

Body Shape Dissatisfaction, Weight Status and Physical Activity among a Sample University Students in Saudi Arabia

Hala Hazam AL-Otaibi^{1*}, Shereen L. Nassef¹, Tarek A. Raouf²

¹Department of Food Sciences and Nutrition, College of Agriculture and Food Science, King Faisal University, Hofuf, Saudi Arabia; ²Department of Physical Education, College of Education, King Faisal University, Hofuf, Saudi Arabia. Email: *hala 3m@yahoo.com

Received April 8th, 2013; revised May 9th, 2013; accepted May 16th, 2013

Copyright © 2013 Hala Hazam AL-Otaibi *et al.* This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

The purpose of this study was to examine the prevalence of body shape dissatisfaction, weight and physical activity status among university students and predictors for body shape dissatisfaction. A cross sectional study was carried out in a sample comprising of 368 female and male university students aged 18 years or more at King Faisal University, Saudi Arabia. Body weight, height, Body Shape Questionnaire (BSQ) and physical activity level were used as assessment tools. Chi-square and independent sample T-test were used to assess gender difference. Linear regression analysis was conducted to examine predictors of the body shape dissatisfaction. Overall, 65% of students had normal BMI, more males then females overweight (23%), while more females underweight (16.8%). Females have higher body shape dissatisfaction (33.5%) then males (21.4%), half of males inactive and this percentage increased in females to (73.8%). Overweight males were more dissatisfied with their body shape (10.7%) than females (6.3%). Almost one fifth of inactive males dissatisfied comparable to quarter inactive females dissatisfied with their body shape. Younger age is predictor for body shape dissatisfaction in both genders, also weight in males. BMI and being married female was predictor for body shape dissatisfaction. Collectively results indicate that body shape dissatisfaction and inactive lifestyle were prevalent among females than male's age, weight; BMI and marital status was the most predictor for body shape dissatisfaction. However developing educational program to promote body shape satisfaction and active lifestyle will be very useful especially among females.

Keywords: Body Shape Dissatisfied; University Students; Weight; Physical Activity

1. Introduction

Saudi Arabia is in a state of a lifestyle transition between traditional and sedentary to become more westernized [1], with increasing consumption of animal products and refined foods in the diet at the expense of vegetables and fruits [2]. Due to the rapid shift in lifestyle patterns 93% of Saudi male and 98.1% of Saudi female they are physically inactive [3], while causes of these changes increasing in prevalence of obesity and overweight were reported in the National Nutrition Survey conducted over a period of three years among 17,892 Saudi adults reported that the prevalence of overweight and obesity (BMI \geq 25) was highest among women (30%) as compared to males (23.4%) from 18 years to 20 years. The highest preva-

lence of obesity by geographic regions was found in Ha'il (33.9%) then the Eastern Province 27.7% [1]. However, a study among university students by Abdel-Megeid et al., [4] found a higher prevalence of overweight among males (23%) and a higher prevalence of normal weight among females (75%) how exercised three to four days week (30%). The transition from high school to university is known to be an especially problematic stage in adult development [5] and has been found to be associated with a decrease in self-concept [6], depression and anxiety [7]. The transition implies that students have to adapt to a new social and academic in which they are now suddenly free to make their own decisions. In order to adapt and find a way of becoming accepted or popular with their peer group, young women and men become increasingly concerned about maintaining an attractive and

^{*}Corresponding author.

culturally acceptable body image [8].

Body shape or body image is an important element of the intricate mechanism of one's own identity. Gardner defines it as "the mental picture we have of our body's measures, contours and shape; and our feelings related to these characteristics and to our body parts". The subjective component of body image refers to one's satisfaction their own body size or specific body parts [9]. Body image may be defined in simple terms as the way a person perceives or thinks about his, her body and how it looks to others.

Gender differences in the perception of body weight have been well documented worldwide [10,11]. Young adults have difficulty characterizing their body shape correctly. More women than men perceive themselves as being overweight [12]. Due to the belief that they have to be slim to be sexually attractive, women are under greater pressure than men to lose weight [13]. The obsession with slenderness is increasingly seen as an important cause of eating disorders [14]. Men are less likely to develop eating disorders [15], which are consistent with the lower social emphasis on male body weight and shape [16]. These perceived cultural standards for beauty have been blamed for differences in eating disorders between men and women, and they may also contribute to differences among countries or ethnic groups [17]. Pumeriega [18] has proposed that traditional cultures may have protective effects against the development of eating disorders, while exposure to western oriented values communicated through media and peer exposure may increase the risk.

As we noted above traditionally, females have suffered from negative body image to a greater degree than males. Recently, there is increasing pressure on males and females to desire a body shape that conforms to the (ideal) a thin shape for women and a lean, muscular shape for men [19]. These perceived ideal body shapes are reinforced by the mass media and popular cultural icons. Research suggests both genders experience body dissatisfaction although they experience it differently, possibly due to gender variations in cultural norms regarding the body. For example, females express greater dissatisfaction with body weight and often strive for a thinner, lighter figure [20]. Males tend to report greater dissatisfaction with muscularity, which leads some men to express a desire to increase weight and others to reduce weight to improve body composition by increasing lean body mass [21,22]. Many studies conducted among university students reported that female desire to have a thinner figure than their male counterparts, in both western and Asian settings [23-25]. One way students believe will help them attain the acceptance they desire is to fit the ideal body image. They manage the ways how they present themselves to others and this kind of self-presentation, including their physical appearance and physical attractiveness, might influence the confidence.

