ORIGINAL ARTICLE

SOCIAL AND NUTRITIONAL CHARACTERISTICS OF CHILDREN AND ADOLESCENTS WITH OVERWEIGHT: COHORT STUDY

CARACTERÍSTICAS SOCIAIS E NUTRICIONAIS DE CRIANÇAS E ADOLESCENTES COM EXCESSO DE PESO: ESTUDO DE COORTE

CARACTERÍSTICAS SOCIALES Y NUTRICIONALES DE LOS NIÑOS Y ADOLESCENTES QUE TIENEN SOBREPESO: ESTUDIO COHORTE

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ABSTRACT

Objective: to assess the social and nutritional characteristics of overweight children and adolescents. **Method:** cohort study, one year of interval, with 109 children and adolescents followed at the Center for Childhood Obesity, Campina Grande-PB. The data collection was performed from August, 2010 to April, 2011. The sample was divided into two groups (more and less than six months from the last visit). The food frequency was assessed by classifying foods according to the potential risk for cardiovascular diseases. We used SPSS version 17.0. The project was approved by the CEP UEPB N. 0379.0.130.000-10. **Results:** most participants were female, teen, mixed race, with family income between one and two minimum wages, and maternal education >12 years of study. After a year of monitoring, the consumption of food, either risk or protective, met in accordance with the recommendations. Apart what means the consumption of vegetables, milk and its derivatives. It was noted that participants with more than 6 months apart, showed higher rates in inadequate intake of fried, vegetables and milk. While participants with less than 6 months, showed higher frequency in the recommended intake of sausages, fried foods, pasta, soft drinks, candy, chocolate, beans, fruits, vegetables and milk. **Conclusion:** the profile of the participants shows that despite as low income and part not to join up with the expected frequency, treatment multiprofessional was satisfactory, because successful in encouraging healthy nutritional habits. **Descriptors:** obesity; overweight; child; adolescent; nursing.

RESUMO

Objetivo: avaliar as características sociais e nutricionais de crianças e adolescentes com excesso de peso. **Método:** estudo de coorte, intervalo de um ano, com 109 crianças e adolescentes acompanhados no Centro de Obesidade Infantil, Campina Grande-PB. A coleta de dados foi realizada de agosto/2010 a abril/2011. A amostra foi dividida em dois grupos (mais e menos de 6 meses da última consulta). A frequência alimentar foi avaliada classificando os alimentos de acordo com o potencial de risco para doenças cardiovasculares. Utilizou-se o SPSS versão 17.0. O projeto foi aprovado pelo CEP da UEPB nº 0379.0.130.000-10. **Resultados:** a maioria dos participantes era do sexo feminino, adolescente, pardo, com renda familiar entre 1 e 2 salários mínimos e escolaridade materna >12 anos de estudo. Após um ano de acompanhamento, o consumo dos alimentos, seja de risco ou protetores, encontrou-se de acordo com o recomendado. Exceto no que se refere ao consumo de verduras, leite e seus derivados. Notou-se que os participantes com mais de 6 meses afastados, apresentaram índices maiores no consumo inadequado de fritura, verdura e leite. Enquanto os participantes com menos de 6 meses, apresentaram frequência superior no consumo recomendado de embutidos, frituras, massas, refrigerantes, doces, bala/chocolate, feijão, frutas, verdura e leite. **Conclusão:** o perfil dos participantes revela que apesar de se enquadrarem como baixa renda e parte não aderir ao acompanhamento com a frequência esperada, o tratamento multiprofissional foi satisfatório, pois conseguiu incentivar hábitos nutricionais saudáveis. **Descritores:** obesidade; sobrepeso; criança; adolescente; enfermagem.

