

Analysis of social support among adolescents with excess body weight

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Abstract

Social support refers to the material and psychological resources that people have access to through social networks. This is an important and poorly studied aspect in adolescents with chronic health conditions. This study aimed to analyze the global social support and its domains in overweight adolescents. Nutritional status, food intake and global social support, along with its domains, were assessed using anthropometric measurements, a food frequency questionnaire for adolescents and the Medical Outcomes Study instrument, respectively. Seventy-one adolescents participated in the study, 52.7% women and 47.2% men. Most were overweight (71.83%) and with a high abdominal circumference (76.47%). Approximately half of the interviewees were classified as having low global social support (50.7%), with no differences between the categories of body mass index and waist circumference. The group classified as having a high global social support had greater calorie, carbohydrate, and lipid intake than those with less support. There was a positive statistical correlation between the values attributed to carbohydrate intake and the values scored in the global social support ($r = 0.33$; $p = 0.26$), the interaction domain ($r = 0.33$; $p = 0.23$) and the information domain ($r = 0.40$; $p = 0.006$). A positive association was observed between the values of caloric intake and those of the information domain ($r = 0.34$; $p = 0.20$). The overweight adolescents evaluated showed a high frequency of low social support and positive correlations were identified between calorie intake and global social support score, as well as between carbohydrate intake and scores in the interaction and information domains.

Keywords: Social support. Adolescents. Obesity. Social isolation. Food intake.

INTRODUCTION

Social support is defined by Siqueira¹ as “a multidimensional concept, which refers to the material and psychological resources that people have access to through their social networks”. Its role in the different phases of life is fundamental for the cushioning of stressful factors that occur in daily life; especially in those moments when several psychosocial and physiological changes

are observed², which are an important construct in the lives of adolescents³.

During adolescence, which is defined by the World Health Organization (WHO) as the age group from 10 to 19 years old, psychological, social and biological processes are articulated to promote the necessary transformations in the transition between childhood and adult life.

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The somatic growth and the development of psychomotor and social skills are intensified, leading to relevant changes in the biological, psychosocial, cognitive, moral and even spiritual dimensions. It is the “growing unto maturity”⁴.

The consequences of obesity for the health of children and adolescents are not reduced to the presence of endocrine, cardiovascular, orthopedic or dermatological problems, but are also linked to psychosocial problems related to the impairment of autonomy, the restriction of social space and possibilities of identification, which they make the child-adolescent public and their family systems ill⁵. Since obesity is a chronic condition, obese adolescents overlap in two crisis conditions, which present internal and external demands and have several biopsychosocial implications⁶.

Given the importance of social support for adolescents, especially those with chronic health conditions, and the scarcity of studies addressing the relationship between these themes, the objective of this study was to investigate global social support and its domains in overweight adolescents, comparing them to gender, nutritional status categories and energy and macronutrient intake.

METHODS

This was a descriptive, exploratory and quantitative study of adolescents with excess body weight enrolled in the area covered by four Basic Health Units (UBS) with a Family Health Strategy (FHS) program in the city of Blumenau, SC linked to the Research Project, “Life and health of adolescents with chronic conditions”. This study included 249 overweight adolescents extracted from a sample of 840 adolescents out of a total of 1,254 adolescents enrolled in the area covered by the four FHSs. The inclusion

criteria were adolescents (10 to 19 years old) who were overweight (overweight or obese) who answered the questions related to social support in the baseline interview of that project. The subjects’ participation was consented by signing the Informed Consent Form (ICF) by the person responsible for them. The project “Life and health of adolescents with chronic conditions” was submitted to and approved by the Ethics Committee on Research with Human Beings at the Regional University of Blumenau (612.197/2014).

Body mass, height and waist circumference (WC) were measured. The body mass index (BMI) was calculated from body mass and height, subsequently transformed into a Z-score (BMI-Z), according to sex and age, following the WHO reference standards. Overweight was considered a BMI-Z between +1 and +2, and obesity was a BMI-Z greater than +2. The WC was categorized according to the cutoff point proposed by Fernández and collaborators⁷. Food consumption was collected through the Food Frequency Questionnaire for Adolescents (FFQA)⁸. To estimate energy consumption and macronutrients, the Food Composition Table⁹ proposed by Philippi was used as a basis to report the frequency of ingestion, or the United States Department of Agriculture (USDA) database was used for foods not found in the first option.

