

Quality of life of caregivers of overweight or obese children and adolescents*

QUALIDADE DE VIDA DE CUIDADORES DE CRIANÇAS E ADOLESCENTES COM SOBREPESO OU OBESIDADE

CALIDAD DE VIDA DE CUIDADORES DE NIÑOS Y ADOLESCENTES CON SOBREPESO O OBESIDAD

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ABSTRACT

This study evaluated the health-related quality of life (HRQL) of caregivers of overweight and obese children and adolescents. Three-hundred and sixty caregivers of children and adolescents (ages ranging from 9 to 12 years) diagnosed with overweight (n=96; average age 11.1 years), obesity (n=62; average age 10.9 years) and eutrophy (n=202; average age 10.7 years), regular students of public and private schools in Uberlândia (Minas Gerais), were invited to answer "The 36 item Short Form Questionnaire" (SF-36). The scores obtained were compared according to the body mass index (BMI) of the children and adolescents, and no significant differences were found between caregivers of overweight, obese and eutrophic children and adolescents. Hence, there is no harm to the HRQL of caregivers of overweight and obese children and adolescents.

DESCRIPTORS

Quality of life
Caregivers
Child
Adolescent
Overweight
Obesity

RESUMO

Este estudo avaliou a qualidade de vida relacionada à saúde (QVRS) de cuidadores de crianças e adolescentes com sobrepeso e obesidade. Trezentos e sessenta cuidadores de crianças e adolescentes com idade entre 9 e 12 anos, com diagnóstico de sobrepeso (n=96; idade média=11,1 anos), obesidade (n=62; idade média de 10,9 anos) e eutrofia (n=202; idade média de 10,7 anos), matriculadas em escolas públicas e particulares da cidade de Uberlândia (MG), foram convidados a responder o questionário "The 36 item Short Form Questionnaire" (SF-36). Os escores obtidos pelo questionário foram comparados segundo o índice de massa corpórea (IMC) das crianças e adolescentes e não foram encontradas diferenças significativas entre os cuidadores de crianças e adolescentes com sobrepeso, obesidade e eutrofia. Logo, os cuidadores de crianças e adolescentes com sobrepeso ou obesidade não apresentam prejuízo na sua QVRS.

DESCRIPTORIOS

Qualidade de vida
Cuidadores
Criança
Adolescente
Sobrepeso
Obesidade

RESUMEN

Este estudio evaluó la calidad de vida relacionada a la salud (QVRS) de cuidadores de niños y adolescentes con sobrepeso y obesidad. Trescientos sesenta cuidadores de niños y adolescentes con edad entre 9 y 12 años, con diagnóstico de sobrepeso (n=96; edad media=11,1 años), obesidad (n=62; edad media 10,9 años) y eutrofia (n=202; edad media 10,7 años), matriculados en escuelas públicas y particulares de la ciudad de Uberlândia (MG, Brasil), fueron invitados a responder el cuestionario "The 36 items Short Form Questionnaire" (SF-36). Los puntajes obtenidos por el cuestionario fueron comparados según el índice de masa corporal (IMC) de los niños y adolescentes y no se encontraron diferencias significativas entre los cuidadores de niños y adolescentes con sobrepeso, obesidad y eutrofia. Se infiere que los cuidadores de niños y adolescentes con sobrepeso y obesidad no presentan perjuicio en su QVRS.

DESCRIPTORIOS

Calidad de vida
Cuidadores
Niño
Adolescente
Sobrepeso
Obesidad

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INTRODUCTION

Child obesity is an emerging public health problem and this is a source of concern, as a direct relation exists between a high body mass index in childhood and hyperlipidemia, insulin resistance, hypertension, obesity and cardiovascular disease in adult life⁽¹⁾. Most of the consequences for health (respiratory, orthopedic, gastrointestinal, neurological and endocrine) will be clinically relevant in adult life only. Immediate morbidities (hepatic steatosis, sleep apnea, slipped capital femoral epiphysis and type 2 diabetes) can occur in overweight and obese children and adolescents⁽¹⁾. Psychosocial repercussions, however, such as low self-esteem⁽²⁾, stigmatization and compromised quality of life, are the most significant in the short term⁽¹⁾. The increase in the Body Mass Index (BMI) is inversely proportional to children and adolescents' quality of life⁽²⁻⁸⁾.