Literatures from Saudi Arabia on young adults' body shape remain unexplored on normal or unmoral weight adults. One prior study conducted among females explored the depressive symptoms and body image disturbance in patients who undergo several treatments to lose weight [26]. Al-Subaie [27] once studied the correlates of dieting behavior among secondary school girls from grades seven to eleven. In another study, he found 41% of schoolgirls reported preoccupation with the desire to be thin: these girls were more likely to have lived in a western country for at least six months and or speak a western language. This cultural exposure resulted in adoption of westernization body shape among these girls. To our knowledge, there has been no study regarding body shape among female and male university students published in Saudi Arabia. This study aims to provide more information regarding body shape dissatisfaction, weight status and physical activity among a sample of university students in Al-Ahsa, Saudi Arabia. The findings from our study can provide insights for designing effective health promotion programs that are tailored to students' needs.

2. Materials and Methods

2.1. Study Design and Location

This study was a cross-sectional study and it was conducted over the period March 2012 to May 2012 among undergraduate student at King Faisal University. The king Faisal University is located in AL-Hofuf, Governorate Al-Ahsa in the Eastern Province. The university includes sixteen colleges, eleven deanships, and 29,706 registered students.

2.2. Sampling Procedure

As there is no published data about body shape dissatisfied in Saudi Arabia, we thank that females would be twice as likely as their male not dissatisfied bout their body shape. To realize this with 90% power effect at a significance level of 5%, and the minimum of subjects was estimated in each group as 98. The study was approved by the university research board and Scientific Research Deanship. Students voluntarily entered into the study and were provided with adequate information about the study objectives and protocol. Students who agreed to participate in this study were asked to sign a consent form according to the Helsinki declaration. The questionnaires were distributed to students during their lectures under supervision. The authors, classes were selected using convenience sampling method. The selection of classes did include students from all colleges. This procedure was continued until the target for participation was re-

cruited and enrolled (N = 368 students).

2.3. Instrument

Self-administered questionnaire students were oriented how to correctly fill out self-administered questions in order to collect demographic, body shape and physical activity. The 34-itemBody Shape Questionnaire (BSQ) and physical activity questionnaire were validated by administering them to a pilot sample of 30 undergraduates. An interview based approach was used to note down if the participants had any doubts or difficulties when answering the questionnaires. The Cronbach's Alpha for reliability was determined using the Statistical Package for Social Sciences (SPSS) version 19. The Cronbach's Alpha for BSQ was 0.928 and for physical activity it was 0.691. The Cronbach's Alpha for the BSQ and physical for the 368 students were 0.945 and 0.803, respectively, confirming the internal reliability of the questionnaires.

2.3.1. Demographic Data

Students' age, sex, marital status (married, unmarried) and family household income included four options 1 - < 3000SR, 2 - 3000 to 5000SR, 3 - 5001 - 10000SR 4 - > 10000SR, were collected.

2.3.2. Anthropometric Data

Authors took all measurements using the techniques described by Lee and Nieman [28]. The measurement collected after the students completed the self-administered questions. Weight was measured in light clothing without shoes to the nearest 0.1 kg using a calibrated electronic scale. Height without shoes was measured to the nearest 0.1 cm with a stadiometer. Body mass index (BMI) was computed as weight in kilograms divided by the square of height in meters and categorized according to the World Health Organization guidelines [29]. Underweight (BMI < 18.5), normal weight (BMI 18.5 - 24.9), overweight (BMI 25 - 29.9), and obese (BMI \geq 30).

2.3.3. Body Shape Questionnaire (BSQ)

The 34-item BSQ [30] measures body image concern through a 6-point Likert-scale. For each of the 34 statements, participants respond with the number that reflects their feelings or experiences over the past four weeks (1-Never, 2-Rarely, 3-Sometimes, 4-Often, 5-Very Often, 6-Always). Sample items include the following questions: (a) Has feeling bored made you brood about your shape? (b) Have you felt ashamed of your body? 30. To score the BSQ, one must sum up the individual responses, thus yielding a possible score between 34 and 204. The scores are classified into 4 categories: satisfied (not worried) about body shape (<81), slightly worried (81 - 110), moderately worried (111 - 140), and extremely worried

(>140). The cut-off points were based on previously published research conducted among university student [25, 31-33]. Afterwards, the variable was divided into satisfied, for those who scored 34 to 80 points; and dissatisfied for those above an 80 point score, for statistical analysis reasons.

2.3.4. Physical Activity

Self-reported questionnaire developed for assessing physical activity among youth 15 - 25 years was used which covered such domains as transport and household, fitness and sports activities in nine questions. The questionnaire have a high reliability ($\alpha = 0.70$ to 0.93) [34,35]. Based on the questionnaire result students were grouped to very active (\geq 40 point), active (39 - 30 point), moderate active (29 - 20 point) and inactive (<20 point). Afterwards, the variable was divided into active, for those who in very active, active and moderate active category, and inactive for those below 20 point for statistical analysis reasons.

