Quality of Life among Obese preadolescent School Age Children (11-14 years)

*Marwa Ashour Ragab**Dr.Emad Girgi Kamel, ***Dr.Sanaa Mahmoud Ahmed****Dr. Aml Sayed Ali
* Demonstrator of Pediatric Nursing, Faculty of Nursing, Minia University
** Professor of Community Medicine, Faculty of Medicine, Minia University
*** Assistant Professor of Pediatric Nursing, Faculty of Nursing, Minia University
**** Lecturer of Pediatric Nursing, Faculty of Nursing, Minia University

Abstract:

Background: Childhood obesity is a worldwide epidemic, with prevalence rates doubling or tripling over the past 15 years. Childhood obesity is due to the imbalance between caloric intake of the child and the calories utilized (for growth, development, metabolism, and physical activities). Obesity negatively affects the child's quality of life (QOL) specifically the dimensions that related to psychosocial health, self-esteem, physical functioning, and the impact on parental emotional well-being. Aim of the study: to Assess quality of life among obese preadolescent school age children (11-14 years) at Minia City. Research design: A descriptive research design was utilized in the present study. Setting: Four preparatory schools were chosen randomly. Two private schools one from south and other from north of Minia city. Similarly, two governmental were chosen, one from the north and other from the south, including both private schools (Mosaab Ben Omaier), and (Salah El-Dien Islamic school) and governmental schools (El- Salam preparatory, and El- Etehad preparatory school). Subjects: A random sample of 100 students. Tool of data collection: Tool 1: A structured interview questionnaire. Tool 2: The Pediatric Quality of Life Inventory (PedQL). Tool 3: anthropometric measurements: Weight, Height, and body mass index. Results: Mean age (13.11± 0.86) their weight ranged from (71-136 kg) with mean weight was (88.2± 10.7kg) & the height ranged from (1.41-1.7 m) and mean height was 1.56±0.061 and their BMI ranged from (31.2-50.4) and the mean of BMI was 35.7±3.6. There are strong correlation between BMI and QoL and this correlation was statistically significant (r=0.23, p=0.01).Conclusion: It was concluded that Obesity has a negative impact on the children's daily life. Obese children reported poorer quality of life as regards the physical, emotional, social, school functioning domains and total quality of life. Recommendations: Strategies should be directed toward improving the quality of life of overweight and obese adolescents. We are in need to increase public awareness and information about healthy balanced diet, nutritional needs, and practicing adequate physical activities in all age groups especially school age through mass media. School nutritional health education programs must be organized to encourage healthy eating habits as a routine part of healthy life for all, with a combination of exercises on a daily basis.

Key Words: childhood obesity, health related quality of life, adolescents.

Introduction

Childhood obesity is a worldwide epidemic, with prevalence rates doubling or tripling over the past 15 years [1]. Obesity in children is a complex disorder. Its prevalence has increased so significantly in recent years that many consider it a major health concern of the developed world. obesity is the result of "caloric imbalance" too few calories expended for the amount of calories consumed and are affected by various genetic, behavioral, and environmental factors.[2] Normally the amount of calories a child consumes through food or beverages, if not used for energy activities, leads to obesity.[3]

Childhood obesity is a condition where excess body fat negatively affects a child's health or well-being [4]. In addition to increased co-morbidity, psychosocial limitations play an important role in the lives of these children [5]. Health problems related to obesity are not only physical but psychological and social as well. [3]

The methods to determine body fat directly are difficult; the diagnosis of obesity is often based on BMI (body mass index) measurement it is recommended as the most accurate method for screening children and adolescents for obesity by the Expert Committee on Pediatric Obesity. The BMI measurement is strongly associated with subcutaneous and total body fat and also with skinfold thickness measurements. It is also highly specific for children with the greatest and least amount of body fat. [6] Due to the rising prevalence of obesity in children and its many adverse health effects it is being recognized as a serious public health concern [7]. Body mass index (BMI) is acceptable for determining obesity for children two years of age and older. It is determined by the ratio of weight to height. [6]The normal range for BMI in children varies with age and sex. While a BMI above the 85th percentile is defined as overweight, a BMI greater than or equal to the 95th percentile is defined as obesity by Centers for Disease Control and Prevention[8].

