

Relationship between Body Mass Index, Self-esteem and Quality of Life among Adolescent Saudi Female

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Abstract

Objective: to examine the relationship between BMI, self-esteem and quality of life among Saudi Adolescent females. **Method:** A descriptive correlational design was used. A convenience sample of 416 participants was included. An explanation about the purpose and the nature of the study was offered for each participant. Qualified subjects were asked to complete the survey questionnaire and get their weight and height measured. Voluntary participation was assured. The inclusion criteria were Saudi nationality, age range between 14 to 21, and no history of chronic diseases, Three tools were used to collect data: the sociodemographic part, Rosenberg's (1965) Self-Esteem Scale (RSE), and Quality of Life Scale (QOLS). The validity and reliability of the measurements were ensured. Data was collected from public places. **Results:** The mean age was 19.19+1.92. The mean BMI was 25.04+ 5.45. The mean total self esteem score was 29.23+4.29 and the mean total score of the quality of life was 82.83+ 17.08. Persons correlation showed that there was a significant negative correlation between Body Mass Index (BMI) and total self esteem score ($r = -0.421$, $p = 0.000$). Also there was a significant negative correlation between BMI and total Quality of life score ($r = -0.325$, $p = 0.000$). There were no statistical relationship between age, self esteem and quality of life, However there was a significant positive correlation between self esteem and quality of life ($r = 0.276$, $P = 0.000$). **Conclusion:** The self esteem as well as the quality of life decrease with the increase in body mass index among adolescence female.

Introduction

Saudi Arabia is a growing economy, however, the changes in the lifestyle of Saudi population. Eating habits became unhealthy and decreased level of physical activity. As a result, obesity is increasing in the Kingdom at a high rate. The prevalence of obesity is increasing in Saudi Arabia, affecting 30.7% of Saudi males and 28.4% of Saudi females (Al Othaimen. Et al 2007. Aldaqal, S., M, Sehlo, M.,G. 2013)

Overweight and obesity are major risk factors for many physiological and psychological disorders such as endocrine, cardiovascular, gastrointestinal, pulmonary, orthopedic, neurologic, dermatologic diseases, and depression. Obesity have become the most global public health concerns especially among children and adolescents (Vlad Burtaverde. 2011, Ballard S. & Sira N. , 2011, Anderson, K.,L. and Burckhardt, C., S. 2003).

Evidence showed that over weight and obese adolescent significantly have higher rates of experiencing sadness, loneliness, and nervousness (Griffiths, Parsons, Hill, 2010). Furthermore, they are more likely to engage in high-risk negative behaviors such as smoking or aggressiveness. The body mass index (BMI) is considered the most widely used method of assessment of obesity. BMI assess weight in relation to height. BMI is to computing the weight over height in meter square. A BMI between 20 and <25 is considered normal, a BMI between 25 and <30 is considered overweight, and a BMI > 30 is considered obese (Webber, B., A. 2006, Fabricatore, A.,N. and WADDEN, T., A. 2004. Fabricatore AN, 2003)

Epidemiological studies support positive associations between BMI and mood disorders. Obese individuals are at increased risk of than normal-weight individuals to report mood disorder. (Griffiths LJ and Parsons TJ, Hill AJ. 2010, Israel AC and Ivanova MY, 2002) Anxiety disorder rates increased among obese and overweight individuals. Relationships between increased body weight and affective disorders is higher in women than in men (McClure, A. C et al. 2010, Bosacki S et al. 2007, Birndorf, S.A et al. 2005),

Self-esteem became an important feature that lately has gained much attention in several cultures. Self esteem is defined as the extent to which individuals see themselves as worthy, good, competent, and civilized (Aronson, Wilson, & Akert, 2005). Thus, it affects the way people act and behave in the world and the way they interact with others. The need for esteem was an important aspect In the hierarchy of human needs by Abraham Maslow. The need for self esteem was divided into two aspects, the esteem for oneself (self love), self-confidence, skill, aptitude, and respect It is a complex concept which is affected by many factors as age, education, and gender (Waddell GR. 2006, Trzesniewski KH et al 2006, Spencer JM et al 2002),

Research on age and self-esteem has mostly focused on children's transition into adolescence. According to Erik Erikson's stages of psychosocial development, adolescent years are very significant years as the adolescent's life at this time they either establish identity or have identity confusion. Therefore, it is logical to assume that this period plays a significant role in terms of developing self-esteem. Evidence suggested that the transition into adolescence results in a decrease in self-esteem (Murray et al 200, Reitzes and Mutran 2060, Robins,et al 2001). Some researcher attributes this decrease in adolescence self-esteem may be due to the changes in their way of thinking that allow them to see themselves less egocentrically (Benyamin. 2004).

