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Original article

Health habits of adolescents benefiting from Family Grant: an exploratory study

Hábitos de saúde de adolescentes beneficiários do Bolsa Família: um estudo exploratório

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Abstract

Objective: analyzing the health habits of adolescent beneficiaries and non-beneficiaries of the Family Grant Program (PBF). **Methods**: participants were adolescents aged 14 to 17 years old, living in a city in the south of the State of Minas Gerais, classified as beneficiaries and non-beneficiaries. Body weight, height, eating habits and level of physical activity were evaluated using the International Physical Activity Questionnaire (long version). The t-test was performed in the Stata program and a $p < 0.05$ was adopted for significance. **Results**: sixteen beneficiary adolescents (15.4 ± 0.8 years) and 16 non-beneficiary adolescents (15.1 ± 1.0 years) of both sexes participated. All of them characterized with normal Body Mass Index, but as for the level of physical activity, the group of beneficiaries had a longer time of physical activity in transportation and total (816.5 min / week and 1953.7 min / week), while non-beneficiaries, a greater sedentary behavior during the week (552.5 min / day). Regarding eating habits, non-beneficiaries had a significantly higher intake of milk and dairy products on weekends (5.2 times / day) when compared to program beneficiaries (3.3 times / day). **Conclusion**: beneficiaries showed higher level of community and total physical activity and lower level of sedentary behavior when compared with no-beneficiaries. However, for the other health variables, there was no difference between the participants.

Keywords: physical activity; nutritional status; public policy; adolescent.

Resumo

Objetivo: analisar os hábitos de saúde de adolescentes beneficiários e não beneficiários do Programa Bolsa Família (PBF). **Métodos**: os participantes foram adolescentes com idade entre 14 a 17 anos, moradores de uma cidade do Sul de Minas Gerais, categorizados em beneficiários e não beneficiários. Foram avaliados o peso corporal, estatura, hábitos alimentares e nível de atividade física pelo International *Physical Activity Questionnarie* (versão longa). Foi realizado o teste "t" no programa Stata e adotado um $p<0,05$ para significância. **Resultados**: participaram 16 adolescentes beneficiários (15,4±0,8 anos) e 16 adolescentes não beneficiários (15,1±1,0 anos) de ambos os sexos, todos caracterizados com Índice de Massa Corporal normal; mas, quanto ao nível de atividade física, o grupo de beneficiários apresentou maior tempo de atividade física no transporte e total (816,5 min/semana e 1953,7 min/semana), já os não beneficiários apresentaram maior comportamento sedentário durante a semana (552,5 min/dia). Com relação aos hábitos alimentares, os não beneficiários apresentaram uma ingestão de leites e derivados nos finais de semana (5,2 vezes/dia) significativamente maior quando comparados aos beneficiários do programa (3,3 vezes/dia). **Conclusão**: os beneficiários apresentaram um maior nível de atividade física no transporte e no total e menor tempo de comportamento sedentário quando comparado com os não beneficiários. Entretanto, para as outras variáveis de saúde não foram verificadas diferenças entre os participantes.

Palavras-chave: atividade física; estado nutricional; política pública; adolescente.

Introduction

To combat undernourishment in Brazil, in 2003 the federal government reread actions to care for the population creating the Family Grant Program (PBF). This program is considered the largest program of direct income transfer in the world, for families living in conditions of poverty and extreme poverty, and has as main objective to improve the financial situation and consequently the nutritional status of children living in these families. The PBF is built from three central pillars, these being the transfer of income, conditionalities and complementary programs. Of a rather ambitious nature, the program regularly grants about 11 million monthly benefits.[1,2]

However, although studies indicate a reduction in the number of adolescents in a state of undernourishment, there has been a concomitant increase in the number of obesity and overweight, causing the concern of public health agencies with the exacerbated growth in this population. According to the United Nations Children's Fund (UNICEF), currently every four Brazilian children one is obese or overweight.[6] Thus, we understand obesity as a serious public health problem and one of the main risk factors for the cause of chronic non-communicable diseases in adulthood and the old. In addition, they contribute to an increased risk for other factors such as low level of physical activity and inadequate food education, both in adolescents and in the family circle.[7]

In line with the growing prevalence of overweight and obesity both at the national and global levels, studies conducted in the State of Sergipe,[12] Rio Grande do Sul and Acre[13] show an increase in these factors with children benefiting from the program. In this sense, it is pertinent to emphasize that this is a group of high social vulnerability, a condition that tends to lead to the consumption of foods with low nutritional value and low level of physical activity.

