ASSESSING FRUIT AND VEGETABLE CONSUMPTION AMONG FAMILIES OF USERS OF THE PROGRAMA ACADEMIA DA SAÚDE (PAS)

Avaliação do consumo de frutas e hortaliças entre famílias de usuários do Programa Academia da Saúde (PAS)

Evaluación del consumo de frutas y hortalizas en las familias de usuarios del Programa Academia de la Salud (PAS)

Original Article

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ABSTRACT

Objective: To investigate fruit and vegetable (F&V) consumption among families of users of the *Programa Academia da Saúde* (PAS). **Methods:** A qualitative and exploratory study conducted with four users of a unit of the PAS of Belo Horizonte-MG-BR. Data were collected during July 2012 through a semi-structured interview and underwent content analysis. The identified categories were: fruits and vegetables are essential to health; learning to eat and like fruits and vegetables; and purchasing of fruits and vegetables. **Results:** The consumption of fruits and vegetables was influenced by its beneficial effect on health and by the taste, in addition to being a value transmitted intergenerationally. Knowledge of the recommended consumption levels was not established in the study population. Fruits and vegetables were purchased from shops in the neighborhood, which needed to improve the price, quality and hygiene, the main criteria used to decide where to go shopping. **Conclusion:** The results show the need for the development of educational interventions directed to families and merchants to stimulate the consumption of fruits and vegetables and guarantee the access to better quality food.

Descriptors: Food consumption; Fruit and Vegetables; Family.

RESUMO

Objetivo: *Investigar o consumo de frutas e hortaliças (F&H) entre famílias de usuários de um polo do Programa Academia da Saúde (PAS).* **Métodos:** *Tratou-se de um estudo exploratório, com abordagem qualitativa, do qual participaram quatro usuários de um polo do PAS de Belo Horizonte-MG. Os dados foram coletados durante o mês de julho de 2012, por meio de entrevista semiestruturada, e analisados pela técnica de análise de conteúdo. As categorias de análise que emergiram do estudo foram: frutas e hortaliças são primordiais para a saúde; aprendendo a comer e a gostar de frutas e hortaliças; e a aquisição de frutas e hortaliças.* **Resultados***: O consumo de frutas e hortaliças foi influenciado pelo efeito benéfico à saúde e pelo paladar, além de um valor transmitido intergeracionalmente. O conhecimento sobre quantidades recomendadas para ingestão não estava estabelecido na população investigada. As frutas e hortaliças eram adquiridas em comércios próximos à moradia, havendo necessidade de melhoria desses estabelecimentos em relação à qualidade, preço e higiene, principais critérios utilizados para definição das compras.* **Conclusão:** *Os resultados revelam a necessidade do desenvolvimento de intervenções educativas direcionadas às famílias e comerciantes visando estimular o consumo de frutas e hortaliças e garantir acesso a esses alimentos com melhor qualidade.*

Descritores*: Consumo de Alimentos; Frutas; Hortaliças; Família.*

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RESUMEN

Objetivo: *Investigar el consumo de frutas y verduras y hortalizas (F&H) en las familias de usuarios de una unidad del Programa Academia de la Salud (PAS).* **Métodos:** *Se trató de un estudio exploratorio de abordaje cualitativo en el cual participaron cuatro usuarios de una unidad del PAS de Belo Horizonte-MG. Se recogieron los datos durante el mes de julio de 2012 a través de una entrevista semiestruturada y el análisis a través del análisis de contenido. Las categorías de análisis que emergieron del estudio fueron: frutas y hortalizas son primordiales para la salud; aprendiendo a comer y a que le guste las frutas y hortalizas; y la adquisición de frutas y hortalizas.* **Resultados***: El consumo de frutas y hortalizas ha sido influenciado por el efecto benéfico a la salud y por el paladar, además de un valor transmitido por generaciones. El conocimiento de las cantidades recomendadas para la ingesta no estaba establecido en la población investigada. Las frutas y hortalizas fueron adquiridas en los comercios próximos a la vivienda con la necesidad de mejoría de estos establecimientos sobre la calidad, el precio y la higiene, principales criterios utilizados para la definición de las compras.* **Conclusión:** *Los resultados revelan la necesidad del desarrollo de intervenciones educativas dirigidas a las familias comerciantes visando estimular el consumo de frutas e hortalizas y garantizar el acceso de esos alimentos de mejor calidad.*

