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Isotonic beverage consumer profile

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ABSTRACT

Isotonic drinks are defined as a hydroelectric supplement for athletes with the purpose of auxiliary to hydration, therefore, to understand that more and what the needs of the public become necessary for innovations to be saved. A market research helps make decisions, pois provides data on the market, which helps the development of new products and marketing. Or present work you have as an objective to assess the consumption profile of isotonic beverages through a quantitative questionnaire. A research was carried out by the digital platform Google Formulas in which socioeconomic questions and consumer preferences are opened, such as taste, size, volume of packaging, addition of vitamins and influence of two adolescents and colors. Two participants 71.2% were consumers. The socioeconomic data state that the highest age group was 22-31 years and the highest participation of Minas Gerais. Regarding the practice of physical activities, 77.3% did some type of exercise and 42.7% did exercise for 1 hour. About 43.1% consume rarely and 39.2% at any time of the day. The main reason for consuming 65.9% hydration foi is not considered isotonic as a substitute for nenhuma drink. The main attributes raised in consideration of the acquisition of the foram or flavor, price and brand, and most of the information obtained through friends. Or liquid type and size of 500 mL would be or ideal. For how many years the participants are not influenced by the time of purchase. A research apontou a concern with the quantity of sodium and potassium. As the results, I observed that the same with practice and frequency of physical exercises, or consumption is not something common among the participants, despite the relationship with hydration.

Keywords: Hydroelectric drinks, Consumers, Sodium, Attributes, Hydration.

1 INTRODUCTION

Around 1960, the coach of the American football team (*Baby Gators*) at the University of Florida, United States, wanted the problem of the drop in the performance of his athletes to be solved. With this, the researchers from the university developed a drink that was consumed by the athletes during the break of the game and made them show an improvement in performance and a high performance. This drink had carbohydrates and mineral salts in its composition, that is, the main components lost during the game (GEITTENS, 2012; VIERO; BACKES, 2018; FERREIRA *et al.*, 2020).

From 1969 onwards, the drink began to be distributed by Gatorade, and its diffusion and industrial production was only in the 80s, when it finally arrived in Brazil (FERREIRA *et al.*, 2020). According to the Brazilian Association of Soft Drinks and Non-Alcoholic Beverage Industries (ABIR), the consumption of isotonic beverages grew from 0.5 liters/inhabitant/year in 2015 to 0.58

liters/inhabitant/year in 2019 (ABIR, 2020a).

According to the Resolution of the Collegiate Board (RDC) No. 18 of April 27, 2010 of the National Health Surveillance Agency (ANVISA), isotonic drinks are defined as a hydroelectrolyte supplement for athletes with the purpose of assisting in hydration. They have electrolytes such as sodium and potassium in their formulation, and vitamins and additives can also be added, as well as different concentrations of carbohydrates (BRASIL, 2010).

To be considered an isotonic drink, it must have concentrations similar to those of organic fluids, so that it is absorbed more quickly by the body after consumption. Blood osmolality ranges from 285 to 295 mOsm kg-1, and legislation determines an osmolity of 270 to 330 mOms kg-1 for isotonic drinks. The concentration of electrolytes is of paramount importance for the desired function of the beverage, since the osmotic pressure that will define its efficiency (MARTINS *et al.*, 2011; BRAZIL, 2010; FERREIRA *et al.*, 2020).

The use of hydroelectrolyte supplements by athletes who perform prolonged exercises and that cause great physical exhaustion becomes a good source of rapid replacement of carbohydrates, water and electrolytes (CORDREY *et al.*, 2018). However, the amount to be ingested should be individualized, taking into account the intensity and duration of the exercise, the type of sport, the need for each one and the level of dehydration (GERALDINI *et al.*, 2017). Understanding who are and what are the needs of the target audience of isotonic drinks becomes necessary for innovations to be made in this sector. Thus, market research becomes an ally of the industry to assist in preferences and consequently the development of new products.

2 METHODOLOGY

In order to evaluate the consumption of isotonic drinks, an exploratory research was carried out in an interactive way, where the participants answered an online questionnaire. The Google Forms platform was used to apply the questionnaires. Due to the interactive method used, the convenience sampling technique was performed, which consists of selecting a sample of the population that is accessible and presents broader conclusions in the evaluated profiles.

Containing a total of 28 questions, the market research was elaborated with closed and open questions related to the socioeconomic profile and specific questions about the consumption of isotonic drinks. The minimum of 250 positive respondents for the consumption of isotonic beverages was defined.

Along with the research, there was a free and informed consent form for the voluntary participation of the interested parties, which explained the objective of the research, the participation as a volunteer, the secrecy and confidentiality of the answers, the risk related to the discomfort of answering, in addition to the contact of the researchers in case there were any doubts. Right after the

term there was a question if the person agreed with it, and in case of a negative answer, the survey was closed for that participant.

The next section that selected the participants was related to the consumption of isotonic. To this end, it was explained what an isotonic drink is, demonstrating along with the question an image that exemplified commercially sold products and then questioned the participant about consumption. In case of negative answer, the survey was closed, and in case of positive, the participant gave segment to the questionnaire.

The remaining section of the questionnaire included questions about the frequency of physical activity, the frequency of consumption, the moments and reasons that lead consumers to drink isotonic drinks, the ideal volume and size for the packaging, and preference for sweeteners and dyes and the addition of vitamins, as well as the relevance of the exaggerated consumption of these beverages.

The tabulation of the data from the questionnaires was performed using the Microsoft Office® Excel program (2016), where graphs were generated with the determinations of the frequencies of the answers to observe the results.

3 RESULTS AND DISCUSSIONS

The market research regarding the evaluation of the consumption profile of isotonic drinks was made available remotely through a questionnaire and obtained the participation of 359 people. Of these, 358 (99.7%) agreed with the Free Consent Form (ICF) and proceeded with the research. After approval, the first stage of the questionnaire was aimed at filtering the target audience, i.e., consumers of isotonic drinks.

At this stage, the participant was asked about the consumption of isotonic drinks and, according to their answer, whether or not they continued with the research. Only 71.2% of the volunteers answered "yes" to the consumption of beverages, so they continued, while the rest (28.8%) ended the research at this stage.

Regarding gender, the highest percentage of participants was female, about 59.6%, followed by 40% male and 0.4% selected the option of "prefer not to say". Figure 5 shows the percentages referring to genders.

The greater participation of women in the research and the greater consumption of isotonic drinks may be related to a greater concern with health and consequently appearance. Gomes *et al.* (2007) says that many men end up not taking care of their health correctly because they see it as an invulnerability, where many associate self-care with weakness, fear and insecurity. This ends up being inverted in the thinking of some when they associate self-care with women.

In the age group, most participants were between 22 and 31 years old, about 58.4% of the answers. The other age groups had the following percentages: 20.8% for 18 to 21 years, 13.7% for 32

to 41 years, 5.1% for 42 to 51 years and 2% for 52 to 61 years. The other ages were not counted because there was no participation.

The reason why the higher percentage is of adolescents and young adults is due to the means of dissemination of the questionnaire having been carried out through social networks, such as Facebook, Instagram, WhatsApp and LinkedIn, these tools being less used by middle-aged and elderly people.

According to Mathias and Souza (2018), technological advances have generated a positive impact among people, but as a consequence the elderly ended up being repressed, as most of them found it difficult to update themselves in this world, which led to the emergence of a new concept of illiteracy, called digital illiteracy.

The new technological language has come to make life easier for everyone, but the current generation of elderly people still have difficulties in learning, this also includes the most basic tasks such as dealing with bank ATMs, but the great difficulty is the telephone devices, due to physical, mental and even intellectual limitations (MATHIAS; SOUZA, 2018).