In a study published in 2020, Guthold *et al.* found that about 81% of adolescents between 10 and 17 years old, from 142 countries surveyed, are physically inactive. The National Student's Health Survey (PeNSE) shows that 65.6% of Brazilian adolescents are considered insufficiently active and inactive.[14,15] Another aggravating fact is related to the eating habits of these individuals, characterized by the consumption of energy-dense foods, especially highly processed carbohydrates without nutritional quality. Levy *et al* points out in a study that 50.9% regularly ingest goodies; 37.8%, ingest soft drinks and 33.6%, some sweet biscuit regularly.[3]

Although levels of physical activity and inadequate eating habits are common to most adolescents, it is important to assess whether the most socioeconomically vulnerable would have additional impairment. Thus, the aim of this study was to analyze the health habits of adolescents who are beneficiaries and non-beneficiaries of the Family Grant Program (PBF) of a city in Southern State of Minas Gerais.

Materials and Methods

The work is a transversal character and exploratory study carried out in a city in the Southern State of Minas Gerais, from May to October 2016. According to data from the Brazilian Institute of Geography and Statistics-IBGE, the present city had 49,430 inhabitants in 2010, as well as a Human Development and Mortality Index (MHDI) of 0.751, with a population density of 172.59 inhabitants/km². The main source of economy of the city is agricultural, being coffee the main product of cultivation. According to the 2010 CENSUS, the number of adolescents between 10- and 19-years old living in the city was 5,797.[16]

The current work was approved in the Ethics Committee of the Federal Institute of Education, Science and Technology of the Southeast of Minas Gerais, under Opinion N 1,595,497. All study participants were notified of objectives and methodology and signed the Free and Informed Consent Term before data collection. The adolescents were authorized by their parents or guardians after signing the consent form.

Population and sample

Adolescents aged between 14 and 17 years old, of both sexes, living in the urban and rural areas of the municipality evaluated, participated in the study. We were led to resort to the Health Department and the Municipal

Department of Education, being authorized to perform the collection in our target audience; however, in order to facilitate the meeting of these adolescents, it was indicated that the collections be made in schools.

General proceedings

A survey of schools in the city was carried out from the website of the city hall and later contact with the Municipal Department of Education. The city has 12 municipal schools (early childhood and elementary education 1), five state-level schools (elementary school 2 and high school) and four private schools (all levels), totaling 21 schools, which had adolescents of the age group covered in the research.

From contact at the municipal education department of the city, a letter of presentation of the study, a term of commitment and a free and informed consent form were distributed to all these directors. Of the schools presented, the 12 municipal schools did not contemplate the age group of interest, with nine schools left. Of these nine, the four privates did not agree to participate in the study, leaving five possible participants, all from the state. The negative of three principals resulted in the participation of only two schools, one of them in the central region of the city, while the other was based in a more peripheral region of the municipality, but both receive low-income students and residents of peripheral neighborhoods or rural areas of the city.

The adolescents authorized to participate in the study were divided into two groups for data analysis. The first group composed of PBF Beneficiaries, served in 2015. After selecting these students, the control group (Non-Beneficiaries of the PBF) was paired as follows: the beneficiary student chose, within his classroom context, another student, non-beneficiary, who lived as close to his home, of the same age group (with tolerance of one year more or less) and best suited the lifestyle of the student who was the beneficiary, taking into account, environment and regionalization, since they should present themselves as individuals involved in the same environment.

