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IMPACT OF OVER WEIGHT ON QUALITY OF LIFE AMONG PREPARATORY SCHOOL CHILDREN

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ABSTRACT:

The study aims to assess the impact of over weight on quality of life in preparatory school children. A survey study was conducted in El-Nahda and Eaasmat Afefy Preparatory schools in Assiut City during academic year2005¥2006. The systematic random sample was used for this study on every fourth class. The total sample was 440 students girls. Every class contains about 55 girls. Three tools were designed specifically to collect data; first tool: Questionnaire sheet to assess demographic data; second tool: to assess weight and height of students and BMI and third tools : Quality Of Life (QOL) questionnaire sheet. The original scale was constructed by Lehman (1986) to assess (QOL) of students. Study showed that mean age of studied students was 13 years mean weight was 51.6 Kg, and mean height was 154 cm. The majority of students were normal weight 72.3% but 16.8% of students were at risk for overweight, only 3.6% of them were overweight and 2.5%obese, 4.8% of sample were under weight. Statistically significant differences were observed between the three categories of overweight in levels of QOL; while the majority of students had low Quality Of Life (83.8%) compared to only 16.2% moderate level (QOL) and no high (QOL) in the three categories. The school is an ideal setting for promotion of new health behaviors school health nurse and specialists in pediatric nursing should work in collaboration with teachers and other educator in the community to achieve positive outcome related to childhood overweight and obese.

INTRODUCTION:

Obesity is defined as an excessively high amount of body fat or adipose tissue in relation to lean body mass (National Center for Education in Maternal and Child Health. 2002). Also it is a biological meaning as it identifies those children who are most likely to experience co morbidity, such as persistence of obesity, presence of clustering of cardiovascular risk factors, and psychological problems (Reilly *et al*, 2003).

Quality Of Life (QOL) is a broad concept with multiple dimensions [domains] that include the subjective sense of physical and mental well being. A more specific use of the term is health related [QOL] which focuses on the changes in physical and mental health domains that may

cause diseases. (Amarantos *et al*., 2001, Vellas *et al.* 1999 and Silventoinen *et al.*, 2004).

Childhood overweight has become a major public health concern in the United States. The prevalence of overweight is increasing at such a dramatic rate throughout the country that it has been described as a pandemic (Kimm & Obarzenek, 2002). The National Health and Nutrition Examination Survey (NHANES) data from 1999 to 2002, which includes all US race and ethnic groups, indicates that 31% of children of ages 6-19 years are either overweight with a Body Mass Index (BMI) greater than the 95th percentile of the reference population or at risk for overweight with a BMI between the 85th and 95th percentiles (U.S. Department of Health and Human Services (USDHHS, 2004a).

Pediatric overweight is associated with increased medical morbidity and negative psychological functioning (Banis *et al*., 1988 & Goldfield *et al*., 1995). Limitation prior research also suggests that obesity affects significantly the [QOL] of adolescence, (Ravens-Sieberer *et al*. 2001, Muller *et al*., 2001, Wake *et al* 2002, Schwimmer *et al*., 2003, Friedlander *et al.* 2003, and Williams *et al* 2005)

The use of definition of obesity based on body mass index is acceptable as an outcome measure, but no definition of obesity is ideal (Cole *et al.*, 2002, and Reilly *et al.*, 2002).

The prevalence of obesity has become one of the most common health concerns in the United States. The prevalence of over weight among children and adolescents has been increasing at an alarming rate (Strauss and Pollack 2001, Ogden *et al*., 2002). Obesity carry a burden on the children in their future lives. It has become the most prevalent nutritional problem in Egypt. It occurs in all groups and is more prevalent in meals than males. The problem seems to develop at a young age (Amin *et al*., 1996). Eid *et al*., (1986) reported that 26.8% of girls aged 6-17 years were obese.

Potential risk factors associated with the risk of overweight are birth weight, parental obesity, sleep duration and television viewing remained independently (Dorosty *et al.*, 2000). Parental obesity may increase the risk of overweight through genetic mechanisms or by shared familial characteristics in the environment such as food preferences (Lee & Birch, 2000).

Duration of night time sleep may alter risk of obesity through growth hormone secretion or because sleep reduces the child's exposure to factor's in the environment that promote overweight, such as food intake in the evening. Alternatively, duration of night time sleep may be a marker for some other variable such as level of physical activity- that is children who are more physically active sleep at night. Television viewing may confer risk through a reduction in energy expenditure because watching television is associated with dietary intake, or because large amount of time spent sedentary may contribute to impairment of the regulation of energy balance by uncoupling food intake from energy expenditure (Gortmarker *et al*., 1999).