Quality of life (QOL) is the general well-being of individuals and societies. QOL has a wide range of contexts, including the fields of international development, healthcare, politics and employment.[9] It is important not to mix up the concept of QOL with a more recent growing area of health related QOL (HRQOLWhen we look at HRQOL we in effect look at QOL and its relationship with health. Quality of life should not be confused with the concept of standard of living, which is based primarily on income [10]; QOL has been described as a "broad ranging concept, incorporating in a complex way individuals' physical health, psychological state, and level of independence, social relationships, personal beliefs, and their relationship to salient features of the environment". [11]

There are reports that obese children demonstrate more negative self-perceptions, decreased self-worth, increased behavioral problems, lower self-esteem, and lower body esteem and perceived cognitive ability. [12]Nurses play a key role in the adherence and maintenance phases of many weight-reduction programs. Nurse practitioners assess, manage, and evaluate the progress of many overweight adolescents. They also play an important role in recognizing potential weight problems and assisting parents and adolescents in preventing obesity, the work of nursing in the school environment is critical to implement actions of primary prevention to control obesity through educational activities, as well as to identify overweight and treat this

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condition in children and adolescents. As school nurses are in a position to reach a large number of youth, they are able to address the potential serious health problems that result from overweight and obesity. [6]

School nurses can provide essential leadership in helping students maintain a healthy weight to prevent overweight and obesity decrease the burden of illness, and increase the quality of life [13]. To achieve these measures, it is recommended that nurses work collaboratively with teachers and other educators in the community, besides creating partnerships with parents in order to assist them in promoting the health of their children. [14]

Significance of the Study

Obesity in North Africa and the Middle East is a notable health issue. In 2016, the World Health Organization measured that Over 340 million children and adolescents aged 5-19 were overweight or obese in [15] The prevalence of obesity in Egypt according to UNICEF records in 2014 is 9.9% male and 8.5% female aged from (10-14 years). [16]

Obesity negatively affects the child's quality of life (QOL) specifically the dimensions that related to psychosocial health, self-esteem, physical functioning, and the impact on parental emotional well-being, in school-aged children. [9]

Aim of the Study

This study aimed to Assess quality of life among obese preadolescent school age children (11-14 years) at Minia City.

Research Questions:-

The study answered the following questions:

- Dose the obesity had impact on child's quality of life?
- What is the relationship between obesity and quality of life?
- What are the predictors which decreased quality of life in children with obesity?

Subjects and Methods

Research design:

Cross sectional descriptive research design was utilized for this study.

Sample:

A random sample of 105 students calculated on total obese student (1674), calculated by EPI info program version (6) according to (total number of student in preparatory schools in Minia city was (16736 student) and the prevalence of obesity in children in Egypt according to UNICEF records in 2014 was 10%, frequency of low quality of life among those obese children was 50% .From 4 preparatory schools in all grades from each category of school (private and governmental) distributed geographically north and south of Minia City. According to the following criteria:-

Inclusion criteria:

1- Obese students, its body mass index percentile for age and sex are (BMI ≥97th percentile).
2- Age from 11-14 years old

Exclusion criteria:

1- Obese children with mental and physical handicap.
2- Obese children with chronic diseases.

Setting:

Four preparatory schools were chosen randomly. Two private schools one from south and other from north of Minia city. Similarly, two governmental schools were chosen, one from the north and other from. South the selected schools represented all geographic areas of Minia city including both private schools (Mosaab Ben Omaier), and (Salah El-Dien Islamic School) and governmental schools (El- Salam preparatory, and El- Etehad preparatory school).

Tools for Data Collection:

Tool (1): A structured interview questionnaire: was developed by the research investigator after reviewing the related literature. It consisted of;

Personal data includes sex and age of student, residence, birth order, number of sibling……….. Etc.

Tool 2: Socio-economic scale; it was developed by (Abd El-Twaab, 2004) and used to assess the socio-economic status of the children. It included four domains; level of parent's education (8 items), family income (6 items), parents' occupation (two items), and life styles (3 items). Each item of four domains has one score. The total score was divided into two classes as high degree (from 51-100%), and low (less than 50%). The item of family income has been modified by the researcher according to the rate of inflation and increased to be conforming with recent income through comparing difference of the value of the golden pound at 2004 to that at 2013 and multiplying the rate of inflation to the scale. (17)