RESUMEN

Objetivo: evaluar las características sociales y nutricionales de los niños y adolescentes tienen sobrepeso. **Método:** estudio de cohorte, un año de diferencia, con 109 niños y adolescentes seguido en el Centro de Obesidad Infantil, Campina Grande-PB. La recolección de datos se llevó a cabo Agosto/2010 a Abril/2011. La muestra se dividió en dos grupos (más y menos de seis meses de la última visita). La frecuencia de los alimentos se evaluó mediante la clasificación de los alimentos en función del riesgo potencial para la enfermedad cardiovascular. Se utilizó el programa SPSS versión 17.0. El proyecto fue aprobado por el CEP UEPB N. 0379.0.130.000-10. **Resultados:** la mayoría de los participantes eran del sexo femenino, adolescente, raza mixta, los ingresos familiares de entre uno y dos salarios mínimos, y educación de la madre mayores de 12 años de estudio. Tras un año de seguimiento del consumo de alimentos, ya sea de riesgo o de protección, se reunió en conformidad con las recomendaciones. Excepto en lo que respecta al consumo de verduras, leche y sus derivados. Se observó que los participantes con más de 6 meses de diferencia, muestran tasas más altas de la ingesta inadecuada de fritas, verduras y leche. Si bien los participantes con menos de 6 meses, mostraron una mayor frecuencia en la ingesta recomendada de embutidos, frituras, pastas, refrescos, dulces, dulces / chocolate, frijoles, frutas, verduras y leche. **Conclusión:** el perfil de los participantes muestra que a pesar de la caída como de bajos ingresos y parte de no unirse a la frecuencia esperada, el tratamiento multiprofisional fue satisfactoria, ya que el éxito en el fomento de hábitos saludables de nutrición. **Descriptores:** obesidad; sobrepeso; niño; adolescente; enfermería.

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INTRODUCTION

Obesity is a chronic disease of multifactorial origin, characterized by excessive accumulation of adipose tissue, linked to an imbalance between intake and energy expenditure. Worldwide, it is estimated that at least 1.6 million people are overweight and 400 million obese. Of these, 155 million are schoolchildren.

A national research about overweight observed that the frequency of overweight adults ranges from 36.2% in the Federal District to 52.2% in Rio Branco, which is more frequent in males in Porto Velho (57.8%) and in women in Rio Branco (49.4%).

To assess the prevalence of overweight and obesity in adolescents in Vitória de Santo Antao, the study evaluated sample composed of 255 students, their results showed that the prevalence of overweight in both sexes was 19.2%.[4]

Another study examined the spatiotemporal evolution of overweight and obesity in male adolescents in Brazil between 1980 and 2005. In its results it was observed an increasing trend in the prevalence of overweight and obesity in all Brazilian states in the years analyzed. During this period the number of overweight adolescents has increased by three times and six times in obesity.

Data published by the Research of Familiar Budgets (POF) 2008-2009, show that one in three children in the range of 5 to 9 years old is overweight in Brazil. These figures are very worrying, because of the association of obesity with metabolic abnormalities such as dyslipidemia, hypertension and glucose intolerance, considered risk factors for type 2 *diabetes mellitus*, and cardiovascular disease, until a few years ago were more evident in adults. However, currently they are frequently observed in the youngest age group.

Excess of weight has varied etiology. Regarding the association between obesity and socioeconomic factors, the IBGE said that the higher the family income, the higher the percentage of children overweight or obese. In families with a per capita income of more than five minimum wages, 39.3% of girls are overweight recommended. Among boys, this proportion reaches 51.1%.

The prevention and treatment of obesity in childhood and adolescence have become a global concern because individuals who are overweight or obese in this age group are more likely to become obese adults. It is noteworthy, therefore, multidisciplinary treatment, seeking retraining for life, to obtain a modification of child behavior and of the family. [1]

It is a fact that there is complexity of the reformulation of eating habits, mainly due to current lifestyle, and the need for developing strategies together with the patient, so that it is able to understand the need and importance of the problem. With this objective, there are about three years, was deployed in Campina Grande Centre for Childhood Obesity (IOC), which today is a benchmark in the treatment of obesity in the city.