The repercussions of chronic illnesses also affect the family universe and can hamper its members' quality of life and family dynamics (comprising the home economy and care for the other children)⁽⁹⁾. Family caregivers to children and adolescents with chronic health problems do not only have their common responsibilities, but also assume additional tasks to comply with their children's treatment agenda.

According to the World Health Organization, quality of life (QoL) is defined as

individuals' 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⁽¹⁰⁾.

In the biomedical area, health-related quality of life (HRQoL) describes individuals' perception in the physical, psychological and social function.

Programs to welcome and treat children and adolescents with overweight and obesity show diverging results. A study carried out in 2005 found negative results in treatment for these children⁽²⁾, while another carried out in 2008⁽⁷⁾, showed favorable treatment results, reducing harm for quality of life. Better knowledge on patients and family members' psychosocial demands may contribute to more effective health actions⁽⁶⁾. Hence, the assessment of patients and family caregivers' wellbeing can contribute to analyze the results of health actions for the treatment of overweight and obesity in this age range.

Until date, the HRQoL of caregivers to overweight and obese children and adolescents has not been assessed. As the main health problems deriving from this disease are not immediately perceptible⁽⁴⁾, it is postulated that caregivers to children and adolescents with overweight/obesity show no negative impact on their HRQoL, although it contributes to higher stress levels among caregivers⁽¹¹⁾.

OBJECTIVE

The goal of this study is to get to know the HRQoL of caregivers to children and adolescents with overweight or obesity through the SF-36 (36 - Item Short Form Health Survey Questionnaire).

METHOD

A cross-sectional research was carried out, after obtaining approval from the Institutional Review Board at Universidade Federal de Uberlândia on June 17th 2005, under protocol No 129/05. The study was accomplished between August 2005 and February 2006, with the cooperation of three previously trained research aids.

Participants

Caregivers (parents or responsible persons) to children and adolescents enrolled in public and private schools from different regions of Uberlândia (North, South, East, West and Center) were invited to participate in the study, with ages ranging between nine and twelve years and whose nutritional status was marked by overweight, obesity and eutrophy.

To calculate the sample size, prevalence levels of 10% for overweight and 2 to 3% for obesity were considered among children and adolescents⁽¹²⁾, as well as the number of children and adolescents enrolled in private and public schools in Uberlândia-MG, in the age range chosen for the study. A 95% confidence interval and a maximum error of 3% were set.

A proportion of 3:1 was maintained between the group of caregivers to obese children and adolescents and the group of caregivers to eutrophic children and adolescents, and 2:1 between the overweight and eutrophic group.

Caregivers to overweight and obese children and adolescents constituted the study groups. For the sake of comparison, caregivers to eutrophic children and adolescents were selected.

The children and adolescents' nutritional status was assessed through the Body mass index (BMI = Weight/Height²) and Height/Age indicators, expressed as the difference between the observed ratios and the reference ratios for age and gender, with distance from the mean quantified in percentiles, according to the reference population. The Center for Disease Control's anthropometric standard was used for reference purposes⁽¹³⁾.

The anthropometric Height/Age ratio higher than percentile 3 and BMI between percentiles 5 and 85 were defined as eutrophy; BMI equal to or higher than percentile 85 but lower than percentile 95 as overweight, and BMI equal to or higher than percentile 95 as obesity.

...the assessment of patients and family caregivers' wellbeing can contribute to analyze the results of health actions for the treatment of overweight and obesity...

Obese children and adolescents were classified according to the severity percentage of the BMI in percentile 95, through the formula: % severity of BMI P95 = (current BMI/ BMI P95) X 100⁽¹⁴⁾

Mild obesity was considered as the case in which the severity percentage of the BMI in percentile 95 reached up to 110%, moderate between 111% and 120%, and severe above 120%.