Tool 3: The Pediatric Quality of Life Inventory (PedQL) is a modular instrument for measuring health-related QOL in children and adolescents aged 2-18 years [5], While the PedQL was initially designed for various chronic illness among pediatric populations, it has been translated into Arabic and used extensively with obese pediatric subjects to assess quality of life in population-based studies where actual health status other than BMI is unknown. It has demonstrated good reliability and constructs validity [18]. The Peds QL consisted of 23 items in four domains: physical (8 items), emotional (5 items), social (5 items), and school (5 items). The researchers asked how much of problem each item has been experienced during the last month. A five-point response scale was used (0=never, 1= almost never, 2= sometimes, 3= often, 4= always). Items are reverse-scored and linearly transformed to a 0–100 scale (0= 100, 1= 75, 2= 50, 3= 25, 4= 0), so that higher scores indicated better QOL. A total score, derived by the mean of all 23 items, total score was calculated of the summation of previous four scores out of 100 then total score was changed into percentage and grouped the percentages. Scores (<25%) were interpreted as bad quality of life, (25% to <50%): fair quality of life, (50 to <75%): good quality of life and (75–100%): very good quality of life. The score was calculated to provide an overall measure of the QOL. [19]

Tool 4: anthropometric measurements: Weight was measured to the nearest 0.5 kg using platform weighting scales All students were weighed in light clothing, and shoes was removed.. The scales were placed on floor surface, and ensure the student was ready to step onto the platform, the

scales was reset on zero point. The child Instructed to stand very still on the scales platform and ensure that they were standing free (not leaning on a chair or wall) and the reading was recorded in kilograms and gram increments. Height was measured to the nearest 0.5 cm using a measuring tape. All students were measured without shoes or socks, a plane wall without edges were graduated and the students were instructed to stand against the wall on a level floor with feet parallel and pointing forwards, a hard surface was placed on the subjects head and mark was done. The height in centimeters' was recorded. Body mass index calculated as Body mass index (BMI): BMI= Weight (kg)/Height (m) ^{2}; BMI is determined according to age specific and gender specific charts. [20]

Field of study:

Data collection was done by the researcher .The child BMI was calculated based on objective measures of height and weight, and adjusted for age and sex above 97th percentile. Students were interviewed per day from 9.00 AM to 1.00 PM in two days each week within average of 15 minutes for each child. The researcher met the students when they were available and stressed on the issue of confidentiality and all students were requested to fill out the questionnaires anonymously. To control for variations in reading ability, the questionnaire was read aloud to students; and required between 10 and 15 minutes.

Pilot study:

A pilot study was conducted on 10 children for the purpose of testing clarity, completeness, and to determine the time involvement. According to the results of pilot, the pilot group was included in the study.

Validity and Reliability

The tool was tested for content validity by a jury of three experts in the field of the study to test the content validity of tool. Reliability of tool was performed to confirm its consistency.

Ethical Consideration:

A written initial approval was obtained from the research ethical committee of the faculty of nursing, Minia University. Oral informed consent was obtained from children participate in the study. Each assessment sheet was coded and students' name wasn't appeared on the sheets in the purpose of anonymity and confidentiality. The students were assured that they could withdraw at any time from the study. Administrative approvals were obtained from the Dean of Faculty of Nursing, Minia University to the Ministry of Education research committee before implementation of the study. Meetings with head teacher .Oral consents were taken from all children participate in the study. The purpose and nature of the study were explained by the researcher through direct personal communication prior starting to their participation in the study. These data were confidential between students and the researcher and were used for the purpose of the research only.

Statistical analysis

The data obtained were reviewed, prepared for computer entry, coded, analyzed and tabulated. Data entry and analysis were done using SPSS version 16 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, means and standard deviations for quantitative variables. Quantitative continuous data were compared using Chi. Square to determine significance for non-parametric variable. Using Pearson's correlation for numeric variable in the sample. Statistical significant differences were considered when P-value used as follows: - P ≤ 0.05 significant.

Results

Table (1) Characteristics of obese children   n= (105) √

%	N=105	
		School
34.3%	36	Private
65.7%	69	governmental
		Sex
42.9%	45	Male
57.1%	60	Female
Mean	Range	
13.11± 0.86 years	(11-14) years	Age
88.2±10.7 kg	(71-136) kg	Weight
1.56±0.061 M	(1.41-1.7) M	Height
35.7±3.6	(31.2-50.4)	BMI

Table (1) this table shows that 65.7% of obese students were from governmental schools and 34.3% of them were from private schools & 42.9% of them were male their age ranged from (11-14 years) with mean age (13.11± 0.86 year). Regarding children's weight ranged from (71-136 kg) with mean weight was (88.2± 10.7kg) & the height ranged from (1.41-1.7 m) and mean height was 1.56±0.061 and their BMI ranged from (31.2-50.4) and the mean of BMI was 35.7±3.6.