As age advances, the body undergoes some changes due to aging. These changes can be related to lack of appetite, decrease in water consumption, increase in blood pressure, reduction in body fat mass, kidney and gastrointestinal problems, among others. Some alterations caused can lead to water imbalance and consequently isotonic, hypotonic or hypertonic dehydration, which is why it is so important to be aware of the signs and symptoms, so that the appropriate treatment can be carried out (GUIMARÃES *et al.*, 2021).

Regarding monthly family income, the option of 1 to 2 minimum wages made up 32.9% of the answers, followed by 33.3% who stated having an income of 3 to 4 minimum wages and 13.7% with an income of 5 to 6 minimum wages. The remainder, represented by 20.1%, have an income above 7 minimum wages.

The research contemplated the monthly family income in minimum wages, whose representation was made through the cash effect or multiples of the minimum – S.M (NERI *et al*, 2021). The answers took into account the salary for the year 2021 (S.M. = R$ 1100.00). According to IBGE data (2020), the average per capita income of Brazilians was R$ 1380.00, considering all states and the Federal District. The amount is 4.1% lower than the nominal national average income recorded in 2019, of R$1,439.

The state with the highest number of participants was Minas Gerais, with 74.5%, followed by 21.6% residents of the state of São Paulo. The states of Goiás and Rio Grande do Sul tied with 0.8%, followed by Bahia, Pará, Rio de Janeiro and the Federal District with the same result, 0.4%. The reason why some states are not present in the figure is due to their participation, as in the previous question. The reason for the largest responses being from the states of Minas Gerais and São Paulo is due to the

fact that the dissemination occurred by close friends, the highest number of responses was obtained in Minas Gerais and São Paulo.

Through the analysis of the results for the level of education of the participants, it was observed that the majority, represented by 36.5%, answered that they had incomplete higher education, contrasting with 25.1% of the participants who had already completed it. In addition, 14.1% of the participants answered that they had completed high school, followed by 13.3% of the participants who answered that they were in graduate school.

The level of education, from this perspective, becomes an important indicator to assess the participants' knowledge, comprehension and ease of understanding about the questionnaire and the proposed theme (RODRIGUES Filho; MEADOW; PRUDENTE, 2014).

Regarding marital status, most participants (77.6%) reported being single, while 11.4% reported being married. The remaining 11% reported having a stable union, being widowed or divorced.

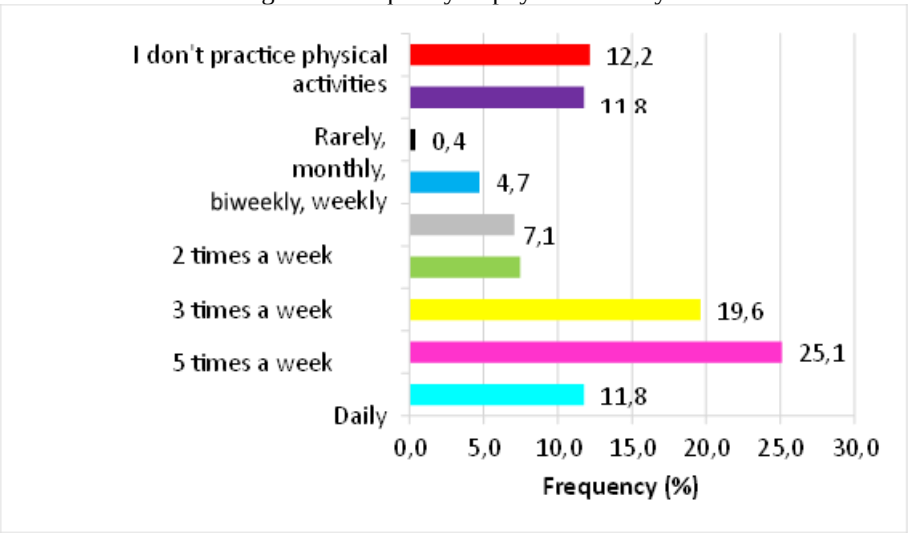
Subsequently, the practice of physical activities among the participants was evaluated. The majority, 77.3%, reported practicing physical activities, while 22.7% answered not doing so.

The consumption of isotonic drinks, according to studies, is higher among practitioners of physical activities, since this consumption is related to a healthy lifestyle and the search for products that act in order not only to quench thirst, but also to replace substances lost through sweat (CAVALCANTE; COSTA, 2017). In this way, isotonic drinks ensure rehydration (GODOI; GONDO; SIQUEIRA, 2015; FONTES, *et al*. 2015).

Regarding the frequency of physical activity, 11.8% of the participants reported practicing daily, 25.1% said practicing 5 times a week, followed by 19.6% practicing 3 times. On the other hand, 11.9% of the participants reported rarely practicing physical activities and 25.1% did not practice physical activities. The remaining 19.6% practice physical activity fortnightly, weekly or monthly.

It is worth noting that the pandemic caused by COVID-19 and social isolation increased sedentary behavior due to the closure of spaces for physical activities (AIDAR; MATOS, 2020). In the post-pandemic period, with the relaxation of measures and vaccination, gyms and spaces to practice some type of physical activity underwent reopening and gradual return by a large number of people increased, as shown in the results of Figure 1.

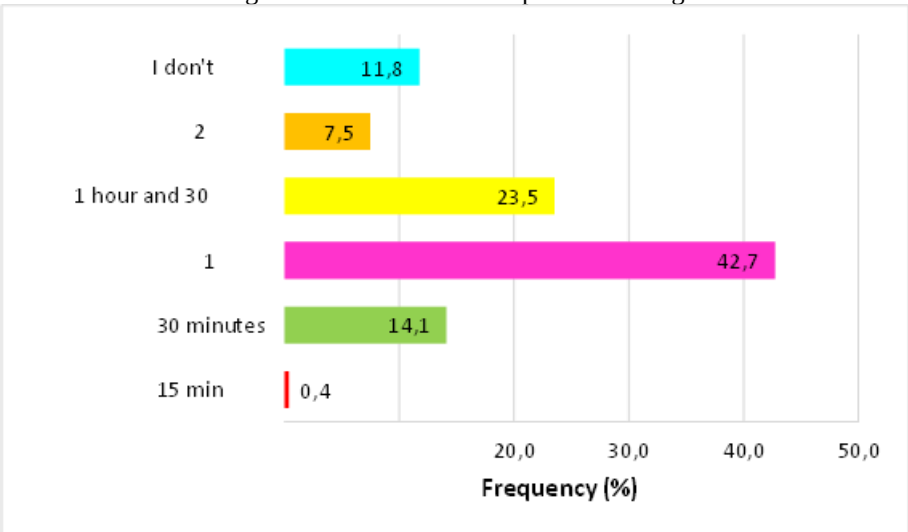
Figure 1- Frequency of physical activity.



Source: author, 2021.

When the duration of physical activities was evaluated, the majority - 42.7% answered that they exercised for one hour (1h), followed by 23.5% who reported practicing for one hour and thirty minutes (1h30) and 14.1% who answered that they performed the activities for thirty minutes. For the remaining 19.7%, several answers were obtained, among which the participants who practiced for 2 hours, 15 minutes and those who did not practice physical exercises stood out.

Figure 2 - Amount of time spent exercising.



Source: author, 2021.

