Quality of life in obese children

Qualidade de vida em crianças obesas

Lital Moro Bass[1], Ruth Beresin[2]

ABSTRACT

Objective: To assess quality of life in obese children. **Methods:** A cross-sectional study was conducted with 30 obese children who attended the Health Promotion Center of Einstein Program in Paraisópolis Community. The following instruments were applied: quality of life assessment questionnaire; a questionnaire prepared by the authors and a survey in medical charts. **Results:** In the group of 30 obese children, 57% were female, ages ranging from four to ten years. The mean total score obtained through the quality of life assessment of obese children was 48.5. As to the four factors considered in the quality of life scale, leisure achieved the highest score, and autonomy the lowest. Regarding the results concerning each item of the quality of life assessment scale, the highest ranked items were those related to birthday parties and vacations. The lowest were related to admission to hospital and be away from the family. **Conclusion:** The findings of the present study concerning the general score of quality of life assessment in obese children was lower than those observed in studies evaluating quality of life in healthy children and children with associated disease, but no negative impact in the quality of life of obese children was demonstrated, although the total score was close to the cutoff score (< 48).

Keywords: Obesity; Child; Child nutrition disorders; Quality of life; Questionnaires

RESUMO

Objetivo: Avaliar a qualidade de vida de crianças obesas. **Métodos:** Foi realizado um estudo transversal com 30 crianças obesas que participam do centro de promoção e atenção à saúde do Programa Einstein na Comunidade de Paraisópolis. Foram aplicados os seguintes instrumentos: questionário de avaliação de qualidade de vida; questionário elaborado pelas autoras e pesquisa em prontuário. **Resultados:** Do grupo de 30 crianças obesas, 57% eram do sexo feminino e a idade das crianças variou de quatro a dez anos. O escore médio total obtido pela avaliação da qualidade de vida das crianças obesas foi de 48,5 pontos. Quanto aos quatro fatores que compõe a escala de avaliação de qualidade de vida, o fator lazer obteve o maior valor e o fator autonomia é o que apresentou o menor valor. Com relação aos resultados referentes a cada item da escala de avaliação de qualidade de vida, os itens com os mais altos escores foram àqueles relacionados a aniversário e férias. Os mais baixos escores estão relacionados à hospitalização e a estar longe da família. **Conclusões:** Os achados do presente estudo, quanto ao escore geral da avaliação da qualidade de vida das crianças obesas, foram mais baixos daqueles observados em estudos que avaliaram a qualidade de vida em crianças saudáveis e com doenças associadas, porém não foi demonstrado impacto negativo na qualidade de vida das crianças obesas, apesar do escore total estar próximo à nota de corte (< 48).

Descritores: Obesidade; Criança; Transtornos da nutrição infantil; Qualidade de vida; Questionários

INTRODUCTION

The prevalence of pediatric obesity is increasing in the modern world, and is considered a public health problem, especially in developed and developing countries[1].

Some surveys carried out in Brazil, in 1975 and 1997, found that the rate of new cases of child obesity increased from 3 to 15%. In the most developed regions of Brazil (Southeast), 17% of children are overweight. In the Northeastern region, it was 5% among boys and 12% among girls[2].

Obesity is defined by excessive and generalized accumulation of body fat, according to gender, weight and height, and is classified using tables of body mass index (BMI) percentiles, calculation of weight/height, the rate of the weight found and ideal weight[3]. The most common etiology is the unbalance between energy intake and energy expenditure, and it may begin at any time in life[4].

The increased incidence of obese children may be related to some factors, such as early weaning, eating disorders and impaired family relations, life style, and

Study carried out at Health Promotion Center of Einstein Program in Paraisópolis Community do Instituto Israelita de Responsabilidade Social da Sociedade Beneficente Israelita Brasileira Albert Einstein – SBIBAE, São Paulo (SP), Brazil.

[1] Nurse; Epidemiology analyst at Faculdade de Enfermagem do Hospital Israelita Albert Einstein – HIAE, São Paulo (SP), Brazil.