The analysis of social support was performed using the Medical Outcomes Study (MOS) assessment instrument. It is the Social Support Scale that was originally developed for the MOS, in a study that covered health service users in Boston, Chicago and Los Angeles, who had one or more chronic diseases¹⁰. The items on the scale were submitted to a process of translation and adaptation into Portuguese by researchers at the Federal University of Rio de Janeiro, according to Griep and collaborators¹⁰. The questionnaire comprises five functional

dimensions of social support, namely: 1) material support: composed of four questions about the provision of practical resources and material help; 2) affective support: composed of three questions about physical displays of affection and love; 3) emotional support: composed of four questions that involve expressions of understanding, positive affection and feelings of trust; 4) positive social interaction: composed of four questions about the availability of people to have fun and relax together with; and 5) informational support: composed of four questions about the availability of people to obtain advice or guidance from. For each item, the individual indicated how often he/she considers each type of support available in case of need: never, rarely, sometimes, almost always, or always, which scored values from one to five, respectively. With the sum of the results, it was possible to obtain the value of global social support, which ranged from 19 to 95 points. The mediated value of 52 points, corresponding to the sum of the dimensions, was adopted as the cutoff point. Thus, a value less than or equal to 52 points was considered as low social support and values above 52 points as high social support, within the description of the global social support variable. Analyses of the weighted individual scores for each domain were also performed.

Statistical analyses were performed using the SPSS software (version 22). The normality of the distribution of the variables was verified by the Kolmogorov – Smirnov test. For variables with normal distribution, means and standard deviations were displayed and for variables with non-normal distribution, medians, minimums and maximums were displayed. The comparison of scores attributed to social support and its domains between binary categories of nutritional status was performed using Student's t tests (parametric variables) or Mann-Whitney tests (non-parametric). Likewise, the analysis

of food intake between the categories of global social support was performed by Student's t or Mann-Whitney tests. In addition, Spearman's correlation was used for analysis between the values of global social support and its domains and the values of food intake. The results were considered statistically significant at $p < 0.05$.

RESULTS

In this study, 71 adolescents were evaluated, 52.1% of whom were female. The average age of the group was 13.91 ± 3.72 years, with no difference between genders. Most were classified as overweight (71.83%) and with a high WC (76.47%), regardless of gender and age (Table 1).

Table 2 shows the average values attributed to global social support and its domains, according to the classification of nutritional status. There was no difference in the values of social support between the categories of BMI and WC. However, there was a higher average score in the affective domain, followed by the material domain, and lower averages found in the emotional, information and interaction domains. It was found that approximately half of the interviewees were in the category of low global social support (50.7%) (Table 3).

There was a positive statistical correlation between the values attributed to carbohydrate intake and the values scored in the global social support ($r = 0.33$; $p = 0.026$), in the interaction domain ($r = 0.33$; $p = 0.023$) and in the information domain ($r = 0.40$; $p = 0.006$). Furthermore, a positive association was observed between the values of caloric intake and those of the information domain ($r = 0.034$; $p = 0.020$) (Figure 1). As for food intake, it was found that the group classified as having high global social support had a higher calorie, carbohydrate and lipid intake than those with less support (Table 3).

Table 1 - Distribution of demographic and anthropometric variables according to sex, Blumenau, Santa Catarina, Brazil, 2016.

VARIABLE	TOTAL SAMPLE (n=71)	FEMALE (n=37)	MALE (n=34)	P
Age (years)*	13.92 ± 3.72	13.76 ± 2.18	14.09 ± 2.27	0.531
BMI (Z score)*	1.69 ± 0.43	1.69 ± 0.41	1.69 ± 0.47	0.938
WC (cm)*	96.35 ± 11.47	95.26 ± 11.58	97.56 ± 11.40	0.406
BMI-Z**				
Overweight	51 (71.8)	27 (72.97)	24 (70.58)	0.823
Obesity	20 (28.2)	10 (27.02)	10 (29.41)	
WC**				0.300
Normal	16 (23.5)	6 (17.14)	10 (30.30)	
Elevated	52 (76.5)	29 (85.82)	23 (69.60)	

Legend: BMI: body mass index; WC: abdominal circumference; (*) Mn±sd = mean±standard deviation; (**) absolute number (percentage value); p = level of significance.

Table 3 - Comparison between the categories of global social support of the median values (minimum - maximum) of food intake of overweight adolescents, Blumenau, Santa Catarina, Brazil, 2016.

