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ORIGINAL ARTICLE

FOOD PROFILE OF STUDENTS IN A STATE SCHOOL
PERFIL ALIMENTAR DE ESTUDANTES DE UMA ESCOLA ESTADUAL
PERFIL ALIMENTAR DE ESTUDIANTES DE UNA ESCUELA DEL ESTADO

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ABSTRACT

Objective: to trace the food profile of students at a state school. **Method**: observational, transversal study with a quantitative approach. Data were collected with an instrument applied to 202 adolescents between 12 and 18 years old of a rural area in Pernambuco. Data were entered in Excel and exported to the Statistical Package for Social Sciences software - (SPSS version 16.0). **Results**: most food consumed daily by adolescents were carbohydrates, sugars and fried food. There was a low adherence to fruits and vegetables. Only 26.1% of adolescents consume fruit and fruit juice and 23.8% reported never consuming vegetables. The body mass index and blood pressure data were altered and very significant. **Conclusion**: the decrease of nutritional foods like fruits, vegetables, and increased consumption of foods rich in fats, carbohydrates and fried foods are increasingly frequent habits among adolescents, increasing the chances of developing chronic diseases in adulthood. **Descriptors**: Adolescents; Eating Habits; School.

RESUMO

Objetivo: traçar o perfil alimentar de estudantes de uma escola estadual. **Método**: estudo observacional, transversal e de abordagem quantitativa. Os dados foram coletados com um instrumento, aplicado para 202 adolescentes entre 12 e 18 anos do agreste pernambucano. Os dados foram digitados no Excel e exportados para o *software Statistical Package for Social Science* – (SPSS versão 16.0). **Resultados**: dos alimentos consumidos diariamente pelos adolescentes, destacaram-se aqueles ricos em carboidratos, açúcares e frituras. Houve uma baixa adesão a frutas, verduras e hortaliças. Apenas 26,1% dos adolescentes consomem fruta e suco de fruta e 23,8% referem nunca consumir verdura. O Índice de Massa Corpórea e os dados pressóricos mostraram-se alterados e bem significativos. **Conclusão**: a diminuição de alimentos nutricionais, como frutas, verduras, legumes, e o aumento do consumo de alimentos ricos em gorduras, carboidratos e frituras são hábitos cada vez mais frequentes entre os adolescentes, aumentando as chances de desenvolverem doenças crônicas na idade adulta. **Descritores**: Adolescentes; Hábitos Alimentares; Escolares.

RESUMEN

Objetivo: trazar el perfil alimentario de estudiantes de una escuela estadual. **Método**: estudio observacional, transversal, de enfoque cuantitativo. Los datos fueron recolegidos con un instrumento, aplicados a 202 adolescentes entre 12 y 18 años del agreste de Pernambuco. Los datos fueron digitados en Excel y exportados para el software *Statistical Package for Social Science* – (SPSS versión 16.0). **Resultados**: de los alimentos consumidos diariamente por los adolescentes se destacaron aquellos ricos en carbohidratos, azúcar y frituras. Hubo una baja adhesión a frutas, verduras y hortalizas. Apenas 26,1% de los adolescentes consumen fruta y jugo de fruta y 23,8% dicen nunca consumir verdura. El Índice de Masa Corporal y los datos se mostraron alterados y bien significativos. **Conclusión**: la disminución de alimentos nutricionales como frutas, verduras, legumbres, y el aumento del consumo de alimentos ricos en gorduras, carbohidratos y frituras son hábitos cada vez más frecuentes entre los adolescentes, aumentando las chances de desarrollar enfermedades crónicas en la edad adulta. **Descriptores**: Adolescentes; Hábitos Alimentares; Escolares.

