



RESEARCH ARTICLE

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EATING AND ORAL HYGIENE HABITS OF FOREIGN ACADEMICS BEFORE AND AFTER ARRIVAL IN BRAZIL: A QUALITATIVE STUDY

¹Zaira Conceição Tavares Pereira, ²Gabriela Silva Cruz, ³Davide Carlos Joaquim, ³Francisco Cezanildo Silva Benedito, ⁴Erika Helena Salles de Brito, ⁴Edmara Chaves Costa, ⁵Andressa Aires Alencar, ⁶Lívia Coelho de Assis, ⁷Ana Karine Rocha de Melo Leite, ⁴Ana Caroline Rocha de Melo Leite

¹Graduate in Nursing by the University of International Integration of Afro-Brazilian Lusophony (UNILAB), Redenção – CE – Brazil

²Doctorate of the Post-Graduate Program in Pharmaceutical Sciences, Federal University of Ceará (UFC), Fortaleza – CE – Brazil

³Postgraduate of the Academic Master in Nursing of the UNILAB, Redenção – CE – Brazil

⁴Professor of the Institute of Health Sciences of the UNILAB, Redenção – CE – Brazil

⁵Dentist, resident in Family and Community Health – RIS/ESP-CE

⁶Microbiology Technique of the UNILAB, Redenção – CE – Brazil

⁷Professor of the Christus University Center (Unichristus), Fortaleza – CE – Brazil

ARTICLE INFO

Article History:

Received 12th May, 2019
Received in revised form
16th June, 2019
Accepted 26th July, 2019
Published online 28th August, 2019

Key Words:

Universities. Oral Hygiene.
Feeding Behavior. Students.
Africa. Brazil.

ABSTRACT

Young foreigners entering university are more susceptible to behavioral changes. The study aimed to determine the changes in eating habits and oral hygiene, before and after arrival in Brazil, of foreign academics from African countries, from a Brazilian university of international nature. This is an exploratory, descriptive and qualitative study, conducted with African academics from different courses and semesters. After consent and completion of the questionnaire, the content analysis technique was applied. At breakfast in their home country, academics consumed mostly bread, as well as aguapu and futi. At lunch they ate curry and fungus and at dinner cuntchur. In Brazil, biscuits and fruits were introduced for breakfast, and for lunch, salad, farofa and beans. At dinner, pasta and barbecue were inserted. The academics used coal and salt in their home country and brushed their teeth 3 times a day. In Brazil, their oral hygiene habits were maintained or little changed. It is concluded that the eating habits of foreign academics in their country of origin, although reflecting their cultural practices, may be influenced by Brazilian customs upon arrival in Brazil. However, regarding the means used and frequency of oral cavity cleaning, this influence may not exist or be limited.

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Citation: Zaira Conceição Tavares Pereira, Gabriela Silva Cruz, Davide Carlos Joaquim, et al. 2019. "Eating and oral hygiene habits of foreign academics before and after arrival in Brazil: a qualitative study", *International Journal of Development Research*, 09, (08), 29117-29124.

INTRODUCTION

Eating habits are defined according to the culture and customs of each people. In this context, the countries of the African continent, although influenced by the eating habits and gastronomic cultures of different European colonizing countries, have developed their own gastronomy throughout their history (Oktay, Sadikoglu, 2018).

In Brazil, African cuisine, brought by millions of Africans of all ages from different regions and ethnicities, has adapted to the Brazilian environment in an attempt to meet the needs of its masters and followers (Ernandes, Silva, 2013). Thus, African cuisine contributed to the institution of the consumption of different types of food, such as palm oil and chilli pepper, by the population residing in Brazil, as well as enriching the flavor of their dishes. In fact, the Africans, when preparing dishes of Portuguese origin, used the knowledge acquired from indigenous cuisine and the techniques learned in Africa. As consequence of this process of setting, Brazilian

