





FACTORS INFLUENCING FEEDING BEHAVIOR OF AMATEUR ATHLETES WITH VISUAL DISORDERS

FATORES QUE INFLUENCIAM O COMPORTAMENTO ALIMENTAR DE ATLETAS AMADORES COM DEFICIÊNCIA VISUAL

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ABSTRACT

Visually handicapped is the name given to the person who has blindness or low vision. This impairment can bring with it many limitations that make the person dependent to move around, do some work and even feed. Feeding behavior is a set of actions that are associated from the moment in which food is chosen until its consumption, relating to everything that is involved in this process. With the objective of evaluating the feeding behavior of amateur athletes with visual disorders from a sport club in Belem/PA, a socioeconomic assessment questionnaire, clinical history and feeding behavior of the participant were used. Eleven visually impaired athletes participated in the survey, with age between twenty-five and fifty-four. The main eating practice observed was to eat more than it should besides dissatisfaction with one's own body. In addition to the evaluation of these questionnaires, statistical associations were also made through the Fisher Test. The biggest obstacles found to practice healthy food, were: publicity, supply, value of healthy food, lack of company, dependence and lack of autonomy. And the aspects that would facilitate healthy choices are: if they were more practical, attractive and tasty, we were more available at home and if participants didn't depend on anyone. The body dissatisfaction was present among the participants. That said, the results of this study suggest that the visual disorders influence in the feeding behavior of the visually handicapped.

Keywords: Food. Feeding Behavior. Visual Impairment.

RESUMO

Deficiente visual é o nome dado à pessoa que possui cegueira ou baixa visão. Essa deficiência pode trazer consigo limitações que provocam dependência para locomover-se, executar tarefas e alimentar-se, levando assim a uma maior exposição aos alimentos processados e ultraprocessados, mais práticos e ricamente calóricos, podendo caracterizar o comportamento alimentar desses indivíduos, uma vez que comportamento alimentar é um conjunto de ações que se associam desde o momento em que se escolhe o alimento até o consumo do mesmo, relacionando-se a tudo que está envolvido nesse processo. Com o objetivo de avaliar o comportamento alimentar de atletas amadores com deficiência visual de um clube esportivo em Belém/PA, utilizou-se questionário de avaliação socioeconômica, história clínica, comportamento alimentar do participante e foram feitas associações estatísticas por meio do Teste de Fisher. Participaram da pesquisa 11 atletas deficientes visuais, na faixa etária de 25 a 54 anos. A principal prática alimentar observada foi comer mais do que deveria além da insatisfação com o próprio corpo. Os maiores obstáculos encontrados para práticas alimentares saudáveis foram: publicidade, oferta, preço dos alimentos saudáveis, falta de companhia, dependência e falta de autonomia. Já os principais aspectos que facilitariam escolhas saudáveis são: se os alimentos saudáveis fossem mais práticos, atraentes e saborosos, estivessem mais disponíveis em casa e se os participantes não dependessem de ninguém. Sendo assim, os resultados deste estudo sugerem que a deficiência visual influencia o comportamento alimentar de deficientes visuais.

Palavras-chave: Alimentação. Comportamento alimentar. Deficiência visual.

INTRODUCTION

Visually impaired is the person who has blindness or low vision. The causes of the deficiency can be of hereditary origin or acquired throughout life and can bring limitations that cause dependence to perform certain daily activities, such as locomotion, working and even feeding. (BRASIL, 2008; BRASIL, 2010; CAVALCANTE *et al.*, 2012).

This dependence can lead to a greater exposure to the consumption of ultra-processed foods when family members are absent, as these are easily prepared. This practice tends to characterize the eating behavior of these individuals, placing them in a risk group for Chronic Noncommunicable Diseases (SABINO, 2006 *apud* SILVA, 2017).

Eating behavior is the set of actions that are associated from the choice of food to its post-consumption, relating to everything involved in this process. These actions can be influenced by several factors, among them: psychological, environmental, nutritional, cultural, demographic, social and financial (TORAL, 2007; PROENÇA, 2010; FORTES, 2012; VAZ, 2014).