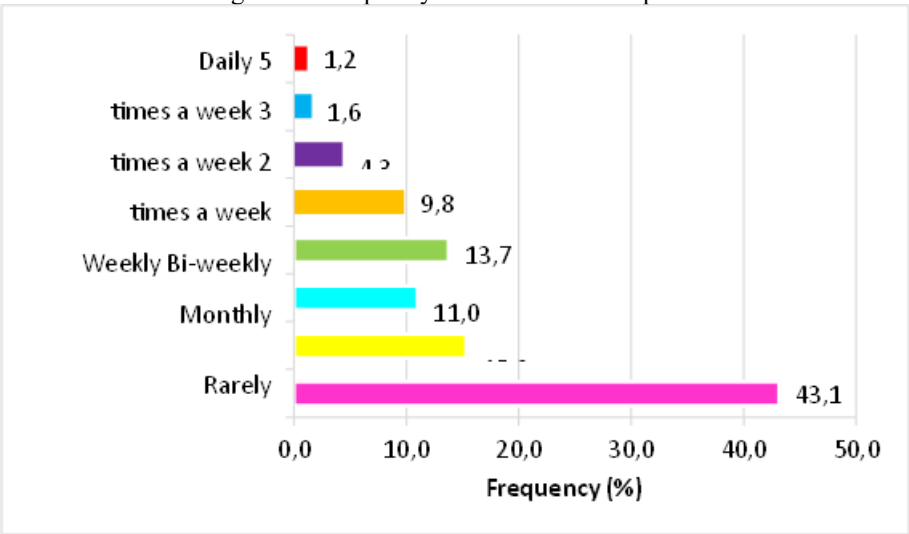
According to the Physical Activity Guide for the Brazilian Population, released in 2021 by the Ministry of Health, adults should practice 75 minutes, that is, 1 hour and 15 minutes of vigorous activity or 150 minutes, which is equivalent to 2 hours and 30 minutes of moderate activity per week for them to have health benefits (BRASIL, 2021b).

Based on these data, it is possible to observe that a large part of the research participants are

close to or within the framework of the Ministry of Health both in terms of frequency and time, and that, although a portion does not exercise, the vast majority are seeking a better quality of life, whether for health or aesthetics.

According to Figure 3, 43.1% of the participants have the habit of consuming isotonic drinks rarely, 15.3% monthly, 13.7% weekly. A comparison with Figures 1 and 2 shows that they do not have the habit of consuming frequently before, during or after physical exercise.

Figure 3 - Frequency of isotonic consumption.



Source: author, 2021.

Dias *et al.* (2012) in his study on the importance of hydration in swimmers found that although 80% of the participants know the functions of isotonic drinks, only 50% consume it. He believes that these results may be associated with an economic factor or the non-relationship between the use of the beverage and better performance or decreased muscle fatigue. In addition, there has not been a very high growth in consumption in the last six years, ranging between 0.5 and 0.58 liters/inhabitant/year approximately (ABIR, 2020b).

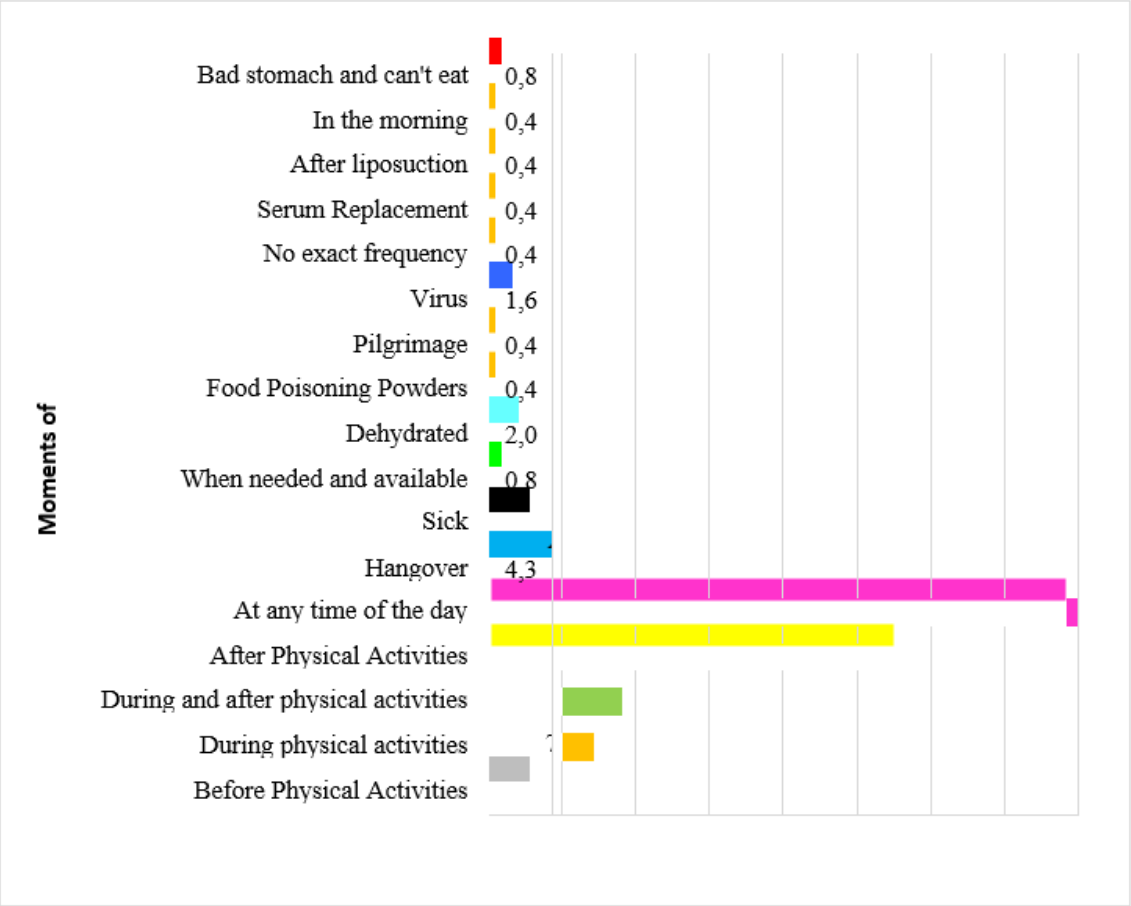
Sá (2014), after evaluating the knowledge and use of isotonic drinks by practitioners of physical activities, concluded that the level of knowledge of the participants was medium to moderate, although many were not aware of the effects caused by the exacerbated or inadequate consumption of the drink.

When asked about the moment they usually consume isotonic, in addition to the questions added to the questionnaire, it was possible for the participants to add specific occasions. Figure 4 shows that the highest consumption (39.2%) occurs at any time of the day, followed by the option after physical activities (27.5%) and during and after physical activities (9%). Among the options added by the participants, the highest consumption occurs after hangover (4.3%), when sick (2.7%) and dehydrated (2.0%), respectively.

The options added by the volunteers were already expected, since there is a great medical

recommendation for the consumption of isotonic drinks when you are dehydrated. However, it is not possible to say that the participants know the real purpose of these drinks.

Figure 4 - Moments of consumption.