*Corresponding author: Zaira Conceição Tavares Pereira, Graduate in Nursing by the University of International Integration of Afro-Brazilian Lusophony (UNILAB), Redenção – CE – Brazil

cuisine was constituted and improved, resulting in a richness and diversity of dishes and flavors (Mascarin, 2015). However, in recent decades, gastronomic cultures have experienced changes in the world scenario, represented by changes in eating habits of the most diverse populations. These have been consuming more processed, frozen and high-sodium foods, sugars and saturated fats (Lopes, Davi, 2016). This process, called the nutritional transition, has been attributed to the participation of factors such as economic, social, demographic and health related (Bressiani *et al.*, 2017; Vaz, Maribennmann, 2014). In the context of this transition, young people become more vulnerable, especially due to the higher consumption of fast food, due to the influence of the media (Kretschmer *et al.*, 2015) and economic, social, academic and health-related factors (Oladimeji *et al.*, 2017). This susceptibility may rise when the young man entered the University, at which he starts to experience independence from their parents and acquire new behaviors, including eating habits change (Kretschmer *et al.*, 2015). In this context, it is particularly important to evaluate the reality experienced by students studying abroad. For him, in addition to the challenges to which they are naturally exposed by the academic environment, their behaviors and habits are more susceptible to change by acting on a greater number of intrinsic and extrinsic factors (Short, Mollorn, 2015). Especially, their changes in eating habits can promote disorders in their general and oral health, which may affect their academic performance, interfere with their family (even at a distance) and social relationship and generate unnecessary spending on public services (Lopes *et al.*, 2011). These changes, if accompanied by changes in oral hygiene habits, can trigger oral pathologies capable of causing systemic complications, psychological and social changes (Silva *et al.*, 2018; Bulgareli *et al.*, 2018). Based on the above, the study aimed to determine the changes in eating habits and oral hygiene, before and after arrival in Brazil, of foreign academics from African countries, from a Brazilian university of international nature.

MATERIALS AND METHODS

This is an exploratory, descriptive and qualitative study, conducted with foreign academics, attending different semesters of the presential undergraduate courses of an international federal Brazilian university. The research was conducted in their campuses, located in the municipalities of Redenção and Acarape - CE, from October 2018 to February 2019. 23 academics of different nationalities from the following countries were included: Guinea-Bissau, Mozambique, Angola, Sao Tome and Principe and Cape Verde. Participants attended Public Administration, Nursing, Agronomy, Bachelor of Humanities (BHU), Energy Engineering, Sociology and History. All were in the third, fourth or fifth semester of their undergraduate degree. No participants were excluded from the study as no exclusion criteria were applied. After signing the Informed Consent Form (ICF), a questionnaire was filled out, containing subjective questions, addressing the following aspects: - course; - semester; - eating habits in the country of origin and currently; - means and frequency of oral hygiene in the country of origin and currently. In order to maintain confidentiality, making it impossible to identify the participant, each respondent was identified by the letter " S ", referring to the term 'student', followed by a number from 1 to 23, indicating the position he took in the study in front of him to the others.

To interpret the answers, the content analysis technique proposed by Bardin (2011) was used. This method made it possible to understand the messages and reach the meaning interpretation in a more complex and methodical way. According to Bardin (2011), content analysis should be done following a tripod, namely: - pre-analysis; - exploration of the material; - treatment of results (inference and interpretation). For the coding of the answers, the technique of record and context units was used, being the first of the type "the document", which allows the discursive questions answers to be taken as the unit, and the second, it is configured as a comprehension mechanism of the first one. To identify the categories, we considered as record units words that contributed to the creation of the categories. The context units were the message segments, used as comprehension units to identify words that were defined as record units. The study was approved by the Research Ethics Committee of an international higher education institution in Brazil, according to CAAE 59953716.5.0000.5576 and opinion number 1.937.092.

RESULTS AND DISCUSSION

After content analysis of the results obtained, from the answers to the questionnaire, it was possible to identify 3 categories, namely: eating habits in the country of origin; eating habits today; means and frequency of oral hygiene in the country of origin and currently.

Category 1: Eating habits in the country of origin

This category portrayed the food consumed daily by foreign academics in their home country. The following excerpts reproduce the different food groups ingested by them in the main meals of the day:

- S1 - *"Before I ate for breakfast: bread ... for lunch: rice and fish or meat ... for dinner: soup or rice"*
- S2 - *"Breakfast: bread with butter or egg ... lunch: rice and fish or meat ... dinner: cuntchur, soup or rice and sauce"*
- S22 - *"Breakfast: aguapu ... lunch: rice with sauce and salad ... dinner: rice, cuntchur and salad"*
- S7 - *"Breakfast: bread... lunch: rice with fish or meat... dinner: lighter badadji, kuntchur, soup etc"*
- S23 - *"Breakfast: bread with milk or juice ... lunch: rice ... dinner: rice, salad, soup or cuntchur"*
- S5 - *"Breakfast: bread or futi or nothing ... lunch: rice with fish or meat, etc ... dinner: spaghetti, bread, beans, sometimes rice"*