Table (2) Total QoL score and socio-demographic characteristics among obese pre-adolescent school age children

		Low QoL	High QoL	X^2	P
School	Private	24(66.7%)	12 (33.3%)	2.89	0.06
	Governmental	34 (49.3%)	35 (50.7%)		
Sex	Male	28 (62.2%)	17 (37.8%)	1.55	0.1

		Low QoL	High QoL	X^2	P
	Female	30 (50%)	30 (50%)		
Income	Low income	26 (50%)	26 (50%)	1.14	0.1
	High income	32 (60.4%)	21 (39.6%)		
Education	Low education	22 (42.3%)	30 (57.7%)	6.96	
	High education	36 (67.9%)	17 (32.1%)		
Occupation	Low occupation	22 (42.3%)	30 (57.7%)	6.69	0.007
	High occupation	36 (67.9%)	17 (32.1%)		
Life style	Low life style	22 (42.3%)	30 (57.7%)	6.69	0.007
	High life style	36 (67.9%)	17 (32.1%)		
Total score	Low total score	22 (42.3%)	30 (57.7%)	6.69	0.007
	High total score	36 (67.9%)	17 (32.1%)		

Table (2) describes relation between total score of PedQL and socio-demographic characteristics among obese pre-adolescent school age children, it was found that low PedQL score of studied obese children of private schools represent a higher percentage (66.7%) than governmental school (49.3%), with no statistically significant difference. while more than half of obese male children have low PedQL score with no statistically significant difference.

Low PedQL score represent a higher percentage with high income (60.4%) than low income (50%) with no statistical significant. On the other hand more than half of studied obese children of high education score (67.9%) have low PedQL score with highly statistically significant difference (p=0.007)

Low PedQL score represent a higher percentage with high occupation score (67.9%) than low occupation score (42.3%), with highly statistically significant difference (p=0.007).

On the other hand more than one third (67.9%) of studied obese children with high life style score had low PedQL score, more than half of studied obese children (57.7%) had low PedQL score with highly statistically significant difference (p=0.007).

It was also found that a higher percentage of studied obese children with high social class (67.9%) had low PedQL score than low social class which represent (42.3%) with highly statistically significant difference (p=0.007).
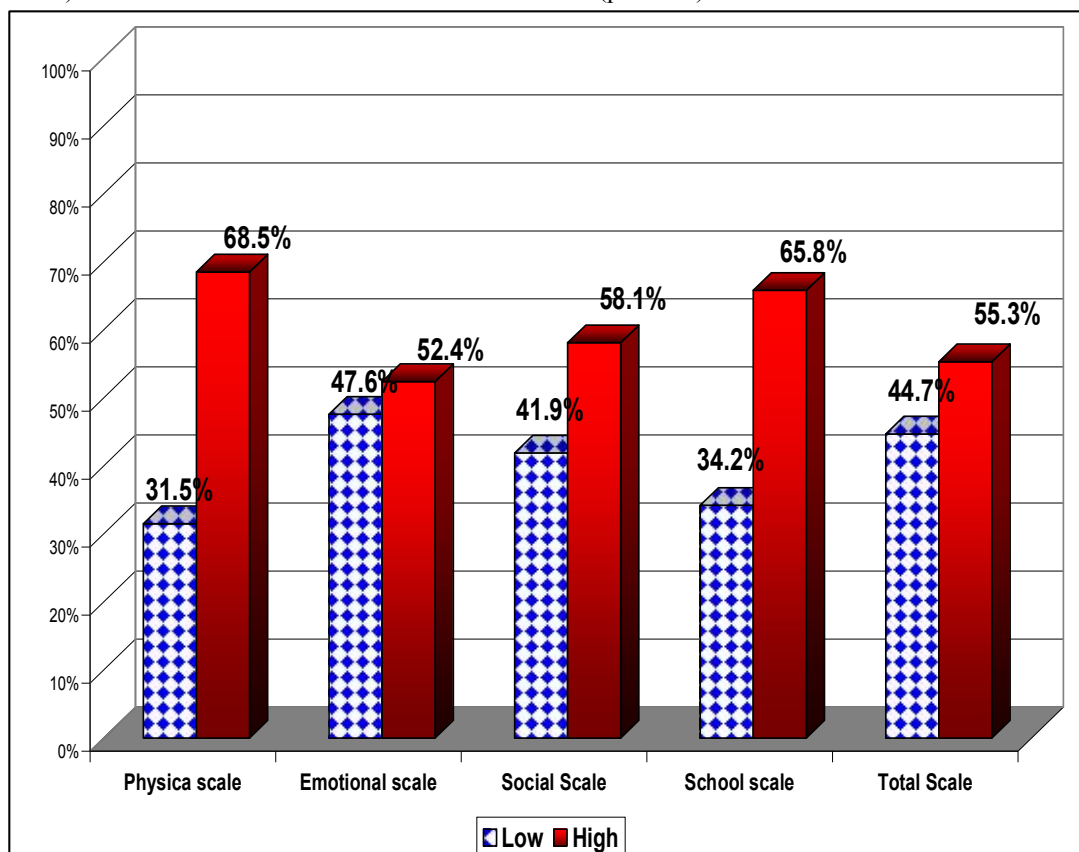

