% of their males reported trying to lose weight and physical activity was associated with trying to lose weight among their female students.⁴¹ The study by Malinaukas *et al.* reported that 80% of their participated students used physical activity as a weight control strat-

egy. Another published study conducted by King *et al* among 204 students, recruited from Midwestern University, reported that students did exercise to lose weight and improve their body appearances.⁴²

Body shape concern and gender differences

Although dieting to lose weight may be associated with health promoting behavior such as physical activity, it may also result in unfavorable outcomes such as anxiety, depression, low self-esteem, low level of self confidence, and body image dissatisfaction.⁴³⁻⁴⁵ A recent study conducted among 582 college students from Southeastern University in North Carolina to examine students' eating attitudes reported that disturbed eating attitudes and dieting were common among their college students especially females.⁴⁶ In our study, results of BSQ, to assess body shape dissatisfaction, revealed that the majority of students were not worried about their body image perception. Sixty-four percent of students reported not being worried, 19% were slightly worried, 12% were moderately worried and 5% were extremely worried. However, a gender difference was observed in the BSQ scores. Females were more worried about their body shape than males as 89% of the extremely worried students were females, whereas, the majority of the "not worried" group were male students. This observation has been supported by other studies.⁴⁷⁻⁴⁹ In our study, the BSQ scores among female students varied in accordance to their weight status. As body mass index increases, BSQ scores increase. However, this observation was not valid in the male group. None of the male students who were overweight reported being extremely worried about their body shape compared to 37% of overweight female students in the same category. A previous study conducted by Klesges *et al.* among 204 college women and men, reported that women were more likely than men to be actively engaged in dieting, food restriction, physical activity (both appropriate and inappropriate) primarily for weight reduction, and that women place higher importance on the appearance benefits of maintaining an ideal weight than men.¹⁸ Our findings were consistent with the outcomes of a recent study conducted among 310 American undergraduate college students to examine prevalence and magnitude of their body weight and shape dissatisfaction. The authors reported that body weight and shape dissatisfaction was present in both males and females and did increase with increasing body size.⁴³ However, females expressed greater body weight and shape dissatisfaction than males, even though males were significantly heavier and the prevalence of overweight was greater.⁴³ It appears that there is an international consistency in perceptions of being overweight

among college students across diverse region of the world as stated by Wardle *et al.* who examined the associations between BMI, weight perception, and attempts to lose weight in male and female university students from 22 countries.¹⁶ The authors reported that more women than men perceive themselves as overweight and that they had a faster rise of weight loss attempts than men. In our study, women who reported taking laxatives or diet pills regularly had higher BSQ scores compared to women who reported not taking them. This is expected since body dissatisfaction increased the risk of unhealthy eating behaviors among women as reported by previous studies.^{44,45} Besides, the mean BSQ scores of students, who reported regularly smoking and exercising, were low and not different from those students who reported not smoking and exercising regularly. It appears that smoking and exercising were not related to students' level of body shape concern among our studied sample. A study conducted by Nichols *et al.*, among 383 male and female students from the general university population in West Indies, to determine whether dissatisfaction with one's body was associated with unhealthy behaviors among their studied students, reported that females had significantly higher BSQ scores than males and were significantly more likely than males to choose to engage in dieting behaviors. Besides, perceived body image, in both males and females, was significantly and positively associated with BSQ scores.⁴⁴ In Iran, similar results were observed among 140 students recruited from Shahid Chamran University to investigate the relationship between eating attitudes and body image dissatisfaction.⁴⁵ The authors reported that there is a significant positive correlation between the eating attitudes and body image dissatisfaction among their studied sample and students who were overly dissatisfied with their body shape were at a higher risk for an eating disorder.⁴⁵ In Jordan, a study conducted by Mousa *et al.* to investigate the occurrence of body image dissatisfaction among 326 adolescent schoolgirls reported that negative body image perception was observed and it was associated with negative eating attitudes among the studied sample.⁵⁰

Body shape concern and multivitamin intake

There is a general belief that dieters usually take a multivitamin supplement to provide the vitamins that their diets are lacking as suggested by popular diet books.⁵¹⁻⁵³ A recent study looked at the multi-vitamin use in relation to weight status among US adults and reported that multivitamin use was common among dieters and decreases with an increase in BMI.⁵⁴ However, in our study multivitamin use was not common among students especially those with low BSQ scores. This suggests that our students were not "multivitamin" users.

Study limitation

This study is subject to the following limitations. Firstly, the results of this study may not be applicable to all university students because of the small sample size. Secondly, students attending the Lebanese American University are of a high-socioeconomic status which might not be reflective of university students attending public universities. However, results of this study indicated that

body image concerns do exist among students irrespective of their socioeconomic status. Overall, this study shed the light on the need for developing intervention programs that could help students to improve their self-confidence irrespective of their weight status. Excessive body image concerns among students, especially among females, may lead to adoption of unhealthy eating behaviors and eating disorder tendencies. Thus, developing health awareness programs targeting university students may alleviate the potential risk of developing eating disorders among students during their college life.

CONCLUSION

Unhealthy dieting practices were not common among the studied sample of students. As BSQ scores indicated, the majority of students were not worried about their body image perception. However, females were more concerned about their body shape than males and their BSQ scores varied in accordance to their weight status. Developing health promotion awareness' programs to promote good self-image within the concept of a realistic healthy weight will be beneficial, especially among females. Programs that raise awareness about the concept of a "healthy body weight" and programs that alerts students about the "unrealistic" body weight promoted by media images, are important to boost students' self-confidence and minimize body image dissatisfaction especially among females. Most of the images of "skinny" models" pictured in the media are manipulated and fake. Empowering students with knowledge about the importance of adopting healthy behavior practices, such as eating a well-balanced diet, getting enough sleep and practicing physical activity regularly are key steps in any health promotion program.

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NY carried out questionnaire design, manuscript preparation and total coordination of the study. HG contributed to data collection. AA contributed to data analysis. SR was actively involved in study's implementation, data collection and coordination. All authors read and approved the final manuscript.

AUTHOR DISCLOSURES

The authors declare that they have no competing interests. This study was funded by the Lebanese American University Research Council.

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Short Communication

Dieting practices and body image perception among Lebanese university students

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黎巴嫩大學生節食及自覺身體形象之調查

大學生為了維持或是達到健康的體重，節食已經成為一種流行的現象。本研究目的為初步瞭解大學生如何進行節食以達到他們希冀的體重及了解大學生對於自己體重及體形不滿意的程度，研究族群為黎巴嫩美國大學的學生共 252 位。研究對象自填問卷包括節食及體能活動情形，再加上身體形態問卷(BSQ)。測量學生的體重與身高，以計算身體質量指數。使用 *Tanita* 體脂肪分析儀以分析體脂肪率。結果發現，抽菸與不健康的節食方式並不常見(26%學生抽菸、8%使用瀉藥及 4%使用減肥藥)。半數的學生有經常的體能運動。另外發現綜合維生素的攝取並不普遍。從 BSQ 分數看出，大部分學生不在意他們的身體形象(64%從不擔心、19%稍微擔心、12%會擔心、5%非常擔心)。BSQ 分數結果有性別差異，非常擔心身體形象的學生中有 89%是女性。整體而言，不健康的節食方式並不常見於這些大學生中。但發展健康意識促進方案以提升對於健康體重自覺形象良好的概念，將特別有益於女性大學生。

關鍵字：節食、身體形態問卷、身體形象、中東地區、大學生