Based on the above statements and the Brazilian Adapted Food Pyramid (Philippi *et al.*, 1999), the foods eaten by foreign academics at breakfast corresponded to the nutrients classified as 1st, 2nd, 3rd and 4th Pyramid levels. Specifically, when assessed at these levels, breakfast consumed by academics included a source of carbohydrates (bread), protein, iron, calcium and vitamins (egg and milk), and essential fatty acids and fat-soluble vitamins (butter). The juice, being produced from fruit, was considered a nutrient of the 2nd level of the Pyramid (Philippi *et al.*, 1999). This dietary profile corroborates the study by Adesola *et al.* (2014), who observed that Nigerian college students ate, in their breakfast, foods rich in protein, fat, carbohydrates, iron and calcium. When analyzing the food most mentioned by the participants, the

bread stood out as the one that was present in all reports, including the S22 (present in aguapu), and the other participants, not pictured here. Considering this finding, there is a similarity in bread intake between the Brazilian population (Silva *et al.*, 2018), other western populations (Ponce-Martinez *et al.*, 1969) and the countries of origin of foreign students of this research. As for aguapu, this represents the intake of water with bread and sugar, and is therefore, a source of carbohydrate. About futi, it is taken as an accompaniment to rice eaten for breakfast, prepared from dried and smoked bentaninhas (*Tilapia senegalensis*), cooked and pounded in palm oil, onion and boiled okra. When evaluated its composition, it involves proteins and vitamins (bentaninhas), vitamins and minerals (onion and okra) and essential fatty acids and fat soluble vitamins (palm oil). Similar to what was observed here, in which foods consumed for breakfast belonged to the 4 levels of the Pyramid, a study by Viljoen *et al.* (2018) showed South African college students eating in their breakfast food groups belonging to all levels of the food Pyramid. According to the authors, the students consumed mainly cereals and bread, as well as bacon, eggs, milk and yogurt. Less often, they ate coffee, fruit, fruit juice, tea and soft-boiled porridge. Considering the Brazilian population, research conducted by Baltar *et al.* (2018) showed the northeastern consumption of different types of foods in their breakfast, which included: meat; egg; culinary preparations based on maize, roots, tubers or tomatoes; milk products; cookies; fruit juices; sandwiches and pizza. For other Brazilian regions, food intake was observed, such as soy-based drink, sandwiches, pizza, chocolate, dessert, cakes, cookies, milk, cheese, coffee, tea and bread. Thus, comparing the above studies and the data obtained here, the dietary profile of foreign academics in the context of breakfast seems less diverse than that of Brazilians. In addition, the foods mentioned by the participants of this research are part of the Brazilian breakfast, except the aguapu and futi. About lunch, when analyzing the speeches, it is clear the mention of rice, fish and meat by many of the participants. When the levels of these foods are evaluated according to the Adapted Food Pyramid, it is found that they constitute the 1st and 3rd levels of the pyramid. Specifically, the 1st level included rice, which is the source of carbohydrates, and the 3rd level included meat and fish, sources of protein. The reference to rice can be understood by the fact that it is the main cultivation of traditional family farming of Africans, particularly Guineans (Santos *et al.*, 2017). For fish consumption, it can be understood if the African continent, because of its extensive coastline, favors the development of fisheries in its countries (Leeney *et al.*, 2015).