Gender is an important predictor of how weight affects self-esteem. Evidence addresses that young obese males have significantly higher self-esteem than obese females (Reeves, et al, 2008). Surly, females show a significant lower body satisfaction than male, which increases their desire to reduce their body weight (Musaiger, 2004). Females in general are more likely to see themselves as obese or overweight and show dissatisfaction with their body image even if they are not really obese (Miller & Downey, 1999). This perceived obesity by females has a negative effect on their self-esteem than those who are already obese.

Quality of life (QoL) is a broad multidimensional concept that usually includes subjective evaluations of both good and bad aspects of human life. it is important to note preliminary evidence suggesting which that HRQOL may vary by the race with black adolescents and the white adolescent , the black adolescent reporting better and higher HRQOL compared to white adolescents (SwallenK, C. 2005)

Obesity is unfortunately often associated with negative social consequences. Obesity -related stigma has been defined as negative attitudes and discriminatory behaviors directed toward obese individuals such as critical and insulting comments by others, job discrimination, discrimination in health care settings, and derogatory media representations. In addition to stigma directed toward obese individuals by others (Danielsen, Y.S et al 2012, Franklin J,et al 2006, Wardle J, Cooke L: 2005).

In general, quality of life (QOL) is the perceived quality of an individual's daily life, that is, an assessment of their well-being or lack thereof. This includes all emotional, social, and physical aspects of the individual's life. In health care field health providers measure health related quality of life to assess how individual's well-being may be affected by a disease, disability, or disorder over time and try to find ways to improve their quality of life.

As it was clear by the literature there was a strong connection between overweight and obesity and psychological disorders. In the current study it was highly informative to assess the relationship between Body Mass Index self esteem and quality of life as the last two might be the indirect cause of psychological disorders. There was no study done in Saudi Arabia to assess the Relationship between Body Mass Index, Self-esteem and Quality of Life among Adolescent Saudi Female. Only one study was done by Aldaqal in 2013 with a small sample to assess Self-esteem and quality of life in adolescents with extreme obesity in Saudi Arabia: the effect of weight loss after laparoscopic sleeve gastrectomy.

Hypothesis

This current study was designed to test 2 hypotheses

- 1- There will be a statistically significant decrease of the self esteem as the body mass index increase.
- 2- There will be a statistically significant decrease of the self esteem as the body mass index increase.

Method

A descriptive correlational design was used for this study. A convenience sample of 416 participants were included in the study. An explanation about the purpose and the nature of the study was offered for each individual potential participant. Qualified subjects were asked to complete the survey questionnaire. Voluntary

participation was assured. Subjects were assured about the confidentiality and anonymity of the collected data and that it will be only used by the researchers for the purpose of the current study.

Females to be included in the prospective study have to meet the following criteria: Saudi nationality, age range between fourteen to twenty one years, and has no present or history of chronic or endocrinal diseases. Exclusion criteria would be as follows: previous surgery for controlling obesity, presence of pregnancy, and following a specific diet or drugs. Each participant also requires to sign or to be signed by authorized person (only if the participant under 18 years old) a consent form providing the researcher with permission to use their answers

Demographic characteristics of the sample was assessed as age, education, marital status, income, and family size.. Self Esteem was measured in this study using Rosenberg's (1965) Self-Esteem Scale (RSE). This scale is known to generally have high reliability and test-retest correlation in the range of 0.82 to 0.88, and Cronbach's alpha for various samples are in the range of .77 to .88 (University of Maryland, 2004; Wells & Marwell, 1976). Rosenberg originally developed this scale to measure self-esteem in adolescents. The RSE consists of ten questions that assess the individual's feelings. The Rosenberg scale takes approximately ten minutes to complete. The questions are organized based on Likert scale² with score ranging from 10 to 40. The participant will respond with one of four choices, ranging from "strongly agree" to "strongly disagree." A high score on this survey indicates a worthy of self-respect; while a low score on this scale indicates self-rejection, self-dissatisfaction, and self-contempt (Rosenberg, 1965).

