







ORIGINAL ARTICLE

KNOWLEDGE AND PRACTICES OF RIVERINE MOTHERS ABOUT VACCINATION

HIGHLIGHTS

1. Conceptions of riverine mothers about vaccination.
2. The importance of health education in the context of vaccination.
3. The role of the health professional in information sharing.
4. Critical reflection about vaccination practices in the riverine context.

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ABSTRACT

Objective: to analyze the knowledge of riverine mothers about vaccination and its influence on the practice of taking their children for vaccination. **Method:** qualitative/descriptive study, conducted at the Combú Family Health Unit, Belém-Pará, Brazil, with 30 riverine mothers who had children of vaccination age. Data were produced by individual interviews, whose *corpus* was analyzed with the software *Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires* 0.7, alpha 2, using Descending Hierarchical Classification. **Results:** the software generated six classes, composing two categories: "Knowledge and practices of riverine mothers about vaccination" and "Importance of health education and the role of health professionals in sharing information about vaccination". **Conclusion:** discussing the knowledge of riverside mothers about vaccination and its influence on decision-making allowed a critical reflection on the practices in the daily life of this population, providing health professionals with the opportunity to rethink strategies, especially in educational actions.

DESCRIPTORS: Vaccination; Rural Population; Public Health; Health Knowledge, Attitudes, Practice; Nursing.

HOW TO REFERENCE THIS ARTICLE:

Silva RLS da, Santos ER de A dos, Silva EMR da, Rodrigues ILA, Andrade EGR de, Nogueira LMV. Knowledge and practices of riverine mothers about vaccination. *Cogitare Enferm.* [Internet]. 2023 [cited in "insert year, month, day"]; 28. Available in: <https://dx.doi.org/10.1590/ce.v28i0.92109>.

INTRODUCTION

Vaccination is among the main achievements of mankind, representing one of the best cost-benefit relationships in health regarding the fight against infectious diseases that have threatened and/or threaten the lives of the population throughout history¹. Currently, through the National Immunization Program (NIP), the Brazilian Unified Health System (SUS) offers a total of approximately 19 vaccines to prevent more than 20 diseases. The available vaccination schedule includes not only children, but also other age groups, such as adolescents, adults, and the elderly, as well as special groups, such as pregnant women².

In this perspective, the riverine population is included, characterized as a traditional population living on the banks of rivers and as an inland population, distant from the general culture. This population represents a major challenge for SUS, given the need to meet its principles of equity, comprehensiveness, and universality in health care because it is a population that lives far from urban centers and has some particularities about their type of housing with difficult access for health professionals³.

Women who are part of the riverine population experience a different reality from those who live in urban areas of large cities, since, regardless of the proximity of these large urban centers, the way of life of riverside women is based on culture and customs, rooted in their daily lives, and that significantly influence the health-disease process and how they deal with situations inherent to this process⁴. Therefore, it is important to know and understand how these women live, think, and how these situations and cultural values influence the health care of their children.

In the context of the health-disease process, the importance of the knowledge of riverine mothers about vaccination is highlighted, and to understand how this knowledge influences the practice of taking their children for vaccination, considering that they are often the ones who seek Basic Health Units (BHU) searching for this action, especially because they are the most responsible for the vaccination of their children. It is understood that vaccination is a process that goes beyond a collective health issue, since it is closely related to cultural issues of each population that has access to it, and it can develop different meanings for various human groups⁵.

Considering the above, the objective of this study was to analyze the knowledge of riverine mothers about vaccination and its influence on the practice of taking their children for vaccination.

METHOD

This is a qualitative, descriptive study carried out at the Family Health Unit (FHU) Combú, located on an island in the Combú archipelago, in Belém, Pará, Brazil. For its elaboration, the recommendations of the Consolidated Criteria for Reporting Qualitative Research (COREQ)⁶ guide were followed.

The island is in an environmental protection area that covers about 15 km² (48° 25' W 1° 25' S), on the left bank of the Guamá River, south of the city of Belém. The FHU Combú serves approximately 530 families, which are distributed in four communities that make up six micro-areas accessed by river at 1.5 km from the city⁴.

The FHU is managed by the Municipal Health Secretary of Belém (SESMA) and develops the Ministry of Health Programs in the context of Primary Health Care (PHC) and medium complexity. It has a complete Family Health Strategy (FHS) team, composed of five community health agents (CHAs), a nurse, a physician, and a nursing technician, constituting the only health service available to serve the riverine population living in the

archipelago.