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INTRODUCTION

Non-communicable chronic diseases (NCD) are a public health problem that creates a threat to the health and quality of human life. In 2008, estimates indicate that there were 63% of all 36 million deaths worldwide for this cause. In Brazil, there were 72% causes of death in 2007.[1] This predominance of non-communicable diseases in the country is the result of a set of factors such as urbanization, improvements in health care, changing lifestyles, and globalization.[2]

The NCDs are multifactorial and have many modifiable risk factors such as smoking, physical inactivity, poor diet, obesity, dyslipidemia and consumption of alcohol.[2] Some behaviors adopted in adolescence related to eating habits such as diet lacking in fruits and vegetables, and excess of sugar, sodium and fat are risk factors that contribute to the onset of NCDs highlighting cardiovascular, diabetes and cancer problems.[3-4]

Most of these diseases have a direct relationship with the habits of modern society but has modifiable risk factors that can be changed through interventions, preventive actions, and health promotion, aimed at combating poor diet being one of the main predicting of the quality of life and health.[2-4]

Given the contextualized problem, it is necessary to pay attention to the issue and study the eating habits as the first step to preventing the onset of chronic diseases in adolescents, so this study aims to trace the food of students´ profile from a state school in the rural area of Pernambuco.

METHOD

Observational, a cross-sectional and quantitative study in a state school in the rural area of Pernambuco. After being requested information on the number of adolescents enrolled in school between 12 and 18 years old, a universe of 465 students was obtained. The sample was calculated using the formula for observational study with a finite population, consisted of 202 adolescents.

Sample inclusion criteria were: to be between 12 and 18 years old and be regularly enrolled in school. They excluded those adolescents with confirmed diagnosis of a chronic disease, or any disease that interferes directly in weight and height, pregnant teenagers or has impediment to obtaining the anthropometric measurements.

The selection of students was with a simple random among those who agreed to participate and had the consent and informed form signed both by them and by their guardians. However, before that, principals, teachers, and students were informed about the objectives and methodology of the survey.

Data collection was conducted from October to November 2013, from Monday to Friday in the morning and afternoon period, after approval by the Research Ethics Committee of the Health Sciences Center (CCS) of the Federal University of Pernambuco (UFPE), CAAE: 20181513.8.0000.5208 with resolution 466/2012 for research with human beings.[5] As collection instrument, a structured and adapted Maestro6 form was used addressing personal data, some socio-demographic characteristics, anthropometric measurements (weight, height and Body Mass Index - BMI), Capillary Blood glucose values at random (mg/dl) and blood pressure (mm/Hg), eating habits and physical activity of the adolescents.

Anthropometric variables were measured by one of the authors, in duplicate, and calculated the averages for registration. Weight was obtained with the teenagers wearing light clothing and no shoes, using a digital scale Filizola® with a capacity of 150 kg and an accuracy of 0.1 kg. Height was verified from a tape with 0.5 cm scale. Respondents were asked to position themselves erect and motionless, hands flat on the thighs and the head adjusted to the Frankfurt plane to ensure the accuracy of height.

BMI was calculated based on the equation of Quételet (BMI=kg/m2) and the classification was given as cutoff points proposed by the World Health Organization (WHO), as follows: underweight (BMI <18.5 kg/m2), normal weight (18,5-24,9kg/m2) on pre-weight or obese (25-29,9kg/m2) and, obesity, class 1 (30-34,9kg/m2), class 2 (35 -39,9kg/m2) and class 3 (≥40kg/m2).[7]

Regarding the blood glucose level, it was necessary to take a participant´s blood drop by a bite made of a tip of the finger (after sterilization) with a suitable disposable needle for this purpose. Next, the used needles were placed in their boxes for sharp pierce materials. The glucose reading was performed using a glucometer brand G-tech and suitable test tape. For the analysis of values, the recommendations of the Brazilian Society of Diabetes were followed.[8]

Blood pressure (single measure) was measured with aneroid sphygmomanometers, with cuff appropriate to the arm size, and use

of binaural stethoscope and diaphragm to hearing the sounds. The cuff was placed snugly about 2 to 3 cm above the cubital fossa. The measurements were performed in a quiet environment; students were placed as follows: sitting, legs uncrossed, feet flat on the floor, leaning back in the chair and relaxed. The arm at heart level (the midpoint level of the sternum or 4th intercostal space), free clothes, supported with the palm facing upwards and the elbow slightly flexed, deflated bladder, making sure that the individual does not practice physical exercise for 60 minutes or drunk alcoholic beverages, coffee, food or smoke as recommended by the Brazilian Society of Hypertension.[9]

Data were entered in Excel and exported to the Statistical Package for Social Sciences software - (SPSS version 16.0) in which the analysis was performed. To the profile survey of adolescents distributions of frequencies were built and calculated the statistics of demographic and clinical variables partners. The statistics were: minimum, maximum, average and standard deviation. The results are presented in tables.