The Quality of Life Scale (QOLS), an instrument developed by American psychologist John Flanagan in 1970. It involves 16 items that has three subscales that determine different dimensions of quality of life, which are: material welfare and relations with others (7 items), health and working capacity (4 items), personal commitment, social and community (5 items). Each item has seven response options (1 =terrible, 7 =great).

The reliability of the Quality of Life Scale was determined to be $\alpha = 0.82$ and test-retest reliability ($r = 0.84$). Higher scores indicate a higher quality of life (Anderson & Burckhardt, 2003). The QOLS is usually self-administered it can also be completed by interview format (Burckhardt & and Anderson, 2003). If the interview format is chosen, patients should be given a copy of the 7-point response scale to refer to when making their decision as to the most appropriate point on the scale. The QOLS can be completed in about 5 minutes. To determine body mass index weight and hight were measured and we used the formula proposed by the World Health Organization, the person's weight in kilograms divided by the square of the individual's height

Data was coded for entry and analysis using SPSS statistical software package version 20. Data was presented using descriptive statistics in the form of frequencies and percentages. Interval and ratio variables were presented in the form of means and standard deviations. ANOVA test was used to compare the interval and ratio data between different BMI categories. Pearson r used to test correlation between interval and ratio data. The significance level was chosen as ($p < 0.05$).

Results

This study was carried out to assess the relationship between Body Mass Index, Self-Esteem and Quality of Life among adolescent Saudi female. 416 subjects were recruited to test two hypotheses. The first hypothesis was there will be a statistically significant decrease of the self esteem as the body mass index increase. The second hypothesis was there will be a statistically significant decrease of the self esteem as the body mass index increase.

Table 1: Frequency Distribution of the Demographic Characteristics of the Sample

Variable	Number N= 416	Percent
Age		
14 – 16	86	20.7
17 – 19	214	51.4
20 – 22	116	27.9
Mean	18.1971	
SD	1.92750	
Weight		
Less than 50	87	20.9
50 – 70	227	54.6
71 – 90	82	19.7
More than 90	20	4.8
Mean	63.1774	
SD	15.76713	
Height		
Less than 150	62	14.9
151-160	217	52.2
161-170	123	29.6
More than 170	14	3.3
Mean	158.1	
SD	8.79869	
BMI		
Less than 25	236	56.7
25 – 30	111	26.7
30 – 35	46	11.1
35-40	18	4.3
More than 40	5	1.2
Mean	25.0464	
SD	5.45118	
Education		
Illiterate	2	0.4
Elementary school	11	2.64
Middle school	88	23.6
High school	205	50.49
College	100	24.04

More than half of the sample had their age ranged between 17 and 19 years old with a mean of 18.1 ± 1.9 years. The majority of the sample were students (98.1) and single (98.56). The mean weight of the sample was 67.2 ± 15.8 kg. the mean height was 158.1 ± 8.8 cm. Twenty six point seven percent of the subjects in the sample were overweight, 16.6 were obese and 56.7% had a normal BMI. The mean body mass index was $25.04 + 5.45$.

Table 2: Mean and Stander Deviation of the Rosenberg Self Esteem Scale of the Sample. (n = 416)

Self Esteem Items	Mean	SD
On the whole, I am satisfied with myself	3.46	0.78
At times, I think I am no good at all.	2.04	0.89
I feel that I have a number of good qualities	3.48	0.73
I am able to do things as well as most other people	3.58	1.97
I feel I do not have much to be proud of.	2.61	1.11
I certainly feel useless at times.	2.50	1.02
I feel that I'm a person of worth, at least on an equal plane with others.	3.34	0.74
I wish I could have more respect for myself.	2.59	1.08
All in all, I am inclined to feel that I am a failure.	1.95	1.09
I take a positive attitude toward myself.	3.36	0.78

Table 2 shows the mean and stander deviation of the Rosenberg Self Esteem Scale of the sample The participants mean for the item "I am able to do things as well as most other people" ws the highest ($M = 3.58 \pm 1.97$), while the item of "All in all, I am inclined to feel that I am a failure" had the lowest mean (1.95 ± 1.09).