Still on the theme, there are determinants of eating behavior that influence food preferences such as intrinsic determinants to food (color, flavor, texture), personal (appetite, family, emotions), cultural and religious (influences and traditions), extrinsic (environmental, situational) and socioeconomic (food cost) (HAMILTON *et al.*, 2000).

Therefore, understanding the aspects that are associated with the individuals' eating behavior, in order to clarify how they influence it, is essential to assist in disease prevention and also contribute to treatment (MORAES, 2014).

Much is discussed about eating behavior, but there are a few studies discussing this topic towards visually impaired audiences. Thus, it is necessary to study this population in order to identify possible nutritional risks and aspects associated with their eating behavior so that a proper intervention can be made.

In this context, the present study aims to assess the eating behavior of amateur athletes with visual impairments in a sports club in Belém / PA.

MATERIAL AND METHODS

This is a cross-sectional and descriptive study carried out in November 2019 with 11 visually impaired athletes of the five-a-side football modality, male, members of a sports club in Belém / PA. The age range of the participants was from 25 to 54 years old. This research was approved by the Ethics and Research Committee of the Universidade da Amazônia, protocol nº 3,648,250.

Literate athletes, who were present at the club during the research period and who agreed to participate in the research by signing the Informed Consent Form (ICF), were included in the research. For data collection, a reserved room was used, in a noise-free environment, in order to ensure the understanding and confidentiality of the information provided by the participants.

To perform the research, the Socioeconomic Assessment and Clinical History Questionnaire adapted from Câmara (2017) was used in order to acknowledge the income range, education, marital status, history of blindness and the visual references that the participants had, the presence of diabetes, hypertension, hypertriglyceridemia and gastritis. For the eating behavior's evaluation, the questionnaire adapted from Pereira (2015) was used, which has elements that enable the understanding about eating practices, the factors that influence it, obstacles and the aspects that facilitate healthy eating practices.

Statistical associations were made through the Fisher Test both between the socioeconomic and clinical profile with eating behavior, and between the factors of eating behavior in order to detect possible relations.

For data analysis, descriptive and inferential statistical methods were applied, using tables and graphs. The statistical inference was implemented through the hypothesis test: Fisher's test. It

was previously established the level of significance $\alpha = 0.05$ for rejection of the null hypothesis and a reliability of 95%. All statistical processing was performed under the computational support of Microsoft Office Excel Software.

RESULTS AND DISCUSSION

According to the data referring to the socioeconomic profile, 45.5% ($n = 5$) of the individuals had completed High School, 9.1% ($n = 1$) had incomplete High School, 9.1% ($n = 1$) Education Incomplete Higher Education, while 18.2% ($n = 2$) Complete Higher Education and the same amount had Incomplete Elementary Education. Most individuals were single, 63.6% ($n = 7$), 45.5% ($n = 5$) were aged between 43 and 51 years. The average blindness time was 32 years old ($SD = 14.47$) and 81.8% ($n = 9$) had a family income range between one and two minimum wages, a value that exceeds the percentages assessed by the Brazilian Institute of Geography and Statistics (IBGE, 2010) which identified in the National Demographic Census that the highest percentage of participants in its sample (29%) had this income of 1 to 2 minimum wages.

It can be seen in the table that the prevalence of hypertension (36.4%) is close to the findings of a study conducted by Alves (2018) at the Northeast Institute of Education and Assistance for the Blind who found a percentage of 44%, in a sample of 29 visually impaired investigated.

In a previous study, the prevalence of diabetes mellitus was also investigated and a percentage of 17% of participants with the disease was identified, surpassing the findings of the present study (9.1%). The author also investigated the presence of gastritis, pointing to results similar to the present study (18.2%), as 17% of visually impaired people had this pathology (ALVES, 2018).

In relation to nutritional monitoring, the low number of people who performed it can be justified by the fact that nutritionists are poorly qualified, during professional training, to deal with the food approach for this specific audience, which can impair the assistance to these individuals (PIRES, 2017). But this cannot be considered the only factor that justifies such an event.