Caregivers who reported chronic illnesses were excluded from all groups.

Anthropometric measures

Anthropometric measures were taken according to the World Health Organization's descriptions⁽¹⁵⁾:

- *Weight* – platform scales were used, brand Marte, capacity up to 200 kg and 50-gram division.
- *Height* – height was measured with a 150-centimeter metric tape, with one-millimeter precision, with the help of a wooden set square.

Instrument: The 36 – Item Short Form Health Survey Questionnaire (SF - 36)

The SF-36 is a generic instrument for HRQoL assessment, widely used to assess different health conditions. The questionnaire was translated to Portuguese, validated and culturally adapted for the Brazilian population⁽¹⁶⁾. The SF-36 is based on a multidimensional health model that comprises two components – the physical and the mental. The physical component contains the following domains: role limitations due to physical health, general health perceptions, bodily pain and physical functioning. The mental component contains the domains of mental health, vitality, social functioning and role limitations due to emotional problems.

The domain scores are obtained by adding up the item scores in each domain, just like the component scores derive from the related domains, ranging from 0 to 100, which indicates the worst and best possible general health perceptions, respectively.

To test the reliability of the SF-36, i.e. this instrument's degree of precision, the reliability of the instrument's internal consistency was verified.

Procedures

After drafting the schools that would participate in the research, the persons in charge were contacted to clarify the research aims and, then, obtain permission to accomplish the study.

Anthropometric measures of weight and height were obtained and the BMI was calculated to classify the nutritional status of children and adolescents between the third and

sixth grade of primary education, between nine and twelve years of age. Through a draft, the number of children and adolescents with overweight, obesity or eutrophy was selected, as defined in the sample plan. Then, their caregivers were contacted by phone to receive explanations about the study aims and were invited to participate in the research.

Caregivers who agreed to participate signed the Informed Consent Term, provided information about the child (name, birth date, gender), personal information (age, education level, marital status, family income) and answered the SF-36 through an interview.

SF-36 domain and component scores of caregivers to children and adolescents with overweight, obesity and eutrophy were compared, as well as the SF-36 domain and component scores of caregivers to children and adolescents with mild, moderate and severe obesity. Correlations were established between the SF-36 domain and component scores and the BMI.

Statistical analysis

Descriptive analysis was used for socio-demographic characterization, as well as for the determination of the children, adolescents and caregivers' nutritional characteristics. To compare socio-demographic data among groups, Pearson's chi-square test was applied.

Normality was tested for all data through D'Agostino's test, showing that the data did not show normal distribution.

The reliability of internal consistency was verified through Cronbach's alpha coefficient for each multi-item scale.

Kruskal-Wallis' test was used to compare the mean scores of the SF-36 domains and components for the caregivers to children and adolescents with overweight, obesity and eutrophy.

Spearman's correlation coefficient was used to verify the relation between the SF-36 domains and components and the BMI.

The significance level to reject the null hypothesis was set at $p < 0.05$.

RESULTS

Socio-demographic characteristics

First, 388 caregivers of children and adolescents were invited to participate, but 28 were excluded because they reported chronic illnesses. Thus, 360 caregivers participated in the study, 96 who took care of overweight children and adolescents, 62 of obese children and adolescents and 202 of eutrophic children and adolescents.

Most caregivers (87.6%) were mothers, with a mean age of 37.6 years (27 to 60 years; SD=6.80), 38.1 years (28 to 62 years; SD=6.50) and 35.6 years (24 to 53 years; SD=5.6), respectively, for children and adolescents with overweight,

obesity and eutrophy. In all groups, caregivers were distributed similarly according to marital status and family income. Among caregivers to children and adolescents with obesity, more caregivers had finished primary education (Table 1).