The study included 30 riverine mothers of children and adolescents aged zero to 19 years old, registered at the FHU and who were in the age group scheduled for vaccination, according to the vaccination schedule recommended by the Ministry of Health, which indicates specific vaccines for each age and need from newborn to 19 years old. This number was defined by data saturation, identified by the researchers when new elements were not found and were no longer necessary to understand the object of study⁷.

Riverine mothers who were physically and cognitively able to be interviewed were included, and those with whom it was not possible to schedule an interview after three attempts during the data production period were excluded; however, there were no exclusions. The researchers defined mothers as participants because they are socially seen as the main caregivers of their children, which is why they tend to assume most of the responsibilities related to their children's health and are the most likely to take them to health services⁸. Thus, it is understood that mothers play a key role in the vaccination of children, especially in the sociocultural context in which riverine mothers live.

Data production occurred from February to April 2022, through individual interviews conducted by the researchers, using a semi-structured script, which contained information related to the participants' profile and subjective questions to explore the object of study.

Initially, the project was presented to the coordination and the multi-professional team of the FHU so that they could get to know the research and collaborate with its operationalization. The mothers were invited to get to know the project individually, in a room previously reserved for this purpose, according to their schedule of attendance at the Unit, before or after the activity they were doing there.

With those who agreed to participate, the day and time of the interview were scheduled, which also took place in a reserved room in the Unit's facilities, ensuring comfort and privacy for the participants. Before the interviews, the Informed Consent Form was presented, with the purpose of clarifying any doubts and so that they could freely express their interest in participating. The interviews were recorded with formal consent. In contact with the community, given the pandemic context, the researchers adopted individual and collective protection measures to prevent COVID-19.

The data were transcribed to form the text *corpus*, processed, and analyzed by the freely available software interface de *R Pour les Analyses Multidimensionnelles de Textes et de Questionnaires* (IRaMuTeQ), version 0.7, alpha 2. IRaMuTeQ processes and analyzes textual data using the R software framework to perform calculations, and the Python language for statistical-based lexical analysis of text⁹. Among the analysis possibilities available in IRaMuTeQ, the Descending Hierarchical Classification (DHC) was chosen. The data were interpreted and discussed in the light of official NIP documents and the available and updated scientific literature on the subject.

The project was authorized by SESMA and approved by the Research Ethics Committee of the University of Para State, under opinion no. 5,128,100. To protect the identity of the participants, we used an alphanumeric code with the letter P, for "participant", followed by the cardinal number that indicates the order of the interviews.

RESULTS

The participants' age ranged from 16 to 50 years, with a prevalence of 20 to 27 years, 16 (53.3%). Regarding the level of education, 16 (53.3%) reported complete high school education; five (16.7%), incomplete high school education; five (16.7%), completed elementary school; and four (13.3%), incomplete elementary school.

As for occupation, 13 (43.3%) were housewives, followed by four (13.3%) self-employed. Regarding color/race, 20 (66.7%) declared themselves as brown, seven (23.3%) as black, and three (10%) as yellow. About religion, 15 (50%) were Evangelical, 14 (46.7%) were Catholic, and one (3.3%) declared she had no religion.

The corpus was made up of 30 texts, corresponding to the set of interviews conducted. 105 text segments (TS) were identified, and 82 TS were used, making up 78.1%. There were 3,632 occurrences (words, forms, or vocabularies), 705 of which were distinct words and 318 with a single occurrence.

IRaMuTeQ sized and classified the TSs based on the DHC, generating six classes through a dendrogram. To present the results and discuss them later, these classes were organized into two sub-corpus: the first, which brings together the knowledge and practices, with classes two, three, and four, and the second, which brings together health education and the role of health professionals, with classes one, five, and six. Thus, the classes composed two categories: "Knowledge and practices of riverside mothers about vaccination" and "Importance of health education and the role of health professionals in sharing information about vaccination" (Figure 1).