Also, the lack or reduced number of nutritionist professionals in the Basic Health Units, as they are essential to act in the food and nutrition of individuals, as the other professionals in the unit have little knowledge about the theme. It is worth mentioning that individuals with low financial conditions present difficulties to pay for private consultations, which limits the access (MENDONÇA, 2012; TAVARES *et al.*, 2016).

In addition, another difficulty encountered by the disabled to go after nutritional care is in locomotion, due to the lack of infrastructure on sidewalks, streets and lane signs. Just as the male culture influences the low demand for assistance in primary care, in which, men tend to think they are stronger and healthier, in addition to the lack of welcoming to this public by low qualified health professionals (GOMES *et al.*, 2011; AVILA, 2012; VIEIRA, 2013).

As for blindness time, in the public of the present study this loss occurred during adulthood, in the age group between 27 to 54 years old and when vision loss occurs throughout adulthood, the consequences are not only related to vision, as also the emotional, the skills they had, their professional occupation and communication. However, when this loss occurs during childhood / adolescence, this individual reaches the adult stage more accustomed, that is, he/she has already undergone a learning process that leads him/her to be less limited, (BRASIL, 2000).

Regarding the causes of blindness, the present research observed that 54.5% of the participants had the disability as a result of diseases due to general causes (cataracts, diabetes and glaucoma), 36.4% due to hereditary or congenital diseases and 9.1% due to trauma or injury.

According to the World Health Organization (WHO, 2012) the main causes of visual impairment are uncorrected refractive errors (43%) and cataracts (33%). As well as there are other factors, amidst them glaucoma (2%), macular degeneration, diabetic retinopathy among others, all around 1%. There are also 18% of undetermined causes.

Table 1 shows the clinical history of the participants in this study:

Table 1 - Clinical History of visually impaired athletes from a sports club in Belém / PA, year 2019

Variables	Quantity (n)	Percentage (%)
Presence of diabetes		
Does not possess, but there is family history	6	54,5
Possesses, however there is no family history	1	9,1
Possesses and it is present in family history	0	0,0
Does not possess and absent on family history	4	36,4
Presence of arterial hypertension		
Does not possess, but there is family history	4	36,4
Possesses, however there is no family history	1	9,1
Possesses and it is present in family history	3	27,3
Does not possess and absent on family history	3	27,3
Hypertriglyceridemia		
Does not possess, but there is family history	4	36,4
Possesses, however there is no family history	0	0,0
Possesses and it is present in family history	1	9,1
Does not possess and absent on family history	6	54,5
Gastritis		
Does not possess, but there is family history	2	18,2
Possesses, however there is no family history	1	9,1
Possesses and it is present in family history	1	9,1
Does not possess and absent on family history	7	63,6
Smokers		
No	11	100
Alcohol consumption		
No	6	54,5
Yes	5	45,5
Previous Nutritional Treatment		
No	6	54,5
Yes	5	45,5
Reason for previous Nutritional Treatment		
Erysipelas bacteria on the leg	1	20
Muscle mass gain	1	20
Loss of weight	2	40
Food reeducation	1	20
Type of deficiency		
Total blindness in both eyes	9	81,8
Total blindness in one eye	2	18,2
Reason of deficiency		
Miscellaneous diseases	6	54,5
Hereditary or congenital aspects	4	36,4
Traumas or injuties	1	9,1

Source: the authors.

The factors associated with the food choices of the research participants, can be seen in Table 2.

Food choices can be defined as a behavior in which certain foods are selected at the expense of others (ALVARENGA, 2016). This way, they are based not only on reflections made consciously, but also automatic, subconscious and habitual. Therefore, not everything the individual chooses is for him, there are several determinants that will designate his choice (FURST, 1996; JOMORI, 2008).