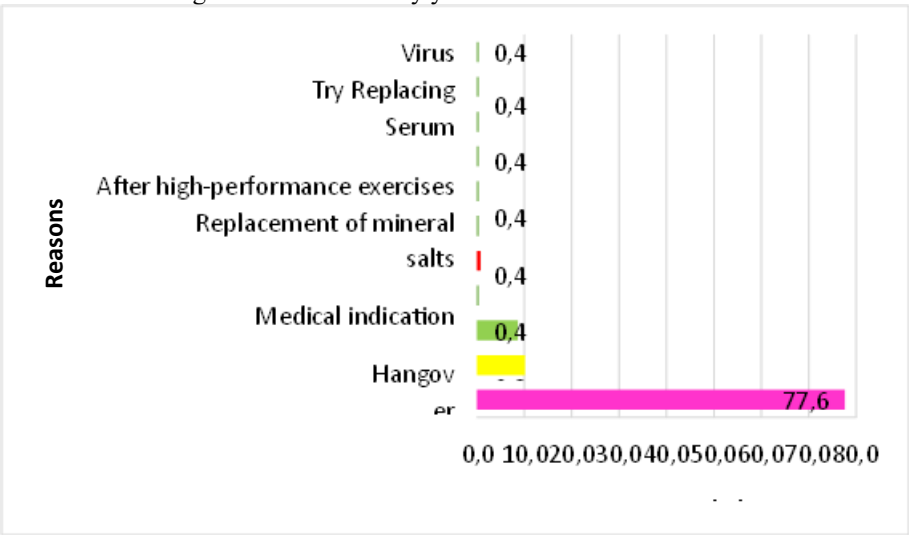
Source: author, 2021.

Anjos, Munhoz and Correios (2018) in a study with 30 professional athletes on the evaluation of habits and knowledge of the hydration practices of a jiu-jitsu team, observed that 65% of the interviewees hydrate during the practice of physical exercise, 25% hydrate, but without an established frequency and only 10% did not have the habit of hydrating during training and competitions.

Prote *et al.* (2019), in a study to assess the level of knowledge and hydration in adolescent soccer players, observed that most hydrated during training and the same occurred in other studies compared to his.

When observing the participants of the present study, it is noted that most of them do not have a specific period for consumption, which can be explained by the various reasons that lead them to consume, as shown in Figure 5.

Figure 5 - Reasons why you consume isotonic drinks.



Source: author, 2021.

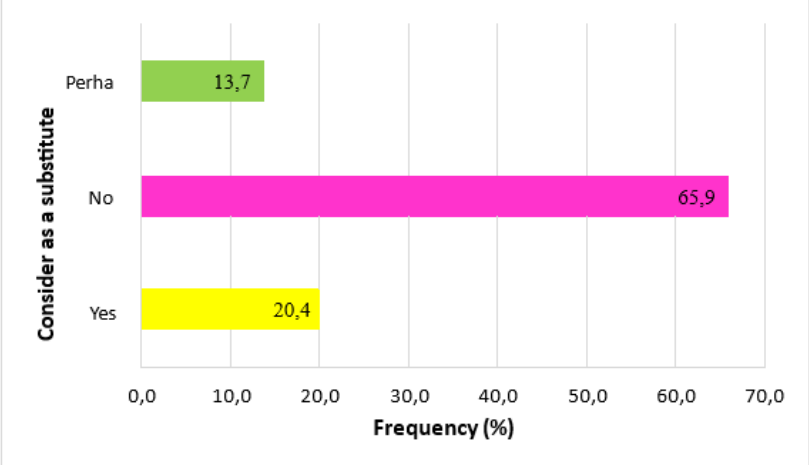
According to the results in Figure 5, 77.6% answered that hydration is the main reason that leads them to consume isotonic drinks, while 10.2% chose the flavor and 8.6% consumed

it to avoid muscle fatigue (cramps, syncope). In this question, participants were allowed to add other answers.

If compared with the previous question, it is noted that some of the answers given were the same, such as "hangover", "virus" and "serum replacement". Thus, it is observed that many consumers do not know the real reason for consuming isotonic drinks, since that in these added options the real reason would be hydration to replenish lost electrolytes.

The survey sought to know from the participants if they consider the isotonic as a substitute for any drink. The most voted options were no (65.9%), yes (20.4%) and (13.7%) respectively, as shown in Figure 6.

Figure 6 - Participants who consider isotonic as a substitute for a beverage.

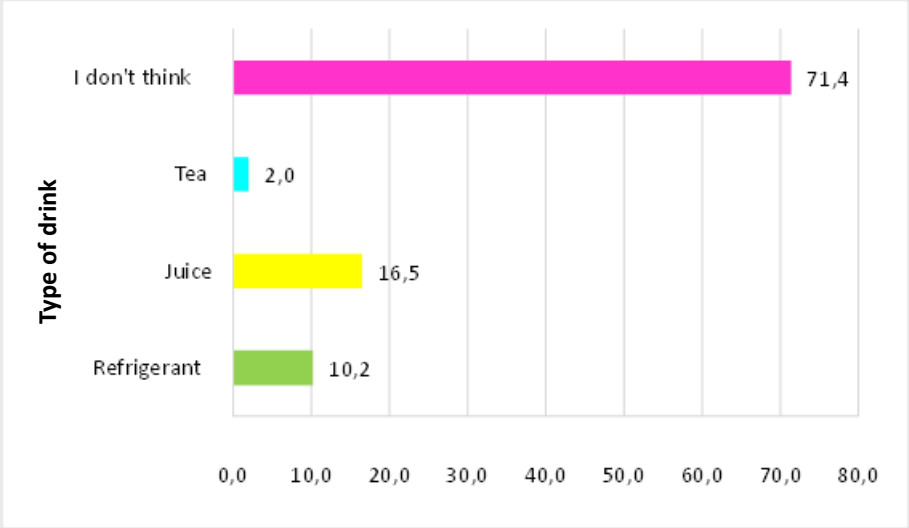


Source: author, 2021.

Even though the isotonic has several functions, it should not be considered a substitute for a drink, especially when you are sedentary, in which case it can be harmful to health. Due to its composition, when consumed for frequent use, it should be controlled and according to the type of physical exercise and the need of each one (INGRID, 2019).

The data obtained in the previous question was taken into account for the next question. If the participants answered "yes", they had to choose which of the options they considered the isotonic as a substitute, and if "no" they considered as a substitute, check the option "I do not consider it as a substitute for any beverage", which in this case was the answer of the majority with 71.4%, followed by the juice option, with 16.5% and soft drink with 10.2%, as shown in Figure 7.

Figure 7- Type of drink that the isotonic replaces according to the participants.

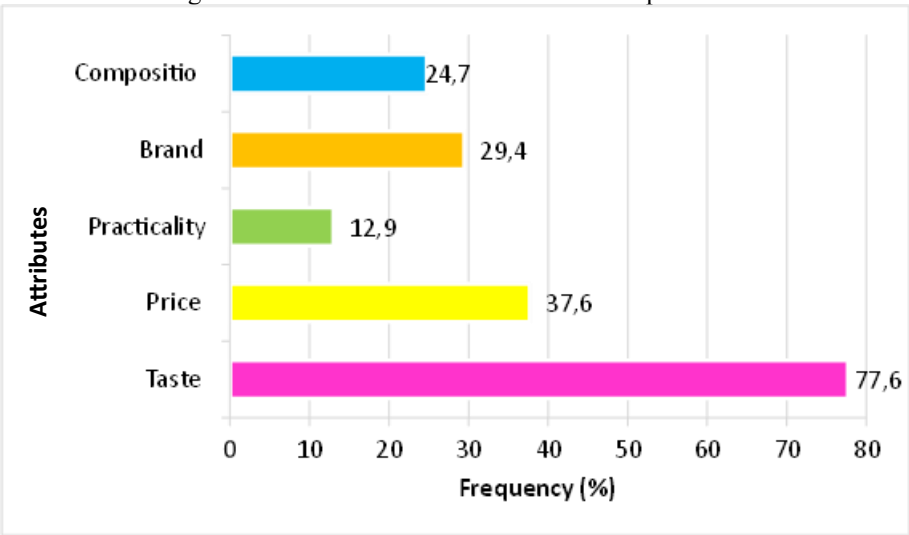


Source: author, 2021.