Recently, researches have begun to document the impact of elevated BMI on Health Related Quality Of Life (HRQOL) is a construct that attempts to provide a generalized assessment of well being measured along multiple dimension, including physical functional, psychological and social well being (CDC 1994). One recent study found serious adverse consequences of obesity on HRQOL in a clinical sample of severely obese children and adolescents 5 to 18 years of age (Schwimmer *et al*., 2003).

It is within the school setting that children are socialized to accept the standards and values of their society. As the values and standards of health change, the school is an ideal setting for promotion of new health behaviors. Specialists in nursing should work collaboratively with teachers and other educators in the community to achieve positive outcomes related to childhood overweight.

Aim of the study:

To assess the impact of over weight on (QOL) among preparatory school children.

MATERIAL AND METHODS:

Setting:

This study was conducted in East and West of Assiut City (El-Nahda and Eaasmat Afefy preparatory Girls Schools).

Sample:

A convenience sample of this study comprised 440 preparatory school students aged 12-14.5 years; 220 in every school. Every school includes 20 classes; 10 in every grade. The systematic random sample was used for this study every fourth class. Every class contains about 55 students. Grade 8 was not included because of the policy regulations of Ministry of Education policy, so only grade 7 and grade 9 is found in the year 2005/2006.

Tools:

First tool: An interview questionnaire sheet to assess demographic data which include student's name and age, family number, father's and mother's education, occupation, density and income.

Second tool: To assess weigh and height of students and BMI.

Third tool: (QOL) questionnaire sheet. The original scale was constructed by Lehman 1986 to assess (QOL) of students. The scale was modified by the researchers to measure the current concept under study. It consists of 44 items divided into six domains or subscales as follows:

- **First subscale comprising 8 items covering the physical health.**
- **Second subscale consists of 12 items reflecting emotional status.**
- **Third subscale include 8 items representing student's social relationship.**
- **The fourth consists of 6 items related to independence.**
- **The fifth subscale include 4 items representing home environment.**
- **The last subscale consists of 6 items to collect data about spiritual concerns and personal beliefs.**

Responses were measured on a 3 point Likert Scale ranging from 0-2 in which the higher the score, the better the QOL.

The total score was 88; a student who obtained a score less than 44 points were considered to have a low QOL, while those who scored between 44 to less than 66 points were considered to have a moderate QOL, and finally those who scored more than 66 points were considered to have high QOL.

Fourth tool: Sheet to assess factors affecting overweight which include data about eating habits, soft drink, eating during watching T.V, sleep disturbance, sleep time, sleep after launch and exercise.

Methods:

1-A pilot study was carried out on 5% of children and it was excluded from the study sample to test the feasibility and the clarity of the questionnaire and to estimate the length of time needed to fill the sheet. As a result of the pilot study, the necessary modification in the sheet was done and the final form was developed.

2-Data collection: permission was obtained from the Under Secretary of Education in Assiut Governorate. Also, permissions from school mangers to allow the students to participate in the study was obtained with permission from students to share in the study.

Data were collected from students during the academic year 2005/2006.

The interview was conducted at school 2 days per week. The number of students was about 8 per day and the average time taking to fulfill the sociodemographic sheet was 20 minutes, 10 minutes to measure weight and height and calculate BMI and plotting it on percentile chart, and additional 20 minutes for (QOL) sheet (for overweight students) only the sociodemographic sheet was distributed to the students after explaining it to them by the researchers, then they were asked to fulfill the sheet. Weight and height were measured to all students using a balance scale. BMI was calculated to all students by dividing their weight in Kg by/height in meters square of (Kg/m^2).

Weight status was defined by using Egyptian BMI percentile charts (El-Zanety, 2001). The age and gender specific BMI growth charts provide a statistical definition of weight status for ages ranging from 2 to 21 years.

Overweight risk was defined as a BMI of 85th through 94th percentile, overweight was defined as 95th through less than 97th percentile and obese was defined as ≥ 97th percentile. While normal BMI was between 5th and <85th percentile. Students who fall below 5th percentile were considered as underweight. After calculating BMI for all students (N=440), QOL and the fourth questionnaire sheets were fulfilled only from students who were at risk for overweight, overweight or obese.