Adolescents who had some physical disability or characteristics that prevented them from answering the questionnaires and making physical evaluations was adopted as exclusion criteria for the study. Sample calculation was not performed, because the research was conducted with the entire population of adolescents who were enrolled in public and private schools in 2015.

The schedule of the present work would begin in March 2016, in which the entire list and selection of the program beneficiaries who would participate in the research would be made, as well as the control group. This fact occurred with a lot of delay due to the difficulties encountered in the municipal management of the program.

Thus, the challenges began, since the city had, at the time, only one center for services related to the PBF, located next to the Secretariat of Social Assistance. In the secretariat, the researchers were received by the program coordinator, who explained the mechanism of operation of the program in the city, evidencing the intersectoral work between the Departments of Education, Health and Social Assistance.

Due to the impasses presented in the study, the total loss of students in the two participating schools, involving those who did not return the TCLE, reached 57 students, thus, the participation of the sample was 21.9%, covering 16 adolescents who benefited from the 73 who could participate. Subsequently, these participants were paired with their respective non-beneficiaries adolescents, totaling 32 students, beneficiaries of the participating schools.

Anamnesis and anthropometric evaluation

From May to October 2016, within the school environment, there were carried out in a room containing two graduates in physical education, trained with the instruments and responsible for the application of the questionnaire and anthropometric collection. The initial anamnesis was composed of socioeconomic data of the adolescent population, as well as of their family with questions about age, sex, marital status, level of education and presence of diseases; whether or not it was a beneficiary of the PBF. The collections followed with anthropometric evaluation, in which body weight (Kg) and height (m) were collected using the Digital Scale and Body Analyzer of the WISO CARE brand, model W721.

To calculate BMI, the equation was performed: total body mass (kg) divided by height (m) squared (kg/m²). After calculating the BMI, following the same proposal for classification of the Center for Disease Control and Prevention (CDC), adolescents were classified according to the percentile: low weight (percentile<5), normal (percentile>5-percentile<85), overweight (percentile >85- percentile<95) and obesity (percentile>95).[17]

Level of physical activity

To identify the level of physical activity, the adolescents answered the International Physical Activity Questionnaire - IPAQ Long version, consisting of 27 questions. This objective is to estimate the time spent with physical activities performed during the week, with vigorous, moderate and mild intensity, distributed in four dimensions of physical activity present in different contexts of daily life (work, transportation, domestic activities and leisure) and the time spent per week in the sitting position (Sedentary Behavior).[18] For the calculation of total physical activity time, the equation suggested by Hallal[19] was adopted. The sum was performed with all PA domains.

Total PA time: Walking + light PA + moderate PA + 2 x vigorous PA.

Eating habits

To assess eating habits, a questionnaire was created, directed to the study, according to the recommendations of the Food Guide for the Brazilian Population[20]. Seeking to facilitate application and understanding, the number of times persons ingested a certain group of foods daily was considered, and not how many parts. The food group was: Cereals, Vegetables, Fruits, Legumes, Meat and Eggs, Milk and Derivatives, Sweets and Sugars, Fats and Oils. The intake during the week (Monday to Thursday) and on weekends (Friday to Sunday) was analyzed. At the end of the questionnaire, the participants answered two questions, one about their perception of weekly eating habits and perception of eating health, based on a scale of Likert, rating from 1- Bad to 5- Great.

To boost the data collection process, the questionnaires and anamnesis were applied by two evaluators, in the form of an individualized interview, through tablets, using the Software Open Data Kit ODK. These were answered through two tablets Samsung, Tab E 7.0 models, with Android 4.4 system. The interviews were conducted individually, aiming at the confidentiality of the answers and images of the participants.[21]

Statistical analysis

Data tabulation was performed in the Microsoft Excel program and, later, the data were presented descriptively with frequency distribution (absolute and relative). Data normality was tested using the test *Shapiro-Wilk*. To verify the difference between the variables studied in the beneficiary and non-beneficiaries groups, the *T Student* for independent samples was made. All analyses were performed in the *Stata* version 12.0.l and adopted a $p<0.05$ for significance level.