According to Decree Law No. 6,871, of June 4, 2019, juice or juice is a beverage that is neither fermented nor concentrated, except in the cases specified below, and not diluted, intended for consumption, obtained from the ripe and healthy fruit, or part of the plant of origin, by appropriate technological processing, subjected to some treatment that provides its presentation and conservation until the moment of consumption. Soft drinks, on the other hand, are carbonated beverages, obtained through the dissolution, in drinking water, of juice or vegetable extract of their origin, with added sugar (BRASIL, 2019).

The next question was about the attributes that they considered necessary in the acquisition of the product during the time of purchase. At this stage, it was possible to select more than one option. Figure 8 shows that about 42.6% consider taste to be paramount when purchasing the beverage. The next attributes were price (20.6%), brand (16.1%), composition (13.5%) and practicality (7.1%) respectively.

Figure 8 - Attributes evaluated at the time of purchase.



Source: author, 2021.

Pissarro (2021), in a study where he sought to identify the influence of the main attributes of the product in the industrialized coconut water category in Brazil, came to the conclusion that the brand and flavor end up standing out over the price and functional attributes, such as nutritional and healthiness.

Madeira (2019) researched the value perceived by consumers in the attributes of alcoholic beverages, more specifically in the categories of soft drinks, flavored water, juices, and ready-to-drink teas, and realized that alcoholic beverages can be treated in general in managerial decision-making. In addition, the results showed that the main attributes evaluated are taste, healthiness, price and transportation.

Some of the factors of choosing the flavor in the first place can be related as an ally to the factors of healthiness and successful diets. The price, both for economic factors and for quality, since the search for healthier foods ends up implying a higher value, but with different properties (PISSARRO, 2021).

There are several brands spread across the food market, but when consumers have good experiences with a particular brand, they rely on this during their next purchases and end up becoming loyal, even being willing to pay a price for it, as they go in search of products that meet their needs (RESSUREIÇÃO, 2016; PEREIRA, 2017; PISSARRO, 2021).

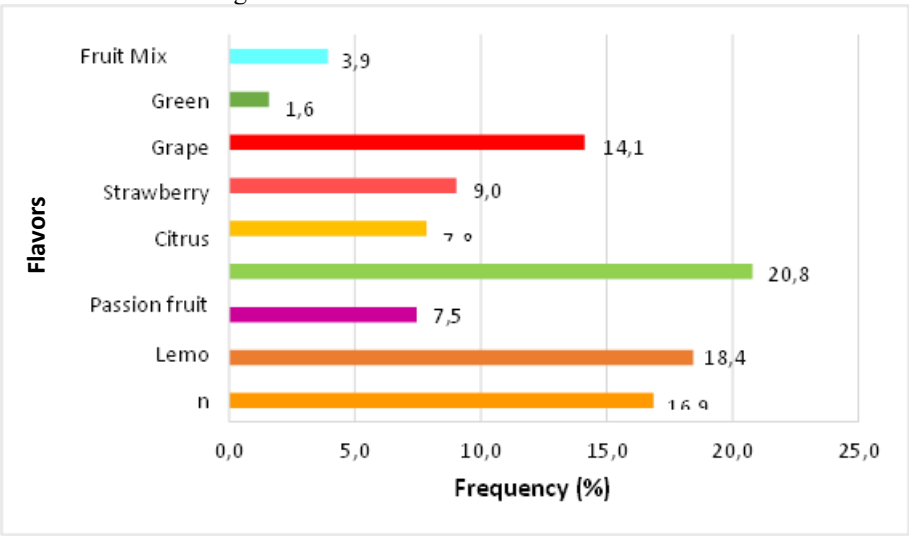
The most common flavors of isotonic drinks are lemon, orange, grape, and tangerine. There are also other options such as grapes and blueberries, strawberries-lemons, guarana-açaí and even fruit mixes (FREITAS, 2021).

Figure 9 shows that lemon flavor was the most voted option, with 20.8%, while the orange flavor option obtained 18.4%, followed by 16.9% of the choice per tangerine. The remainder, equivalent to 43.9% of the total, was divided between strawberries, citrus fruits, passion fruit, grapes,

fruit mix and green grapes.

Based on this, it is observed that according to Freitas (2021), the most common flavors are among the favorites of the research public.

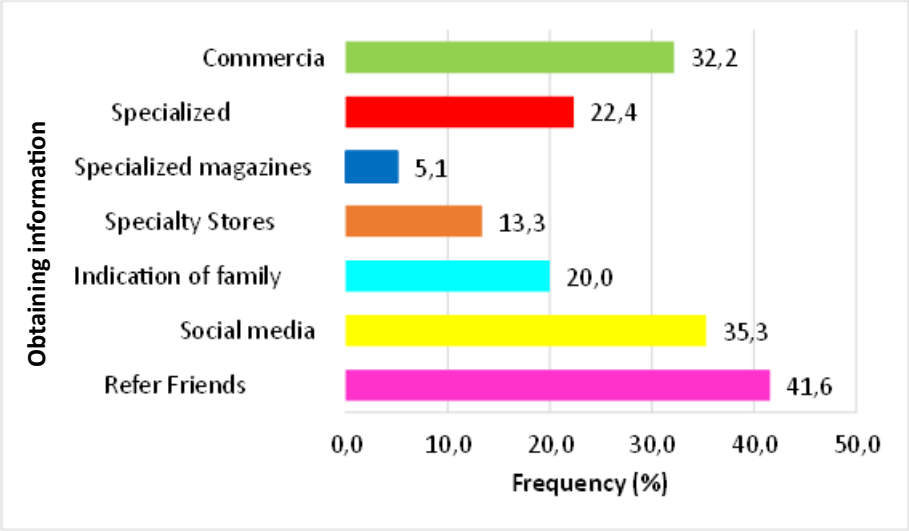
Figure 9 - Favorite flavors for isotonic drinks.



Source: author, 2021.

Figure 10 shows where participants get information about isotonic drinks. 41.6% of information is obtained through friends, followed by 35.3% from social networks and 32.2% from commercials.

Figure 10 - Obtaining information on isotonic drinks.



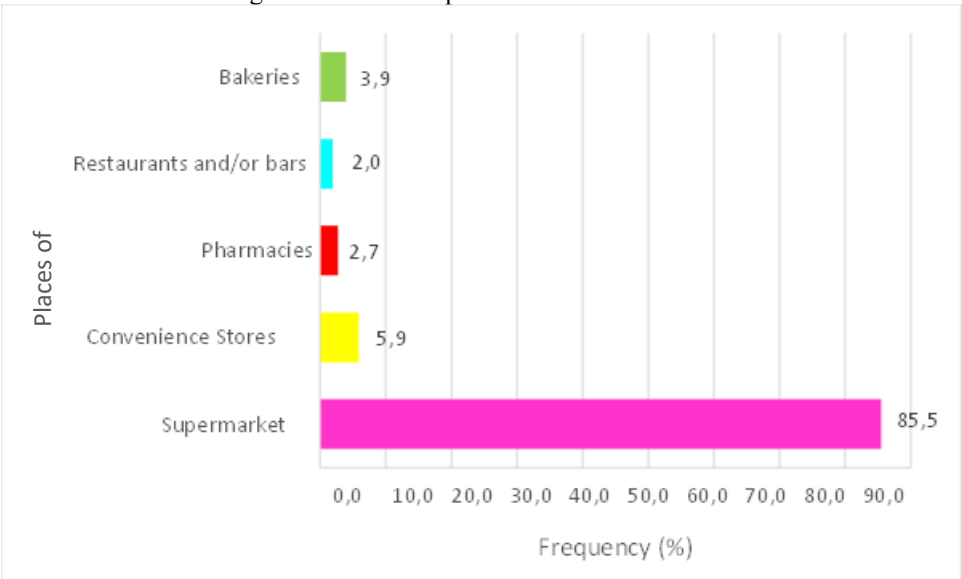
Source: author, 2021.