RESULTS

Among the 202 adolescents who participated in the survey, 68.3% were female. The mean age was 14.73 (SD=1.77). Regarding education, students participated in the 6th grade of elementary school to the 3rd year of high school, with a predominance of primary school students (79.2%) and the morning shift (79.7%). 58.4% practiced physical activity, the most prevalent type of activity was soccer (56%).

The data in Table 1 show the descriptive statistics of anthropometric data, blood sugar and blood pressure of students.

Table 1. Anthropometric data, blood sugar and blood pressure of students (n=202). Limoeiro (PE), Brasil, 2013.

Variables	Descriptive Statistics			
	Average	Standard-Deviation	Minimum	Maximum
Anthropometric				
Height	1.58	0.09	1.39	1.88
Weight (Kg)	53.21	14.31	29.30	141.00
Body Mass Index (BMI)	21.18	4.36	14.93	40.04
Blood Glucose and Blood Pressure				
Random blood glucose in mg/dl	98.73	16.26	47.00	159.00
Systolic blood pressure - SBP	109.80	12.93	80.00	140.00
Diastolic Blood Pressure - DBP	75.14	12.30	50.00	138.00

Based on the results shown in Table 1, it is shown that the average weight of the whole sample was 53.21 (SD=14.31) and a maximum of 141.00, which infers a very overweight for this population. BMI reached a peak of 40.04, which is indicative of weight much higher than desirable, individuals with this weight range are more likely to develop chronic diseases. Systolic and diastolic blood pressure were shown to be altered 140 mmHg and 138 mmHg, respectively, noting that, according to the V Brazilian Guidelines on Hypertension states that anything above 120/80 mmHg in adolescents should be considered borderline and higher values is considered hypertension.[9]

The Table 2 data show the descriptive statistics on the nutritional profile of the sample students with the consumption of healthy and unhealthy foods.

Table 2. Food profile of students with healthy and unhealthy food (n=202). Limoeiro (PE), Brasil, 2013.

Food Consumption	Every day		from 1 to 3 times a week		Three times a week		From 4 to 6 times a week		Six times a week		Never	
	n	%	n	%	N	%	n	%	n	%	n	%
Bean	144	71.3	37	18.2	00	00	15	7.5	00	00	06	3.0
Rice	116	57.4	61	30.2	00	00	17	8.4	00	00	08	4.0
Spaghetti	56	27.7	107	52.9	00	00	20	10.0	00	00	19	9.4
Meat (Ox, chicken and pork)	162	80.1	24	11.9	00	00	10	5.0	00	00	06	3.0
Couscous	126	62.3	52	24.7	00	00	16	8.0	00	00	04	2.0
Egg	13	6.4	133	65.8	00	00	11	5.5	00	00	45	22.3
Bread	92	45.5	82	40.6	00	00	22	10.9	00	00	06	3.0
Milk and Dairy Products	58	28.7	105	51.9	00	00	14	7.0	00	00	25	12.4
Greenery	83	41.0	62	30.7	00	00	09	4.5	00	00	48	23.8
Fruit and Fruit Juice	166	82.2	151	74.8	00	00	53	26.1	00	00	34	16.9
Visceral	03	1.5	72	35.7	00	00	00	0.0	00	00	127	62.8
Chocolate drinks	28	13.9	97	47.9	00	00	12	6.0	00	00	65	32.2
Reformed food	16	7.9	116	57.4	18	8,9	10	5.0	00	00	60	29.7
Soft drinks	38	18.8	129	63.8	00	00	20	10.0	00	00	15	7.4
Candies	124	61.3	60	29.7	00	00	11	5.5	00	00	07	3.5
Chocolates	46	22.8	117	58.8	00	00	12	6.0	00	00	27	13.4
Fried food	105	52.0	76	37.6	00	00	00	00	02	1,0	07	3.5
Cookies and/or Ice Cream	117	58.2	68	33.8	00	00	12	6.0	00	00	04	2.0

Among the healthy foods consumed daily by the students Table 2 included: beans (71.3%), rice (57.4%), meat (80.1%), couscous (62.3), bread (45, 5), fruit and fruit juice (82.2%). However, there was a low adherence to fruits and vegetables, with only 26.1% of adolescents reported consuming fruit or juice at a frequency of four to six times a week and 23.8% reported never consuming vegetables.