[2] Psychologist; Master's degree in Sciences from Faculdade de Medicina da Universidade de São Paulo – USP; Lecturer at Faculdade de Enfermagem do Hospital Israelita Albert Einstein – HIAE, São Paulo (SP), Brazil.

Corresponding author: Lital Moro Bass – Estrada das Flores, 151 – Bairro da Lagoa – CEP 06730-000 – Vargem Grande Paulista (SP), Brasil – Tel.: 11 8025-4999 – e-mail: litalmb@gmail.com

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to the new and inadequate eating habits of modern life, which makes available a range of low cost, tasty products, with high energy content and low nutritional levels, served in huge portions, along with decreased practice of physical exercise fostered by technological advances, such as television, computers, video games, among others[1,5-6].

Obesity may lead to severe consequences in the growth of children, as well as in respiratory, cardiovascular, metabolic, orthopedic and dermatological functions. It also impacts in psychosocial aspects: behavior disorders, depression, anguish, low self esteem and feeling of guilty[7].

In their continuous growth and development processes, when children present physical, body or behavioral changes that limit their opportunities to experience situations of acting and discovering the world, may feel unsafe and hinder their own development, thus reflecting on their quality of life[8].

Currently, the negative impact of obesity in the quality of life has been investigated worldwide in different studies. Most of them suggest the negative influence of obesity in health and psychological functioning, but a linear correlation between obesity and quality of life has not been well established[9].

The World Health Organization (WHO) defines quality of life as "the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns", in other words, a global view that considers many dimensions of the human beings[10].

The concept of "quality of life" in children has been defined as subjective and multidimensional, including the child's and family psychosocial interaction and the capacity to perform tasks. "Quality of life related to health status" encompasses the assessment of physical symptoms, functional capacity and social impact of the disease on the child and family[11].

For a sick child, well-being can mean how close to reality the wishes and hopes of the child are. The fulfillment of their individual needs and desires is subject to changes caused by daily events and chronic problems which impact on the child, as well as on those surrounding them[12].

To better understand the many interferences of obesity in the life of a child, the present study aims to assess the quality of life in childhood and its association with weight excess.

OBJECTIVE

To assess quality of life in obese children.

METHODS

It is a non-experimental exploratory, descriptive, quantitative study.

Study design

A cross-section study with obese children who attended the Health Promotion Centre (CPAS) of Einstein Program in Paraisópolis Community (PECP).

The following instruments were used: quality of life assessment scale (AUQEI) (Appendix A); questionnaire prepared by the authors (Appendix B); search in medical charts (Appendix C).

Sample

The study sample comprised 30 children aged from four to ten years, who attend the activities of the Nutrition Department and Einstein Program of Leisure and Sports in the Community (PELEC) of the CPAS, from PECP.

The CPAS develops socio-educative activities for more than 6,000 people residing in Paraisópolis, the second largest slum in the city of São Paulo. The activities encompass five areas: Health, Education, Sports, Adolescents and Social Work.

The Nutrition Department fosters socio-educative actions in health, considering the main nutrition diagnoses found in the Pediatrics outpatient's clinic and in the CPAS programs. The PELEC provides sport activities for children living in Paraisópolis.

Approximately 50 children aged from four to ten years attended the Nutrition Department at the time data were collected. Out of those, 30 (60%) children and respective guardians came for an interview, which was previously scheduled. That was the study's sample.

The inclusion criteria were: assessment of weight/height > or = 120 (obesity); the guardian had to agree to participate and sign the informed consent form.

Children with severe communication impairment were excluded.

Study field

The research was conducted at the Health Promotion Centre (CPAS) of the Einstein Program in Paraisópolis Community (PECP).

Instruments for data collection

Quality of life assessment scale

The instrument *Autoquestionnaire Qualité de Vie Enfant Imagé* (AUQEI) to assess the quality of life was developed in France, in 1997, by Manificat and Dazord.

It was translated and adjusted in Brazil, in 2000, by Assumpção Jr. et al. and validated after application in 353 healthy children aged 4 to 12 years, from a mid-class school in the city of São Paulo. Its psychometric properties were tested and achieved a cutoff point of 48, below which the quality of life of the children studied was considered impaired[13].