Regarding the sauce, this, unlike what it means for the Brazilian population, is the mudju, liquid condiment, composed of meat, fish or other substances, which accompanies a staple food, such as rice or corn. Thus, although not clearly mentioned, fish or meat make up the menu of participant S22, resembling the speeches of the other students. Although not mentioned in the above reports, other participants pointed to the intake of beans, curry (spicy Indian spice) and fungi or pirão (food cooked from cornmeal or cassava, energetically stirred and consumed as a culinary accompaniment) at lunch. When investigating the food consumed by Brazilians at lunch time, a study conducted by Viljoen *et al.* (2018) showed that students consumed sandwiches, meat, chicken, chips, vegetables, fruits, and pies. Although not cited by the authors, it is known that rice and

beans make up the Brazilian's meal, accounting for almost a quarter of his diet (Brasil, 2014). As with breakfast, there was a lower diversity of foods eaten by foreign academics at lunchtime compared to Brazilian students. In addition, most of the foods described by the students in this research are also part of the lunch of the Brazilian population, except curry and funge. When considering dinner, it was verified the consumption by foreign academics, especially soup, rice and cunchur, a dietary profile that differed from that presented at lunchtime. About cunchur, this is defined as a puffed rice porridge (Abrantes, 2011). When these foods were analyzed, according to the Adapted Food Pyramid, they were classified as 1st level. However, it was not possible to determine the category of soup food in the Pyramid because its composition was not mentioned. Regarding the other dishes portrayed in the reports above, badadji stood out for being a food unknown to the Brazilian population. Specifically, it refers to light, soft food for sick people. In contrast to previous meals, meals eaten by foreign students at dinner time were more diverse. Some were similar to those ingested by Brazilians. For these, the literature points to the consumption of meat, chicken, pasta, vegetables, potatoes and salads at dinner time (Viljoen *et al.*, 2018). Still, based on the speeches, the dinner of foreign students seemed to be a lighter meal when compared to the Brazilian.

Thus, in general, when investigating the food consumed by participants in different meals, it was evident the mention of typical dishes of African culture. In this context, in addition to those pictured here, dishes such as *dumpling* and *milk tart* (milk pie), consumed in South Africa, are part of African cuisine; cassava (wild radish), *sazda* (boiled cornmeal) and *Mafatcooks* (fried donut), eaten in Zimbabwe; *Puff Puff* (a variety of *Mafatcooks*), couscous and bean paste wrapped in leaves in Nigeria (Oktay, Sadikoglu, 2018). Typical foods include sweet potatoes, cashews and peanuts (Temudo *et al.*, 2015; Oktay, Sadikoglu, 2018).

Category 2: Eating habits today

Similar to the previous category, it portrayed the daily intake of food by foreign academics, albeit in the current context. The clippings below reproduce these findings:

- S1 - "Breakfast: bread and milk, biscuit ... at lunch: rice and fish or meat, salad, crumbs ... at dinner: salad, soup or rice"
- S2 - "Breakfast: crackers with salt or fruit ... lunch: rice and fish or meat, crumbs, salad ... dinner: pasta, soup and bread"
- S22 - "Breakfast: nothing ... lunch: rice and meat or fish ... dinner: pasta, rice, soup or barbecue"
- S7 - "Breakfast: bread or crackers ... lunch: rice, meat or chicken ... dinner: rice, meat or chicken or soup"
- S23 - "Breakfast: cookie or bread ... lunch: rice, fish, meat, chicken, beans and salad ... dinner: soup"
- S5 - "Breakfast: banana, apple, cookie and sometimes nothing ... lunch: UR food - rice, beans, vegetables, meat and others ... dinner: UR food, rice, meat, vegetables, beans, spaghetti etc"

When comparing the reports regarding breakfast in the country of origin and nowadays, it was clear the change of the foods consumed by each of the participants and the diversification of these foods. In general, at the foreign students' breakfast, foods

such as cookies, crackers and fruits were introduced. The insertion of the cookies and cracker can be understood if it is considered that children (Santos *et al.*, 2019), adolescents (Bubolz *et al.*, 2018), adults (Baltar *et al.*, 2018) and elderly (Dourado *et al.*, 2018) Brazilians have this habit. For the inclusion of fruit, it can be justified by a behavior already incorporated by the Brazilian (Baltar *et al.*, 2018), although its consumption is still reduced (Laura *et al.*, 2018), even among university students (Lima *et al.*, 2018). Specifically, the introduction of certain foods at breakfast by foreign academics may reflect the process of adaptation to which they are susceptible. This assumption was evident in the discourse of the S20, not reproduced here, when observing the replacement of bread, consumed in its country of origin, by tapioca.