Table 2 - Factors associated with the food choice of visually impaired athletes from a sports club in Belém / PA, year 2019

Eating Behavior Information I my daily routine, I try to pick food that..	Scale of Agreement (%)					
	Totally Agree	Partially Agree	Neither Agree nor Disagree	Partially Disagree	Totally Disagree	No Information
...contain vitamins	54,5	27,3	0,0	9,1	9,1	0,0
... help me get more excited when I feel down	36,4	27,3	18,2	18,2	0,0	0,0
... are not easy to find in supermarkets	9,1	27,3	0,0	45,5	18,2	0,0
...smell good	100	0,0	0,0	0,0	0,0	0,0
...are not expensive	18,2	45,5	27,3	0,0	0,0	9,1
...possess many calories	18,2	36,4	0,0	36,4	9,1	0,0
... help me have a better physical appearance	90,1	0,0	0,0	0,0	0,0	9,1
...are rich in fibers	36,4	27,3	18,2	0,0	18,2	0,0
...may be cooked fast and easily	36,4	27,3	0,0	9,1	27,3	0,0
...look good and delicious	72,7	0,00	0,0	18,2	9,1	0,0
...are low fat	45,5	18,2	0,0	18,2	9,1	9,1
...help keep me awake and alert	18,2	36,4	0,0	9,1	36,4	0,0
...are sweet	54,5	27,3	0,0	18,2	0,0	0,0
...are familiar to me (food that the individual knows)	63,6	0,0	0,0	18,2	18,2	0,0
...make me a healthy person	72,7	9,1	0,0	0,0	9,1	9,1
...do not result in washing dishes or other utensils.	36,4	18,2	0,0	9,1	36,4	0,0
...have a pleasant smell	72,7	18,2	0,0	0,0	0,0	9,1
...help me to like my body more	63,6	18,2	0,0	18,2	0,0	0,0
...make me feel good	72,7	18,2	0,0	0,0	9,1	0,0
...give me energy to play soccer	63,6	18,2	0,0	9,1	9,1	0,0
...make me satiated	63,6	27,3	0,0	9,1	0,0	0,0
...help me lose weight	45,5	27,3	0,0	27,3	0,0	0,0
...prevent me from getting sick	90,1	9,1	0,0	0,0	0,0	0,0
... do not need to be peeled or pitted	36,4	18,2	0,0	18,2	27,3	0,0
...help me maintain my weight	45,5	18,2	9,1	18,2	9,1	0,0
...do not result in getting my hands dirty	36,4	9,1	0,0	9,1	36,4	9,1
...agreewith the food consumed by my family when I'm at home with them	45,5	27,3	9,1	18,2	0,0	0,0
...are the ones that I'm used to eating	72,7	18,2	0,0	9,1	0,0	0,0
...agree with mine and my family's religion	18,2	18,2	0,0	18,2	45,5	0,0
...are good for sport practice	72,7	9,1	0,0	9,1	0,0	9,1

Source: the authors.

Table 2 shows these determinants influencing the participants' food choices. The taste can be pointed out as one of the main sensory characteristics that determine the acquisition, consumption, preference and choice of foods, in addition to other aspects such as color, texture, fat content, temperature etc. (EERTMANS, 2001; CUNHA *et al.* 2009; ESTIMA, 2009).

As for the choice of sweet foods, this may have been influenced by the easy access we have to sugar, since this is one of the products most commonly found on the families' tables, as it has greater durability and can be used in many culinary processes. Sugar is also one of the ingredients present in large quantities in ultra-processed foods, and is responsible for the high palatability and energy density of these foods (OLIVEIRA, 2008; NEVES, 2016).

Although the association between eating behavior and the search for sweet foods in the general population has not been much studied, a study performed by Peres (2016) with women identified that most of them had sweet foods as something extremely valued and desired, as a species of "fetish". Although it was a study conducted only with women, it can be extrapolated to the general population.

The choice of sweet foods, which are cheap, have a lot of calories, are practical for cooking and washing, may be associated, according to the Food Guide for the Brazilian Population, with the consumption of ultra-processed foods, since they have, among others characteristics, hyper-flavor and practicality, which are associated with high calorie consumption (BRASIL, 2014).