Descriptores*: Consumo de Alimentos; Frutas; Verduras; Familia.*

INTRODUCTION

Fruit and vegetables (F&V) are important components of a healthy diet for they are sources of micronutrients, fibers and other components with functional properties. Furthermore, their consumption may help substitute foods containing high levels of saturated fat, sugar and salt, which, in addition to their low energy density, favors the maintenance of a healthy body weight[1].

The insufficient consumption of F&V is among the ten major risk factors for noncommunicable diseases (NCDs) like gastrointestinal cancer, heart diseases and obesity[2]. It is estimated that a minimum consumption of F&V (400g per day) could avoid 1.7 million deaths and 16 million disability-adjusted life years worldwide every year[3].

Despite its health benefits, the consumption of F&V has been very limited in Brazil, approximately one-quarter of dietary recommendations[4]. Some studies have observed low intake of F&V by young men, individuals with low education and low income, people living in rural areas, smokers and drinkers, physically inactive people, single individuals, people with poor health status and those who consume great quantities of foods rich in fat and sugar[4-8].

The insufficient consumption of F&V involves matters at a community level, such as the access to shopping facilities (markets, greengrocers and street markets), availability of the product (irregular supply and poor quality of foods), and individual, sociocultural and financial characteristics[2,6].

Promoting F&V consumption is a priority of nutrition, food and agricultural policies, as established by the World Health Organization (WHO) and presented by the Global Strategy on Diet, Physical Activity and Health[9,10]. Accordingly, the city of Belo Horizonte (BH), located in the state of Minas Gerais, has developed the project titled *BH + Saudável - Projeto de Promoção de Modos de Vida Saudáveis* (Healthier BH – Project to Promote Healthy Lifestyles), which has created the *Academias da Cidade* (City Gyms).

These gyms are places planned for the practice of guided physical activity and nutritional follow-up. They are supported by local partners, such as the *Núcleo de Apoio à Saúde da Família – NASF* (Family Health Support Center), primary healthcare teams (PHT) and intersectoral partnerships between Municipal Health Secretariats, Nutrition and Food Safety, Sport and Leisure, and Universities[11]. These services have been implemented in the municipality since 2006 and are now present in 50 centers that are part of the *Programa Academia da Saúde – PAS* (Health Gym Program).

The PAS, in addition to offering a physical activity program and food and nutrition education, aims at strengthening health promotion actions in Primary Care by promoting multi-professional integration in the development and execution of actions, the convergence of health, education, culture, social welfare, sport and leisure projects or programs, and community mobilization, with the development of social support networks and spaces for conviviality and solidarity[12].

Research on the nutrition profile of users of the PAS centers of Belo Horizonte show an insufficient consumption of F&V[13,14]. Therefore, there is a need to investigate the determinants of the consumption of these foods for a better planning of the health promotion actions to be developed in these spaces.

Thus, the present study aimed to investigate the consumption of fruits and vegetables (F&V) among families of users of a center of the *Programa Academia da Saúde – PAS* (Health Gym Program).

METHODS

A qualitative exploratory study was conducted at the PAS center of Eastern Belo Horizonte, Minas Gerais, in July 2012. The center was chosen because of evidence of an inadequate consumption of F&V by its users in previous studies[13,14]. Additionally, the center is located in a region with high values for the *Índice de Vulnerabilidade à Saúde – IVS* (Health Vulnerability Index) [15].

The IVS is built from sanitation and socioeconomic variables and is used to guide public health policies and prioritize resource allocation. The IVS classifies the census tracts of the city into four categories: very high-risk area, high-risk area, moderate-risk area, and low-risk area[15].

The center where the research took place has an average of 400 users, with a predominance of women (89.6%) and individuals aged over 40 years (76.4%). The study included four users of the center who were selected according to the following inclusion criteria: being 20 years old or older and being responsible for purchasing and/or preparing foodstuff for the nuclear family. Participants were invited informally and individually after the gymnastics class in the center. It was verified whether users were eligible for participating in the research. Then, they were informed about the study objectives and data confidentiality. Those who agreed to participate in the study signed a Free Informed Consent Form.