In this sense, it is noteworthy that the Food Guide of the Brazilian Population recommends eating, at breakfast, foods such as: - coffee (pure or with milk); - milk; - bread (wholemeal, cheese or French); - butter; - cheese; - cake (corn or cassava); - tapioca; - couscous; - chicken's egg; - fruit (melon, banana, papaya or mango); - plum. However, these foods should be consumed according to the number of daily servings established (Philippi *et al.*, 1999). Regarding the speech of S5, which revealed not always consuming food for breakfast, a habit already noted in its previous report, was not unexpected. This finding was accompanied by a significant increase in participants who stopped eating breakfast food. This type of behavior was also evidenced in studies with university students of different nationalities (Najwa, Appukutty, 2018; Telis *et al.*, 2018). This attitude may be related to several factors, such as: - changes in the lifestyle of the population, such as the increase in the number of individuals living alone and lack of time to eat; - lack of resources (Onyeke *et al.*, 2018) and appetite; - lack of ability to cook; - weight control (Onyeke *et al.*, 2018; Mohiuddin, 2018). Particularly, this type of behavior ignores the fact that frequent and adequate breakfast consumption can improve the individual's satiety power, reducing the total caloric intake during the day (Trancoso *et al.*, 2010). In this context, it is noteworthy that the omission of breakfast is not seen as a healthy attitude, being possible to relate it to harmful consequences to health. Lack of this habit can promote fatigue, memory impairment, increased prevalence of obesity-related chronic diseases, and increased risk of developing heart-metabolic disorders and insulin resistance (Mohiuddin, 2018). It is also possible that the absence of breakfast favors the appearance of oral pathologies, such as caries and periodontal disease, as a consequence of reduced immune response (Figueiredo *et al.*, 2014).

In addition to this inappropriate attitude on the part of the participants, there was a sudden change in food intake by the S21. Although not reproduced here, the student who, in his home country, consumed bread, tea / milk and other foods (egg and avocado), sometimes ate salty and juice as breakfast. This practice may be a reflection of the routine that the University imposes on the student. Regarding lunch, when comparing the speeches above and those described in the previous category, it was noticeable the insertion of salad, farofa, beans and chicken. Like the breakfast, there was an increased diversity of food eaten by academics at lunch, after arriving in Brazil. Regarding the inclusion of the salad, its introduction in the foreign student's diet can be understood if it is considered that the consumption of vegetables / salads by the Brazilian, although less than desirable (Canella *et al.*, 2018), represents

one of their habits, performed mainly in lunch and dinner (Canella *et al.*, 2018). Their participation in the diet of the Brazilian population can be evidenced in the study by Souza *et al.* (2013), who pointed raw salad as one of the twenty most consumed foods in Brazil. Regarding farofa, its inclusion in lunch by participants may be associated with the fact that it is a typical Northeast dish, produced from cassava, a characteristic food of Brazil (Silva, Silva, 2018). For beans, this behavior can be justified by the fact that it is the symbol of Brazilian gastronomy (Embrapa, 2018), besides having, as one of the largest producers and the largest consumer, Brazil (Conab, 2018). Regarding chicken, adherence to its consumption can be explained by the fact that Brazil is its largest exporter in the world scenario (Moura *et al.*, 2018), associated with the fact that it has a lower price when compared to pork and beef. Regarding the intake of food provided by the University Restaurant (UR), this phenomenon can be understood by the fact that most university students seek this type of service, due to the lack of time, convenience, low cost and / or good quality of the meal offered.

When evaluated the foods currently eaten at dinner, in general, they seemed more indigestible compared to those consumed in the country of origin. It was also noticeable the increased diversity of these foods. In fact, there was the addition of pasta, barbecue, meat, chicken and meal offered by the UR at dinner time. The introduction of noodles, whether instantaneous or not, can be a result of the practicality it presents. In addition, pasta consumption is a common eating habit of the Brazilian population (Neitzel *et al.*, 2018). As for barbecue, this is also considered a usual Brazilian habit, especially in festive moments (Ramos, 2018). Thus, considering the discourses of foreign academics related to the current eating habits established at lunch and dinner, it is worth mentioning that, according to the Food Guide of the Brazilian Population (Brazil, 2014), it is recommended, for lunch time, ingestion of the following foods: rice, beans, roasted chicken leg, grilled steak, fish, shank, omelet, farofa, vinaigrette (onion and tomato), lettuce, tomato and others. For dinner, we suggest: rice, beans, beef liver, thigh and chicken breast, chicken, ground beef with vegetables, pasta, vegetable soup, salad leaves, egg, omelette and others. At both meals, fruits can be added as part of them or as dessert. Thus, based on the above results, it is clear that foreign academics have changed their eating habits, which may have been mainly due to the cultural change to which they were subjected. These changes may also result from insertion in university life, an event that may coincide with the transition period between adolescence and adulthood. According to the literature, during this period, the individual tends to become independent of parents and acquire new eating habits, such as increased consumption of processed foods (such as fast foods, cakes and sweets) and decreased intake of fresh foods (such as fruits and vegetables) (Rita *et al.*, 2018).