Another factor that is determinant in the participants' food choices is the fact that food influences their mood, helps them stay awake, make them feel more willing, offer energy to play ball, give satiety, prevent them from getting sick, being good for sports and that makes one a healthy person.

The palate allows the selection of a diet that contributes to the metabolic needs. However, food is not only a biological aspect but also a social phenomenon that can encompass the psychological, nutritional and others, which can justify the choice of food due to the effects that these can cause in post-consumption (SHIFFMAN, 1999; MORAES, 2014; SANTOS, 2017).

The benefits that these generate to the body are factors that contribute to food choices, since most choose foods that help to look better, enjoy their body more, lose weight and maintain weight.

According to Câmara (2017), the visually impaired participants in their study reported that food is influenced by the degree of satisfaction with their own body and many were concerned about eating and their body image and the way they performed self-care was through feeding. This finding confirms what was found in the present study, where the majority choose foods that improve physical appearance (90.9%, n = 10) or that help appreciate more their own bodies (81.8%, n = 9).

By the knowledge of the factors that influence the food choices of visually impaired participants in the study, Table 3 presents the obstacles to the practice of healthy eating.

According to the National Policy for the Promotion of Healthy Eating, food plays a decisive role in the health and quality of life of individuals, and may influence the reduction of risk factors for various chronic non-communicable diseases, however, it is already difficult for the general population to maintain healthy eating, for the visually impaired the challenges are even greater (PNPAS, 2015). Also according to this policy, there are intrinsic and extrinsic factors that impact the quality and quantity of food eaten, making it difficult to adhere to a healthy diet, with consequences on the nutritional level (PNPAS, 2015).

According to the present study, there were six factors that were highlighted as the biggest obstacles to the practice of healthy eating by the visually impaired, that is, they were chosen by half or more of the participants. The factors are: advertising, offer, healthy food prices, lack of company, dependence and lack of autonomy.

As for considering healthy foods expensive, Bento (2012) conducted a study with users of a popular restaurant and found that the biggest obstacles encountered in maintaining a healthy diet is the financial condition and the lack of time to buy and prepare healthy foods, these same factors in addition to eating habits have been reported by parents and guardians of children in a daycare center (BENTO, 2015).

However, although foods considered healthy (in natura and minimally processed) are considered more expensive compared to unhealthy (ultra-processed) by the research participants,

maintaining a diet based on fresh foods in Brazil has a lower cost in relation to ultra-processed (BRASIL, 2014).

Table 3 - Obstacles to the practice of healthy eating by visually impaired athletes in a sports club Belém / PA year 2019

Eating Behavior Information Nowadays it's difficult to make healthy choices because...	Scale of Agreement (%)					
	Totally Agree	Partially Agree	Neither Agree nor Disagree	Partially Disagree	Totally Disagree	No Information
... healthy eating is not a concern for most visually impaired people	18,2	9,1	9,1	18,2	45,5	0,0
... healthy foods don't taste good	27,3	9,1	9,1	18,2	36,4	0,0
... restaurants don't sell healthy food	27,3	36,4	0,0	9,1	27,3	0,0
... fruits are not practical (they need to be peeled, make the hands dirty ...)	18,2	9,1	0,0	27,3	45,5	0,0
...healthy foods are expensive	63,6	9,1	0,0	0,0	18,2	9,1
...publicity leads to a less healthy food choice	45,5	27,3	9,1	0,0	18,2	0,0
... the people I depend on don't know how to prepare healthy meals	36,4	9,1	0,0	18,2	36,4	0,0
... if I had more family meals I would eat more healthy foods (fruits, vegetables ...)	54,5	0,0	0,0	9,1	36,4	0,0
... healthy foods don't satisfy me	18,2	18,2	0,0	9,1	54,5	0,0
...I depend on other people to prepare food	54,5	9,1	0,0	0,0	36,4	0,0
... I am not totally dependent on my choices	63,6	9,1	0,0	0,0	27,3	0,0

Source: the authors.