Table 3: Mean and stander Deviation of the Quality of life scale of the Sample (n = 416)

Quality of Life Items	Mean	SD
Material Welfare and Relations with Others		
Material comforts home, food, conveniences, financial security	5.70	1.49
Health - being physically fit and vigorous	5.17	1.53
Relationships with parents, siblings & other relatives- communicating, visiting, helping	5.35	1.50
Having and rearing children	4.94	1.64
Close relationships with spouse or significant other	5.25	3.27
Close friends	5.58	1.38
Helping and encouraging others, volunteering, giving advice	5.49	3.54
Health and Working Capacity		
Participating in organizations and public affairs	4.37	3.01
Learning- attending school, improving understanding, getting additional knowledge	4.86	2.19
Understanding yourself - knowing your assets and limitations - knowing what life is about	5.28	1.45
Work - job or in home	5.03	1.47
Personal Commitment, Social and Community		
Expressing yourself creatively	5.27	1.44
Socializing - meeting other people, doing things, parties, etc	5.42	3.79
Reading, listening to music, or observing entertainment	5.33	1.59
Participating in active recreation	5.07	1.64
Independence, doing for yourself	5.46	1.50

Table 3 shows mean and stander deviation of the quality of life scale of the sample. Regarding Material Welfare and Relations with Others, material comforts home, food, conveniences, financial security had the highest mea

($m = 5.70 \pm 1.49$), while the lowest men was for having and rearing children ($m = 4.94 \pm 1.64$). Regarding the Health and Working Capacity, understanding yourself - knowing your assets and limitations - knowing what life is about ($m = 5.28 \pm 1.45$), While Participating in organizations and public affairs had the lowest mean ($m = 4.37 \pm 3.01$). For the Personal Commitment, Social and Community, independence, doing for yourself had the highest mean ($m = 5.46 \pm 1.5$)

Figure 1: Correlation between Body Mass Index and Total Self Esteem Score of the Sample.

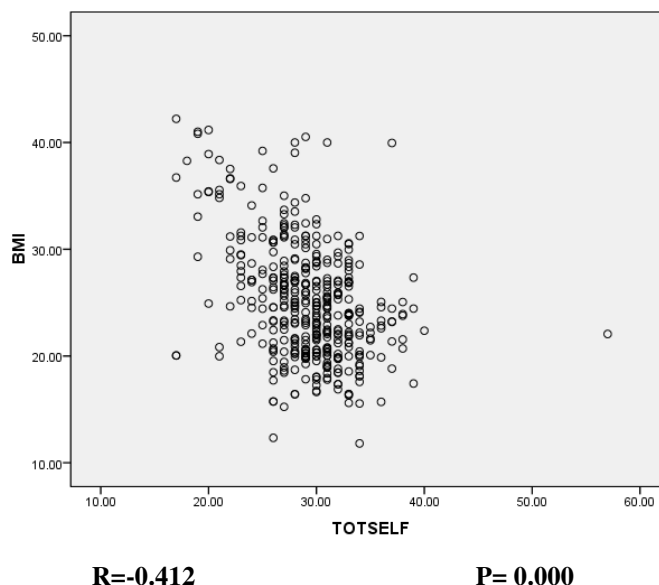


Figure 1 shows correlation between Body Mass Index and Total Self Esteem Score of the Sample. There was a statistically significant negative correlation between Body Mass Index total self esteem score of the subjects in the sample ($R=-0.412$ $P= 0.000$), as the Body Mass index increase the Self Esteem decrease.