Given the complexity and risk factors related to obesity, the aim of this study was to evaluate the nutritional and social characteristics of children and adolescents who are overweight

METHOD

Cohort study, with an interval of one year, with 109 children and adolescents accompanied the IOC implemented at the Institute of Health Elpídeo de Almeida (ISEA), Campina Grande-PB in April, 2009. Monitoring means a set of strategies implemented continuously, with frequent evaluations in order to identify whether the actions are effective, as well as adherence to the proposed treatment. The IOC is composed of a complex of seven service offices, and an auditorium for lectures and educational activities.

Its multidisciplinary team consists of: endocrine doctor-pediatrician, psychologist, nurse, nutritionist, physical trainer, social worker, biochemical / pharmaceutical addition to MSc students and undergraduate research at the State University of Paraíba.

A sample of convenience was studied. Considering that it represents obese children and adolescents or overweight ones, met by the demand of health services in Campina Grande-PB, was calculated using the *Statcalc* of the *Epi info* the ideal sample size to verify the representativeness of the number studied. Therefore, rose initially the population between 1 to 19 years old enrolled in the Information System of Primary Care (SIAB) 9 in 2008 which amounted to 65,980. We considered the prevalence of overweight and obesity in 25% of 10 and subsequently 42% .11 SM For a 5% error, the sample size would result in 180 individuals, totaling 220. We excluded those individuals with diabetes or at

the time of evaluation were using drugs that alter blood pressure or lipid metabolism and / or glucose.

The Data collection for this study was performed from August/2010 to April/2011. We included subjects who were being followed by the multidisciplinary team and that the IOC had made at least one visit with the health professionals. We excluded those who were at the time of the research on medications or those with chronic diseases that interfere in lipid or glucose metabolism. Patients who attended for assessment of a year, but even registered, had no record of consultation or laboratory tests to start or attend had completed two years (April/2011) were excluded. As a result of this study sample was composed of 109 individuals.

For analysis of the habit of snacking in school, were considered the most consumed foods in the school lunch. These are divided into four groups. Group 1: do not have lunch, group 2 consumed: fruit, juice or yogurt; Group 3: soup, pasta and rice milk; Group 4: biscuit, snack and soft drinks. Were considered healthy lunches the groups 2 and 3.

The food frequency was assessed using the reference *Forns et al* where foods were separated into two groups according to the potential risk for cardiovascular disease. Were classified as risk foods (whole milk products, animal fats, margarines - due to trans fatty acid content - fried foods, meat and meat products, eggs and pasta) and protective foods (fruits and juices, vegetables, legumes, cereals and derivatives).

From this, there were patients' responses when the frequency and food immediately after one year. The response options were: daily, twice a week, twice a month, rarely and never. After that it was compared and qualified as progressed, regressed or maintained, always using as reference the recommended daily servings VIGITEL 2009.

The data were entered twice in an EXCEL spreadsheet, and after completion of the consistency of the database by SPSS version 17.0 was a descriptive study conducted with absolute and relative frequency of the studied variables (age, gender, family income, mother's education, habit of snacking, types of school lunches, the habit of eating breakfast, local meals, number of meals and food frequency). For statistical analysis were considered two groups according to the time of removal (greater than six months, less than or equal to six months). For all statistical analysis was adopted interval confidence of 95%.

The project was submitted to the Ethics and Research of the State University of Paraíba in the opinion paragraph 0040.0.133.000-08. The researcher undertook to initiate this research only after approval by the Ethics and Research of the State University of Paraíba.

The rationale, objectives and procedures for data collection were properly explained to parents and children or adolescents for a dialogue, in which was located the free questioning by them. Proceeded with the reading and signing the consent form. Participants were guaranteed: freedom not participate in the research or waive it, privacy, confidentiality and anonymity. Also was completed the four ethical principles for research with human subjects: autonomy, beneficence, non-malfeasance and justice.

It was also requested approval of the responsible ISEA for this research in its facilities. According to Resolution 196/96, the data collected were stored for five years.

RESULTS

Most participants were female, teen and brown. Regarding the socio-economic conditions most had family income between 1 and 2 minimum wages and maternal education for more than 12 years of study (Table 1).