FOOD INGESTION*	TOTAL SAMPLE	Global Social Support		P
		High (n=45)	Low (n=26)	
Calories	2078.75	2649.94	1922.28	0.023
	(715.57 - 5053.92)	(1106.19 - 5053.91)	(715.56 - 4187.62)	
Proteins	73.50	75.73	62.84	0.102
	(17.46 - 188.53)	(39.62 - 188.52)	(17.46 - 146.83)	
Carbohydrates	280.32	353.15	225.78	0.028
	(86.51 - 599.97)	(168.43 - 599.97)	(86.51 - 535.35)	
Lipids	78.29	89.19	53.31	0.013
	(18.45 - 216.90)	(28.64 - 216.90)	(18.45 - 186.22)	

Legend: p = level of significance.

Table 2 - Comparison between the categories of the nutritional status of the scores (Mn±sd) attributed to global social support and its domains of overweight adolescents, Blumenau, Santa Catarina, Brazil, 2016.

SOCIAL SUPPORT	TOTAL SAMPLE (n=71)	BMI		P	WC		P
		Overweight (n=51)	Obesity (n=20)		Normal (n=16)	Elevated (n=52)	
Global	-----	70.30 ± 8.38	70.50 ± 8.39	0.929	69.60 ± 8.34	70.50 ± 8.39	0.745
Interaction	77.82 ± 16.98	78.43 ± 8.85	76.25 ± 8.73	0.483	79.68 ± 8.92	77.11 ± 8.78	0.526
Material	82.32 ± 15.87	83.14 ± 9.11	80.25 ± 8.95	0.678	82.50 ± 9.08	82.88 ± 9.10	0.866
Emotional	72.96 ± 21.24	71.57 ± 8.45	76.50 ± 8.74	0.440	71.25 ± 8.44	73.17 ± 8.55	0.844
Affective	85.92 ± 19.39	86.67 ± 9.30	84.00 ± 9.16	0.299	85.63 ± 9.25	85.96 ± 9.27	0.975
Information	75.63 ± 20.09	74.90 ± 8.65	77.50 ± 8.80	0.634	71.88 ± 8.47	76.92 ± 8.77	0.371

Legend: BMI: body mass index; WC: waist circumference; p = level of significance. (*) Mn±sd = mean±standard deviation.