Figure (1) four domains of QoL among obese pre-adolescent school age children

Figure (1) shows domains of QoL among obese studied students. It was found that obese students have low emotional and social scores which are the most affected domains of QoL which represent (47.6% and 41.9%) respectively.
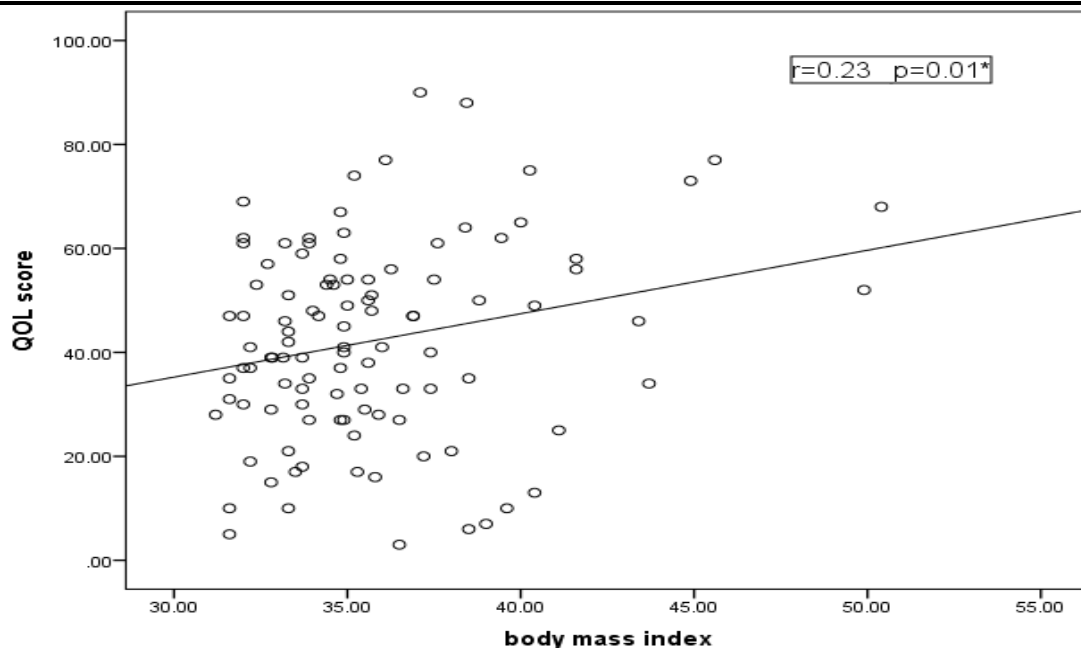
Figure (2) correlation between total QoL score and BMI among obese pre-adolescent school age children