Unhealthy food consumed daily by students were: sweets (61.3%), cookies and/or ice cream (58.2%) and fried food (52.0%). However, in eating habits, we emphasized that the visceral (62.8%) are never consumed by students, and in the food consumed one to three times a day, the soft drinks (63.8%), chocolates (58.8%), meat (57.4%) and chocolate products (47.9%) are highlighted.

DISCUSSION

Anthropometric data such as BMI (Body Mass Index) and blood pressure (BP) of the students were altered. BMI reached a maximum of 40.04, which is considered obese. In two studies with the same population group, it was observed that BMI appears very high, with respectively 36.6 and 41,6.[10-11] This obesity relationship and adolescence is associated with the onset of other diseases such as hypertension, dyslipidemia, increased the occurrence of type 2 diabetes, disorders in the emotional sphere. Apart from that, obese adolescents and children when adults have an increased risk of developing chronic diseases.[12]

The significant pressure levels shown in this study (SBP=140 mmHg and DBP=138 mmHg) associated with the value of BMI 40.04 refer to the results found in other studies in which the prevalence of hypertension was lower among students with normal weight than those overweight (28.7%) or obese (46.4%).

In the risk of high blood pressure, those with overweight showed a 1.9% higher risk and 3.1% times more obese compared to students with normal nutritional status. In conclusion, hypertension is a multifactorial clinical grievance that has direct relation to weight, physical inactivity, and poor diet.[11-13]

The data presented on the unhealthy foods in this study are consonant with other research in which the description of the food practices currently in adolescence has responded to high-fat diets carbohydrates, sugars, and sodium (embedded foods), with little participation of fruit and vegetables and foods considered healthy and essences for human development, which later help in the emergence of various diseases.[3]

It can be seen then, that the consumption of unhealthy foods is inversely related to the consumption of fruits and vegetables, ratified data in the study on the prevalence and factors associated with consumption of fruits and vegetables among adolescents from public schools in the state of Pernambuco, where only a third of teenagers said the daily consumption of fruit or vegetables and less than 7% reported consuming both foods daily.14 This corroborates with what is proposed by the Food Guide for the Brazilian population that suggests the intake of three servings of vegetables as part of meals and three or more servings of fruits, as these foods exert beneficial functions to our body are rich in vitamins and minerals and bioactive compounds, which may reduce the risk of heart disease and cancer.[15]

Other research on factors associated with overweight in Brazilian Northeast children showed that consumption of fried food (breakfast, lunch and dinner), consumption of filled cookies, sugary artificial drinks, and high consumption of bread, was common, not only in the overweight group but also in eutrophic. The excessive frying consumption is seen in childhood as a factor that increases the chances of future adolescents with the same eating habits.16 The data presented in the report of the Family Budget Survey (POF) 2008-2009, including the North and Northeast regions of Brazil, show overweight in adults, children and especially among adolescents.[17]

Studies18 showed that the decrease of nutritional foods like fruits, vegetables, legumes, and increased consumption of foods rich in fats, carbohydrates, and fried foods were increasingly frequent habits among teenagers, so such behavior increases the chances of developing chronic diseases in adulthood.[19]

CONCLUSION

We believe that the data of this study indicated that students have wrong habits related to diet when eating foods high in carbohydrates, sugars, and fried food. This reality favors the overweight and the onset of chronic conditions such as hypertension, type 2 diabetes mellitus, cardiovascular diseases and undermines the adolescent quality of life.

These results show that more research should be developed around the food intake of adolescents to educational and intervention measures are introduced that seek to avoid this imbalance to prevent future metabolic complications.

Because of that, nurses can collaborate with health policies, working to promote health in schools through the Health Program at School (PSE) which aims to integrate and permanent articulation of education and health. As young people spend most of their time in school, this is a key place for educational and informative interventions aimed to alert teenagers about the evils of poor diet. Once the correct orientation may result in benefits over the life of these adolescents, thus reducing the risk of morbidity, especially chronic diseases.

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