The questionnaire has 26 domains exploring child's satisfaction, family and social relations, activities, health, body functions and separations. Eighteen of the domains are contained in four factors, thus organized[13]:

- autonomy – aspects related to independence, peer relations and evaluations (questions 15; 17; 19; 23; 24);
- leisure – questions related to vacations, birthdays and relationship with grandparents (question 11; 21; 25);
- functions – questions related to activities at school, meals, sleeping, medical appointments etc. (questions 1; 2; 4; 5; 8);
- family – questions related to the opinion about parents and themselves (questions 3; 10; 13; 16; 18)[8,13].

The AUQEI allows self-assessment using images. For each question there is a domain and four answers represented by faces expressing different emotional states. Initially, the children were asked to present an experience of their own life, when looking at each alternative, enabling him/her to understand the situation and express their feelings[13]. The instrument is presented in Appendix A.

The scores vary from 0 to 3 corresponding to very unhappy, unhappy, happy and very happy, respectively. The higher scores represent better quality of life. The scale allows obtaining a single score, summing up the scores attributed to the domains[14].

Questionnaire

The sociodemographic questionnaire was prepared by the authors of the present study with multiple choice questions (Appendix B).

Instrument to collect data from medical charts

The instrument was created by the authors of the present study and completed with data from medical charts (Appendix C).

Procedures

In data collection

The data for this research were collected after approval of the research project by the Scientific Committee of Faculdade de Enfermagem do Hospital Israelita Albert Einstein and by the Research Ethics Committee of Hospital Israelita Albert Einstein, and after obtaining a consent from the institution where the study was performed to collect the data in the medical charts. Afterwards, the children and their guardians were invited to participate in the study. The guardians who accepted to take part were instructed and asked to sign the informed consent form. The researcher applied the questionnaire designed by the authors to the guardians (Appendix B), collected in the charts the data for the research (Appendix C) and, finally, applied the AUQEI to the children (Appendix A).

The data collected were used solely for the senior research project entitled "Quality of life in obese children". The subject identification was kept confidential, as established in the researcher commitment term.

Data analysis

The results related to the sociodemographic questionnaire and anthropometric data were presented through descriptive statistics and tables.

The data relative to the AUQEI were analyzed using descriptive statistics: mean, median and standard deviation (sd).

RESULTS

Sociodemographic characteristics

Out of the group of 30 obese children studied, 57% were female and the age range was from four to ten years, with a mean of 7.46 years.

Most of the obese children (93%) attended school, 83% were in primary and junior school.

As to family, 80% of the parents lived together and in daily routine, 57% of children were cared by mothers. Most of the obese children (77%) had siblings and 37% had one brother or sister.

The family income varied between one and five minimum wages per month, representing 83% of the sample studied (Table 1).

Anthropometric data of the obese children

Fifty percent of obese children weighted between 20 and 34 kg, and 60% measured between 130 and 144 cm. The weight/height rate of 70% of obese children was between 120 and 139 (Table 2).

Quality of life in obese children

The mean total score obtained through the assessment of quality of life of obese children was 48.5, median of 48.5, sd of 6.3, in a scale ranging from 0 to 78.

Table 1. Distribution of sociodemographic characteristics of obese children

Variable	n	%
Sex		
Male	13	43.3
Female	17	56.7
Age		
4 to 6	6	20.0
7 to 10	24	80.0
School attendance		
Yes	28	93.3
No	2	6.7
Schooling		
Junior school	25	83.3
Pre-school	3	10.0
Does not apply	2	6.7
Parents live together		
Yes	24	80.0
No	6	20.0
Who takes care of the child daily?		
Mother	17	56.7
Grandmother	5	16.7
Others	8	26.7
Siblings		
Yes	23	76.7
No	7	23.3
Number of siblings		
None	7	23.3
One	11	36.7
Two	4	13.3
From 3 to 4	8	26.7
Family income in minimum wages (R$ 410.00)		
< 1	4	13.3
1 to 5	25	83.3
6 to 10	1	3
Total	30	100

Table 2. Distribution of anthropometric data in obese children

Variable	n	%
Weight (kg)		
20 - 34	15	50.0
35 - 49	14	46.7
50 - 64	1	3.3
Height (cm)		
100 - 114	3	10.0
115 - 129	9	30.0
130 - 144	18	60.0
W/H (%)		
120 - 139	21	70.0
140 - 159	6	20.0
160 - 179	3	10.0
Total	30	100

As to the four factors comprising the AUQEI, leisure had the highest value (7.4 and sd = 1.1) and autonomy, the lowest (6.1 and sd = 1.9) (Table 3).