Table 1 – Socio-demographic data of caregivers according to children and adolescents' nutritional status

	Overweight n=96	Obesity n=62	Eutrophy n=202
Mean age in years (SD)	37.6 (6.8)	38.1 (6.5)	35.6 (5.6)
Caregiver n (%)			
Mother	85 (87.6)	55 (88.7)	184 (90.7)
Education n (%)*			
Illiterate	1 (1.0)	0 (0.0)	1 (0.5)
Unfinished primary	35 (36.5)	15 (24.2)	78 (38.6)
Finished primary	18 (18.8)	19 (30.6)	20 (10.1)
Unfinished secondary	29 (30.2)	20 (32.3)	70 (34.7)
Finished higher	13 (13.5)	8 (12.9)	33 (16.3)
Marital status n (%)			
Married	74 (76.3)	46 (74.2)	157 (77.4)
Family income n (%)			
Up to 3 minimum wages	32 (33,3)	18 (29,0)	50 (24,5)
Between 3 and 5 minimum wages	34 (35,4)	28 (45,9)	82 (40,2)
More than 5 minimum wages	30 (31,2)	16 (25,8)	72 (35,5)

* Significant ($p < 0.05$) according to Chi-Square test; SD= standard deviation

The mean ages of overweight, obese and eutrophic children and adolescents were, respectively, 11.1 years (SD=0.74), 10.9 years (SD=1.15); 10.9 years (SD=1.10), rang-

ing between 9 and 12 years. No significant differences were found when confronting gender and class year with nutritional status (Table 2).

Table 2 – Clinical and socio-demographic characteristics of children and adolescents according to nutritional status

	Overweight n=96	Obesity n=62	Eutrophy n=202
Mean age in years (SD)	11.1 (0.74)	10.9 (1.15)	10,9 (1,10)
Female gender n (%)	49 (50.5)	26 (41.9)	121 (59,6)
Class year n (%)			
3 rd	19 (19.6)	7 (11.3)	40 (19,7)
4 th	21 (21.6)	22 (35.5)	60 (29,6)
5 th	37 (38.1)	21 (33.9)	64 (31,5)
6 th	19 (19.6)	12 (19.4)	39 (19,2)
Degree of obesity (%)			
mild	-	38 (61.3)	-
moderate	-	17 (27.4)	-
severe	-	7 (11.3)	-

SD = standard deviation

Out of 62 obese children and adolescents, 38 (61.3%), 17 (27.4%) and 7 (11.3%) were classified as mild, moderate and severe obesity, respectively.

Assessment of HRQoL

Cronbach's alpha coefficient was higher than 0.70 on all SF-36 domains for the different groups, except for the *social functioning* domain in all groups and the *bodily pain*

domain in the group of caregivers to obese children and adolescents.

No difference ($p > 0.05$) was observed between the SF-36 domain and component scores for caregivers of overweight, obese and eutrophic children and adolescents (Table 3). The median scores of caregivers to obese children and adolescents were higher in the *vitality and mental health* domains and the *mental component*.

Table 3 – Median, minimum and maximum scores for SF-36 domains and components in caregivers according to classification of children and adolescents' nutritional status

Domains and components	Overweight (Min-Máx)	Obesity (Min-Máx)	Eutrophy (Min-Máx)	*p value
Role limitations due to physical health	95 (30-100)	90 (20-100)	90 (20-100)	0.19
Physical functioning	100 (1-100)	100 (0-100)	100 (0-100)	0.82
Bodily pain	72 (0-100)	67 (10-100)	72 (0-100)	0.90
General health perceptions	82 (17-100)	82 (20-100)	90 (10-100)	0.68
Role limitations due to emotional problems	100 (0-100)	100 (0-100)	100 (0-100)	0.78
Vitality	65 (15-100)	75 (15-100)	68 (5-100)	0.06
Mental health	68 (16-100)	76 (8-96)	72 (4-100)	0.24
Social functioning	81 (13-100)	88 (13-100)	88 (13-100)	0.07
Physical component	53 (26-68)	52 (25-61)	53 (21-66)	0.46
Mental component	49 (12-67)	53 (11-63)	50 (13-64)	0.09

* Kruskal Wallis test

No differences were found ($p > 0.05$) in SF-36 domain and component scores among groups of caregivers for children and adolescents with mild, moderate and severe obesity (Table 4).