The way to obtain information is directly related to the decision to buy a product. Silva (2016), when studying the factors that most influence the decision to purchase a product, obtained in a first hypothesis that 63.1% of consumers purchase a product through referrals from acquaintances, followed by 19.6% from social networks and 11.7% through television advertising. It also found that price only

becomes an attribute after quality and service have been evaluated.

The present research also sought to know from the participants where they usually acquire isotonic drinks. The most preferred options were supermarkets, accounting for 85.5%, followed by convenience stores (5.9%), bakeries (3.9%), pharmacies (2.7%) and restaurants and bars (2%). In general, isotonic drinks have varied distribution channels, but the ease of access and distance to the points of sale may have influenced the result of the research. These data are shown in Figure 11.

Figure 11 - Place of purchase of isotonic drinks.

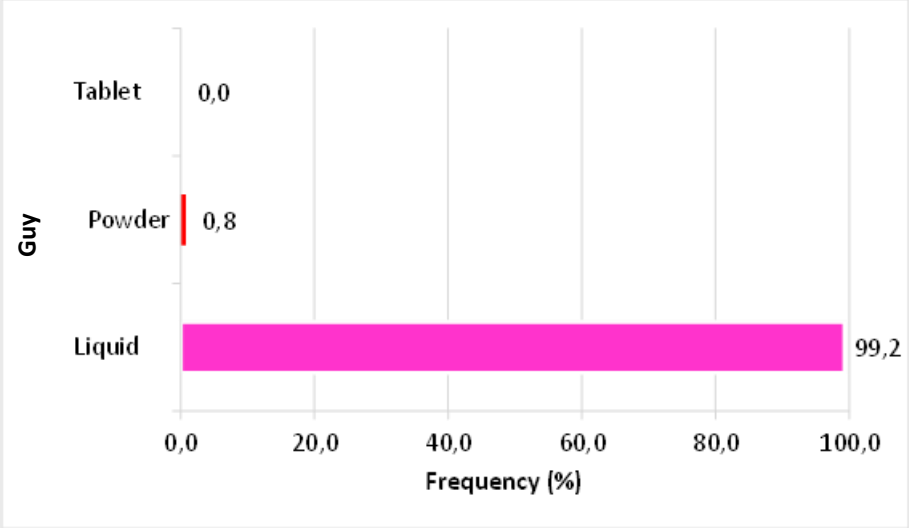


Source: author, 2021.

According to Texeira and Silva (2015), the variety of products makes supermarkets the preferred places when shopping. It also has several opportunities, conceiving choices and experimentation in the field of action of consumers.

As mentioned at the beginning of the work, isotonic drinks are produced in the form of liquid, powder and tablet. In view of this fact, the participants were asked which isotonic drinks they preferred. The majority (99.2%) opted for the liquid option, leaving only 0.8% for the powder option, since there was no choice for the tablet. Figure 12 shows the results.

Figure 12 - Preferred isotonic type.



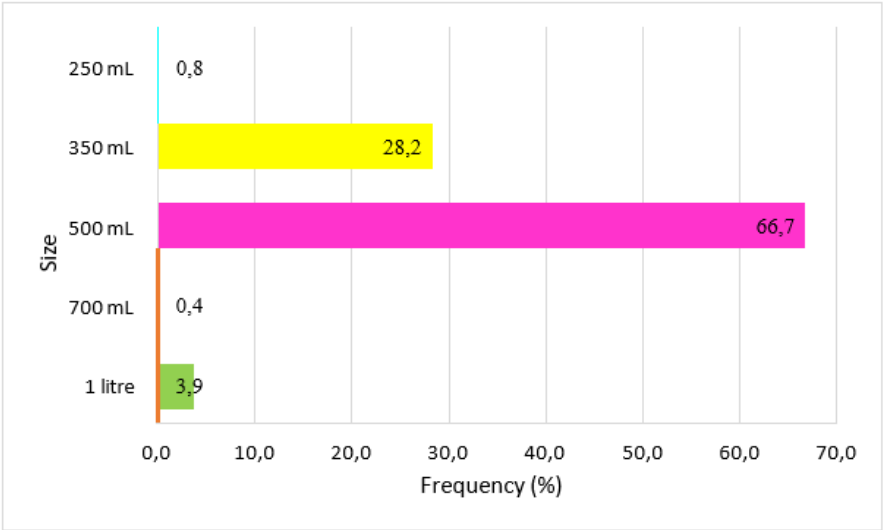
Source: author, 2021.

The preference for the liquid form may be related, since it is easier to find the ready-to-eat isotonic in supermarkets. Based on this, a lack of knowledge often causes people to limit themselves to just one option.

Due to difficulties in transporting bottles during some physical activity, a company called SUUM, developed the effervescent tablets, which after coming into contact with water, turn into an isotonic drink. This innovation, in addition to bringing practicality to the consumer, ended up serving an exclusive audience, which is unable or unwilling to carry weight during exercise (SUUM, 2020). The innovation of isotonic drinks in the form of powders and tablets is extremely important due to the fact that they are easier to preserve and for a longer period.

The participants were asked about the ideal size for the liquid packaging and the results obtained are shown in Figure 13.

Figure 13 - Ideal size of the packages for a liquid isotonic.



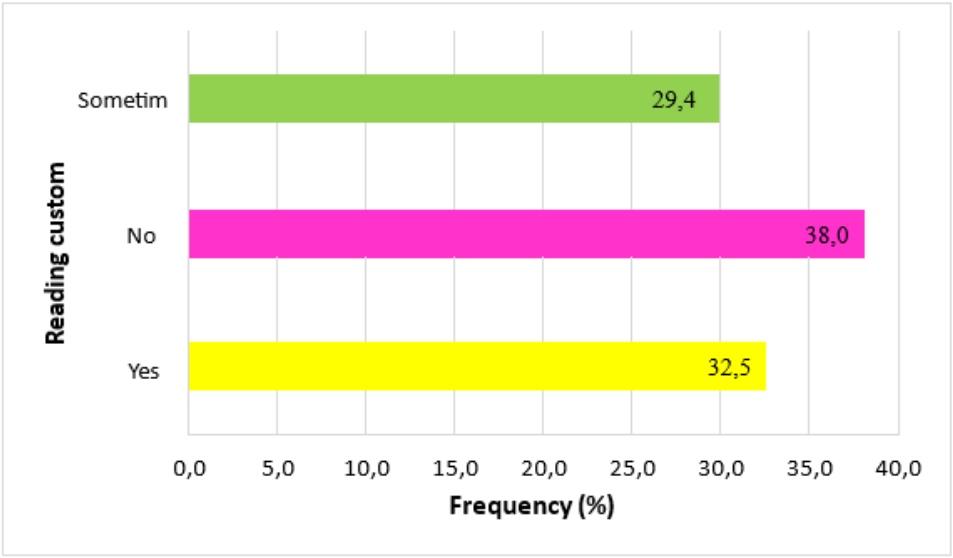
Source: author, 2021.

The volume with the highest frequency of responses was 500 mL (66.7%), followed by 350 mL (28.2%), 1 liter (3.9%), 250 mL (0.8%) and 700 mL (0.4%). This choice may be related to the size of the conventional packages already found on the market. As isotonic drinks are not consumed like soft drinks, the best option is smaller sizes, since the drink is used by athletes to replenish lost electrolytes and cannot be consumed in excess. A 1-liter container could end up being wasted, since a single person will not consume it all, as it would not be necessary to replenish. A larger package would be a better fit to be divided into a team after practicing the exercises together.