Advertising, on the other hand, is also considered by the participants as an obstacle to the practice of a diet that is beneficial to health. Santos *et al.* (2012) who evaluated the influence of television on eating habits, customs and behaviors, reported that the increased exposure to content published in the media can influence food choices. The author concludes that the media, especially television, has not contributed to a healthy lifestyle.

The majority, 63.6% (n = 7), of the participants in this study agree that restaurants do not sell healthy food. Bento (2012) noted in his study that individuals also reported having difficulties in accessing places to buy healthy food and those places that are more accessible, do not offer healthy options.

As for the absence of the family as a promoter of healthy eating practices, has proved itself to be an obstacle to healthy eating. This finding is consistent with that found by Alves (2007) who conducted a study on the eating practices of university students and showed that their poor diet was related to the lack of company at mealtimes.

The students in the study by Alves (2007) state that the company of family members to eat meals, collaborates with healthier choices, therefore, living with other people is a determining factor in food choices and habits. This fact is corroborated with the one proposed by the food guide for the Brazilian population, which states that eating in close company provides pleasant moments, prevents eating quickly and favors eating with regularity and attention (BRASIL, 2014).

In addition, there was also a predominance of the dependency factor to make healthy food choices, with 72.7% (n = 8) of agreement, corroborating with Magalhães (2016) who found reports of 27.3% of visually impaired people who need companions at the supermarket and the other 72.7% reported asking for help from an employee.

There is also the dependency to prepare meals, representing another obstacle that hinders the practice of healthy eating. Estevam (2019) states that the preparation of meals by the visually impaired is full of obstacles, being dependent to perform this activity, as 70% need help to perform and 30% need someone else to perform, being the difficulty of preparation, manipulation the fire /

stove, the fear of cutting oneself when using the knife and knowing if the food is in good condition for consumption, the biggest difficulties.

All of these factors mentioned, in addition to the difficulties in peeling, washing dishes and having to wash hands, can generate a certain amount of stress in the visually impaired and, consequently, a decrease in the pleasure of eating, thus leading to an increase in fast food. as the ultra-processed (SABINO, 2006 *apud* SILVA, 2017).

These findings corroborate with the Food Guide for the Brazilian Population, where the obstacles presented by the general population are: the lack of reliable information, problems with the supply of fresh or minimally processed foods, the high cost of healthy food, the lack of time and the exposure of individuals to advertising (BRASIL, 2014).

Based on the knowledge about the obstacles to maintaining a healthy diet, table 4 presents the aspects that would facilitate the practice of healthy eating.

Table 4 - Facilitating aspects for the practice of healthy food choices by visually impaired athletes from a sports club in Belém / PA year 2019

Eating Behavior Information It would be easier to make healthier choices if...	Scale of Agreement (%)					
	Totally Agree	Partially Agree	Neither Agree nor Disagree	Partially Disagree	Totally Disagree	No Information
... healthy foods were more attractive and tastier	90,1	0,0	0,0	0,0	9,1	0,0
... healthy foods were more available at home	63,6	18,2	0,0	9,1	9,1	0,0
... healthy foods were more practical	81,8	9,1	0,0	9,1	0,0	0,0
... the family or caregiver were more concerned with the health of the visually impaired	45,5	0,0	0,0	9,1	45,5	0,0
... advertising would encourage the consumption of healthy food	72,7	9,1	9,1	9,1	0,0	0,0
...one didn't depend of others	45,5	9,1	0,0	9,1	36,4	0,0

Source: the authors.

According to what was presented, almost all factors mentioned in table 4, except the concern of the family or caregiver, are aspects that would facilitate healthy choices by this audience.

Bento (2012) observed in his study that the foods that were considered tastier were those that were more caloric and richer in sugar, which may justify the finding of the present study in which the participants thought that healthy food should be more attractive and tastier. This fact reiterates what is found in Table 2, in which more than 80% choose foods that are sweet, which may increase cardiovascular risk.

There are not many studies on the eating behavior of this audience, thus, none has been conclusive with regard to the organoleptic characteristics that are considered by this audience when choosing foods.