Table 4 – Comparison of SF-36 domains according to obesity

Domains and components	Mild obesity (Min-Máx)	Moderate obesity (Min-Máx)	Severe obesity (Min-Máx)	*p Value
Role limitations due to physical health	90 (20-100)	90 (60-100)	90 (35-100)	0.38
Physical functioning	100 (0-100)	100 (0-100)	100 (0-100)	0.67
Bodily pain	61 (10-100)	72 (31-100)	74 (51-100)	0.47
General health perceptions	82 (20-100)	85 (47-100)	82 (35-100)	0.90
Role limitations due to emotional problems	100 (0-100)	100 (0-100)	67 (0-100)	0.09
Vitality	75 (15-100)	75 (15-100)	60 (25-85)	0.62
Mental Health	74 (8-92)	76 (20-88)	80 (24-96)	0.93
Social functioning	87 (50-100)	100 (13-100)	87 (37-100)	0.90
Physical component	51 (25-61)	54 (38-61)	57 (31-60)	0.17
Mental component	53 (18-60)	54 (11-67)	51 (34-59)	0.58

* Kruskal Wallis test

The correlations between the SF-36 domain scores and the children and adolescents' BMI were weak and non-significant ($p > 0.05$) (Table 5).

Table 5 – Spearman Correlation Coefficients between BMI and SF-36 domains and components

Domains	BMI	*p value
Role limitations due to physical health	-0.07	0.20
Physical functioning	-0.04	0.46
Bodily pain	-0.04	0.48
General health perceptions	0.02	0.64
Role limitations due to emotional problems	0.01	0.87
Vitality	-0.02	0.66
Mental health	0.05	0.34
Social functioning	-0.06	0.26
Physical component	-0.07	0.19
Mental component	0.04	0.46

* t test

DISCUSSION

The use of a generic instrument to assess the HRQoL of children and adolescents with overweight or obesity, such as the SF-36, and the comparison with a group of caregivers to children and adolescents with eutrophy, confirmed the hypothesis that overweight and obesity in children and adolescents do not cause a negative impact on their caregivers' physical and psychosocial function. The present study results are interesting because the harm various studies observed in terms of obese children and adolescent's HRQoL⁽³⁻⁶⁾ could negatively affect the caregivers' HRQoL^(3-5,7-8).

Obese children are frequently bothered by classmates and less accepted than normal-weight children, so that they suffer or restrictions are imposed on routine activities like going to school, practicing certain types of physical exercise, buying clothes, relating and having fun. One important characteristic of obese adolescents is depreciation of their own physical image, as they feel insecurity towards other young people and image that the latter see them with hostility and disdain. In view of a beauty ideal imposed by the slim body, adolescents are constantly concerned with

their weight and non-acceptance of their body, making them feel marginalized in society. Other aspects these young people highlight refer to the pejorative nicknames related with excess weight, inducing them to low self-esteem, limitations in physical exercise, in addition to feelings of impotence and failure. Just like children, they feel difficulties related to clothes, making new friends and dating situations⁽¹⁷⁾.

Sometimes, obese children and adolescents can seem happy and carefree in social life, but suffer from feelings of inferiority, dissatisfaction and affective shortage, and tend to reveal a profound need to be loved and accepted⁽¹⁷⁾. On the other hand, one cannot affirm that they all present psychological problems, as a relation between obesity and anxiety is not always observed in obese children and adolescents⁽¹⁸⁾.

Due to obesity's psychological and physical repercussions, it is fundamental to raise caregivers' awareness of children and adolescents' nutritional status, whose alterations in most cases develop as a reflex of parents or responsible persons' food and physical exercise habits.