3. Statistical Analysis

The data was analyzed using SPSS statistical package version 19, all the data was checked for deviations from normality. Descriptive analyses were performed to continue data (age, weight, height, BMI, BSQ point, and physical activity point), and for categorical data frequency and percentage were performed. Chi-square (χ^2) was used to assess independent associations where data were categorized. Between groups comparisons (male and female) for continue data was made using the independent sample T-test. Linear regression analysis was conducted separately by gender to examine predictors of the body shape dissatisfaction. The level of statistical significance was accepted at p < 0.05 for all tests.

4. Results

4.1. Demographic Characteristics

A total of 368 student participated in the study 30.6% (n = 112) was male student and 69.4% (n = 256) female student. Mean age of the male student was 20.7 ± 1.1 years and 20.31 ± 1.5 years in the female students. Only five (4.5%) male students were married comparable to 72 (28.1%) of the female students. Majority of the male and female students had family household income more than 5000 Saudi Real (58.9%, 68.8%; respectively).

4.2. Anthropometric Measurement

The mean height was 1.68 m in male students and in female was 1.57 m, male had heavier mean weight than female (66.1 kg, 55.2 kg; respectively). The Mean BMI 22.1 for female and 23.2 for male which is indicated normal BMI, the difference in weight, height and BMI be-

Table 1. Anthropometric measurement and indicators.

	Male (n = 112)	Female (n = 256)	P-value
Weight (kg)	66.13 + 10.84	55.26 + 10.33	a 0.00*
Height (m)	1.68 + 0.07	1.57 + 0.05	a 0.00*
BMI (kg/m ²)	23.21 + 3.88	22.1 + 3.73	a 0.01*
Under weight (>18)	8 (7.1)	43 (16.8)	
Normal weight (18 - 24.9)	73 (65.2)	168 (65.6)	1 0 00*
Overweight (25 - 29.9)	26 (23.2)	35 (13.7)	b 0.02*
Obese (<30)	5 (4.5)	10 (3.9)	

 $^{^*}P < 0.05$, aT -test, $^b\chi^2$.

tween the male and female are given in **Table 1**. Similar percentage of male and female students had normal weight category (65%). More male had overweight category (23.2%) with only 13.7% of male overweight. Almost similar percent of male and female in obese category.

4.3. Body Shape Satisfaction by Gender

The majority of the students satisfied with their body shapes (78.6% male and 66.4% female), while a lower proportion of the students (0.09% males and 3.1% females) were extremely worried about their body shapes. More females (20.3%) were slightly worried about their body shape compared to the males (14.3%). Also, more females (10.2%) were moderately worried about their body shape than males (5.7%). More females (3.7%) were extremely worried about their body shape than males (6.3%). The difference in BSQ points between the gender was statistically not significant (P = 0.107) but the independent sample T-test shown significant deference between the male and female in mean BSQ score (P = 0.002) (Table 2).

4.4. Physical Activity by Gender

Results presented in **Table 2** indicated that half of male students and 73.8% of female student physically inactive. Fewer numbers of students had very active category (10 males and 3 female). Almost one third of male students' had moderate active and 20.3% of female at the same category. The mean physical activity score and physical category shown significant deference between the genders.

4.5. Body Shape Satisfaction by Weight Status

Majority of the students had body shape satisfaction, but male students have higher proportion comparable to female student. While, more female students reported being dissatisfied about their body shape in normal weight status (22.8%) compared to only 8.9% of male students.

Table 2. Body shape perception and physical activity by gender.

	Male (n = 112)	Female (n = 256)	P-value	
Body shape perception	63.13 + 26.07	73.15 + 30.09	a 0.002*	
Satisfied	88 (78.6)	170 (66.4)		
Slightly worried	16 (14.3)	52 (20.3)		
Moderately worried	7 (6.3)	26 (10.2)	b 0.107	
Extremely worried	1 (0.9)	8 (3.1)		
Physical activity	22.34 + 10.28	16.59 + 7.5	a 0.000*	
Very active	10 (8.9)	3 (1.2)		
Active	14 (12.5)	12 (4.7)	b 0.00*	
Moderate active	32 (28.6)	52 (20.3)	D 0.00	
Inactive	56 (50)	189 (73.8)		

 $^{^*}P \le 0.05$, aT -test, $^b\chi^2$.

Obese male students showed none of them reported being dissatisfied about their body shape compared to obese females. Almost similar percentage of male and female students on overweight category reported dissatisfied on their body shape. Significant difference was observed among male and female students about their body shape satisfaction (**Table 3**).

4.6. Body Shape Satisfaction by Physical Activity

Results presented in **Table 4** indicated active and inactive male students had the same percentage of body shape satisfaction and dissatisfaction. Twenty five percent of the female student who's physically inactive dissatisfied about their body shape compared to only 18.9% of the male students. Almost half of female students' satisfied on their body shape in inactive category. Results of BSQ satisfaction relation to physical activity category showed non significant deference between the genders.

4.7. Predicting of Body Shape Dissatisfaction

Linear regression analysis was conducted separately by gender to examine predictors of the body shape dissatisfaction. The mean affects models for both genders were statistically significant (males: F = 2.95, P = 0.011; female F = 6.87, P = 0.000). However, age and weight were significantly predictors of the body shape dissatisfaction among meals (0.033, 0.008 respectively), and age, marital status and BMI among females (P = 0.001, 0.016, 0.03 respectively) (**Tables 5** and **6**).

5. Discussion

The aim of this study was to examine the prevalence of body shape dissatisfaction, weight and physical activity

Table 3. Body shape satisfaction by weight status.