Results

In the face of the survey conducted in the five public schools in the city, the population of adolescents, in the age group of interest of the study, totaled 4682 adolescents, 904 of which were beneficiaries of the PBF. As of these, only two schools were ready to participate, the study sample became 32 adolescents, 16 beneficiaries and another 16 non-beneficiaries of the program.

The results indicate an average age of 15.4 ± 0.8 years and 15.1 ± 1.0 years for groups of beneficiaries and non-beneficiaries, respectively, presented in Table 1. Table 1 also presents the BMI results of adolescents and, according to the classification proposed by the CDC, the large portion was classified as normal BMI.

Table 1: Weight, height, and body mass index (BMI) classification of adolescent beneficiaries and non-beneficiaries (N=32).

Variables	Beneficiaries		Non-beneficiaries	
	Average	Standard deviation	Average	Standard deviation
Age (years)	15.4	0.8	15.1	1.0
Weight (kg)	66.0	19.4	59.0	7.4
Height (cm)	166.4	9.4	164.5	7.8
Eutrophic (%)	13 (81%)		16 (100%)	
Overweight and obesity (%)	3 (19%)		-	

Among the 32 students evaluated, 17 were female (53%) and 15 males; 47%, enrolled between the 5th and 9th years of school and currently performing only study activities. Regarding socioeconomic status, 30 (94%) of these students were considered low-income or vulnerable, with a family income equal to or less than one minimum wage. The other 6% of the students, all from the non-beneficiaries group, had a family income between 2 and 3 minimum wages.

Table 2 shows the data of the level of physical activity in the four domains and time in the sedentary behavior of both groups. The beneficiary group had higher time of physical activity in transportation (816.5 x 335.3 min/weekly) and in total physical activity (1953.7 x 850.3 min/weekly) and shorter time in sedentary behavior during the week (487.5 x 552.5 min/weekly), when compared to the non-beneficiary group.

Table 2: Level of total physical activity and in the four domains and time in sedentary behavior in adolescent beneficiaries and non-beneficiaries (N=32).

Physical activity domain	Beneficiaries		Non-beneficiaries		P-value
	Average	SD	Average	SD	
Transport (min/weekly)	816.5	960.7	335.3	602.5	0.04*
Leisure (min/weekly)	347.8	303.6	291.2	281.6	0.44
Domestic (min/weekly)	789.3	1230.9	223.7	292.5	0.08
Work (min/weekly)	-	-	320	-	-
Total of PA (min/weekly)	1953.7	1560.3	850.3	702.4	0.01*
Sedentary week (min/daily)	487.5	155.8	552.5	169.7	0.01*
Sedentary weekend (min/daily)	320.6	268.4	298.7	234.7	0.7

* = $p<0.05$

Table 3 shows the results related to the consumption of food groups by adolescents, being evaluated the days of the week, comprising from Monday to Thursday, and later the days of the weekend, from Friday to Sunday. The only significant value was the intake of milk and derivatives during weekends, considering the intake of the group of non-beneficiaries higher than that of the group of beneficiaries. The other variables showed no significant difference. The values are represented by the number of times that food group was ingested during the week and weekend.

Table 3. Food group intake index by beneficiary and non-beneficiary adolescents (n=32).

Variables	Beneficiaries		Non-beneficiaries		P-value
	Average	SD	Average	SD	
Week					
Cereals	9.2	2.7	8.6	1.8	0.34
Vegetables	2.6	2.9	2.8	3.1	0.79
Fruits	1.9	2.6	4.8	5.7	0.08
Greens	2.1	3.1	2.6	3.2	0.59
Milk derivatives	5.2	4.1	6.6	3.9	0.22
Meat and eggs	5.7	2.6	7.5	2.6	0.11
Candy	8.8	9.6	7.7	5.2	0.68
Oils and fats	3.6	3.5	2.5	2.8	0.39
Weekend					
Cereals	6.0	2.0	6.1	0.5	0.90
Vegetables	2.2	2.4	2.3	2.4	0.89
Fruits	1	1.6	2.5	3.2	0.12
Greens	1.1	2.0	2	2	0.24
Milk derivatives	3.3	3.0	5.2	2.8	0.01*
Meat and eggs	7.1	6.0	4.7	1.9	0.17
Candy	6.6	5.0	6.7	4.4	0.96
Oils and fats	4.1	5.0	4.5	4.8	0.78