Figure 2: Correlation between Body Mass Index and Total Quality of life Sore of the Sample

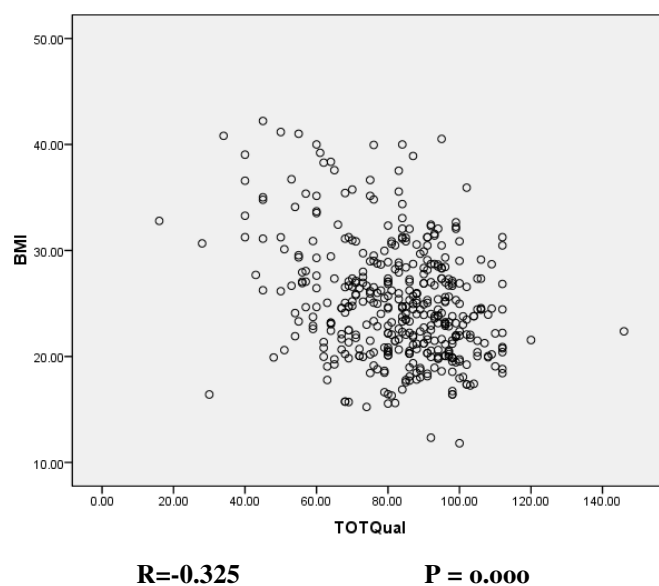


Figure 2 shows the correlation between Body Mass Index and Total Quality of life Sore of the Sample. There was a statistically significant negative correlation between Body Mass Index total self esteem score of the subjects in the sample ($R=-0.412$ $P= 0.000$), as the Body Mass index increase the Self Esteem decrease.

Figure 3: Frequency Distribution of the Self Esteem Total Score

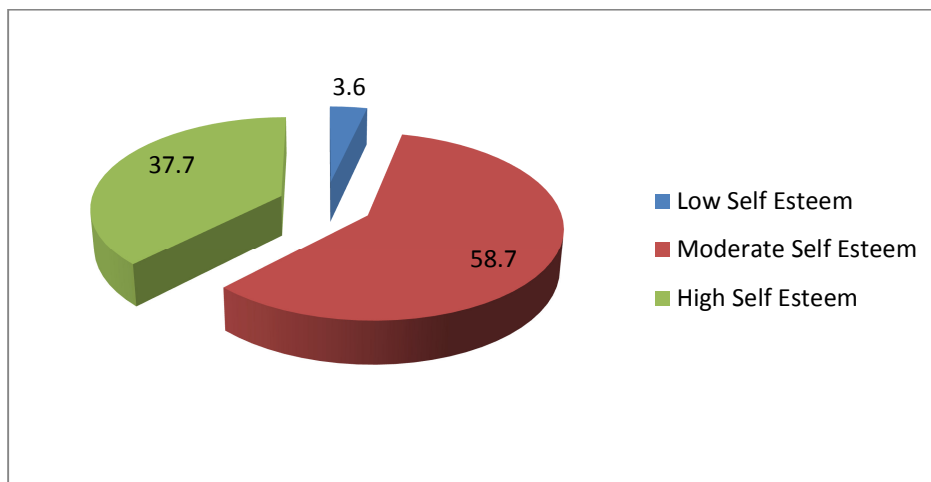


Figure 3 Shows the Frequency Distribution of the Self Esteem Total Score of the sample. More than half (58.7%) of the sample had moderate self esteem, while more than one third (37.7) had high self esteem. However only 3.6% had low self esteem