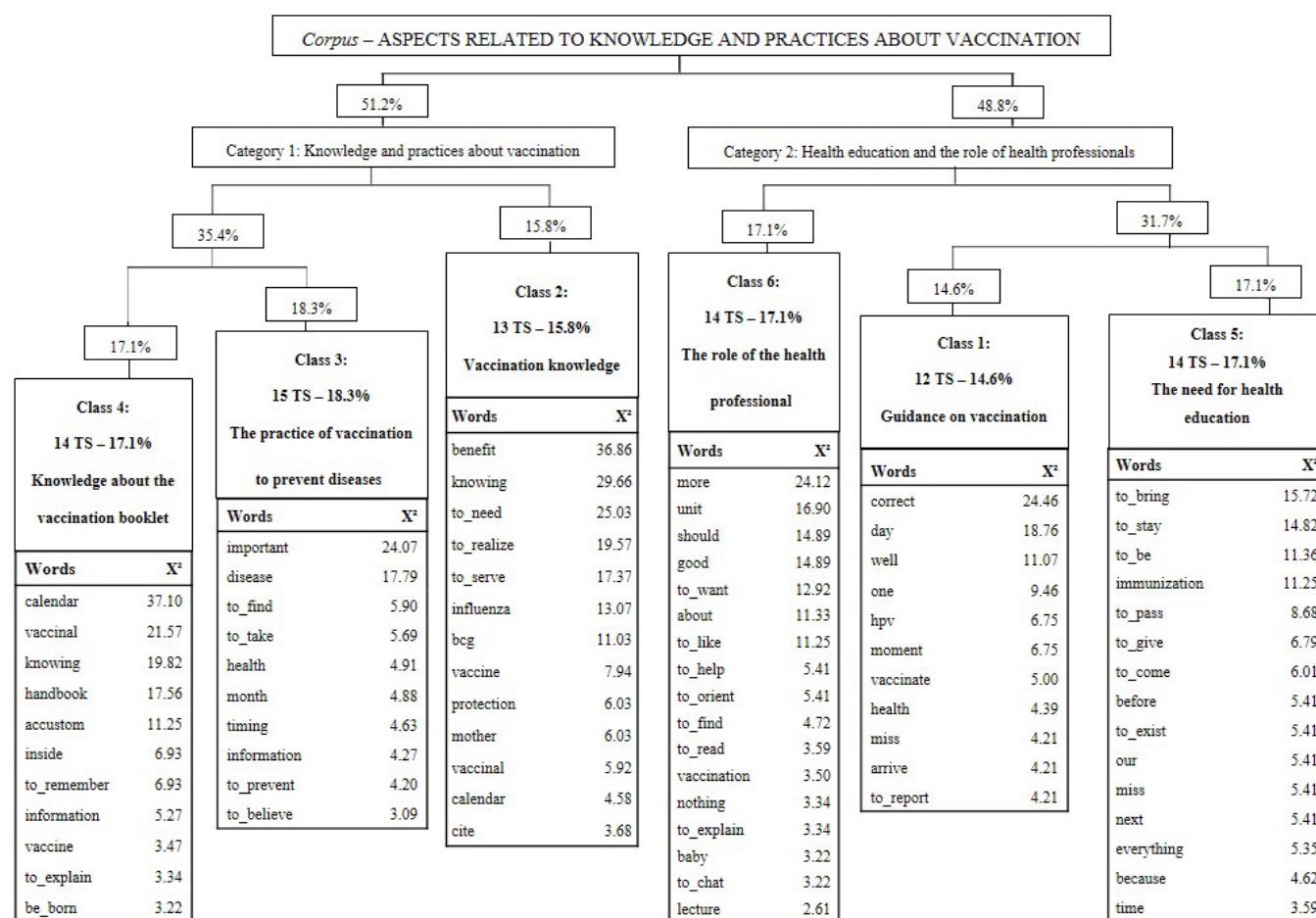


Figure 1 - Dendrogram of the Descending Hierarchical Classification of the corpus Aspects related to knowledge and practices about vaccination. Belém, PA, Brazil, 2022

Source: The authors (2022).

The first category, "Knowledge and practices of riverine mothers about vaccination", is constituted by classes two, three and four, which emerged from the first sub-corpus and built the idea of how riverside mothers act according to what they have learned about

vaccination at some point in their lives. These classes show the knowledge about vaccination and how this knowledge influences the practice of taking their children to vaccination, demonstrating the importance of vaccination for disease prevention.