ISSN: 1981-8963   DOI: 10.5205/reuol.3111-24934-1-LE.0610201202

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Table 1. Socio-demographic characteristics of children and adolescents with a year of monitoring at the Center for Childhood Obesity, Campina Grande-PB, 2010-2011.

Characteristics		More than 6 months of remove		Less than 6 months of remove		Total	
		n	%	n	%	n	%
Gender	Female	35	74,5	38	61,3	73	67
	Male	12	25,5	24	38,7	36	33
Age Group	Pre-scholar	1	2,1	4	6,5	5	4,6
	Scholar	7	14,9	19	30,6	26	23,9
	Teens	39	83	39	62,9	78	71,6
Familiar Income (SM*)	1/4 a 1/2	2	4,3	5	8,1	7	6,4
	1/2 a 1	7	14,9	13	21,0	20	18,3
	1 a 2	22	46,8	21	33,9	43	39,4
	2 a 5	15	31,9	19	30,6	34	31,2
	>5	1	2,1	3	4,8	4	3,7
	Do not know	0	0	1	1,6	1	0,9
Race	White	14	29,8	13	21,0	27	24,8
	Brown	29	61,7	45	72,6	74	67,9
	Black	4	8,5	3	4,8	7	6,4
	Do not know	0	0	1	1,6	1	0,9
Mother's Scholarity **	0 to 8 years old	14	29,8	21	33,9	35	32,1
	9 to 11 years old	9	19,1	11	17,7	20	18,3
	12years old or older	24	51,1	30	48,4	54	49,5

Caption: * Minimum Wage. **In years of study.

Regarding dietary habits, it is observed in Table 2 that 67.9% have lunch daily at school and 40.4% are meals in front of the television.

Regarding school lunch, the most cited were the biscuits, snacks and soft drinks (41.3%). By comparing residence time in the treatment, it was found that the separated for longer consumed more of these (44.7%). Moreover, this same group, about 1/3, not lanchava and only 17% ate healthy snacks (fruit, juice and yogurt). As regards the number of meals per day, the groups indicated in bulk, making four (37.7%) (Table 2).

Table 2. Nutritional habits and lifestyle of children and adolescents with a year of monitoring at the Center for Childhood Obesity, Campina Grande-PB, 2010-2011.

Nutritional habits		More than 6 months away		Less than 6 months away		Total	
		n	%	n	%	n	%
Frequency of change lunch for snack	Snacks	2	4,3	3	4,8	5	4,6%
	Lunch	45	95,7	59	95,2	104	95,4%
Frequency of snacks in school *	Do not snack	14	29,8	12	19,4	26	23,9
	Daily	26	55,3	48	77,4	74	67,9
	Some times	7	14,9	0	0	7	6,4
Types of School Snacks *	Do not snack	14	29,8	12	19,4	26	23,9
	Fruits, juices and yogurt	8	17,0	17	28,3	25	23,3
	Soup, Milk Rice and spaghetti	4	8,5	6	9,7	10	9,2
	Biscuits, salty and soft drinks	21	44,7	24	38,7	45	41,3
	Do not know	0	0,0	1	1,6	1	0,9
Location makes meals	Table	23	48,9	33	53,2	56	51,4
	Television	19	40,4	25	40,3	44	40,4
	Computer	3	6,4	1	1,6	4	3,7
	Others	2	4,3	3	4,8	5	4,6
Number of meals per day	1 meals	0	0	1	1,7	1	0,9
	2 meals	1	2,2	0	0	1	0,9
	3 meals	11	23,9	3	5,0	14	13,2
	4 meals	17	37,0	23	38,3	40	37,7
	5 meals	8	17,4	25	41,7	33	31,1
	6 meals	9	19,6	8	13,3	17	16
	>6 meals	1	2,2	2	3,2	3	2,7

* N = 107, two patients did not attend.

In respect for the food frequency it was observed in a general framework, which after a year of monitoring, food intake, either risk or protective, met under the recommended. Except in what regards the consumption of vegetables (58.9%), milk (54.2%) and its derivatives, yoghurt (67.3%) and cheese (67.3%), as Table 3.