Category 3: Means and frequency of oral hygiene in the country of origin and currently

This category portrayed the means used by foreign academics to perform oral cavity hygiene prior to their arrival in Brazil and currently.

The following excerpts reveal the means employed by participants in oral hygiene in their home country:

S1 - "Toothbrush and toothpaste"

- S7 – “Coal ground with salt and water”
 S20 - “Brush toothpaste, sometimes salt-piled charcoal”
 S16 - “Toothpaste, brush and mouthwash”
 S2 - “Toothpaste”
 S6 - “Brush”

The following speeches describe the features they currently use for oral hygiene:

- S1 - “Toothbrush and toothpaste”
 S7 – “Toothbrush with toothpaste or dental gel”
 S20 - “Toothpaste and brush”
 S16 - “Toothpaste, brush, mouthwash and occasionally floss”
 S2 - “Toothpaste”
 S6 - “Brush”

In general, foreign academics used brush and toothpaste in their home country, which can be seen in reports S1, S20 and S16, as well as others not reproduced here. Some participants reported using only toothpaste or toothbrush, as in speeches S2 and S6. Specifically, for students using a toothbrush and toothpaste in their home country, it is important to mention that these features are not sufficient for proper oral cavity cleaning. Indeed, according to the literature, besides these means, for oral hygiene, the dental floss (Silva *et al.*, 2017) and, if possible, the mouthwash (Araújo *et al.*, 2017) should be included. Regarding those who only pointed to the use of a toothbrush, this data can be understood if it is considered that brushing *per se* represents the most common mechanical method of dental biofilm control, considered as one of the main etiological factors of dental caries and periodontal disease (Casais *et al.*, 2013). However, the mechanical action of the brush on the dental surface must be associated with fluoride dentifrice, which will allow the inhibition of demineralization and bacterial metabolism in the dental biofilm, as well as favoring the remineralization of the dental structure. As a consequence, the development of carious lesions will be prevented or reduced. However, injuries to interdental surfaces will only really be prevented by flossing, the most recommended instrument for removing biofilm located on these surfaces (Mazhari *et al.*, 2018).

For those who declared the use of toothpaste only, it is possible that the use of a toothbrush is implied. However, this result needs to be clarified, since dentifrice, despite inhibiting biofilm formation, will hardly remove it physically (Andrade *et al.*, 2014). As for the use of coal in the country of origin, this behavior can be understood considering that it is a resource used as a dentifrice for many years by Africans and Asians (Gupta, Shetty, 2018). Its use may also derive from its whitening property (Lubon *et al.*, 2018), derived from its binding and adsorption to the dental biofilm (Kalliath *et al.*, 2018). Regarding salt, the literature points to its use as a dentifrice (Ravichandran *et al.*, 2018). Regarding the use of mouthwash in the country of origin, although not accompanied by the use of dental floss, this practice may result from its antimicrobial action on the dental biofilm (Rathore *et al.*, 2018). In this sense, scholars claim that mouthwashes can be beneficial in biofilm control by acting as adjuvants in oral hygiene (Farook, Said, 2018). According to these authors, rinses can be classified into bisbiguanides, phenols, quaternary ammoniums, oxygenating agents, metal ions and natural products. However, the American Dental Association (ADA) only admits phenolic and bisbiguanidine-based rinses as adjuvants in oral cavity cleaning (Farook, Said, 2018). It is also possible that other means may be used by foreign

students. In fact, research by Meyrema and Kedir (2018) showed, besides the use of fluoridated toothpaste and water, the use of toothpicks in oral hygiene of Ethiopian academics. In addition to these resources, others are also employed by the African people for oral hygiene. They include chewing sticks or miswake, matchstick, nail, floss, leaves, plant stems and others (Carneiro *et al.*, 2011; Burnett *et al.*, 2016). When evaluating the reports about the means used by foreign academics after arriving in Brazil, it was observed that students who used only toothpaste or toothbrush in their home country maintained this habit. This finding was also found among many other participants, whose speeches were not presented here.