Gender	Body shape	Weight status				
	satisfaction	Underweight	Normal weight	Overweight	Obese	- P-value
Male (n = 112)	Satisfied 88 (78.6%)	6 (5.4%)	63 (56.3%)	14 (12.5%)	5 (4.5%)	0.004*
	Dissatisfied 24 (21.4%)	2 (1.8%)	10 (8.9%)	12 (10.7%)	-	0.004*
Female $(n = 265)$	Satisfied 170 (66.5%)	39 (15.2%)	110 (43%)	19 (7.4%)	2 (0.8%)	0.000*
	Dissatisfied 86 (33.5)	4 (1.6%)	58 (22.7%)	16 (6.3%)	8 (3.1%)	0.000^{*}

^{*}P < 0.05.

Table 4. Body shape satisfaction by physical activity.

Gender	Body shape	Physical status	Activity	D. I.
	satisfaction	Active	Inactive	P-value
Male (n = 112)	Satisfied 88 (78.6%)	44 (39.3%)	44 (39.3%)	1.00
	Dissatisfied 24 (21.4%)	12 (18.9%)	12 (18.9%)	1.00
Female $(n = 265)$	Satisfied 170 (66.5%)	47 (18.4%)	123 (48%)	0.45
	Dissatisfied 86 (33.5%)	20 (7.8%)	66 (25.8%)	0.45

Table 5. Linear regression analysis predicting of body shape dissatisfaction for male.

	В	S.E	В	t	P
Constant	2.24	0.69		3.24	0.002*
Age	-0.07	0.03	-0.21	-2.15	0.033*
Marital status	-0.25	0.18	-0.12	-1.37	0.172
Income	-0.04	0.03	-0.13	-1.44	0.151
Weight	0.01	0.00	0.36	2.69	0.008^*
BMI	-0.04	0.08	-0.06	-0.49	0.623
Physical activity	-0.02	0.07	-0.02	-0.29	0.766

R2 = 0.14; adjusted R2 = 0.09; *P < 0.05.

Table 6. Linear regression analysis predicting of body shape dissatisfaction for female.

	В	S.E	В	t	P
Constant	-0.62	0.53		-1.16	0.246
Age	0.06	0.02	-0.20	3.32	0.001^{*}
Marital status	-0.15	0.06	-0.12	-2.42	0.016^{*}
Income	0.01	0.02	-0.13	0.65	0.512
Weight	0.00	0.00	0.36	0.74	0.460
BMI	0.16	0.07	-0.06	2.18	0.030^{*}
Physical activity	0.10	0.06	-0.02	1.55	0.121

R2 = 0.14; adjusted R2 = 0.12; *P < 0.05.

status among university student in Al-Ahsa, Saudi Arabia. Result of this study obtain preliminary data to understanding what the Saudi university student thought about their body shape and weight which is can help to avoid

such public health problem arising from current and ideal body shape misconception, and contribute to raise awareness on healthy weight status to have body shape satisfaction.

Generally our results significant statistically differences in variables of mean BMI with 23.21 for male students and 22.1 for female students, this result indicate both of them in normal BMI. Also we found statistically significant differences in the BMI category while in female students who fall in the underweight category where 17% and in the same category only 7% in male student. Percentage of students in normal weight category was similar, but more male (23.2%) than female (13.7%) in overweight, and also for obese category. This may be because females are more cautious about their weight status than males due to society perceptions, which encourages females to be thinner.

Similar to our results in Saudi Arabia Al-Rethaiaa and colleagues [36] reported the prevalence rate of overweight and obesity among male in Health Sciences College students were more than female (21.8%, 15.7% respectively). Another study conducted in Saudi Arabia by Abdel-Megeid *et al.*, [4] found the prevalence of overweight and obesity among university male students more than female. We can explain these consonant results due to most males as they are usually outdoors in Saudi Arabia then female, and they are exposed to outdoor eating, which usually contains excess fat [37]. In contrast, in Iranian male college students, only 7.9% of them were overweight [38], and in Chinese university male students percentage decreased also to 2.9% with only 0.4% of them obese [39].

Despite the health benefits associated with active lifestyles, a majority of university student do not engage in sufficient levels of physical activity [40]. Our result showed that there were statistically significant differences in the physical activity between the students, while almost 75% of female students and half of male students were inactive, also low proportions of females in active and very active category. This was not surprising as in Saudi Arabia there is limited access for women to join sport clubs, jogging trails, swimming pools or exercise facilities especially at university. Our present results have indicated that there is consistency with past surveys as a review of adults' physical activity pattern evaluated has shown that women were more inactive than men in 44 of the 51 countries analyzed, the difference in physical inactivity between genders exceeding 10% in some countries [41].

Also a systematic review on the prevalence of university students' participation in physical activity of 19 studies from 27 countries Irwin [40] concluded that more than half the university students in the United States of America and Canada were not active enough to gain

health benefit or to be in good body shape. Other international studies concluded that the majority of university students were insufficiently physically active [42]. However, a study among Saudi university students by Abdel-Megeid *et al.*, [4] reported only 7% of female and 9% of male students exercise daily and almost half the student rarely exercised which is similar to our results.