*= $p<0.05$

Table 4 presents the results of the participants' food perception questions. Both groups of adolescents, when asked about consumption of isolated food groups, most beneficiaries and non-beneficiaries (57.5% and 62.5% respectively), consider their intake good/ excellent. However, when asked about their food health, even if they remain good/optimal, this percentage becomes lower in both groups (37.5% and 50.0% respectively). This is the difficulty of understanding and self-assessment in the consumption of a good or optimal diet.

Table 4. Food perception about food groups and perception of food health of adolescents beneficiaries and non-beneficiaries (n=32).

Variables	Beneficiaries		Non-beneficiaries	
	N	%	N	%
Food perception by food groups				
Awful/ bad	2	12.5%	0	0%
Regular	5	31%	6	37.5%
Good/great	9	57.5%	10	62.5%
Total	16	100%	16	100%
Perception of food health				
Awful/ bad	5	31.25%	2	12.5%
Regular	5	31.25%	6	37.5%
Good/great	6	37.5%	8	50%
Total	16	100%	16	100%

Discussion

Considering the findings, only the level of PA, sedentary behavior and milk consumption showed significant differences between groups. In summary, the beneficiary group had longer time of PA in transport and, total, shorter sedentary behavior time and lower consumption of milk and its derivatives when compared to the group non-beneficiary.

In addition to the results presented in study, a significant portion of the adolescents participants was not overweight or obese in both groups, disturbing researchers to think about the situation, leading to the use of literature to explain this fact. Contrary to the results found, studies of broad approach point a high prevalence of this situation, mainly in the population low-income, typically in places where the situation of social vulnerability is higher.[12,22]

About the physical activity data, it was possible to identify that adolescents, whether they are beneficiaries of the program or not, reach the recommendations proposed by the World Health Agency, which is 60 minutes of moderate physical activity daily – vigorous, accumulating 300 minutes of activity per week.[23]

The participants presented significant differences regarding physical activity in the transport domain and total physical activity in the case of beneficiaries. This finding is in line with the results of the study by Beraldo *et al*, in which checked that a higher proportion of adolescents adopted some active means of transport to go to school, such as the bicycle.[2] Because it is a small city, walking and the use of bicycles are a viable possibility and facilitated for all. In this sense, most of the students used these means of transport to get around the routine points, including the school, both in the central region of the municipality. Another fact that may justify this finding is based on the realization of this data collection has been carried out in a school context, something that can influence the students' responses, around transport to the present environment.[25]

The findings related to general physical activity, considered from the sum of all physical activity domains, were elevated in the participants who developed longer time of leisure activities, as the regular practice of sports, a more active way of locomotion through the use of the bicycle or walking locomotion, for example. As well as greater assistance in household chores, being this the domains that lower we obtained impacts regarding the performance of the practice of PA.

These factors directly impact the sedentary behavior time of these adolescents, evidencing significantly higher values in the average sitting time of the non-beneficiary population during the week when compared to adolescents receiving the program. In a study conducted by Lucena *et al.*,[26] taking into account different economic classes to analyze screen time, it showed "the greater exposure of adolescents of higher economic class (A/B) to excessive screen time [...]" and may be associated with greater access of this population to video games, televisions and internet access. In a review study conducted with data from Australia, the United States and Canada, it also identified a large association between higher income and longer screen time, increasing sedentary behavior time.[27]

The authors also present in their study that only a fraction of total sedentary time can be attributed to time sitting in school and traffic, showing that the prevalence of adolescents who spend at least 2 hours a day in front of television reaches 78%, 79.2% for females and 76.7% for males.[27]