The number of participants has not been defined a priori. The number of interviews was defined by the criterion of saturation, i.e., field research was completed after researchers reached a point of data saturation and identified symbolic patterns, practices, and categories of analysis[16]. After four interviews, the data obtained by the main researcher appeared to be robust, and saturation seemed to be achieved. Therefore, the researcher stopped collecting data and started analyzing the material and checking whether his impressions were correct. The result of the analysis confirmed data saturation and showed that the interviews enabled the researcher to understand the homogeneities and differentiations; additionally, it presented the intensity needed to meet the research objectives[16]. Thus, data collection process was finished, and researchers got started with a deep analysis of the material.

Data were collected using a semi-structured interview[16], whose framework was divided into three themes: family eating habits, the perception of the consumption of F&V by the family, and purchase of F&V. The first theme included questions about the meals eaten, the foods prioritized and preferred, and the concerns about the family nutrition. The second theme included specific questions about the consumption of F&V, such as its characteristics, motivating and hindering factors, the changes over time, wishes, and opinions. Finally, the interview explored the forms of purchasing F&V, such as place, frequency, criteria for choosing the market and food, and opinion about local markets. The framework also included a set of structured questions for the collection of objective data such as age, sex, occupation, family composition, and meals eaten.

The interviews were carried out by a single researcher in the external courtyard of the center. The interviews lasted approximately 30 minutes and were recorded and fully transcribed.

Data underwent content analysis[16]. Firstly, the transcripts of the interviews were read and then context and recording units were defined. After that, the categories of analysis were defined in such way that context and recording units could be grouped according to characteristics in common or characteristics that were related to each other. After that, data were interpreted in light of existing literature on the theme.

A total of three categories were identified: fruits and vegetables are essential to health; learning to eat and like fruits and vegetables; and purchasing of fruits and vegetables. In the results, interviewees were identified by the letter E followed by an Arabic numeral. Quantitative data were presented in a descriptive way.

The present research was approved by the Human Research Ethics Committees of the Federal University of Minas Gerais (No. 0537.0.0203.000-11) and the Belo Horizonte City Hall (No. 0537.0.203.410-11A) according to Resolution 466/12 of the National Health Council.

RESULTS AND DISCUSSION

This section presents data on the characterization of the research participants, the three categories that emerged from the interviewees' speeches, and the analysis of the categories based on relevant literature.

Characterization of research participants

All the interviewees were women and housewives. Two of them were aged over 60 years, and the other were 40-59 years old. These sex and age characteristics represent the profile of the majority of users of the center where this research took place[14]. Regarding family composition, there was one family unit consisting of a single woman, one consisting of mother and child, and two family units consisting of mother, father, and child. Their children were either teenagers or young adults. Meals were eaten at home

and consisted of breakfast, lunch, snack, and – not for all – dinner.

Fruits and vegetables are essential to health

This category presents interviewees' opinions about the relationship between the consumption of F&V and health. It describes the consumption benefits, their perception of the importance of this food group, the meaning of a healthy consumption, and the chances of health harms.

The conceptions of how the consumption of F&V relate to health are mainly based on a physiological and rational dimension of the diet, which regards man as a machine and food as fuel. Within this logic, F&V are seen as sources of important vitamins and substances that ensure the proper functioning of the organism. Many medicinal properties have been cited, such as calming, diuretic, digestive and laxative effects, blood purification, body fat removal, muscle cramps prevention, peaceful sleep, and better voice. This can be observed in the following speeches:

> *"I like oranges; I suck one orange every day. It is important! Because of the vitamin, because it is good for the stomach." (E3)*

> *"Because it is very good for health […]. We cannot live on rice and beans alone; we have to eat something else. There is iron in vegetables […], and lettuce has a calming effect." (E1)*

The therapeutic effects of foods have been widely spread by the media and health professionals, contributing to the recognition of nutrients as symbols of healthy eating and protection against diseases[17]. As food becomes medicalized, the universe around it gets reorganized according to this matrix[18]. According to the interviewees, such reorganization has given F&V the status of essential foods. Therefore, they have moved away from the concept of secondary foods found in other studies, in which foods were categorized according to their satiating power[19,20]. Previous studies[21-24] have shown that people pay special attention to F&V because of the health benefits, which constitute one of the major motivating factors for the consumption of these foods.