Using the cutoff score of 48, 57% (17) of obese children were in the range of 48 or more, i.e., not impaired quality of life, and 43% (13) achieved a score lower than 48, i.e., impaired quality of life.

Concerning the results of each AUQEI item, those with the highest scores were birthday and vacations. The lowest scores were hospitalization and being away from the family (Table 4).

Table 4. Distribution of the profile obtained from the quality of life assessment of obese children. Scores obtained in each question answered

	Question	Score	Mean
Q1	At the table, with the family	74	2.5
Q2	At night, when going to bed	50	1.7
Q3	If you have siblings, when you play wit them	72	2.4
Q4	At night, when sleeping	59	2
Q5	At the classroom	64	2.1
Q6	When you see your own picture	64	2.1
Q7	When playing, during school break	58	1.9
Q8	When you go to a medical appointment	47	1.6
Q9	When you practice any sports	75	2.5
Q10	When you think about your father	70	2.3
Q11	On your birthday	82	2.7
Q12	When you do your homework	59	2
Q13	When you think about your mother	73	2.4
Q14	When you stay at hospital	21	0.7
Q15	When you play alone	24	0.8
Q16	When your father or your mother talk about you	39	1.3
Q17	When you sleep out of your home	46	1.5
Q18	When someone asks you to show something you know how to do	58	1.9
Q19	When your friends talk about you	34	1.1
Q20	When you take medicines	42	1.4
Q21	During vacations	78	2.6
Q22	When you think about when you grow up	61	2
Q23	When you are away from your family	20	0.7
Q24	When you receive your school grades	59	2
Q25	When you are with your grandparents	62	2.1
Q26	When you watch TV	65	2.2

Table 3. Descriptive measures of scores and their factors according to the quality of life assessment scale (AUQEI)

AUQEI - Factors	Mean	Median	Standard deviation	Variation	
				Obtained	Possible
Autonomy	6.1	6.0	1.9	2 - 10	0 - 15
Leisure	7.4	7.0	1.1	4 - 9	0 - 9
Functions	9.8	10.0	1.9	7 - 14	0 - 15
Family	10.4	11.0	2.0	7 - 15	0 - 15
General AUQEI	48.5	48.5	6.3	39 - 70	0 - 78

DISCUSSION

According to the mean score obtained by the assessment of quality of life of obese children in this study, the result demonstrates that obese children do not have impaired quality of life.

The mean total score obtained by the obese children in the present study was lower than the mean score found in a research conducted with healthy children, who obtained a score of 52.1. The result of this study was also lower than that reported by Murer, which assessed the quality of life of healthy children who exercised in gyms, scored 70.5[13,15].

Kuczynski evaluated the quality of life of children and adolescents who were healthy or had chronic diseases. Healthy children had a mean score of 58.43 and those with acute lymphoid leukemia or juvenile rheumatoid arthritis had a mean score of 54.64 and 57.18, respectively. Those scores were higher than the ones present in this study[16].

Considering the four factors comprising the AUQEI, leisure achieved the highest score, and autonomy, the lowest. As to results concerning each item of the AUQEI, the highest scores were for birthday and vacations. And the lowest scores were related to hospitalization and being away from the family.

These results are similar to those found in investigations on quality of life of children with ostomies[8], children and adolescents with HIV/AIDS[14] and children with sickle cells disease[17].

The factor leisure had the highest score in the assessment of quality of life of obese children, reinforcing the importance of recreation for well-being, pleasure and satisfaction of children[18].

In this study, the factor autonomy had the lowest score in the assessment of quality of life, and this result may reflect the difficulties imposed by the disease (obesity). In child development, the search for independence and autonomy in pre-school years and the development of skills and competences in school years may be impaired by deviations of physical normality and repercussions[19].