3-Analysis of data: data collected were coded, tabulated and analyzed using Statistical Package of Social Science (SPSS) version 11. Frequency, percentage, mean and standard deviation were calculated using the computer. Comparison of tabulated data was done using chi-square and ANOVA which p-value of 0.05 is considered significant.

RESULTS:

Table (1) shows distribution of study sample by socio-demographic characteristics. It was found that mean age of studied students was 13 years., and their mean weight was 51.6 kg, mean height was 154 cm While mean family number was 5.9. As regards fathers, education, near half of the sample (45.9%) had university and higher education. According to mothers education, it was clear that more than one third (34.8%) of students, mother had university education and higher. About three fourths of the studied sample their fathers occupation was employer. More than half of mother's students work (55.5%).

Table (2) shows characteristics of studied sample according to their (BMI). The majority of students were normal (72.3%), (16.8%) of students were at risk for overweight, while only (3.6%) of them were overweight and (2.5%) were obese. As regards underweight was represented by (4.8%) of the sample.

Table (1): Soico-demographic characteristics of studied sample (N=440)

Items	Mean ± SD	
Age (years)	13.0 ± 0.85	
Weigh (kg)	51.6 ± 13.6	
Height (cm)	154 ± 8.0	
Family size	5.9 ± 1.6	
	No	%
Father Education:		
- Illiterate	15	3.4
- Basic education	73	16.6
-Secondary	150	34.1
- University and high	202	45.9
Mother education:		
- Illiterate	44	10
- Basic education	60	13.6
-Secondary	183	41.6
- University and high	153	34.8
Father occupation :		
- Employer	329	74.8
- Private	111	25.2
Mother occupation :		
- House wife	244	55.5
- Working	196	44.5
Income:		
-Low ↓200 (L.E. /m)	85	19.3
- Moderate 200 - 800 (L.E./m)	199	45.2
- High ↑ 800(L.E./m)	156	35.5

Table (2) : Percentile distribution of studied sample according to their (BMI)

Items	No	%
(BMI) degree:		
-Under weight	21	4.8
-Normal	318	72.3
- At risk	74	16.8
-Over weight	16	3.6
- Obese	11	2.5

Table (3) shows mean scores of QOL for different categories of overweight. Statistically significant differences were found between three categories of overweight (at risk for overweight, overweight and obese) and the total score of QOL and the three domains; physical health emotional state and social relationship.

Table (4) shows the distribution factors affecting overweight by different categories. As regard risk factors for obesity in child hood. 74 of child at risk, 16 over weight and 11 obese. (90.9%) of obese child's preferred food rich fat, 81.8% eating between meal, 63.6% take snakes (soft drink), 50% of them duration of sleep more than 12 hours and 54.5% practicing exercise. More over the overweight children 75% of them prefer food rich in fat. 81.3% eating between meals, 68.8% take soft drink, 57.2% duration of sleep more 12 hours than 57.2% and 56.3% practicing exercise. While at risk child 58.1% preferred food rich in fat, 63.5 number of meals three meals/day, 81.1% eating during watching T.V, 71.6% sleep after eating meal and 81.1% practicing exercise.

Table (5) shows frequency distribution of levels of QOL for above than normal BMI students. Statistically significant differences were observed between three categories of overweight and levels of QOL. As regards at risk of overweight students the majority of them had low QOL(83.8%) compared to only (16.2%) had moderate QOL while high QOL was not found in the three categories.

Table (3): Mean score of (QOL) for different categories of overweight

(QOL) domain scores	Categories of overweight			
	At risk (N=74)	Overweight (N=16)	Obese (N=11)	P value
Physical health	8.7 ± 2.0	7.4 ± 0.9	7.7 ± 1.2	0.025*
Emotional state	12.4 ± 2.5	11 ± 1.2	11.2 ± 1.4	0.038*
Social relationship	9.7 ± 2.4	9.5 ± 2.5	11.2 ±1.6	0.045*
Independence	4.3 ± 1.7	4.2 ± 1.3	5.2 ±1.5	0.147
Home environment	2.1 ± 1.5	1.5 ± 1.2	1.9 ± 1.5	0.403
Spiritual concern and personal beliefs	1.7 ± 1.9	1.4 ± 1.4	1.7 ± 1.5	0.861