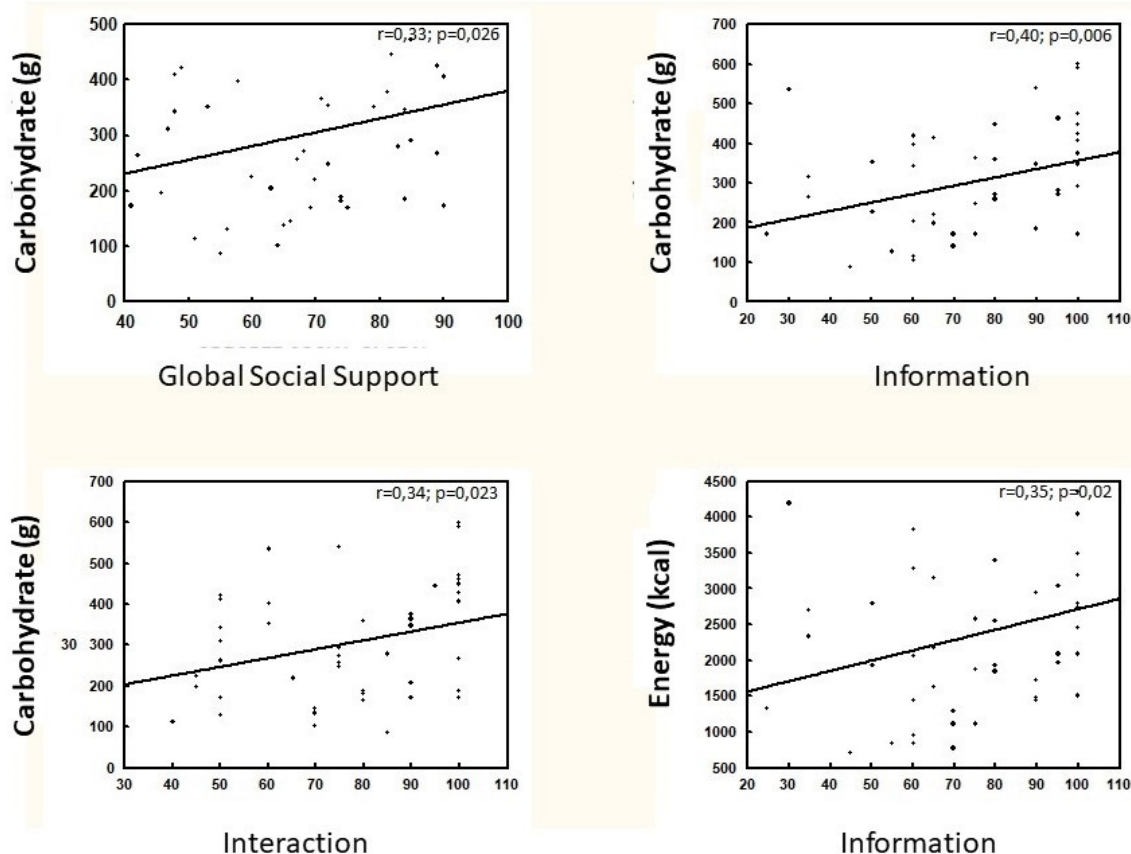


Figure 1- Correlation between food intake values and those related to global social support and its domains, Blumenau, Santa Catarina, Brazil, 2016.

DISCUSSION

The main effect of social support happens to the individual when they perceive that the support is available and satisfactory. Such perception comes from the fact that the adolescent feels loved, recognized and valued, welcomed, cared for, protected and participates in a network of information and shared resources. It is this perception that gives them the strength to face the environment, bringing positive consequences for their well-being (with

reduced stress, increased self-esteem and psychological well-being)¹¹.

According to Bacarji, Marturano and Elias¹², the family and the social support systems of the child or adolescent offer a secure basis for emotional stability and support resources, through attitudes that positively value their efforts. When these systems fail as a support network and the environmental context is unfavorable and/or neglected, it is likely that the individual

is more susceptible to the development of stress, causing changes at the physical, psychological and behavioral levels. According to the authors, social support is important in adolescent development, from their physical and psychological well-being to the construction of their self-concept and self-esteem.

In this study, when analyzing the social support received by overweight adolescents, it was found that approximately half of the interviewed adolescents reported a low global social support with lower averages of weighted scores in the domains related to emotional, information and interaction aspects.

According to Schneider and Ramires¹³, adolescents who do not have a sufficient global social support network are more likely to develop depressive signs, such as insecurity and aggression. The authors observed that the family groups of adolescents, of both sexes, who sought care or were referred to the Psychology Service of a university in the south of Brazil, did not sufficiently fit in as a facilitator and promoter of the mental health of young people, which may have contributed to the indicators of depressive disorder.

When assessing the occurrence of depression, behavioral and social problems in obese and eutrophic children and adolescents, Luiz *et al.*¹⁴ demonstrated that symptoms of depression in children and adolescents with obesity, as well as social problems, such as difficulty in relationships with friends and family members, occur more frequently in those with a chronic condition. The authors pointed to the need for multiprofessional assistance in the treatment of obesity, since it is strongly associated with the presence of emotional problems, suffering and stigmatization, which, when present, hinder treatments and

worsen the condition of obesity.

The emotional domain refers to having someone to listen to their anxieties, fears or help in difficult situations. The lowest values of this domain presented in this study point to the presence of concerns, worries, anxiety, fears or dilemmas among the adolescents evaluated. This is directly related to the low values found in the averages of the information domain; this means that there is likely an insufficient presence of someone to give advice, understand certain situations or suggest how to deal with such problems.

According to a study by Reece and Bissell¹⁵, obesity in a group of adolescents in the United Kingdom was triggered mainly by social and emotional factors, in particular bullying. As reported by the authors, the success of weight loss and lifestyle change was attributed mainly when the treatment received was associated with the presence of support from family and friends. In this case, it seems that the low values attributed to the emotional and information domains acted as facilitators for the installation of obesity in adolescents under social violence.

It is worth mentioning that depression and anxiety can initiate obesity, but they can also arise as a consequence of it. When the anxious individual becomes depressed, he or she tends to ingest food excessively, especially those with high energy density and carbohydrate sources, as a way to calm their emotional suffering. In turn, the obese individual may feel anxious and develop depressive symptoms which may cause them to perceive low social support, rejection and loneliness. Among the protective factors associated with depressive symptoms, social support stands out¹⁶. For adolescents, negative experiences in the face of prejudice and discrimination, often related to low self-esteem due to body image, translated by guilt and contempt, are reasons for sadness

and possible social isolation; which in order to overcome requires the awareness of the problem by adolescents and the guaranteed presence of social support¹⁷.