Class two is related to knowledge about vaccination, being built with 13 TS (15.8%) and presenting 13 representative words (with higher frequency – f) and with higher strength (chi-square test – X^2). Words such as benefit ($X^2=36.86$), knowing ($X^2=29.66$), to_need ($X^2=25.03$) and vaccine ($X^2=7.94$) point to the understanding and recognition of these mothers regarding the importance of vaccination, highlighting its value for the protection and maintenance of the immune system:

[...] vaccination serves to make immunity higher, even because the virus is something that affects our organs, so immunization provides something perfect for us because if we get it, no matter how hard we get it, it won't be with that virus strength [...], it will be a pretty good prevention. (P2)

[...] I know that vaccination gets rid of several diseases. It serves to avoid several diseases. (P30)

Class four was built based on the grouping of 14 TS (17.1%) and presents 11 representative words. It is like class two because it also presents the understanding about the importance of vaccination, relating it to the need to keep the vaccination calendar updated to avoid future diseases and help the development of the immune system.

The approximation of representative words, such as: calendar ($X^2=37.10$); vaccinal ($X^2=21.57$); knowing ($X^2=19.82$); to_remember ($X^2=6.93$); and information ($X^2=5.27$), shows the lack of knowledge of some mothers about the immunization booklet, about the vaccines that it contains and about their benefits, highlighting that, even with this deficit, they do not stop complying with the vaccination calendar, especially for their children.

The last class that composes this category is class three, built by 15 TS (18.3%), presenting 10 representative words. The word important ($X^2=24.07$) relates to the words: disease ($X^2=17.79$); to_take ($X^2=5.69$); health ($X^2=4.91$); and timing ($X^2=4.63$), making mention of the practice of vaccination on schedule for the maintenance of their health and that of their children, mainly, in the context of the COVID-19 pandemic, when the practice of vaccination received greater attention and visibility, due to the danger of not being vaccinated and remaining susceptible to the disease for which that vaccine protects.

In the previous class (class two), the statements express the importance of vaccination to protect against diseases and, in the following classes (classes three and four), they build the idea of the materialization of the practice of vaccination, demonstrated by a complete and updated vaccination booklet according to the possibilities of these mothers:

[...] I have the practice of taking my children to get vaccinated right according to the schedule, and I consider it significant to prevent diseases, not only the flu and COVID, but for other diseases as well. (P11)

[...] it is important to take the child on time [referring to the schedule date] because, after it has passed, I think the child is already at risk. Sometimes we come even before the date so as not to be without [vaccine]. (P16)

The second category, called "Importance of health education and the role of health professionals in sharing information about vaccination", is formed by classes one, five and six, which emerged from the second *sub-corpus* and address the aspects that demonstrate the perception of the riverine mothers about the role of health professionals and the importance of health education actions, providing them with the necessary knowledge about vaccination.

Class six is related to the role of health professionals, being built with 14 TS (17.1%),

presenting 17 representative words. The representation of the words more ($X^2=24.12$), unit ($X^2=16.90$), about ($X^2=11.33$) and vaccination ($X^2=3.50$) demonstrates the understanding of these mothers about the need for and importance of the role and commitment of professionals regarding the improvement of their knowledge on health issues, especially in the clarification of doubts about vaccines:

[...] I would like to know why they need to take [vaccine], why it hurts, and about the reactions they give in the baby. I would like the professionals at the [Health] Unit to talk, clarify more about this. (P3)

[...] I would like to have more information [...] yellow fever [referring to the vaccine that prevents this disease], an explanation about the BCG [vaccine], a more specific explanation, right? Because they [the professionals] don't explain at the [Health] Post, they just tell us to read, and that's it. I think it would be good if there were more lectures about vaccination, explaining each vaccine. (P14)

Class one, related to guidance on vaccination, was built with 12 TS (14.6%), showing 11 representative words. This class is related to class five, considering that both deal with common points regarding the importance of guidance on vaccination and how health education itself can be an important strategy in this process.

The representation of the words correct ($X^2=24.46$), day ($X^2=18.76$) and well ($X^2=11.07$) brings the idea that, even with the conversations that many professionals have with these mothers on consultation days and the like, it is still necessary to deepen their previous knowledge and instigate possible doubts about the adverse reactions of the vaccine, the importance of vaccination as scheduled, and even its purpose for the health of their children and others:

[...] there are some types of vaccine that I do not know exactly what they are for, I know that it is necessary to take, but then I get in doubt what it is for, and even for us, it is not, that is adult, I know the basics that is for flu, yellow fever, these types of things that are very specific. (P16)

It was identified that class five, built by 14 TS (17.1%) with 15 representative words, addresses the need for health education in PHC, in the context of a vulnerable population on a fundamental topic such as vaccination.