Another aspect that may influence in autonomy is the group of friends, who are important socializing agents in the life of children during school years. Identification with peers seems to be highly influent in the acquisition of independence from the parents[19]. Obese children may be impaired in the socialization process, since they are more often bullied by peers and are less accepted than other children in groups of friends[20].

Another important aspect is that children are aware of their own bodies, of the bodies of their peers and of adults, and also compare deviations from normality. During this period, physical impairment may become more important. The growing awareness of those differences, especially when followed by unpleasant comments and jokes from other children, may make children feel inferior and less desirable. This is particularly true when the "defect" interferes in the capacity of the child to participate in games and activities[19].

The AUQEI is a tool to assess the subjective feeling of well-being[13]. Although it was not conceived to assess specific domains related to child obesity, this instrument can show, based on satisfaction of the obese child, family and social relations, activities, health and body functions.

In summary, psychological, social, and behavior problems can occur in obese individuals; very often they suffer discrimination and social stigmatization, hindering their psychic and physical functioning, which may cause a negative impact in their quality of life[21].

Further studies with larger samples of obese children may offer more subsidies to promote strategies and interventions to improve the quality of life of these children.

CONCLUSIONS

The findings of the present study concerning the general score of quality of life assessment in obese children was lower than the scores observed in investigations evaluating quality of life in healthy children as well as children with associated diseases, but no negative impact was demonstrated in the quality of life of obese children, although the total score was close to the cutoff point (< 48).

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Appendix A. Quality of Life Assessment Scale (AUQEI)[13]

Are you sometimes very unhappy? Why?

Are you sometimes unhappy? Why?

Are you sometimes happy? Why?

Are you sometimes very happy? Why?

Tell how you feel:		**Very unhappy**	**Unhappy**	**Happy**	**Very happy**
1.	At the table, with the family	( )	( )	( )	( )
2.	At night, when going to bed	( )	( )	( )	( )
3.	If you have siblings, when you play wit them	( )	( )	( )	( )
4.	At night, when sleeping	( )	( )	( )	( )
5.	At the classroom	( )	( )	( )	( )
6.	When you see your own picture	( )	( )	( )	( )
7.	When playing, during school break	( )	( )	( )	( )
8.	When you go to a medical appointment	( )	( )	( )	( )
9.	When you practice any sports	( )	( )	( )	( )
10.	When you think about your father	( )	( )	( )	( )
11.	On your birthday	( )	( )	( )	( )
12.	When you do your homework	( )	( )	( )	( )
13.	When you think about your mother	( )	( )	( )	( )
14.	When you stay at hospital	( )	( )	( )	( )
15.	When you play alone	( )	( )	( )	( )
16.	When your father or your mother talk about you	( )	( )	( )	( )
17.	When you sleep out of your home	( )	( )	( )	( )
18.	When someone asks you to show something you know how to do	( )	( )	( )	( )
19.	When your friends talk about you	( )	( )	( )	( )
20.	When you take medicines	( )	( )	( )	( )
21.	During vacations	( )	( )	( )	( )
22.	When you think about when you grow up	( )	( )	( )	( )
23.	When you are away from your family	( )	( )	( )	( )
24.	When you receive your school grades	( )	( )	( )	( )
25.	When you are with your grandparents	( )	( )	( )	( )
26.	When you watch TV	( )	( )	( )	( )

Appendix B. Sociodemographic questionnaire

School attendance: ( ) Yes ( ) No

- Schooling: ( ) Pre-school ( ) Primary/Junior school

- Do parents live together? ( ) Yes ( ) No

- Who takes care of the child daily? : ( ) Father ( ) Mother ( ) Others:_____

- Siblings: ( ) Yes ( ) No How many? _____

- Family income in minimum wages (R$ 410.00)

( ) < 1 ( ) 1 to 5 ( ) 6 to 10 ( ) 11 or more

Appendix C. Data from medical chart

Date of birth __/__/__ Age: ____ Gender ( ) M ( ) F

Anthropometric data

Weight: _____ W/H: _____

Height: _____