Although obesity is a chronic illness, related with increased morbidity and mortality levels, and provokes a negative impact on children and adolescents' physical and/or psychosocial and/or school functioning as the BMI increases⁽³⁻⁶⁾, in this study, their caregivers' quality of life did not show alterations as their children's BMI increased, not even between different degrees of obesity.

It is interesting that, in the *vitality and mental health* domains and in the *mental component*, higher median scores were found for caregivers to obese children and adolescents (in comparison with the medians of caregivers to eutrophic children and adolescents), although not statistically significant. These results could indicate a trend towards a better mental function in caregivers to obese children and adolescents. A generic instrument like the one used here – the SF-36 – may not be able to identify specific differences (like in the psychosocial function), in case these exist, between caregivers to overweight, obese and eutrophic children and adolescents. Another plausible explanation would be the fact that, in general, in the short term, obesity in this age range is not associated with severe health complications, which is the case with other chronic illnesses.

Studies show that, often, parents do not consider overweight or obesity a disease and underestimate their children's weight⁽¹⁹⁻²¹⁾. It is estimated that only 48% of the parents correctly identify their children's weight⁽¹⁹⁾ and the fact that the mother is overweight makes her underestimate the weight of her sons and daughters even more than a normal-weight mother⁽²⁰⁻²¹⁾, although both tend to underestimate their daughters' weight more frequently than their sons' weight⁽²⁰⁾.

In some cases, the parents acknowledge obesity as a risk for health, but react as if it were a momentary problem that will be solved as the children grow up, and forget that, the longer a person stays obese, the greater the chance that this nutritional status and its associated consequences will continue⁽²⁰⁾.

According to the parents of children and adolescents with overweight or obesity, their children are no more physically limited than eutrophic children regarding habits and skills to perform activities, except in children younger than six years⁽²²⁾. The same author describes that only 26% of parents are concerned with their children's weight and agree that they very strongly influence their children's food choices and physical exercise⁽²²⁾. Another study shows that 33% of parents consider themselves responsible for child obesity, but do not take any attitude to control this situation⁽²³⁾.

Approximately 20% of caregivers to overweight and obese children and adolescents show some type of stress related to their children's disease, which is considered low in comparison with other chronic illnesses that reveal a greater impact on parents' lives⁽¹¹⁾. These findings can contribute to avoid negative influence on the quality of life of caregivers to overweight and obese children and adolescents, while that of caregivers for other chronic illnesses is affected.

In general, the Brazilian version of the SF-36 is a reliable instrument for use in the assessment of caregivers to overweight and obese children and adolescents. Internal consistency reliability was adequate, except in the *social functioning* domain (Cronbach's alpha below 0.70). This domain contains only two items with inverse answers, which can cause greater comprehension difficulty than in other domains.

The SF-36 provides relevant data, is multidimensional and very practical, due to its rapidness and easy application. As it is a generic instrument, however, it does not address different psychosocial aspects that could be present in caregivers of overweight and obese children and adolescents. Hence, the use of a generic instrument may not be sufficient to detect important specific aspects of a condition or illness that interfere in people's quality of life. A specific instrument for caregivers would be more adequate for the study, but existing instruments have not been translated into Portuguese yet, nor validated and culturally adapted to the Brazilian population. Thus, there is an urgent need for translation and validation research on specific instruments for the study population, due to the growing increase in obesity levels in Brazil.

CONCLUSION

In conclusion, it should be emphasized that overweight and obesity in children and adolescents did not influence their caregivers' quality of life, which may be related to the non-acknowledgement of obesity as a chronic illness that contributes to increased morbidity and mortality levels.

Health professional should guarantee the importance of care delivery to caregivers, so that parents or responsible persons can pay more attention to their children with overweight or obesity, as the family plays a fundamental role in the prevention and treatment of this nutritional disorder, which is increasingly consolidated as a public health problem.

Further research is needed to better assess the quality of life of caregivers to overweight and obese children and adolescents, so that health professionals, based on knowl-

edge about the actual impact of this illness in caregivers' lives, can advise them better.

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