The words to_bring ($X^2=15.72$), to_stay ($X^2=14.82$), to_be ($X^2=11.36$) and immunization ($X^2=11.25$) consolidate the idea of the relevance of addressing issues about immunization, further strengthening the mothers' knowledge, and contributing to the advancement of their practices in the context of vaccination:

[...] I believe it would be important that professionals explain more about the vaccines and the need for interval from one to another. When I went to get my flu shot, I asked the girl if I could get [the] COVID [vaccines that prevent these diseases] the next day, and she said no. So, I think it would be good to explain more about the vaccines and about the need for intervals. So, I think it would be good to explain more about this. I wish the professionals could orient us more and more [...]. (P8)

[...] I think that the professionals of the [Health] Unit can go on a campaign, visit the houses giving explanations and lectures about vaccination to the community. (P15)

DISCUSSION

Immunization is one of the main means to reduce morbidity and mortality of children, adolescents, and adults in relation to immune-preventable diseases. Therefore, vaccination

is a relevant care practice, considering that it has helped and continues to help fight epidemics and the COVID-19 pandemic, being the most cost-effective method because, besides preventing infectious diseases, it helps reduce morbidity and mortality indicators, and the costs associated with illness and hospitalization¹⁰.

It is known that vaccination-related care, especially for children, is often associated with the mother figure. However, mothers should not be the only ones responsible for their children's health care, including the act of taking them to receive doses of vaccines in health services, but should also include the father figure and/or other family members/guardians to share such care interactively. This active and collaborative participation provides a positive impact on the lives and well-being of children, women, the family, and the community¹¹.

However, although childcare naturally falls to the father figure, mothers are still the ones most responsible for this care within the family, a condition often associated with women's domestic occupation. In contrast to this data, it is worth noting that a portion of women have gradually gained greater work autonomy and are no longer strongly inserted in occupations exclusively focused on domestic and childcare¹¹, including in the context of traditional populations, as demonstrated in this study, which identified that a small portion of women declared themselves self-employed.

The participants recognized the importance of the practice of taking their children for vaccination, considering that they referred to vaccination as a preventive resource against diseases. And, despite their previous knowledge about vaccination, it was evidenced that mothers still expressed doubts, demonstrating the need to be guided by health professionals, since the lack or deficiency of knowledge can culminate in hesitation to take their children for vaccination. In line with other studies, this shows that knowledge about vaccination is an important factor for the decision to vaccinate children and that a deficit in this knowledge can become one of the main determinants for postponing or refusing vaccination¹²⁻¹³.

Studies conducted in São Paulo¹⁴ and Saudi Arabia¹⁵ showed that the participants knew the purpose of vaccines, their safety in clinical practice, and the main diseases that can be prevented, such knowledge being essential to child and adolescent health. These results differ partially from the findings of this study because although the riverine mothers recognized the importance of a complete and updated vaccination booklet, they were unaware of most of the vaccines offered by the NIP and the respective diseases that are prevented by these vaccines.

Several countries with universal health systems, such as Germany, Canada, Italy, and Sweden, like Brazil, offer vaccines to their populations as part of their public health programs¹⁶. In this scenario, Brazil is a pioneer in several combinations of vaccines in the SUS calendar, and it is one of the few countries that offer an extensive and complete list of immunizers. However, the high vaccination coverage, which is an essential characteristic, has been decreasing recently, such as the low adherence to vaccination campaigns among children under one year of age¹⁷, which can be attributed to the reduction of health education actions and the lack of guidance by health teams regarding vaccination, as found in this study.

Another important point and major contributor to falling vaccination coverage is the dissemination of fake news, a frequent situation in a scenario in which social media are the main vehicles for spreading adulterated or false narratives, which can influence the thinking of a large part of the population that engages in their sharing and have repercussions on their choices. In the pandemic scenario, the vaccination against the COVID-19 virus was the biggest target of unjustified allegations and, consequently, the difficulty of many people to adopt essential precautionary measures, including vaccination, was seen, and this behavior had repercussions on the issues related to other vaccines¹⁸.