For students who used, besides the brush and toothpaste, coal and salt, the noticeable change was the abandonment of coal and salt. Although not reproduced here, participants using toothpaste, coal and salt also exhibited this type of behavior after arriving in Brazil. For the student who used only coal and salt, these features were replaced by brush and toothpaste, and for those who used brush, toothpaste and mouthwash, he also adopted the floss, although not daily. Specifically, the abandonment of the practice of charcoal and salt may reflect the coexistence with the Brazilian population, as well as the difficult access to charcoal and ease of acquisition of toothbrush and toothpaste. Also, considering that, in general, Brazilians use at least toothbrush and toothpaste (Maganhoto *et al.*, 2015; Nadanovsky *et al.*, 2018), it was unexpected to maintain the habit of using only toothbrush or toothpaste by participants, after contact with Brazilian academics. Regarding the non-use of dental floss in the country of origin and after the arrival in Brazil by most participants, this phenomenon may result from the lack of knowledge and access to this resource, as well as the student's non-adherence to this habit foreign as well as Brazilian. In particular, this last assumption may be based on the findings of Silva *et al.* (2018). According to the authors, 85% of newly enrolled foreign students at the same university where this study took place did not floss, although most of them knew it. For Brazilian university students, the researchers reported that 50% of them did not use dental floss, although everyone knew it.

Thus, the maintenance or discreet alteration of the oral hygiene habit occurred among the participants emphasizes the statement that this habit may vary from individual to individual, taking into account the social and cultural context in which it is found and its level of knowledge. Thus, it is relevant to present to the individual the appropriate means for good oral cavity hygiene and to guide them on how to use them. However, other measures should also be instituted to promote oral health, such as the need for dental follow-up and the implementation of an adequate diet (Araújo *et al.*, 2017).

Regarding the frequency of tooth brushing in your home country, the answers from foreign scholars follow below:

- S1 - “I brushed my teeth two to three times a day”
 S4 - “After meals”
 S16 - “In the morning on waking”
 S2 - “Twice a day”
 S23 - “Two to three times a day”
 S11 - “Three times a day”

The following excerpts represent the speeches of the students regarding the frequency of oral hygiene after their arrival in Brazil:

- S1 - "I brush three times a day"
 S4 - "Always after meals"
 S16 - "Once a day"
 S2 - "Three times a day"
 S23 - "Two to three times a day"
 S11 - "Three times a day"

Based on the above reports, it can be seen that some participants did not change their brushing frequency after arrival in Brazil, while others showed a slight change. It can also be observed that the regularity of brushing performed in the country of origin for most students was consistent with what they say (Arenie *et al.*, 1976; Attin, Hornecker, 2005). According to the authors, effective brushing twice a day is sufficient for adequate oral health. However, some scholars believe that brushing should be done after each meal to reduce biofilm and dental calculus (Reis *et al.*, 2010; Kim *et al.*, 2018). In this context, assuming that the foreign student in this research divided his daily meals into three (breakfast, lunch and dinner), the fact that they mentioned a brushing frequency of three times a day makes it possible to suggest that this frequency is adequate to that adopted by Kim *et al.* (2018) and Reis *et al.* (2010). When all participants were considered, the number of students brushing their teeth three times a day in their home country increased after their arrival in Brazil. In particular, two participants brushed their teeth once a day, before and after coming to Brazil. This data differed from the study by Silva *et al.* (2018), who pointed out that all newly enrolled foreign students at the university where this research was conducted brushed their teeth at least twice a day. Based on the research by Silva *et al.* (2018), the fact that 90% of its Brazilian participants brush their teeth at least three times a day may justify the increase in the number of foreign students in this study who began to brush their teeth three times a day. Really, living with Brazilian university students may have contributed to this result.

Conclusion

From the results, it can be concluded that the eating habits of foreign academics in their country of origin, although reflecting their cultural practices, may be influenced by Brazilian customs upon arrival in Brazil. However, regarding the means used and frequency of oral cavity cleaning, this influence may not exist or be limited.

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