According to Moura and Lopes (2013), the consumer's decision during the purchase is often influenced by the packaging. It is through it that the consumer will choose the product among so many packaging options, it has to be an attraction in the eyes of the consumer regardless of whether he is an initiating consumer, buyer, influencer, decision-maker or user.

In order to understand whether consumers care about the ingredient list of food, we were asked if they usually read the ingredient list of the food and beverages they consume. The results showed that 38% of the participants said "no", 32.5% said "yes" and 29.4% answered "sometimes". Figure 14 shows the results of the research.

Figure 14 - Customarily read the ingredients list of foods.



Source: author, 2021.

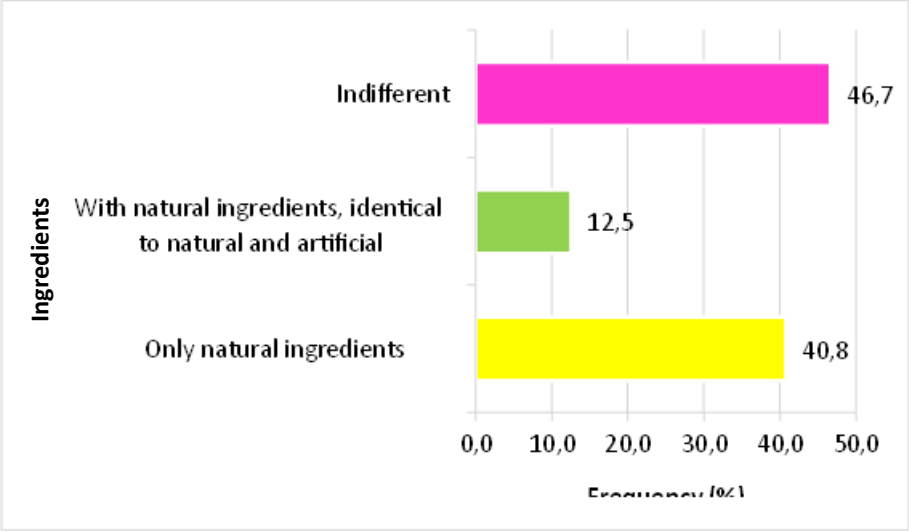
The most formal way to choose a food or beverage is through the nutritional information on the labels provided on the packages. This labeling has a vehicle for communication and connection between the consumer and the producer. When a product's information is made available in a clear and easy-to-understand way, it increases the credibility of the product and allows the consumer to evaluate whether the product is available product meets their nutritional and dietary needs (MARINS; ARAÚJO; JACOB, 2014).

But labels are only useful if the consumer reads them when buying food and beverages. Some

studies say that what hinders this reading habit is the terms used expressed in nutritional information. Due to this difficulty in understanding the labels, there is a need to develop the application of educational actions for the dissemination of information that enables a link between the product along with its nutritional information and the consumer (RESSUREIÇÃO, 2016).

When asked about the preference of the ingredients that produce isotonic drinks, 46.7% said they were indifferent, while 40.8% gave their opinion on natural ingredients. Villón Ortiz (2019) in his work identified that participants prefer the creation of isotonic drinks with natural ingredients and that when they find a healthier drink they are willing to pay more for it, as shown in Figure 15.

Figure 15 - Preference of ingredients.



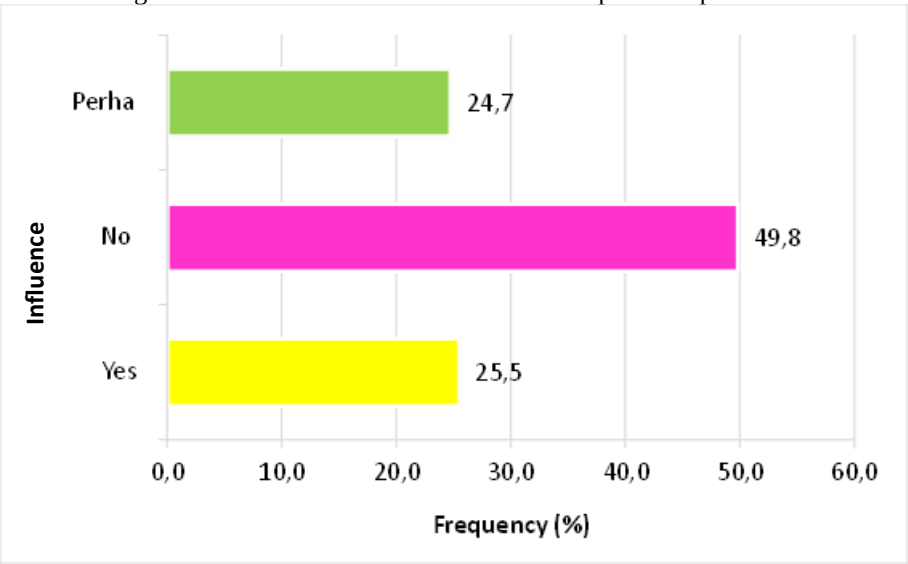
Source: author, 2021.

As the years go by, consumers are increasingly demanding, as they are looking for more products composed of natural ingredients, for the reason of sensory, nutritional quality, and "fresh" appearance (BATISTA, 2017).

According to Regulation (EU) No 1169/2011, an ingredient refers to "any substance or product, including food flavourings, additives and enzymes, and any constituent of a compound ingredient, used in the manufacture or preparation of a foodstuff, still present in the finished product, possibly in altered form (BATISTA, 2017).

It was also evaluated whether the type of sweetener used in the manufacture of the isotonic beverage influences the consumer's purchase. Figure 16 shows the results obtained.

Figure 16 - Influence of the sweetener on the purchase purchase.

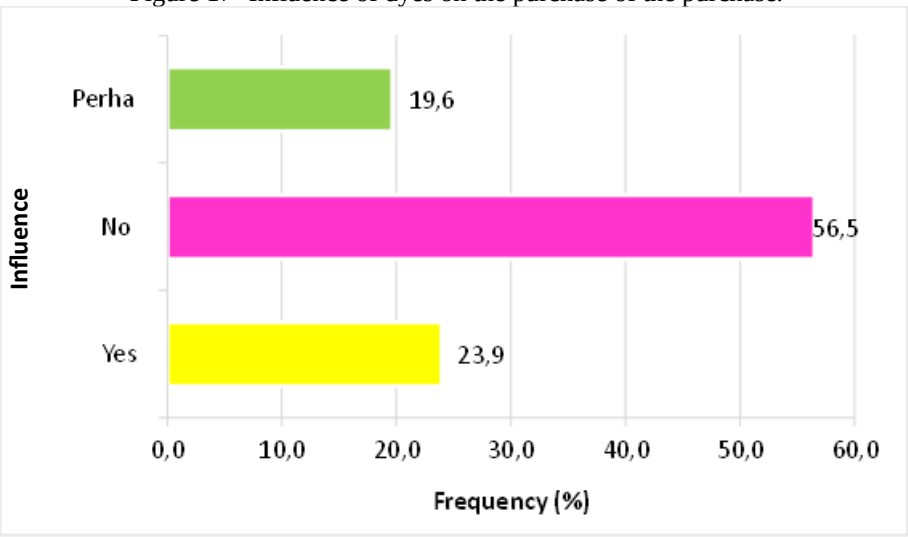


Source: author, 2021.

After analysis, it is noted that 49.8% said that the type of sweetener does not influence the moment of purchase, 25.5% care about the sweetener present in the drink and 24.7% perhaps would make a difference. As shown in one of the previous questions, consumers do not have the habit of reading labels, which may be one of the reasons why the higher percentage is negative. Another factor may be related to the lack of knowledge between the types of sweeteners.