Besides the direct effect on the organism, F&V are seen as important foods that are part of a balanced diet. Additionally, they are an alternative to the consumption of sweet and fatty foods, which are considered "dangerous" to health:

> *"I think it is good because it will help me keep a balanced diet and not eat other bad things […]. I used to have lunch thinking of sweets, but now I don't. I eat lunch thinking of a fruit […]. I have changed because of my father, who has diabetes. He died because he did not follow this." (E2)*

> *"To add a little bit of taste I cook carrots, add onions and bell pepper; I don't put a lot of meat, pasta and things like that on my plate anymore […]. Today, I use one bottle of cooking oil for more than a month because we get information from TV […]. Years ago I would have followed this diet and would not be obese and have problems with high blood pressure today." (E1)*

Foods with high energy density, rich in sugar and fat, have lost their value since the association between excess weight and chronic diseases was identified, which led to the recommendation of a moderate consumption of these foods[17]. According to the interviewees, such resignification was born out of the experiences with chronic diseases and the access to healthy eating guidelines, which have also been identified in other studies[18,25]. Thus, fruits started to replace sweets and biscuits between main meals and in desserts as vegetables and legumes became alternatives to replace fatty foods.

Healthy eating habits have been encouraged since 1980's by international organizations, always evoking the importance of a variety of foods as sources of nutrients, balanced food choices based on individual needs, and moderate consumption of high energy foods[17,20]. Moderation, balance and variety appear in the interviewees' speeches when they recommend "eating a little bit of everything". Such premise also applied to the consumption of F&V, when interviewees reported the daily frequency as a characteristic of a healthy consumption:

> *"[The diet] It's good. I can't complain about it; it's great. Because we eat a little bit of everything, mainly vegetables. She (daughter) eats a little less but lives up to expectations […]. I don't eat much, but I eat a little every day […]. Five servings is a lot to me, it really is […]. I could not eat two bananas, three apples. Never. I can't." (E3)*

As they report the moderate consumption of fruits and vegetables, it becomes necessary to discuss the concept of "little bit" since the quantity is an important factor in health promotion[26]. Moreover, such view may favor the consumption of F&V below the recommended amounts.

Some studies[24,27] found that the low consumption of F&V identified was not perceived by respondents, who regarded these foods as part of their habitual eating pattern, with no need for eating larger quantities. The recommended intake of F&V, i.e., five servings per day[9], may not have become part of people's representations of healthy eating yet.

When questioned about the recommended intake, respondents felt that it was too much and/or they would

never make it. Additionally, the question seemed a little confusing to them. Not eating five servings of F&V per day was a factor that changed their perception of a healthy consumption of this food group. This can be observed in the previous speech.

Setting an F&V intake goal for a given population should take into account culturally relevant issues. Thus, in countries where there is a low consumption, recommending five servings per day may not be appropriate or feasible in the short and medium terms[6]. This assumption must be taken into account during the development of educational interventions targeted at the population interviewed so that the information on quantities of F&V needed to promote health does not become a process promoting anguish, anxiety and suffering for not achieving the proposed goal, which would move people away from an idea of a socially possible health[28]. The educational process that respects the time needed to change the consumption of F&V is possible and facilitated in environments such as the *Academias da Saúde* (Health Gyms), which allow longitudinal monitoring of users through either the service itself or its integration with primary health care.

Learning to eat and like fruits and vegetables

This category discusses the influence of taste on the consumption of F&V and its process of construction and adaptation throughout life.

The research population regarded taste as an important factor in the consumption of F&V, a fact that is corroborated by other studies[21-24]. Regarding this relationship, it was verified that the verbs "to eat" and "to like" were commonly confused. To eat/like some food was not perceived as something static, but something that could be modified, adapted and learned.