By the time of removal, it was noted that participants with more than 6 months out of monitoring, had higher rates of inappropriate use in frying (47.8%), vegetables (65.2%) and milk (56.5%) . While participants with less than 6 months of the last visit, showed higher frequency in the recommended consumption of sausages, fries, pasta, soda, candy, candy / chocolate, beans, fruits, vegetables and milk.

With only result in lower yogurt and cheese (Table 3).

Table 3. Food frequency of children and adolescents with a year of monitoring at the Center for Childhood Obesity, Campina Grande-PB, 2010-2011.

Food frequency		More than 6 months away		Less than 6 months away		Total	
		n	%	n	%	n	%
Embedded	Recomended	31	67,4	50	82,0	81	75,7
	Acceptable	8	17,4	4	6,6	12	11,2
	Bad	7	15,2	7	11,5	14	13,1
Fritter	Recomended	19	41,3	28	45,9	47	43,9
	Acceptable	5	10,9	6	9,8	11	10,3
	Bad	22	47,8	27	44,3	49	45,8
Pasta	Recomended	20	43,5	30	49,2	50	46,7
	Acceptable	6	13,0	15	24,6	21	19,6
	Bad	20	43,5	16	26,2	36	33,6
Soft drinks	Recomended	23	51,1	33	54,1	56	52,8
	Acceptable	10	22,2	12	19,7	22	20,8
	Bad	12	26,7	16	26,2	28	26,4
Candies	Recomended	25	54,3	45	73,8	70	65,4
	Acceptable	7	15,2	4	6,6	11	10,3
	Bad	14	30,4	12	19,7	26	24,3
Candy / Chocolate	Recomended	22	47,8	33	54,1	55	51,4
	Acceptable	6	13,0	9	14,8	15	14,0
	Bad	18	39,1	19	31,1	37	34,6
Bean	Recomended	26	56,5	45	73,8	71	66,4
	Acceptable	4	8,7	2	3,3	6	5,6
	Bad	16	34,8	14	23,0	30	28,0
Fruits	Recomended	23	50,0	33	54,1	56	52,3
	Acceptable	2	4,3	4	6,6	6	5,6
	Bad	21	45,7	24	39,3	45	42,1
Greenery	Recomended	13	28,3	26	42,6	39	36,4
	Acceptable	3	6,5	2	3,3	5	4,7
	Bad	30	65,2	33	54,1	63	58,9
Milk	Recomended	18	39,1	27	44,3	45	42,1
	Acceptable	2	4,3	2	3,3	4	3,7
	Bad	26	56,5	32	52,5	58	54,2
Yogurt	Recomended	14	30,4	16	26,2	30	28,0
	Acceptable	2	2,3	3	4,9	5	4,7
	Bad	30	65,2	42	68,9	72	67,3
Cheese	Recomended	13	28,3	15	24,6	28	26,2
	Acceptable	6	13,0	1	1,6	7	6,5
	Bad	27	58,7	45	73,8	72	67,3

DISCUSSION

Obesity has excelled in research in the area of public health, since it is present in all age, sex and socioeconomic status. This condition is associated with chronic diseases in adulthood or childhood. In this study most of the individuals surveyed were female teenagers with low income and maternal education with twelve years of study.

Despite having been detected in the last 20 years the greatest increases in prevalence of overweight among girls, in which the percentage nearly tripled, yet obesity is more common among boys. From this research, it was shown that the girls are mostly in the IOC. These data may have diverged because they refer to a convenience sample and can not be applied to the general population.

The study population for the most part, consisted of adolescents. Studies have shown, this age group, the association between obesity and increased risk of developing chronic diseases in adulthood. Moreover, obese adolescents are subject to discrimination and have fewer opportunities for work and social integration, becoming thus no more aesthetic concern, but public health problem.

The consensus is that obesity not only affects populations of high socioeconomic level. In this study, obesity was more common in adolescents with lower family incomes. Said the study compared the results of Household Budget Survey 2002-2003, with studies conducted in 1974-1975 by the IBGE (National Survey of Household Expenditure) and the National Institute of Nutrition in 1989 (National Survey on Health and Nutrition) showed significant increases in the prevalence of overweight adolescents, including fifth installment in the poorest income.