Used ANOVA

Table (4) : Distribution of factors affecting overweight

Items	Categories of overweight						P value
	At risk (N=74)		Overweight (N=16)		Obese (N=11)		
	No	%	No	%	No	%	
Food type preferred[#] :							
-Carbohydrate	34	45.9	5	31.3	6	54.5	0.984
- Protein	27	36.5	8	50.0	5	45.5	0.375
- Fat	43	58.1	12	75.0	10	90.9	0.020*
- Vitamins & minerals	16	21.6	2	12.5	4	36.4	0.539
Number of meal/day:							
- Two meals	12	16.2	4	25.0	4	36.4	
- Three meals	47	63.5	8	50.0	5	45.5	
- Four meals	10	13.5	1	6.3	1	9.1	0.812
- More than four	5	6.8	3	18.8	1	9.1	
-Eating between meals	62	83.8	13	81.3	9	81.8	
Eating habits[#]:							
Snacks:							
-Chips& biscuits	40	54.1	8	50.0	9	81.8	
-Cake or sandwich	22	29.7	5	31.2	0	0.0	
- Eating quickly	36	48.6	8	50.0	5	45.5	0.034*
- Eating during watching T.V.	60	81.1	9	56.3	6	54.5	
-Soft drink	48	64.9	11	68.8	7	63.6	
Sleep Condition :							
-Sleep disturbance	36	48.6	7	43.8	2	18.2	0.165
Duration of sleep/day (N=36)							
- 10- 12 hrs.	17	47.3	3	42.9	1	50.0	0.032*
- More than 12 hrs.	19	52.8	4	57.2	1	50.0	
- Sleeping after eating meal	53	71.6	8	50.0	4	36.4	0.050
Exercise[#]:							
-Practicing exercise	60	81.1	9	56.3	6	54.5	0.034*
Type of exercise							
-Walking	27	45	5	55.6	2	33.3	0.034*
- Running	21	35	2	22.2	2	33.3	
- Hand ball	7	11.7	2	22.2	2	33.3	0.773
- Football	5	8.3	0	0.0	0	0.0	

Using chi-square test

More than one answer was allowed #

Table (5): Frequency distribution of levels of QOL for above than normal BMI students

(QOL)	Categories of overweight						P value
	At risk (N=74)		Overweight (N=16)		Obese (N=11)		
	No	%	No	%	No	%	
Low (QOL) ↓ 45	62	83.3	15	93.7	6	54.5	0.026*
Moderate (QOL) 45-↓ 68	12	16.2	1	6.3	5	45.5	0.040*
High (QOL) 68↑	0	0.0	0	0.0	0	0.0	00.00*

Using chi-square test

DISCUSSION:

Over weight and obesity among childhood are very important, since most over weight children remain overweight in adulthood (Lissau, 2004).

Body mass was linked to assessments of general health and functional health in adolescents. We found that physical functioning decreased as BMI moved away from normal limits. Both underweight and overweight adolescents reported worse physical functioning than adolescents with normal BMI. A recent study by Silventonien *et al*., 2004 reported on both mean BMI as well as prevalence of over weight (BMI> or= 25 kg/m²). Decreasing trends in BMI were seen in Central and Eastern European countries. We did not detect a link between body mass and depression, self-esteem, or school/social functioning, except among the very youngest adolescents. Regarding (BMI) of students, our study indicated the majority of students were normal (72.3). (16.8) at risk for overweight, while only (3.6) of them were overweight and (2.5) were obese. As regards underweight was represented by (4.8) of the sample. The same results reported by (Silventionen *et al*., 2004) (75.5%) children were classified as not overweight; (20.2) overweight; and (4.3%) obese <0.001.

Even when we created a group of the most overweight adolescents in Add Health by creating a category of "obese" adolescents-defining obesity as a BMI category at or above the 97 th percentile plus 2 BMI units-we did not find that obese adolescents were more likely than their peers with normal BMI to report poor emotional, school, or social functioning. A causal relationship between obesity and psychological factors remains unclear. Adiposity is very visible, and children tend to rate disease and minor deformities as preferable to obesity at 6 yr of age. Children's perceptions of obesity emphasize laziness, selfishness, lower intelligence, social isolation, poor social functioning, and academic success as well as low levels of perceived health, healthy eating, and activity (Epsteine *et al*., 2001).

Also in line with the present study, Karon *et al*., 2005 has carried out a similar study on adolescents overweight reported significantly low (QOL).