A meta-analytically review the literature (121 studies) examining the impact of exercise on body image, the authors found that exercise lead to greater body satisfaction [43]. We found there is no significant different between body shape satisfaction and physical activity status in the students, more than one third of inactive male students were satisfied and about their body shape with almost one fifth of them dissatisfied. However quarter of inactive female students were not satisfied about their body shape, while only 7.8% active female dissatisfied, which is higher proportion comparable to the male students. Consonant to our finding longitudinal study conducted in United States amid to increase physical activity in ethnic minority women report no significant association between body image and physical activity among African American and Hispanic or Latina women and the authors' suggest for further work is needed to fully understand this relationship and other contributing factors [44].

As regards to gender, we found more of the males (78.6%) not worried about their body shape comparable to the females (66.4%), and more female (20.3%) then male (14.3%) were slightly worried. The study findings affirmed the expected association between gender and body image perception, while males tended to have a more body shape satisfaction compared to females. Similar studies on body image which has shown that women are more likely than men to see themselves as overweight and to express dissatisfaction with body shape [25,45]. This finding is in line with previous research documenting a greater dissatisfaction on body shape in females [25,45,46]. Counteractive to our finding Paxton et al., [47] which showed that satisfaction with body image and body weight does not appear to be an intrinsic male characteristic. Also El Ansari et al., [48] examined the differences in body image perception between university students in United Kingdom and Denmark and they found more than one third of men reported feeling too fat. Study conducted by Khan et al., [49] among university students in Pakistan produced interesting results; the prevalence of negative body image dissatisfaction was higher (75.3%) in males as compared to females (35.0%). On the contrary, women had a higher prevalence body image satisfaction compared to men (65.0% vs. 24.7% respectively). Results of these studies suggested that men too are prone to the perceived problems of body dissatisfaction.

The present study showed a statistically significant dif-

ference between satisfaction of body shape and weight status in males and females students, low proportion (8.9%) of the males comparable to female (22.7%) had body shape dissatisfaction despite them normal weight. Eight obese and 16 overweight female did not satisfied about their body shape, it could be to the entire sample tended to have normal weight (65%). However, a gender difference was observed in body shape satisfaction by weight status in previous studies, Yahia et al., [25] reported that female in body shape satisfaction increase as their body mass index increased, but this observation was not valid in the male group. A study conducted among 310 American university students examined the prevalence and magnitude of body weight status and shape dissatisfaction, the authors' reported that male and female had body weight and shape dissatisfaction and that present in female more than male students [45], which is differ in our result where more female than male students had body shape dissatisfaction by weight status.

Among male student body shape dissatisfaction was greater among those with younger age and heavier weight, but in female student's marital status and high BMI with younger age. These finding consistent with Neighbors and Sobal [45] who study the body shape dissatisfaction among male and female university students and they found age and higher BMI in male students were predictors for body shape dissatisfaction also they found higher BMI in female student as predictor but they did not report age as predictor which was found in our study and other studies as Green and Pritchard [50] among younger age man and women, also Jankauskiene et al., [46] among women where age and BMI the greater predictor for body shape dissatisfaction, and high BMI among 348 university student in United States (85.9% females, 14.1 males) was predictor for body shape dissatisfaction [51].

Marital status was found as predictor for body shape dissatisfaction among married female students, while researches suggested women's husbands contributing to women's body dissatisfaction [52-54]. Women have been found to believe that men prefer thinner women than they actually do and they tend to underestimate men's preferred female figure. Miller [52] surveyed a small sample of college couples (13 married couples) and found that women also may underestimate how satisfied their significant others are with their current weight status. Consistent with these findings Markey et al., [53] examining married women in their mid late 30s, suggests that husbands may be much happier with their wives' bodies than wives are with their own bodies, which indicates that women are more dissatisfied with their own bodies than their husbands are with their wives' bodies.

Results of study conducted among ninety five American couples their aged range from 18 to 35 years indi-

cated that females were more dissatisfied with their bodies than they perceived their significant others to be and were more dissatisfied than their significant others actually were. Also indicated that the longer women had been in a relationship with their significant other, the more likely they were to incorrectly believe that their significant other wanted them to look thinner [54].

The strengths of our study, while to the best of authors' knowledge no studies have been done to examine the prevalence of body shape dissatisfaction among Saudi university student specifically among King Faisal University students. The Body Shape Questionnaire (BSQ) is widely used scale to assess body satisfaction or dissatisfaction; several forms of the BSQ (short, long) have been introduced. In present study we used the full-length 34item which is give more information about student's body shape satisfaction. Some limitations should be considered however, the study conducted among King Faisal University students with small sample size, which limits the generalization of our finding to other university students in Saudi Arabia. The body shape dissatisfaction is a multidimensional construct and we only used one scale to assess body dissatisfaction (BSQ). An additional limitation of this study is that the data were cross sectional.

6. Conclusion

The current study makes an important contribution to the literature by narrowing the gap in research related to body shape dissatisfaction in Saudi university students. The body shape dissatisfaction prevalent among female student then males, despite the high prevalence of normal weight, more male then female students were overweight. Majority of the students had inactive lifestyle with high prevalence among female students, which is due to lack of enough places for physical activity within the university campus, whether male or female students especially female students which cannot take advantage of the free time between lectures to do any physical activities during the long academic day. However we found significant deference between the students with body shape satisfaction and weight status, while no significant difference regarded to physical activity and body shape satisfaction in both groups. Age, weight, BMI and marital status were found to be predictors for body shape dissatisfaction. Body satisfaction is a complex structural concept and until now not explore among Saudi population; future research should using variety of measurements such as figure drawing, assessment of the perception of being overweight, also study the body satisfaction and self esteem, family influence as parental care and control, media influence. For the married women we should study the potential role husbands may play in influencing women's satisfaction with their bodies.