PHC is one of the main responsible for vaccination actions for different human groups. Even with the advances in the coverage of this level of care by the country, some challenges

still impose themselves, especially in health care for the riverine population, not only in relation to barriers of access to services and few resources, but also in relation to the lack of permanent education initiatives with health professionals for the timely development of health education actions for the population¹⁹.

Education is understood as a determining factor in health, and it is essential that it is evidenced in all services in the form of health education for the general population. However, the poor organization of health education actions can generate problems and difficulties regarding the awareness of the importance of vaccines, especially in children and adolescents, who are a public with a large vaccination schedule²⁰. In this study, riverside mothers recognized the importance of the action of health professionals in the context of immunization, especially in a country like Brazil, one of the few to offer a comprehensive range of immunizers universally.

Therefore, the implementation of the National Policy of Permanent Education in Health (PNEPS - in Portuguese) was aimed at filling certain gaps in the training of health system workers and mobilizing them for a critical-reflexive view about the work environment, to use this education as a key aspect to strengthen the work provided and the promotion of universal health in all regions/locations where the public health system operates²¹.

Thus, continuing education is a relevant tool to improve the ways of working, encouraging health promotion and prevention of illness of users through educational actions, adjusting the service according to the demands presented by human groups, especially those with peculiar characteristics, such as riverine population²². Thus, the strengthening of health education in PHC is a key initiative, especially when it occurs from the exchange and mutual construction of knowledge, based on Freirian principles of dialogue, awareness, empowerment, learning by doing, and humanization, to develop liberating and horizontal practices that value the cultural aspects of human beings²³⁻²⁴.

Adding health education to practices in the context of vaccination is increasingly becoming a contemporary and necessary strategy, especially when it is based on sharing knowledge, helping to generate and transform thoughts and actions²⁵. Thus, it can contribute to user satisfaction, which is an important evaluation indicator for improving the quality of health services²⁶.

From this perspective, it is essential to have contact with users to know their perceptions about the services provided, to mobilize and support professionals to rethink their practices and seek the best way to serve them²⁶. Considering the challenging scenario in which this study was carried out, such reflection is important and must be reiterated by the professionals in their daily health work, since the FHU is the only health service available in the Combú archipelago.

The limitations of this study are related to the fact that it covers aspects of a specific riverine population with the territorial geography and regional extension of habitation of this traditional group, making it difficult to generalize the results and their interpretations. However, it is understood that the study can foster discussions on the subject in different realities of health care, management, teaching, and research.

FINAL CONSIDERATIONS

Based on the results of this study, it is understood that most of the riverside mothers recognized the importance of the immunization process, considering that they verbalized the need and duty to take their children to receive the vaccines proposed by the NIP, to prevent diseases. However, they were unable to inform what these diseases are, and neither could they express, even in a simple way, how the immunization process occurs in the human body.

The participants pointed out that one of the mechanisms to obtain knowledge about these aspects consists of health education actions, carried out through consultations and other forms of care in PHC. However, for them, these actions have low effectiveness because they are concentrated only in the physical environment of the Health Unit, considering the extension and other geographical characteristics of the coverage area of the Unit, as well as the number of professionals that make up the care team.

Discussing the knowledge of riverside mothers about vaccination and its influence on decision-making allowed critical reflection on the daily practices of this population. It is understood that the results of this study can provide opportunities for health professionals, especially nurses, to rethink strategies, especially in educational activities with this traditional group, favoring the clarification of doubts to benefit from the possibilities of reducing immune-preventable diseases. This may stimulate the development of more effective strategies, which avoid hesitation to vaccinate, making it possible to improve vaccination coverage and protection of the population.

The results presented here can also contribute to the development of further research, which can subsidize reflections about the health-disease process in vulnerable populations, such as riverbank populations, with their particularities and their sociocultural processes reflected in this context.

ACKNOWLEDGMENTS

We would like to thank the National Council for Scientific and Technological Development (process n.º 137145/2021-7) and the State University of Pará (Institutional Program of Scientific Initiation Scholarships, edict n.º 020/2021 - scholarship code: 31403) for awarding scientific initiation scholarships to two authors.

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Received: 09/11/2022

Approved: 10/05/2023

Associate editor: Dra. Claudia Palombo

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ISSN 2176-9133



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