> *"In his family [husband], everybody eats anything [...]. I didn't eat beetroot […]. His mother cooked beetroot and then I started eating it. But, you know, I was taught to eat anything. My mother, my grandmother [...]. As time goes by [...], some things you just degenerate." (E2)*

> *"After I married, I started cooking more. My mother used to cook it, but sometimes we tricked her and didn't eat. But […] in our home, she taught us. Everybody ate and eat anything […]. But now I'm more concerned about buying it after I married…To teach my children and also because my husband works a lot." (E4)*

It can be noticed that the interviewees learned to consume F&V with their parents as they highlight the role of the family in the first socialization, i.e., in the transmission of characteristics between generations – for instance, the eating pattern of eating anything. Despite the initial learning, the consumption of F&V did not occur in a linear fashion during the life cycle of these women, with stages of decrease and increase depending on the experienced context.

This variation in food consumption is discussed in the literature, which explains that tastes and habits suffer influence from social, cultural and psychological factors over time[29]. According to the respondents, a greater consumption of F&V was associated with marriage, forming a new family, motherhood, which involves the responsibility to teach and be an example for the children, and by the desire to profit from the therapeutic effects of certain foods. The latter has been identified in the following speech:

> *"I didn't eat apples. Today I eat them because of my vocal folds. Because I sing at the church." (E3)*

Fruits and Vegetables consumption in children is also characterized by a lack of linearity. Respondents reported eating more F&V during childhood, which was imposed on them by their mothers. However, when they reached certain degree of independence, they started to make their own food choices, with a preference for pasta, sweets, and fried foods:

> *"She ate it a lot when she was a child. Now that she learned how to cross the street, she doesn't eat it anymore. It's the same with the majority of teens. Because when they are younger, mom gives it to them. When they reach a certain age, they think they are master of their own lives and, therefore, do not eat it anymore. They start to develop a taste that they didn't have when they were younger, so they don't eat it. She likes lasagna, fricassée, and foods like that, but not fruits." (E3)*

Few F&V are capable of satisfying the taste of children. Moreover, respondents reported children are unwilling to try new foods and prepare them for consumption:

> *"She looks at the food and says she doesn't like it. She has never tried it, but she says she didn't like it." (E2)*

> *"She seldom sucks oranges. If I'm sucking an orange and she's close to me, she wants some. However, she doesn't want to peel it." (E3)*

These results are in line with the results of other studies that show that food consumption in teens is characterized by a low intake of F&V[30-32] and preference for monotonous diets rich in fat, sugar and sodium[30,33,34], which are tastier and practical[33].

Faced with these barriers, mothers tried to encourage children to eat F&V by using some strategies like mixing them into cakes and smoothies, cooking more attractive recipes, eating them in front of children and highlighting

their flavor, peeling and chopping these foods and having them ready for consumption, and showing the health benefits. They realized that other strategies were needed but did not know what else they could do for their children to eat a greater variety of F&V more often.

> *"Sometimes I put them on the plate and mix them into the food for them to eat. I make a carrot cake and a banana smoothie. Then she eats them [...]. Sometimes I peel an orange for her, peel a banana for her to eat." (E2)*

Respondents reported that dietary restrictions hinder the family meal planning because it is necessary to ensure a wide variety of foods for the other family members, which does not always enable the preparation of their children's favorite F&V.

> *"I wish my son ate anything [...]. Sometimes I buy what I think he will eat and other times I buy what I know my husband and I will eat. I'd like to buy everything and wish they ate anything." (E4)*

Cooking practical and tasty recipes with F&V rejected by children and approved by other family members would stimulate new taste experiences. Another strategy could involve the construction of meanings for the consumption of F&V through issues relevant to teens. Promoting health in a dark and obscure point of view may limit the practices, as teenagers have a very positive view of themselves and appreciate hope and optimism[35]. Thus, health aspects that are consistent with a more positive view, such as the disposition to perform daily and leisure activities, body satisfaction, and success in sports [33,35,36], should be emphasized in educational actions, moving away from a risk and vulnerability speech[36].