7. Acknowledgements

This project was funded by Scientific Research Deanship, King Faisal University. Project number 130277. We thank the cooperation of the Scientific Research Deanship in conducting this study.

REFERENCES

- [1] A. I. Al-Othaimeen, M. AL-Nozha and A. K. Osman, "Obesity: An Emerging Problem in Saudi Arabia. Analysis of Data from the National Nutrition Survey," *Eastern Mediterranean Health Journal*, Vol. 13, No. 2, 2007, pp. 441-448.
- [2] T. T. Amin, A. I. Al-Sultan and A. Ali, "Overweight and Obesity and Their Association with Dietary Habits, and Sociodemographic Characteristics among Male Primary School Children in Al-Hassa, Kingdom of Saudi Arabia," *Indian Journal of Community Medicine*, Vol. 33, No. 3, 2008, pp. 172-181. doi:10.4103/0970-0218.42058
- [3] M. M. Al Nozha, H. M. Al-Hazzaa, A. Akram, M. R. Al-Khadra, Y. Y. Al-Mazrou, M. Y. Al-Maatouq, N. B. Al-Marzouki, K. K. Al-Harthi, et al., "Prevalence of Physical Activity and Inactivity among Saudis Aged 30 70 Years. A Population-Based Cross-Sectional Study," Saudi Medical Journal, Vol. 28, No. 4, 2007, pp. 559-568.
- [4] F. Y. Abdel-Megeid, H. M. Abdalharem and A. M. EL-Fetouh, "Unhealthy Nutritional Habits in University Students Are Risk Factor for Cardiovascular Diseases," *Saudi Medical Journal*, Vol. 32, No. 6, 2011, pp. 621-627.
- [5] E. M. Adlaf, L. Gliksman, A. Demers and B. Newton-Taylor, "The Prevalence of Elevated Psychological Distress among Canadian Undergraduates: Findings from the 1998 Canadian Campus Survey," *Journal of the Ameri*can College of Health, Vol. 50, No. 2, 2001, pp. 67-72. doi:10.1080/07448480109596009
- [6] A. Page and K. R. Fox, "Is Body Composition Important in Young People's Weight Management Decision-Making?" *International Journal of Obesity and Related, Me*tabolic Disorders, Vol. 22, No. 8, 1998, pp. 786-792.
- [7] L. J. Sax, "Health Trends among College Freshmen," Health Trends, Vol. 45, No. 6, 1997, pp. 252-262.
- [8] S. Hesse-Biber and M. Marino, "From High School to College: Changes in Women's Self-Concept and Its Relationship to Eating Problems," *Journal of Psychology*, Vol. 125, No. 2, 1991, pp. 199-216. doi:10.1080/00223980.1991.10543284
- [9] I. S. Kakeshita and S. S. Almeida, "Relationship between Body Mass Index and Self Perception among University Students," *Reviews of Saúde Pública*, Vol. 40, No. 3, 2006, pp. 1-5.
- [10] A. S. Veggi, C. S. Lopes, E. Faerstein and R. Sichieri, "Body Mass Index, Body Weight Perception and Common Mental Disorders among University Employees in Rio de Janeiro," *Revista Brasileira de Psiquiatria*, Vol. 26, No. 4, 2004, pp. 242-247.
- [11] A. Y. Yan, G. Zhang, M. Q. Wang and C. A. Stoesen, "Harris BM. Weight Perception and Weight Control Practice