Figure (2) shows correlation between body mass index (BMI) and QoL. It was found that there are strong correlation between BMI and QoL and this correlation was statistically significant (r=0.23, p=0.01).
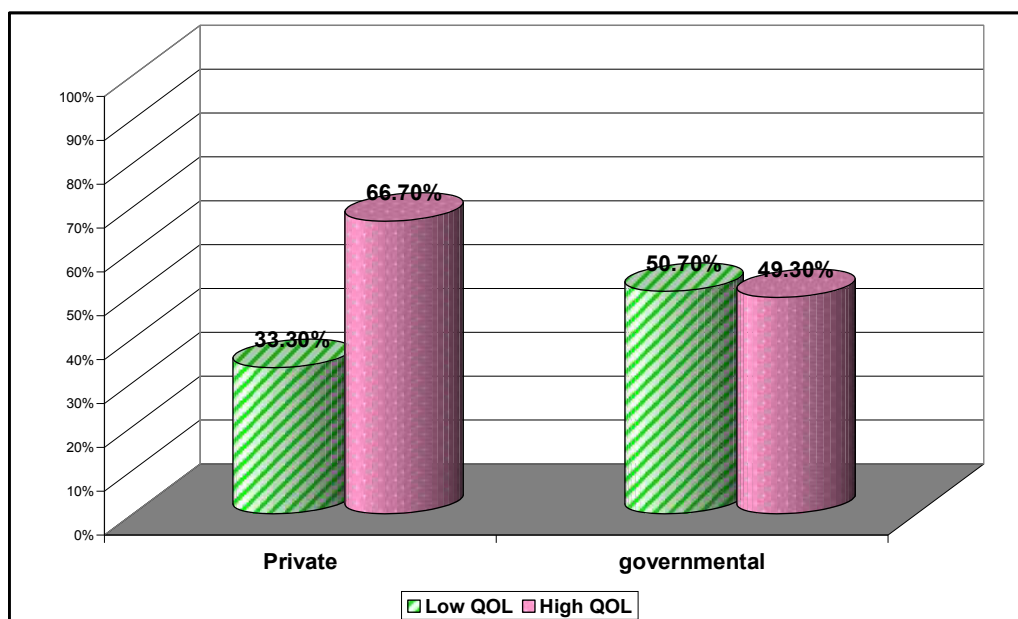

Figure (3) relationship between total QoL score and school type among obese pre-adolescent school age children

Figure (3) describes relationship between total score of PedQL and school. It was found that high PedQL score of studied obese children of private schools represent a higher percentage (66.7%) than governmental school (49.3%) with statistical significant difference (p=0.06).

Discussion

Childhood obesity represents a serious public health problem and it is considered an early risk factor for many adults' diseases and even death. Obese children tend to be obese adult and that lead to the early initiation of possible life time long term health problems. Health related quality of life (HRQoL) has been shown different types of impairments in relation to obesity, especially psychosocial, physical and social functioning domains being mostly affected in obese children with reduced health related quality of life (HRQoL). [21]Since childhood obesity can lead to such problems, efforts to examine Health- Related Quality of Life (HRQoL) of obese children have been increased. [22]

Obese children reported poorer quality of life not only in total scale score, but also in all dimensions of physical, emotional, social, school functioning domains which suggest that obesity has a negative impact on the children's daily life. These findings are consistent with the study that was done by Riazi et al. (2010) [9] in the United

Kingdom, who stated that obese and overweight groups reported impairment in all HRQoL dimensions. However, these findings are not in agreement with Hughes et al (2007). [23] In the United Kingdom, who found that only the physical health was significantly impaired in obese children aged 8–12 years.

On assessing total quality of life score with some studied characteristics among the obese children, it was found that there was a significant relation between total quality of life scores and parent education, occupation and life style score, these findings are consistent with Khairy et al, (2016) [19] who found that there was a significant positive correlation between total quality of life scores and father's education, mother's education and father's occupation.

In the current study it was found that there was a significant positive correlation between total QoL score and BMI. The results of our study were in consistent with Farahani et al (2014) [24] .stated that there was a highly significant negative correlation between quality of life and BMI-age and sex specific percentiles.

Conclusion

Based on the results of this study, it can be concluded that:

- Obesity has a negative impact on the children's daily life.
- Obese children reported poorer quality of life as regards the Physical, emotional, social, school functioning domains and Total quality of life.

Recommendations

Based on the finding of the current study, the following recommendations are suggested:-

- Strategies should be directed toward improving the quality of life of overweight and obese adolescents.
- We are in a bad need to increase public awareness and information about healthy balanced diet, nutritional needs, and practicing adequate physical activities in all age groups especially school age through mass media
- School nutritional health education programs must be organized to encourage healthy eating habits as a routine part of healthy life for all, with a combination of exercises on a daily basis.

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