In view of the results presented in the questionnaires of eating habits, both for adolescents beneficiaries and non-beneficiaries of the PBF, it was possible to identify that the intake of sweets is quite high, reinforcing the need for a more balanced diet.[2] Santos, Camargo and Queiroz[2] corroborate our findings and also point out that "adolescence is a phase of body changes, and the modification of the eating habits for foods offered in *fast food* can be a way of also manifesting these changes." Such changes show in the increase in the quantity and variety of food consumed adolescence, as well as the increased consumption of foods with higher energy density and lower nutritional value such as biscuits, industrialized foods, and sugars. Toral, Conti and Slater[3] complement thinking by presenting that the adopted feeds adolescence has corresponded to diets high in fats, sugars and sodium, And with small share of fruits and vegetables in its food range.

The work of Cabral et al.[31] points out that the main items acquired with the money passed on by the PBF were "rice, beans and chicken, nutritionally adequate foods from a qualitative point of view". Such foods are considered

balanced and have positive impacts on adolescent health, but excessive high caloric density and high glycemic index, such as biscuits, flours and pasta, is also part of the diet of this population, as found in our results.

The consumption of milk and its derivatives was the only significant difference between the groups evaluated. This fact may indicate that, for the beneficiaries of the PBF, access to such protein may not be considered as something primordial. A study conducted with adolescents from the "PeNSE" study identified 9 variables that impacted inadequate milk intake among them; attend public school and be over 14 years of age,[32] factors that apply directly to the sample studied.

In view of the arguments presented throughout the course of the research, it was possible to find obvious limitations in the execution to the expected product, influenced directly by the difficulties of public policy research at the municipal level. The study showed that the follow-up of the PBF needs an intersectoral approach, so that practices are articulated, facilitating the implementation of necessary actions, and its evaluation should be a recurrent practice, facilitating access to public policy data.

In this way, the collections were strongly impaired, because there was no support from the secretariats, causing the sample to decrease drastically, leaving us no choices, other than work with an extremely smaller population than expected. Nevertheless, with the execution of the work, it was possible to think about new possibilities and highlight the need for a complete evaluation for the program, accompanying beneficiary families, seeking to better understand the impacts of the benefit on the life of the population that needs this income. Thus, by visualizing the deepening of the research, it is necessary to conduct new searches in policies such as the PBF, performing, through longitudinal follow-up, a better understanding of this process, culminating in results about the influence of the PBF on overweight and obesity levels, in addition to other health variables.

Conclusion

Based on the results analyzed, it can be concluded that the PBF did not influence the BMI of these adolescents, because both beneficiaries and non-beneficiaries are in the weight range considered normal for their age.

Adolescents beneficiaries were considered more active than non-beneficiaries in both transportation and total PA, and in turn, non-beneficiary adolescents perform longer time in sedentary behavior. Regarding eating habits, no relevant influence was presented about feeding in each group, thus stating the results found about the perception of food intake and nutritional health. The gaps found in the study reinforce the need to expand health promotion actions aimed at PBF beneficiaries, through public policies aimed at promoting healthy eating, food safety and regular practice of physical activity by adolescents.

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References

1. Programa Bolsa Família [Internet]. Brasília: Ministério da Saúde; IBASE, 2008. Repercussões do Programa Bolsa Família na segurança alimentar e nutricional das famílias beneficiadas.; [cited 2015 Jun 18]; Available from: http://bolsafamilia.datasus.gov.br/w3c/bfa.asp.
2. Moraes VD, Machado CV. O Programa Bolsa Família e as condicionalidades de saúde: desafios da coordenação intergovernamental e intersetorial. Saúde debate [Internet]. 2017 Set; 41(spe3): 129-143.
3. Levy RB, Castro IRR, Cardoso LO, Tavares LF, Sardinha LMV, Gomes FS et al. Consumo e comportamento alimentar entre adolescentes brasileiros: Pesquisa Nacional de Saúde do Escolar (PeNSE), 2009. Ciênc. saúde coletiva [Internet]. 2010 Oct [cited 2020 June 23]; 15 (Suppl 2): 3085-3097.