- in a Multiethnic Sample of US Adolescents," *Southern Medical Journal*, Vol. 102, No. 4, 2009, pp. 354-360. doi:10.1097/SMJ.0b013e318198720b
- [12] E. Bergström, D. Stenlund and B. Svedjehäll, "Assessment of Body Perception among Swedish Adolescents and Young Adults," *Journal of Adolescent Health*, Vol. 26, No. 1, pp. 70-75.
- [13] S. D. Nichols, S. S. Dookeran, K. K. Ragbir and N. Dalrymple, "Body Image Perception and the Risk of Unhealthy Behaviors among University Students," West Indian Medical Journal, Vol. 58, No. 5, 2009, pp. 465-471.
- [14] I. Kiefer, B. Leitner, R. Bauer and A. Rieder, "Body Weight: The Male and Female Perception," Sozial und Praeventivmedizin, Vol. 45, No. 6, pp. 274-278.
- [15] B. T. Walsh, "Eating Disorders in Tasman," Psychiatry, Vol. 2, No. 3, 1997, pp. 1202-1216.
- [16] B. J. Roll, I. C. Fedoroff and J. F. Guthrie, "Gender Differences in Eating Behavior and Body Weight Regulation," *Health Psychology*, Vol. 10, No. 2, 1991, pp. 133-142. doi:10.1037/0278-6133.10.2.133
- [17] M. N. Miller and A. J. Pumariega, "Culture and Eating Disorders: A Historical and Cross-Cultural Review," *Psychiatry*, Vol. 64, No. 2, 2001, pp. 93-110. doi:10.1521/psyc.64.2.93.18621
- [18] A. J. Pumariega, "Body Dissatisfaction among Hispanic and Asian-American Girls," *Journal of Adolescent Health*, Vol. 21, No. 1, 1997, pp. 1-6. doi:10.1016/S1054-139X(97)00120-1
- [19] M. P. McCabe and L. A. Ricciardelli, "Body Image Dissatisfaction among Males across the Lifespan: A Review of Past Literature," *Journal of Psychosomatic Research*, Vol. 56, No. 6, 2004, pp. 675-685. doi:10.1016/S0022-3999(03)00129-6
- [20] K. J. Miller, D. H. Gleaves, T. G. Hirsch, B. A. Green, A. C. Snow and C. C. Corbett, "Comparisons of Body Image Dimensions by Race/Ethnicity and Gender in a University Population," *International Journal of Eating Disorders*, Vol. 27, No. 3, 2000, pp. 310-316.
- [21] R. Leit, J. Gray and H. Pope, "The Media's Representation of the Ideal Male Body: A Cause for Muscle Dysmorphia?" *International Journal of Eating Disorders*, Vol. 31, No. 3, 2002, pp. 334-338. doi:10.1002/eat.10019
- [22] M. P. McCabe and L. A. Ricciardelli, "Body Image and Strategies to Lose Weight and Increase Muscle among Boys and Girls," *Health Psychology*, Vol. 22, No. 1, 2003, pp. 39-46. doi:10.1037/0278-6133.22.1.39
- [23] B. L. Smith, P. Handley and D. A. Eldredge, "Sex Differences in Exercise Motivation and Body-Image Satisfaction among College Students," *Percept Mot Skills*, Vol. 86, No. 2, 1998, pp. 723-732. doi:10.2466/pms.1998.86.2.723
- [24] R. M. Page, C. M. Lee and N. F. Miao, "Self-Perception of Body Weight among High School Students in Taipei, Taiwan," *International Journal of Adolescent Medical Health*, Vol. 17, No. 2, 2005, pp. 123-136. doi:10.1515/IJAMH.2005.17.2.123
- [25] N. Yahia, H. El-Ghazale, A. Achkar and S. Rizk, "Dieting Practices and Body Image Perception among Lebanese

- University Students," *Asia Pacific Journal of Clinical Nutrition*, Vol. 20, No. 1, 2011, pp. 21-28.
- [26] M. M. Abdel-Fattah, A. A. Asal, T. Hifnawy and M. M. Makhlouf, "Depression and Body Image Disturbances among Females Seeking Treatment for Obesity in Saudi Arabia," *Europe's Journal of Psychology, North America*, 2008. http://ejop.psychopen.eu/article/view/433/330
- [27] S. S. Al-Subaie, "Some Correlates of Dieting Behavior in Saudi Schoolgirls," *International Journal of Eating Dis*orders, Vol. 28, No. 2, 2000, pp. 242-246. doi:10.1002/1098-108X(200009)28:2<242::AID-EAT16> 3.0.CO;2-Z
- [28] R. D. Lee and D. C. Nieman, "Nutritional Assessment," 3rd Edition, Brown & Benchmark Publishers, Madison, 2003.
- [29] World Health Organization, "Obesity: Preventing and Managing the Global Epidemic. Report of a World Health Organization Consultation on Obesity," WHO, Geneva, 1998
- [30] P. J. Cooper, M. J. Taylor, Z. Cooper and C. G. Fairburn, "The Development and Validation of the Body Shape Questionnaire," *International Journal of Eating Disorders*, Vol. 6, No. 4, 1987, pp. 485-494. doi:10.1002/1098-108X(198707)6:4<485::AID-EAT2260 060405>3.0.CO:2-O
- [31] P. X. Kuan, H. L. Ho, M. S. Shuhaili, A. A. Siti and H. R. Gudum, "Gender Differences in Body Mass Index, Body Weight Perception and Weight Loss Strategies among Undergraduates in University Malaysia Sarawak," *Malaysian Journal of Nutrition*, Vol. 17, No. 1, 2011, pp. 67-75.
- [32] A. Espina, M. O. Asunción, A. I. Ochoa, A. Aleman and M. Juaniz, "Body Shape and Eating Disorders in a Sample of Students in the Basque Country: A Pilot Study," *Psychological Spain*, Vol. 6, No. 1, 2002, pp. 3-11.
- [33] L. A. Moreira, A. B. Azevedo, D. Queiroz, L. Moura, S. D. Espírito, R. Cruz, A. Soledade and L. C. Oliveira, "Body Image in a Sample of Undergraduate Medical Students from Salvador, Bahia. Brazil," *Journal Brasileiro de Psiguiatria*, Vol. 54, No. 4, 2005, pp. 294-297.
- [34] H. M. Al-Hazzaa and M. Al-Ahmadi, "A Self-Reported Questionnaire for the Assessment of Physical Activity in Youth 15 25 Years: Development, Reliability and Construct Validity," *Arab Journal of Food & Nutrition*, Vol. 4, No. 8, 2003, pp. 279-291.
- [35] M. Al-Ahmadi and H. M. Al-Hazzaa, "Validity of a Self-Reported Questionnaire for Youth 15 25 Years: Comparison with Accelerometer, Pedometer and Heart Rate Telemetry," Saudi Sports Medicine Journal, Vol. 7, No. 1, 2004, pp. 2-14.
- [36] A. S. Al-Rethaiaa, A. A. Fahmy and N. M. Al-Shwaiyat, "Obesity and Eating Habits among College Students in Saudi Arabia: A Cross Sectional Study," *Nutrition Jour*nal, Vol. 1, No. 9, 2010, pp. 9-39.
- [37] A. O. Musaiger, O. L. Lloyd, S. M. Al-Neyadi and A. B. Bener, "Lifestyle Factors Associated with Obesity among Male University Students in the United Arab Emirates," *Nutrition & Food Science*, Vol. 33, No. 4, 2003, pp. 145-147. doi:10.1108/00346650310488480