In the study by Andrade *et al.*¹⁸, most obese children and adolescents, at the beginning of treatment, had low self-esteem and complaints of being victims of physical and moral stigma, subject to social discrimination and derogatory games. Children who found themselves more psychologically impaired showed unstable emotional balance and were unable to deal with their frustrations, relieving them through uncontrolled and compulsive food consumption. In addition, social isolation, depression, social discrimination or physical and mental discouragement caused by obesity, may cause a condition of energy imbalance also resulting from lower energy expenditure¹⁶. The presence of obesity, in turn, intensifies sedentary attitudes, creating a vicious cycle of increased body fat and an even greater decline in physical activity, which is one of the determining factors for the current obesity epidemic⁴.

Currently, we live in a society that places moral and aesthetic codes upon us, constituting bodies that are considered adequate or inadequate. The physical and moral stigmas attributed to fat children and adolescents are related to the term gordophobia, where they express the feelings of disgust, accentuating the discomfort. The individual who does not meet the aesthetic standards is constantly pressured to fit into a model based on thinness¹⁹. The relevant aspect in the development and aggravation of the condition of obesity, especially in adolescence, is the phase in which the bullying is mostly observed. In adolescents, bullying favors increased anxiety and social isolation and, consequently, greater food consumption and less physical effort²⁰.

In this study, despite the high number of adolescents with low social support, the mean scores of the affective and material domains were the highest. It is important to highlight that these domains represent the adolescents' perception of the affective and material support they receive, which may come from family, friends, school, since they are minors.

Affective support is related to physical displays of affection and love. According to Santos²¹, the relationship between food and affection is so consolidated that, when the children do not eat much, the parents feel a sense of guilt for not taking good care of them; that is, the act of feeding the children in quantity has repercussions on the parents' feeling of being good caregivers. According to the findings of this study, it is believed that the excess weight of the adolescents, possibly due to high energy intake and low expenditure on physical activities, is also related to the high affective support they receive. Andrade *et al.*¹⁸ observed that, among the cases of children and adolescents with obesity, the only child and the youngest child are more overprotected, being spared personal physical effort (related to low energy expenditure), one of the important factors related to the increase in obesity rates among individuals at this stage of life.

There are several determinants of excess weight and they act differently in the lives of individuals. Genetic, psychological, physiological, social, emotional, nutritional and hormonal factors work together and never in isolation²¹. Excessive weight gain occurs as a result of these factors on two fronts: how much is needed per day and how much is spent on overall physical activities⁴. Analyzing food consumption is a way to identify factors that interfere with the difference between expenditure and need.

As for food consumption, in the subgroup

categorized with high global social support, there was reference to a higher intake of calories, carbohydrates and lipids, in addition to a positive correlation between caloric and carbohydrate intake and the values in scores attributed to the information and social interaction domains. As for the interaction domain, the positive relationship can be understood as food, with a high glycidic content, which is present during leisure and fun moments and, in the case of adolescents, is usually accompanied by high caloric content related to the presence of processed and ultra-processed foods (ex. goodies and ready-to-eat foods).

In this study, there was a correlation between food intake and the information domain of social support. Perhaps, the need for adolescents to receive information is because they are going through difficult situations that lead them to a greater consumption of food, especially sources of carbohydrates, as a way of relieving “pain”,

“anguish”, which they cannot immediately resolve. The second aspect may be related to the support received to resolve such difficult situations; however, support available in the form of overprotection, with overfeeding, perhaps with foods that cause comfort and reward²¹.

In the cross-sectional study by Bosa²³, similar results were found to the current study. In the analysis, anxious adolescents demonstrated, on average, a higher daily consumption of total energy and carbohydrates when compared to non-anxious ones and most adolescents had high levels of physical inactivity, with a higher prevalence among girls than among boys.

In the study by Andrade *et al.*¹⁸, it was observed that in addition to the low energy expenditure, overprotective parents have difficulty in imposing limits on food. In other words, global social support in excess can also cause an increase in food intake and, consequently, an overweight condition²⁴.

CONCLUSION

The results show that more than half of the overweight adolescents living in the studied geographic regions had low reported social support, with lower average values of scores attributed to the emotional, interaction and information domains, with no difference between genders and nutritional status categories. Regarding food intake, a positive correlation was found between calorie intake and global social support scores and between carbohydrate

intake and scores in the interaction and information domains.

Considering that the referred to low social support was prevalent in overweight adolescents, mechanisms of attention that include the psychosocial dimension can be useful in reducing these indices. Therefore, it is recommended that a set of environmental policies, programs and support with the involvement of the family, school, community, public management as

well as the adolescents themselves, where they have voice, be developed to meet their health needs.

The present study has limitations that must be considered when interpreting the results, including convenience

sampling and the absence of a control group. Controlled studies and studies that assess the impact of different degrees of social support on the health conditions of overweight adolescents would be of great interest.

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