According to the son of one of the respondents, a young adult, the construction of a meaning for the consumption of F&V occurred after his marriage and fatherhood, repeating his mother's experience. Now, he is learning to eat F&V again:

> *"My middle child didn't like to eat F&V, but then he married a girl from the countryside who liked chayote, pumpkin. He's learning to like them. Their little daughter eats anything, including fish." (E4)*

After becoming parents, individuals tend to repeat the model learned from their families, with a significant transmission of values between generations[37]. In the study population, the consumption of F&V constitutes a value transmitted intergenerationally. Additionally, the responsibility for transmitting this knowledge encourages parents to increase their own consumption of F&V.

Purchasing of fruits and vegetables

This category addresses users' opinions about F&V marketing and the criteria used for purchasing this food group.

The interviewees reported that the marketing of F&V facilitated their access to a greater variety of foods. They reported not going through financial difficulties purchasing these foods, and they used to go shopping every week. The small businesses in the neighborhood were pointed as the respondents' favorite location for shopping, showing that they appreciate places near their houses. Other criteria used for choosing the place were variety, quality, price, packaging of products, hygiene and home delivery service. These results are similar to those found in the literature[38,39].

> *"Nowadays, the local trade has improved, as it gives you more options for choosing where to buy and allows you to see the storage site. But I think hygiene should be improved." (E2)*

> *"I only look at the place conditions, hygiene, and price also. I go shopping near my house, usually in a greengrocer. They're good. Of course there are many cheaper places, but I don't go very far to buy F&V." (E3)*

Respondents said local markets have improved but need to invest more in hygiene, price, and quality of food. Thus, the development of intervention strategies targeted at neighborhood retailers could favor a better qualification of the marketing of F&V by providing information on best marketing practices, business management, and customer satisfaction. Inadequate trade due to lack of convenience, quality, and high prices, is one of the main barriers to the purchase of F&V[22], which demonstrates the importance of investing in the improvement of these places.

Regarding the aspects considered when buying F&V, respondents reported quality attributes like their appearance, consistency, color, durability, and packaging of the product:

> *"The quality, their appearance, if they are beautiful. I don't consider the price, just the appearance. You search for small spots. If you see black spots on them, they will spoil soon. There should be no bruises, nothing." (E1)*

Quality parameters are highlighted in studies for being reported as a key factor in the choice of F&V by consumers more frequently than price[38-40], showing the need for technological advances in improving food and development of strategies to minimize post-harvest damage in order to meet consumer's expectations[38].

FINAL CONSIDERATIONS

The construction of meanings for the consumption of F&V in the study population occurred through the establishment of family relationships and the incorporation

of mechanistic discourse on food and health, reflecting on the modulation of taste and food choices. Thus, the taste was not an immutable barrier to the consumption of F&V, given it can be influenced by social, cultural and psychological factors, except in teenagers.

The concept of healthy consumption of F&V involved the concepts of variety, balance, moderation and daily frequency. The concept of moderation applied to F&V should be better discussed, since it may be contributing to a low intake, as recommended amounts of F&V are not part of the representations of the study population. Besides this issue, food and nutrition education interventions aimed at encouraging the consumption by the family should address issues relevant to teenagers, who are more resistant to the consumption of these foods. These interventions should be planned taking into account the construction of meanings for the consumption of F&V at this stage of life. Additionally, they should also improve skills for the introduction of these foods in everyday life through practical and tasty recipes.

Educational interventions targeted to small traders of F&V are also important, as there is a preference for purchasing these foods in these places because of their proximity to the place of residence and there is a perception that these trades need to improve in terms of quality, hygiene, and price. It would be important to provide information on best marketing practices, marketing, and business management to ensure greater customer satisfaction and therefore customer loyalty. Importantly, improving the quality of F&V also depends on technological advances for their production and the development of strategies to minimize damage during transportation.

Future studies are important for a better understanding of the consumption of F&V among users of PAS and should involve the assessment of centers with different IVS values. Additionally, they should be conducted in other national contexts and include a sample of male users and different age groups.