The practicality of healthy foods is also considered a factor that could facilitate healthy choices. Therefore, Magalhães (2016) states that the visually impaired have limitations and because of that they end up opting for products that are reliable. For this reason, they often opt for those foods that are more practical, as vision is already a limiting factor that can interfere with food choices.

This, on the other hand, is bad, as the food considered most practical for consumption are those known as ultra-processed, since fresh and minimally processed food require preparation and technical time, this requires the availability of the individual or the person responsible for preparing it (BRASIL, 2014; CORREIA, 2016).

Advertising was also considered a facilitating aspect for making healthy food choices, if they encouraged the consumption of these foods. Thus, the National Health Surveillance Agency (ANVISA, 2018) is creating ways to improve them so that they do not put people's health at risk, promoting healthy foods and alerting when the product contains harmful ingredients to health.

The difficulty of access can influence the public's healthy choices, since 81.8% (n = 9) of the individuals agree that it would be easier to practice healthy eating if they were more available at home, since access to food is determined by socioeconomic conditions (GARCIA, 2003) and most individuals in the present study had a family income of up to 2 minimum wages.

Table 5 describes the dietary practices of the research participants, in order to better understand their eating behavior.

Table 5 - Eating practices of visually impaired athletes from a sports club in Belém / PA, year 2019

Eating Behavior Information Eating practices	Scale of Agreement (%)					
	Totally Agree	Partially Agree	Neutral	Partially Disagree	Totally Disagree	No Information
When I'm sad I tend to rely on food, knowing that I ate more than I should	18,2	0,0	9,1	18,2	54,5	0,0
Eat hidden from other people	27,3	0,0	0,0	0,0	72,7	0,0
Despite knowing that I eat more than I should, I am not satisfied with my body	54,5	9,1	0,0	9,1	27,2	0,0
Between meals I have the habit of having a snack	27,8	0,0	9,1	0,0	63,6	0,0

Source: the authors.

As the most influential practices in the eating behavior of visually impaired athletes, eating more than they should and dissatisfaction with their own bodies is observed. As for other practices, most did not show such behavior as emotional eating and eating at inappropriate times (between meals).

This study found a high prevalence of individuals who reported not being satisfied with their own body (63.6%; n = 7), which surpassed the proportion found in other studies with visually impaired people, such as Câmara (2017), in which only 42.2% were dissatisfied with their own bodies and that of Peres *et al.* (2015) who presented 24.4% of body dissatisfaction.

This, as a matter of fact, may be related to the fact that athletes are more concerned with health and well-being, being more critical of their bodies and weights than non-athletes (CUBA, 2008).

In a study by Coqueiro *et al.* (2008) with adults without disabilities, male and female, results found demonstrate that 78.8% of the participants were dissatisfied with their own bodies. What can be noted that the body dissatisfaction data goes beyond the general population.

Associations between socioeconomic and clinical profile of participants with eating behavior

Of the statistical associations that were made, those that showed significant results were: arterial hypertension with the difficulty in choosing healthy foods because they are dependent on other people (p = 0.0242), arterial hypertension was also related to the choice of foods that look good and delicious (p = 0.0242).

Systemic arterial hypertension, diabetes mellitus, hypertriglyceridemia and gastritis were linked to a single group of diseases and an association was found with the choice of foods that are not easy to find in supermarkets (p = 0.0455) and marital status was associated with the difficulty in choosing healthy foods because it depends on people who do not know how to prepare healthy meals (p = 0.0455).

Arterial hypertension brings limitations that need to be followed in order to control blood pressure levels and this control can be done through changes in lifestyle (PINHO et al., 2012). However, according to Magalhães (2016), visual impairment limits healthy choices, as there are

times when the visually impaired intend to make healthier choices, but there is a certain difficulty in finding information on the packages when they are alone, making them not buy these foods considered unhealthy because they are in doubt about the content.

And, although in this study marital status was associated with the difficulty of making healthy choices, Silva (2017) found in his study that despite their marital status, most of them lived with other family members, which could justify the lack of autonomy and consequently lead to dependence on family members for food, which gives access to continued exposure to rich calorie food.