- [38] M. Nojomi and S. Najamabadi, "Obesity among university students, Tehran, Iran," Asia Pacific Journal of Clinical Nutrition, Vol. 15, No. 4, 2006, pp. 516-520.
- [39] R. Sakamaki, R. Amamoto, Y. Mochida, N. Shinfuku and K. Toyama, "A Comparative Study of Food Habits and Body Shape Perception of University Students in Japan and Korea," *Nutrition Journal*, Vol. 4, No. 31, 2005, pp. 4-31.
- [40] J. D. Irwin, "Prevalence of University Students' Sufficient Physical 9. Activity: A Systematic Review," Perceptual and Motor Skills, Vol. 98, No. 3, 2004, pp. 927-943
- [41] R. Guthold, T. Ono, K. L. Strong, S. Chatterji and A. Morabia, "Worldwide Variability in Physical Inactivity a 51-Country Survey," *American Journal of Preventive Medicine*, Vol. 34, No. 6, 2008, pp. 487-494.
- [42] J. D. Irwin, "The Prevalence of Physical Activity Maintenance in a 10. Sample of University Students: A Longitudinal Study," *Journal of American College Health*, Vol. 56, No. 1, 2007, pp. 37-42. doi:10.3200/JACH.56.1.37-42
- [43] E. Hausenblas and E. A. Fallon, "Exercise and Body Image: A Meta-Analysis," *Psychology and Health*, Vol. 21, No. 1, 2006, pp. 33-47. doi:10.1080/14768320500105270
- [44] S. K. Mama, B. E. Quill, M. E. Fernandez-Esquer, J. Y. Reese-Smith, J. A. Banda and R. E. Lee, "Body Image and Physical Activity among Latin and African American Women," *Ethnicity & Disease*, Vol. 21, No. 3, 2011, pp. 21-27.
- [45] L. Neighbors and J. Sobal, "Prevalence and Magnitude of Body Weight and Shape Dissatisfaction among University Students," *Eating Behaviors*, Vol. 8, No. 4, 2007, pp. 429-439. doi:10.1016/j.eatbeh.2007.03.003
- [46] R. Jankauskiene, K. Kardelis and S. Pajaujiene, "Body Weight Satisfaction and Weight Loss Attempts in Fitness Activity Involved Women," *Journal of Sports Medicine* and Physical Fitness, Vol. 45, No. 4, 2005, pp. 537-545.
- [47] S. J. Paxton, M. E. Eisenberg and D. Neumark-Sztainer, "Prospective Predictors of Body Dissatisfaction in Adolescent Girls and Boys: A Five-Year Longitudinal Study," *Developmental Psychology*, Vol. 42, No. 5, 2006, pp. 888-899. doi:10.1037/0012-1649.42.5.888
- [48] W. El Ansari, S. V. Clausen, A. Mabhala and C. Stock "How Do I Look? Body Image Perceptions among University Students from England and Denmark," *International Journal of Environmental Research and Public Health*, Vol. 7, No. 2, 2010, pp. 583-595. doi:10.3390/ijerph7020583
- [49] A. N. Khan, S. Khalid, H. I. Khan and M. Jabeen, "Impact of Today's Media on University Student's Body Image in Pakistan: A Conservative, Developing Country's Perspective," *BMC Public Health*, Vol. 11, No. 5, 2011, pp. 379-385.
- [50] S. P. Green and M. E. Pritchard, "Predictors of Body Image Dissatisfaction in Adult Men and Women," *Social Behavior and Personality*, Vol. 31, No. 3, 2003, pp. 215-222, doi:10.2224/sbp.2003.31.3.215
- [51] N. Siraand and R. Pawlak, "Prevalence of Overweight

- and Obesity, and Dieting Attitudes among Caucasian and African American College Students in Eastern North Carolina: A Cross-Sectional Survey," *Nutrition Research and Practice*, Vol. 4, No. 1, 2010, pp. 36-42. doi:10.4162/nrp.2010.4.1.36
- [52] D. J. Miller, "Weight Satisfaction among Black and White Couples: The Role of Perceptions," *Eating Disorders*, Vol. 9, No. 1, 2001, pp. 41-47. doi:10.1080/106402601300187722
- [53] C. N. Markey, P. M. Markey and L. L. Birch, "Understanding Women's Body Satisfaction: The Role of Husbands," Sex Roles, Vol. 51, No. 3-4, 2004, pp. 209-216.
- [54] C. N. Markey and P. M. Markey, "Romantic Relationships and Body Satisfaction among Young Women," *Journal of Youth and Adolescence*, Vol. 35, No. 2, 2006, pp. 271-279. doi:10.1007/s10964-005-9013-6