4. Santos DS, Carneiro MS, Silva SCM, Aires CN, Carvalho LJS, Costa LCB. Transição nutricional na adolescência: uma abordagem dos últimos 10 anos. REAS [Internet]. 11fev.2019 [citado 23jun.2020]; (20):e477.
5. OPAS/OMS [Internet]. Brasil: Organização Pan-americana de saúde/ Organização Mundial da Saúde; 2017. Obesidade entre crianças e adolescentes aumentou dez vezes em quatro décadas, revela novo estudo do Imperial College London e da OMS; [cited 2020 Jun 9]; Available from: https://www.paho.org/bra/index.php?option=com_content&view=article&id=5527:obesidade-entre-criancas-e-adolescentes-aumentou-dez-vezes-em-quatro-decadas-revela-novo-estudo-do-imperial-college-london-e-da-oms&Itemid=820.
6. FUNDO DAS NAÇÕES UNIDAS PARA A INFÂNCIA (UNICEF) [Internet]. 1st ed. Brasil: UNICEF; 2019 [cited 2020 Jun 10]. 52 p. 1 vol. Available from: https://www.unicef.org/brazil/media/6276/file/30-anos-da-convencao-sobre-os-direitos-da-crianca.pdf.
7. World Health Organization; 2000. Obesity: preventing and managing the global epidemic. Geneva: WHO. (WHO Technical Report Series, nº 894).
8. Gupta N, Goel K, Shah P, Misra A. et al. Childhood Obesity in Developing Countries: Epidemiology, Determinants, and Prevention. Endocrine Reviews, 2012; 33(1):48-70.
9. Niehues JR, Gonzales AI, Lemos RR, Bezerra PP, Hass P, Prevalence of Overweight and Obesity in Children and Adolescents from the Age Range of 2 to 19 Years Old in Brazil. International Journal of Pediatrics, [s.l.] 2014, p.1-7.
10. Marie NG, et al., Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. The Lancet, [s.l.], 2014, v. 384(9945); 766-781.
11. CDC [Internet]. United States: Center For Disease Control and Prevention; 2016. Adolescent Obesity Prevalence: Trends Over Time; [cited 2017 Sep 20]; Available from: https://www.cdc.gov/healthyschools/obesity/obesity-youth.htm.
12. Silva DAS. Sobrepeso e obesidade em crianças de cinco a dez anos de idade beneficiárias do Programa Bolsa Família no estado de Sergipe, Brasil. Rev. paul. pediatr. [Internet]. 2011 Dec; 29(4): 529-535.
13. Freitas AG, Lima DG de, Bortolini MJS, Meneguetti DU de O, Santos EF de S, Silva RPM, et al. Comparação do estado nutricional em crianças de cinco a dez anos de idade beneficiárias do Programa de transferência de dinheiro condicional nos Estados do Acre e do Rio Grande do Sul, Brasil. Rev bras crescimento desenvolv hum [Internet]. 2017; 27(1):35–41.
14. Guthold, R. et al. Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1·6 million participants. The Lancet Child & Adolescent Health, Reino Unido, v. 4, n. 1, p.23-35, jan. 2020. Elsevier BV. http://dx.doi.org/10.1016/s2352-4642(19)30323-2.
15. IBGE, Instituto Brasileiro de Geografia e Estatística. (2016). Pesquisa Nacional de Saúde do Escolar (PeNSE) 2015. Rio de Janeiro, IBGE, p. 132.
16. Instituto Brasileiro de Geografia e Estatística. IBGE Cidades: Guaxupé [Internet]. Brasil; 2015 [cited 2016 Dec 6]. Available from: http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=312870&search=minas-gerais|guaxupe|infograficos:-informacoes-completas.
17. CDC [Internet]. United States: Center For Disease Control and Prevention; 2002. National Center for Health Statistics; 2000 CDC growth charts: United States. Hyaltsville [cited 2017 Sep 20].
18. Matsudo S, Araújo T, Matsudo V, Andrade D, Andrade E, Oliveira LC, Braggion G. Questionário Internacional de Atividade Física (IPAQ): estudo de validade e reprodutibilidade no Brasil. Rer Bras Ativ Fis Saúde. 2001; 6:5-18
19. Hallal PC, Victora CG, Wells JC, Lima RC. Physical inactivity: prevalence and associated variables in Brazilian adults. Med Sci Sports Exerc. 2003;35(11):1894-900.
20. Ministério da Saúde. Guia Alimentar para a População Brasileira [Internet]. 2nd ed. Brasília: Ministério da Saúde; 2014 [cited 2020 Jun 10]. 158 p. 1 vol. Available from: https://bvsms.saude.gov.br/bvs/publicacoes/guia_alimentar_populacao_brasileira_2ed.pdf.
21. Teixeira IP, Nakamura PM, Smirmaul BPC, Campos L, Kokubun, E. Coletas de dados por meio de tablets – prático, barato e de fácil programação. Rev Bras Ativ Fís Saúde, 2018; 23:1–6.
22. Guedes DP, Neto M, Tolentino J, Almeida MJ. Impacto de fatores sociodemográficos e comportamentais na prevalência de sobrepeso e obesidade de escolares. Rev. bras. cineantropom. desempenho hum. [Internet]. 2010 Aug; 12(4): 221-231.