Figure 4: Frequency Distribution of the Quality of life Total Score

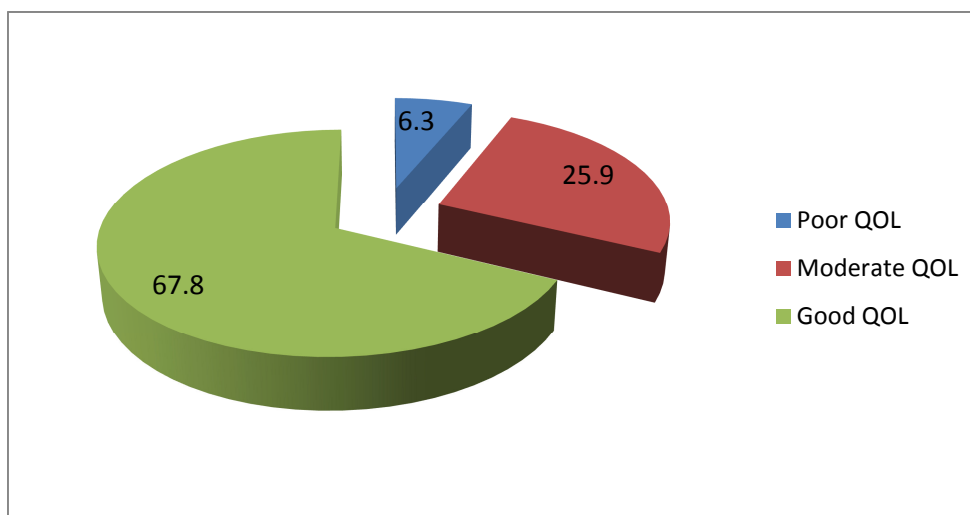


Figure 4 Shows the Frequency Distribution of the Quality of life Total Score of the sample. About two thirds of the sample had good quality of life (67.8%). Twenty five point nine percent of the sample had moderate self esteem; while only 6.3% had low quality of life self esteem.

Table 3: Comparison of the mean scores of Total Self Esteem and Total quality of life based on categories of Body Mass Index

Variables	BMI				P
	Normal	Over weight	Obese	Massive obesity	
Self Esteem	28.6818	27.2826	22.6842	20.8000	0.000
Quality of Life	86.4110	81.6818	76.2826	68.0000	0.000

Table 2 shows comparison of the mean scores of Total Self Esteem and Total quality of life based on categories of Body Mass Index. ANOVA test showed there is significant decrees in the mean Total Self esteem score and mean of total quality of life as the BMI category gets higher. Subjects with normal BMI had Higher mean self esteem and higher mean quality of life scores than the overweight, obese and morbidly obese.

Discussion

The main aim of the current study was to assess the relationship between BMI, self-esteem and quality of life among Saudi Adolescent females. Two research hypotheses were tested. The first hypothesis was there will be a statistically significant decrease of the self esteem as the body mass index increase. The second hypothesis was there will be a statistically significant decrease of the self esteem as the body mass index increase. The two hypothesis were proved. We filed to reject the nulls as showed in figures 1, 2

A convenience sample of 416 participants of different BMI groups were included in the study. Weight and height of the subjects were measured and BMI was calculated. The self esteem was measured using , Rosenberg's (1965) Self-Esteem Scale (RSE), and quality of life was measured using the Quality of Life Scale (QOLS). Pearsons correlation test was used to test the correlation between BMI, SE and QOL

The mean total self esteem score was 29.23 ± 4.29 and the mean total score of the quality of life was 82.83 ± 17.08 . Persons correlation showed that there was a significant negative correlation between Body Mass Index (BMI) and total self esteem score ($r = -0.421$, $p = 0.000$). Also there was a significant negative correlation between BMI and total Quality of life score ($r = -0.325$, $p = 0.000$). There were no statistical relationship between age, self esteem and quality of life, However there was a significant positive correlation between self esteem and quality of life ($r = 0.276$, $P = 0.000$)

The finding of the current study was in congruent with a study by Swallen KC, he founded that there was a statistically significant relationship between BMI and general and physical health while there was no statistically significant relationship between BMI psychosocial outcomes. Adolescents who were overweight had significantly worse self-reported health and lower self-esteem, and school/social functioning (Swallen KC et al. 2005)

Our findings were also supported by Aldaqal et al. they studded Self-esteem and quality of life in adolescents with extreme obesity in Saudi Arabia: the effect of weight loss after laparoscopic sleeve gastrectomy. They found that significant poor self-esteem and impairment in all domains of quality of life (self- and parent report) in Obese adolescent compared with normal weight adolescent ($P < .001$).

However the findings of this study was not supported by Shurooq who conducted a study a in to Kuwait assess the Health related quality of life of obese adolescents in Kuwait and he found that Obesity is not associated with marked impairment of HRQL in adolescents in Kuwait, in contrast to studies in western societies. This may reflect cultural differences in attitudes towards obesity

ANOVA test showed there is significant decrees in the mean Total Self esteem score and mean of total quality of life as the BMI category gets higher. Subjects with normal BMI had Higher mean self esteem and higher mean quality of life scores than the overweight, who had higher Mean total Self Esteem and mean Total Quality of life than obese and morbidly obese

Some limitation might exist in the current study. Reporting bias as almost all the surveys were self reported by adolescent who might wanted to give socially accepted responses Father studies need to be done to compare self esteem and quality of life between obese males and females. More studies needs to be done to assess the effect of low self esteem and quality of life on academic performance and social life

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