Associations between the elements of eating behavior itself

Among the possible associations, relationships were found between the following variables: Difficulty in making healthy choices due to the dependence on other people to prepare and the choice of foods that have many calories ($p = 0.0455$); Choice of foods that are not easy to find in the supermarket with the choice of foods that do not need to be peeled or pitted ($p = 0.0455$); Difficulty making healthy choices due to depending on other people to prepare with difficulty making healthy choices because the people they depend on do not know how to prepare healthy meals ($p = 0.0455$); Difficulty making healthy choices, due to dependence on other people to prepare, and difficulty making healthy choices because the people they depend on do not know how to prepare healthy meals ($p = 0.0455$); Choice of foods that are familiar with the difficulty of making healthy choices due to dependence on other people ($p = 0.0242$); Choice of foods that are familiar with the ease of making healthy choices if the family or caregiver were more concerned with their health ($p = 0.0455$);

The dependence on the preparation of meals induces individuals to adopt more practical methods of eating, which involves the consumption of ultra-processed foods, since they are considered more practical and convenient (MONTEIRO, 2015).

According to Estima (2012), in his study on non-adherence to healthy eating in adolescents without disabilities, the factors that were interconnected were the lack of time for preparation, practicality and laziness, as there is often a desire to eat in a healthy way, but the logistics of needing to wash, cut, prepare changes the preference for the easiest. Such a study may justify the fact that many visually impaired people, and even the general population, choose food that do not need to be peeled / ginned, as they are more practical.

Many visually impaired in the study by Santa'anna (2014) stated that when they go to the supermarket, they do not know very well what to buy, as they do not know the options that are available and this makes them choose foods that are familiar to them or, when accompanied, they make a choice with the assistance of the companion. This is a fact that makes the choice limited which can lead to food monotony.

These findings corroborate those of Benvenuti *et al.* (2018) in which sensory analysis was applied to 27 adults and the elderly with visual impairment and demonstrated that they have greater difficulty in identifying some foods, which contributes to a greater dependence on other people for the purchase, associating it with the choice of unhealthy foods.

In the Santa'anna study (2014), visually impaired people were interviewed and of these, 57% reported attending 1 to 2 times a month to a snack bar or supermarket, 43% 3 to 4 times a month and only 1 interviewee reported attending more than five times, 85.5% of whom are usually accompanied by their parents.

CONCLUSION

Visual impairment influences the eating behavior of the visually impaired, since they have limitations that make adherence and maintenance of a healthy diet difficult, these limitations can be seen in aspects considered as obstacles, that is, as limitations to maintain a healthy diet.

It was understood that among the main factors limiting the practice of healthy eating are: the fact that healthy foods are expensive, advertisements that induce the choice of ultra-processed foods, the lack of healthy food for sale in restaurants, dependence in the choices and the lack of family meals.

Dependence is also a factor that guides all other factors of behavior, since several choices are made because they need the help of other people to perform certain activities related to food.

Dependence is also a factor that guides all other factors of behavior, since several choices are made because they need the help of other people to perform certain activities related to food.

Body dissatisfaction is an important factor in understanding the individual's eating behavior. Many individuals were dissatisfied with their bodies, wanted to improve their appearance and would like to lose weight. These findings indicate the need for specialized nutritional monitoring to help them achieve their goal.

Vision has great importance in adjusting people's eating behavior, it influences not only behavior but also the feeling of satiety after eating a meal.

Thus, it is noted that among the scenario to which the visually impaired are exposed to, it is of utmost importance that the nutritionist is trained to meet not only the demand of the visually impaired but to better understand aspects of the eating behavior of these individuals who can contribute to the adoption of a healthy diet.

It is considered that additional information on the consumption of ultra-processed products is necessary in later studies regarding the importance and the contribution of this type of consumption to the development of chronic non-communicable diseases.

It is worth mentioning that there are only a few studies on the feeding standard of the visually impaired and therefore there is a need for more studies in the area that seek to investigate what actually influences the eating behavior of the public mentioned and with a larger sample than the one the present study has for more accurate methods to be applied.

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