Another question present in the research sought to evaluate the opinion of the participants in relation to the types of dyes present in the isotonic, if these influence the moment of acquisition. About 56.5% said they did not care about the type of dye, 23.9% did, and 19.6% perhaps as shown in Figure 17.

Figure 17- Influence of dyes on the purchase of the purchase.



Source: author, 2021.

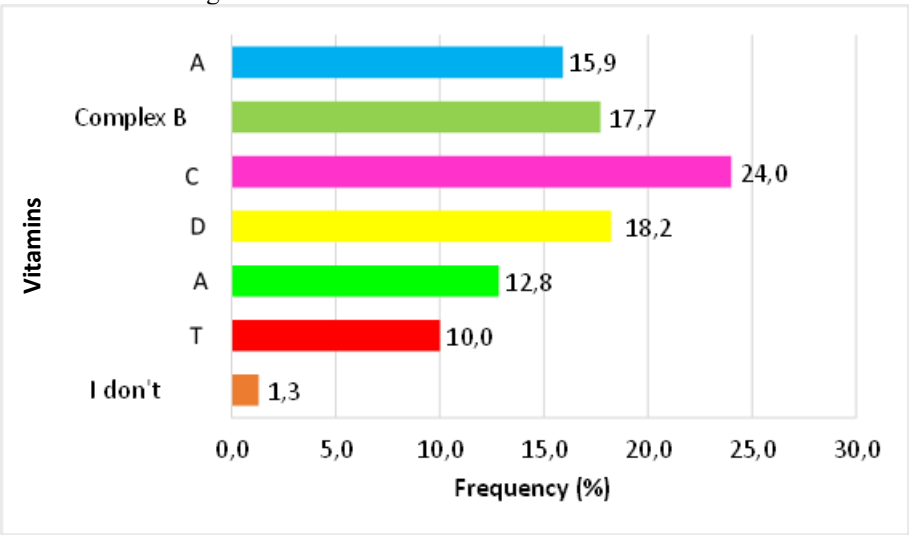
Villon Ortiz (2019), after evaluating the purchasing behavior for isotonic drinks, concluded that buyers prefer beverages with more natural fruit flavor, without sweeteners and colorings, accessible to the market with a good presentation and flavor.

Souza (2012) says that consumers buy with their eyes, thus making dyes indispensable for industries. Colorful, showy foods are more appealing to the consumer. Color has an association with aspects of our life, making us make decisions through them. The appearance, safety, acceptability, and sensory characteristics of food are all affected by color.

The dye is a strategy for industries, favoring the product and making it more pleasant. Its use is fully controlled and the maximum percentages defined by current legislation must be respected.

Isotonic drinks, in addition to hydration functions, can also be used as an aid in the control of vitamin deficiencies and disease prevention (CIPRIANO, 2011). With this in mind, the research volunteers were asked which vitamins they would like to see added to the isotonic drinks. Figure 18 shows the participants' responses.

Figure 18 - Addition of vitamins to isotonic drinks.



Source: author, 2021.

After analysis, it is possible to verify that the highest choice was vitamin C (24%), followed by vitamin D (18.2%) and B vitamins (17.7%).

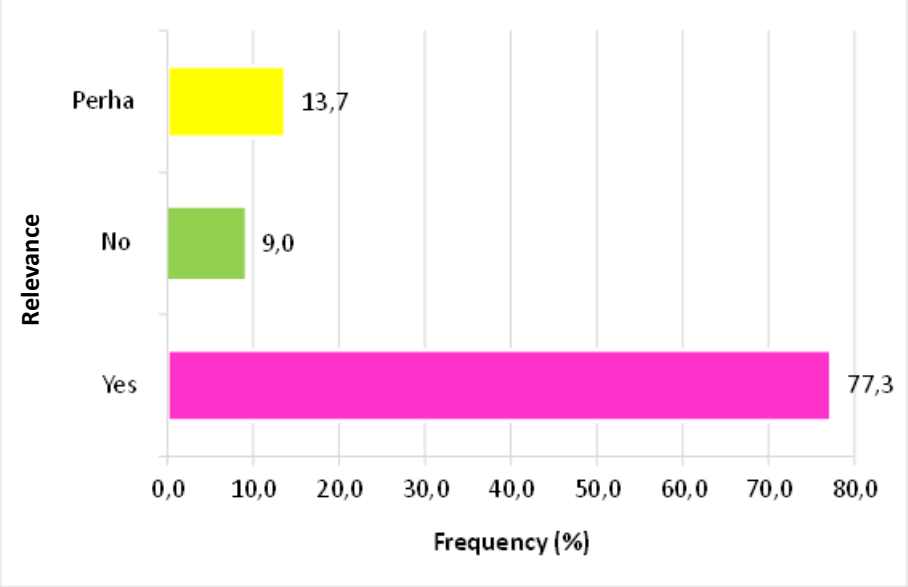
This may be related to the various benefits that vitamin C has, such as the formation of cartilage, collagen, muscles, and blood vessels, in addition to being a great antioxidant that protects cells from damage caused by free radicals and helps the immune system (SANTOS *et al.*, 2018; RIBEIRO, 2019). Regarding vitamin D, a large part of the population is deficient in it, even if acquired through sun exposure for 5 to 15 minutes, in the morning (before 10 am) or in the afternoon (after 3 pm) (DAMASO *et al.*, 2017). The great concern with vitamin D is related to the problems it can cause due to its deficiency, such as diabetes, hypertension, hyperlipidemia, and peripheral vascular disease, in addition

to cardiovascular diseases (RODRIGUES, 2019).

On the other hand, the preference for B vitamins may be related to the benefits they have for the skin, hair, eyes, mouth, and livers, in addition to helping in the normal development of the nervous system, stomach, and intestinal tract (ADDITIVES & INGREDIENTS, 2015).

The last question of the research was related to the presence of sodium. According to Figure 19, which represents the data obtained in the survey, 77.3% of the participants agreed that the information present was relevant to them, 13.7% classified themselves as indifferent and 9% said that the information was not relevant.

Figure 19- Relevance of information on the presence of sodium and potassium.



Source: author, 2021.

Many people know the importance of vitamins and nutrients for the proper functioning of the body, however, they end up forgetting that this consumption, if exacerbated, can end up causing health risks.

The results show that most of the participants are concerned about the negative effects that the two main nutrients of isotonic drinks can cause, and this becomes very relevant, since the frequent consumption of these drinks must be controlled according to the individual needs of each one so that complications of overloading of organs do not occur (SCHULER; ROCHA, 2018).

4 CONCLUSIONS

From the data obtained, it was possible to conclude that:

- Of the survey participants, only 71% consume isotonic drinks, most of them female;
- Although 73.7% of the participants practiced physical activities for a period of more than 60 minutes, the frequency of consumption is still low, since 43.1% consume rarely;

- Although many people still don't know for which audience isotonic drinks are intended, they associate it with a form of hydration and do not consider it as a substitute for any drink;
- Among the attributes considered important at the time of purchase, flavor stood out, followed by price and brand. Participants showed a greater preference for lemon flavor and for purchasing isotonic drinks in supermarkets, which may be related to the variety of flavors and a lower cost;
- As much as consumer habits are changing rapidly, the survey did not show such a high disapproval of the use of artificial sweeteners and colors, with participants being more undecided about the type of sweeteners;
- It is noted that despite the practice and frequency of physical exercise, consumption is not so frequent, which makes it clear that the participants relate isotonic drinks only as a form of hydration and not as a supplement that can help in a better performance during the practice of some physical activity.

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