This trend can be observed in Brazil from adolescent males belonging to the fifth installment of lower family income, a decline in the prevalence of underweight from 13.9% (1974-1975) to 5.2% (2008 - 2009). In the same period there was an increase of excessive weight of 1.6% to 12.7% and obesity, less than

ISSN: 1981-8963   DOI: 10.5205/reuol.3111-24934-1-LE.0610201202

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0.1% to 2.1%, respectively. Reduced prices of high-calorie foods facilitate access of the poorest as well as government subsidies without nutrition education associated justify the increase in family income and the acquisition of non-nutritious food for the family, as could be observed in this study.

The nutritional habits of patients, even after a year of monitoring by specialized professionals, were not adequate. It was found that most participants performed four or fewer meals a day, only half ate at the table, and a significant number (48.7%) in front of the TV and / or computer.

Study results found little to lower the present study, when a third of patients reported making five to six meals a day. Results may differ because of this research include children and adolescents, and the population of age have the lowest power supervised by parents. The habit of skipping meals is very common among teenagers. Such information is important because it is remarkable that a fractionation diet facilitates greater weight loss process.

Although the preferred site for children and adolescents to be meals in front of the TV, this behavior is considered inappropriate due to the proven negative influence of the media on power, by ad serving foods and lack of attention during meal consumption increases.

In this study, the frequency of feeding patients after one year of follow up, there is a tendency to recommend consumption, according to VIGITEL for both risk foods, as protective for cardiovascular disease. However, with respect to frying vegetables, milk and dairy products, most had inadequate consumption, indicating the need for more specific work in order to improve the intake of these foods specifically.

These data are consistent with others in relation to decreased consumption of vegetables, dairy products and increased consumption of pasta and fried foods, differing with respect to adequate intake of this fruit in our study.

By analyzing the data regarding the habit of exchanging snacks for lunch and snacks performing schools, it was found that this behavior was improved after treatment multiprofessional.

It is further considered that the school lunch has key role in preventing obesity in young people. However, they are considered high-calorie and low nutritional value. There is a preference, children and adolescents, the

consumption of soft drinks and snacks. While fruits, sandwiches and juices are foods that fewer students like to consume. Thus, despite the large supply of high-calorie foods in school canteens, in this research, the constancy in attendance influenced the types of snacks consumed, pointing to interference in monitoring their nutritional quality.

Children and adolescents with less time performing the last visit at school consumed more fruits, juices and yogurt. In contrast, the other group, biscuits, snacks and soft drinks. Likewise, there was a higher consumption of fried inappropriate, vegetables and milk in the group with the longest completion of the consultation.

Usually, children and adolescents find it difficult to adhere to changes in eating habits, and this important fact when it comes to patients who withdrew from the support and encouragement of treatment centers. Moreover, coaching choices makes the patient's appropriate nutritional habits

CONCLUSION

Actually Brazilian population childhood obesity is present and with increasing frequency. Studies proposing to discuss the issue, or even care experiences that offer more effective interventions are relevant. Since it is necessary to monitor multi in order to prevent metabolic and ensure adherence to healthy lifestyle in order to healthy adults.

The IOC patients were predominantly female, young, low-income and maternal education for twelve years. Although most patients do not adhere to follow up with the expected frequency, giving rise to be sorted into two groups, more than six months and less than six months of the last visit, it was concluded that treatment with multiprofessional emphasis on style modification life was satisfactory, because successful in encouraging healthy practices, such as the consumption of foods recommended for risk and protective for cardiovascular disease, be satisfactory in both groups.

Finally, the highlights are the children and teenagers in the group with less time off since school started consuming more fruits, juices and yogurt than the other group. Unfortunately, most said only consume four meals per day or less, and in front of the TV.

Further studies are needed to develop new strategies in order to increase adherence to treatment of children and adolescents are overweight, and reduce national rates of

adults with chronic diseases.

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