REFERENCES

1. Jaime PC, Figueiredo ICR, Moura EC, Malta DC. Fatores associados ao consumo de frutas e hortaliças no Brasil, 2006. Rev Saúde Pública. 2009;24(Supl 2):57-64.
2. World Health Organization - WHO. The World Health Report 2002: reducing risks, promoting healthy life. Geneva: WHO; 2002.
3. World Health Organization – WHO. Global status report on noncommunicable diseases 2010. Geneva: WHO; 2011.
4. Ministério do Planejamento, Orçamento e Gestão (BR), Instituto Brasileiro de Geografia e Estatística. Pesquisa de Orçamentos Familiares 2008-2009: avaliação nutricional da disponibilidade domiciliar de alimentos no Brasil. Rio de Janeiro: IBGE; 2010.
5. Figueiredo ICR, Jaime PC, Monteiro CA. Fatores associados ao consumo de frutas, legumes e verduras em adultos da cidade de São Paulo. Rev Saúde Pública. 2008;42(5):777-85.
6. Neutzling MB, Rombaldi AJ, Azevedo MR, Hallal PC. Fatores associados ao consumo de frutas, legumes e verduras em adultos de uma cidade do sul do Brasil. Cad Saúde Pública. 2009;25(11):2365-74.
7 .Campos VC, Bastos JL, Gauche H, Boing AF, Assis MAA. Fatores associados ao consumo adequado de frutas, legumes e verduras em adultos de Florianópolis. Rev Bras Epidemiol. 2010;13(2):352-62.
8. Mondini L, Moraes AS, Freitas ICM, Gimeno SGA. Consumo de frutas e hortaliças por adultos em Ribeirão Preto, SP. Rev Saúde Pública.2010;44(4):686-94.
9. World Health Organization - WHO. Fruit and Vegetables for Health. Report of a Joint FAO/WHO Workshop 1-3 September 2004. Japan: WHO; 2004.
10. World Health Organization - WHO. Global strategy on diet, physical activity and health. Geneva: WHO; 2004.
11. Dias MAS, Giatti L, Guimarães VR, Amorim MA, Rodrigues CS, Lansky S et al. Projeto promoção de modos de vida saudáveis. Pensar BH Política Social. 2006;16(3):21-4.
12. Ministério da Saúde (BR). Portaria n° 719, de 7 de abril de 2011. Institui o Programa Academia da Saúde no âmbito do Sistema Único de Saúde [accessed on 2011 Sept 21]. Available at: http://portal.saude.gov.br/portal/ arquivos/pdf/portaria_academia_saude_719.pdf
13. Lima NA. Fatores associados ao excesso de peso entre os usuários do Serviço de Promoção à Saúde: Academia da Cidade do Distrito Sanitário Leste de Belo Horizonte, Minas Gerais [dissertação]. Belo Horizonte: Universidade Federal de Minas Gerais; 2009.
14. Costa BVL, Mendonça RD, Santos LC, Peixoto SV, Alves M, Lopes ACS. Academia da Cidade: um serviço de promoção da saúde na rede assistencial do Sistema Único de Saúde. Ciênc Saúde Coletiva. 2013;18(1):95-102.
15. Prefeitura de Belo Horizonte (BR). Índice de vulnerabilidade da saúde. Belo Horizonte: Prefeitura de Belo Horizonte; 2013.

16. Minayo MCS. O desafio do conhecimento: pesquisa qualitativa em saúde. 11ª ed. São Paulo: Hucitec; 2008.

17. Silva DO, Recine EGIG, Queiroz EFO. Concepções de profissionais de saúde da atenção básica sobre a alimentação saudável no Distrito Federal, Brasil. Cad Saúde Pública. 2002;18(5):1367-77.

18. Garcia RWD. Representações sociais da alimentação e saúde e suas repercussões no comportamento alimentar. Physis (Rio J.).1997;7(2):51-68.

19. Zaluar AA. A máquina e a revolta. São Paulo: Brasiliense; 1985.

20. Alves HJ, Boog MCF. Representações sobre o consumo de frutas, verduras e legumes entre fruticultores de zona rural. Rev Nutr. 2008;21(6):705-15.

21. Schätzer M, Rust P, Elmadfa I. Fruit and vegetable intake in Austrian adults: intake frequency, serving sizes, reasons for and barriers to consumption, and for increasing consumption. Public Health Nutr. 2010;13(4):480-7.