23. World Health Organization [Internet]. United States: WHO; 2011. Global Recommendations on Physical Activity for Health: 5–17 years old; [cited 2016 Dec 6]; Available from: http://www.who.int/dietphysicalactivity/physical-activity-recommendations-5-17years.pdf.

24. Beraldo LM, Modesto JD, Ulbricht L, Guimaraes IA. Transporte ativo escolar e fatores intervenientes em sua adoção: um estudo com adolescentes de Curitiba - PR. Saúde Pesq 2015; 8:19-30.

25. Hallal PC, Bertoldi AD, Gonçalves H, Victora CG, Prevalência de sedentarismo e fatores associados em adolescentes de 10-12 anos de idade. Cad. Saúde Pública [Internet]. 2006 June; 22(6): 1277-1287.

26. Lucena JMS, Cheng LA, Cavalcante TLM, Silva VA, Farias Júnior JC, Prevalência de tempo excessivo de tela e fatores associados em adolescentes. Rev. paul. pediatr. [Internet]. 2015 Dec; 33(4): 407-414.

27. Guerra PH, Farias Júnior JC, Florindo AA. Sedentary behavior in Brazilian children and adolescents: a systematic review. Rev. Saúde Pública [Internet]. 2016; 50: 9.

28. Claro RM, Carmo HCE, Machado FMS, Monteiro CA. Renda, preço dos alimentos e participação de frutas e hortaliças na dieta. Rev. Saúde Pública [Internet]. 2007 Ago; 41(4): 557-564.

29. Santos JM, Camargo MLM, Queiroz NS. Consumo De Fast Foods: Um Caminho Para Obesidade Na Adolescência? In: V Enec - Encontro Nacional De Estudos Do Consumo I Encontro Luso-Brasileiro De Estudos Do Consumo Tendências E Ideologias Do Consumo No Mundo Contemporâneo, 5., 2010, Rio de Janeiro. Anais. Rio de Janeiro: Enec, 2010. p. 1 - 18.

30. Toral N, Conti MA, Slater B. A alimentação saudável na ótica dos adolescentes: percepções e barreiras à sua implementação e características esperadas em materiais educativos. Cad. Saúde Pública [Internet]. 2009 Nov; 25(11): 2386-2394.

31. Cabral MJ, Vieira KA, Sawaya AL, Florêncio TMMT. Perfil socioeconômico, nutricional e de ingestão alimentar de beneficiários do Programa Bolsa Família. Estudos avançados 2013; 27(78):71-87.

32. Silva JB, Elias BC, Mais LA, Warkentin S, Konstantyner T, Oliveira FLC. Fatores associados ao consumo inadequado de leite em adolescentes: Pesquisa Nacional de Saúde do Escolar - PENSE 2012. Rev. paul. pediatr. [Internet]; 38: e2018184.