Carrie *et al*., (2003) documented the effect oh high levels of inactivity and television viewing on childhood obesity, but other research has been undertaken in countries where the exposure to television has not been long term and where levels of television viewing have not been at very high levels except among selected children.

As regard risk factors for obesity in child hood, our study shows that 74 of children were at risk, 16 over weight and 11 obese. The most critical observation of cause of overweight is that children preferred types of food (54.5% of obese) rich carbohydrates, 81.8% eating between meals 63.6% take snakes (soft drink), 50% of them duration of sleep more than 10 hours and 54.5% practicing exercise. More over the overweight children 75% of them prefer food rich in fat. 81.3% eating between meals, 68.8% take soft drink, 57.2% duration of sleep more than 57.2% and 56.3% practicing exercise. While at risk child 58.1% preferred food rich in fat, 63.5 number of meals three meals/day, 81.1% eating during watching T.V, 71.6% sleep after eating meal and 81.1% practicing exercise.

The same results reported by Carrie *et al*., (2003) Analysis of snacking behavior found 11.0% of Chines participants reported consuming calories as snacks. Gortmaker*et al*., 1999 and Jahns *et al*., 2001) the decreased of physical activity, increased snacking and consumption of high- fat, high sugar foods, and decreased resting metabolic rate associated with television viewing. Not only can television viewing replace time spent in physically active pursuits, but it may also condition the child who is not hungry to snack when ever he or she is watching television Robinson (2001).

Carrie *et al*., (2003) documented the effect of high levels of inactivity and television viewing on childhood obesity, but other research by Wang *et al*., (2002) has been undertaken in countries where the exposure to television has not been long term and where levels of television viewing have not been at very high levels except among selected children.

Our study supported with Reilly *et al*., (2005) who said that environmental can determine the risk and the obesity and the most critical observers of causes of obesity (Dietz, 2001) believe that evidence suggests a causal role for sedentary behavior, consumption of sugar sweetened drinks (Dietz, 2001 & Parson, 1999).

Growth More over about night time sleep may alter later risk of obesity through hormone secretion, or because sleep reduces the child's exposure to factors in the environment that promote obesity, such as food intake in the evening. My study recommended that the use of formal weight loss programs in health care settings has increased in recent years. The school is an ideal setting for promotion of new health behaviors school health nurse and specialists in pediatric nursing should work collaboration with teachers and other educator in the community to achieve positive outcome related to childhood overweight and obese.

Community based approaches to weight management can include interventions in worksites and homes as well as multi modal community programs in a variety of regional locations. Increase researches that deserves further study including examining the recruitment and retention of participants into community and worksite programs .

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تأثير زيادة الوزن على نوعية الحياة لدي الأطفال في المرحلة الإعدادية

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تهدف الدراسة لتقيم تأثير زيادة الوزن على نوعية الحياة في المرحلة الإعدادية، وقد أجريت الدراسة بمدرستى النهضة الإعدادية وعصمت عفيفي الإعدادية بمدنية أسيوط أثناء العام الدراسي 2006/2005، وتم أخذ العينة بطريقة عشوائية منتظمة، واشتملت على أربع فصول لكل من المدرستين، يوجد بكل فصل 55 طالبة وكانت العينة الكلية 440 طالبة، وقد صممت الاستمارات لجمع البيانات، استمارة على البيانات الأولية، والثانية علي مقياس نوعية الحياة، والثالثة قياس الوزن المثالي (BMI).

وقد أوضحت نتائج الدراسة أن المتوسط الحسابي لعمر الطالبات 13 سنة، ووزنهن كان 51.6 كيلو جرام، وطولهن 154 سنتميتر، وأغلب الطالبات كانت أوزانهن طبيعية 72.3%، 16.8% من الطالبات معرضات لزيادة الوزن، 2.5% بدينات، 4.8% أقل من الوزن، كما وجد اختلافات إحصائية بين الفئات الثلاثة ومستوياتها، وكانت أغلبية الطالبات ذات مستوى منخفض لنوعية الحياة 83.3%، 16.2% كانت معتدلة، ولا يوجد مستوى عالي لنوعية الحياة. وقد أوصيت الدراسة بضرورة عمل برامج تدريبية عن الغذاء المثالي والنشاط الرياضي والمتابعة للطللبات المعرضات للسمنة عن طريق الزائرات الصحيات والممرضات والمدرسين بالمدارس.