22. Lucan SC, Barg FK, Long JA. Promoters and barriers to fruit, vegetable, and fast-food consumption among urban, low-income African Americans: a qualitative approach. Am J Public Health. 2010;100(4):631-5.

23. Meléndez L, Olivares S, Lera L, Mediano F. Etapas del cambio, motivaciones y barreras relacionadas com el consumo de frutas y verduras y la actividad física em madres de pré-escolares atendidas em centros de atención primaria de la salud. Rev Chil Nutr. 2011;38(4):466-75.

24. Silva CL, Costa THM. Barreiras e facilitadores do consumo de frutas e hortaliças em adultos de Brasília. Sci Med. 2013;23(2):68-74.

25. Gough B, Conner MT. Barriers to healthy eating amongst men: A qualitative analysis. Soc Sci Med. 2006;62(2):387-95.

26. World Health Organization - WHO. Diet, nutrition and the prevention of chronic diseases. Report of a joint WHO/FAO expert consultation. Geneva: WHO; 2003. (Technical Report Series n.916.)

27. Boog MCF, Fonseca MCP, Alves HJ, Voorpostel CR. Agricultores consomem frutas, verduras e legumes? Bases para ações educativas. SAN. 2008;15(2):85-97.

28. Bagrichevsky M, Castiel LD, Vasconcelos-Silva PR, Estevão A. Discursos sobre comportamento de risco à saúde e a moralização da vida cotidiana. Ciênc Saúde Coletiva. 2010;15(Supl 1):1699-1708.

29. Jomori MM, Proença RPC, Calvo MCM. Determinantes de escolha alimentar. Rev Nutr. 2008;21(1):63-73.

30. Toral N, Slater B, Silva MV. Consumo alimentar e excesso de peso de adolescentes de Piracicaba, São Paulo. Rev Nutr. 2007;20(5):449-59.

31. Bigio RS, Verly Junior E, Castro MA, César CLG, Fisberg RM, Marchioni DML. Determinantes do consumo de frutas e hortaliças em adolescentes por regressão quantílica. Rev Saúde Pública. 2011;45(3):448-56.

32. Muniz LC, Zanini RV, Schneider BC, Tassitano RM, Feitosa WMN, González-Chica DA. Prevalência e fatores associados ao consumo de frutas, legumes e verduras entre adolescentes de escolas públicas de Caruaru, PE. Ciênc Saúde Coletiva. 2013;18(2):393-404.

33. 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. 2009;25(11):2386-94.

34. Leal GVS, Philippi ST, Matsudo SMM, Toassa EC. Consumo alimentar e padrão de refeições de adolescentes, São Paulo, Brasil. Rev Bras Epidemiol. 2010;13(3):457-67.

35. Assis SG, Avanci JQ, Silva CMFP, Malaquisa JV, Santos NC, Oliveira RVC. A representação social do ser adolescente: um passo decisivo na promoção da saúde. Ciênc Saúde Coletiva.2003;8(3):669-80.

36. Cromack LMF, Bursztyn I, Tura LFR. O olhar do adolescente sobre saúde: um estudo de representações sociais. Ciênc Saúde Coletiva. 2009;14(2):627-34.

37. Weber LND, Selig GA, Bernardi MG. Continuidade dos estilos parenterais através das gerações: transmissão intergeracional de estilos parenterais. Paidéia (Ribeirão Preto). 2006;16(35):407-14.

38. Andreuccetti C, Ferreira MD, Tavares M. Perfil dos compradores de tomate de mesa em supermercados da região de Campinas. Hortic Bras. 2005;23(1):148-53.

39. Souza RS, ArbageI AP, Neumann PS, Froehlich JM, Diese V, Silveira PR et al. Comportamento de compra dos consumidores de frutas, legumes e verduras na região central do Rio Grande do Sul. Ciênc Rural. 2008;38(2):511-7.

40. Souza Neta ML, Silva RT, Souza AAT, Pamplona JP, Oliveira FA, Oliveira MKT. Perfil dos consumidores de hortaliças do município de Apodi-RN. Rev ACSA. 2013;9(1):50-6.

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