Health needs of adolescents from the perspective of Primary Health Care professionals

Abstract The recognition of health needs is essential to develop public actions and policies. Objective: to analyze the recognition and the meeting of the health needs of adolescents, from the perspective of Primary Health Care professionals. Method: qualitative, exploratory and descriptive study, which analyzed 15 interviews with Primary Health Care professionals of the III Health District in the municipality of Recife, state of Pernambuco, Brazil, who have worked in Primary Health Care for a year or more. Content analysis was performed using the webQDA software. Results: five empirical categories emerged: Adolescent and adolescence, Individual and social group needs, Political and normative organization, Professional, team and intersectoral actions and Potentials and limits in adolescent care. The concept of adolescence is based on stereotypes and a fragile articulation to social, economic, political and historical contexts. The professionals recognize the demands compatible with the Primary Care programmatic actions as needs, but they do not have enough instruments to deal with the group peculiarities. The absence of goals in the Municipal Health Plan equals adolescents to other social groups and offers them the same menu of needs.

Key words Adolescent, Primary Health Care, Health services needs and demands
Introduction

Adolescent care requires planning and organization, with the collaboration of different social actors. The demographic changes in Brazil have slowed the growth of the adolescent population, although it is still the largest in the country’s entire history. In Brazil, an adolescent is an individual aged between 10 and 19 years old, who lives mainly in urban areas, contributes to the acceleration of the economy and is vulnerable to violence, early pregnancy, drug use and abuse, and sexually transmitted diseases. They have also faced a distortion between age, schooling and difficulties in accessing the labor market.

Comprehensive care should include the strengthening of health promotion actions and reorienting services, increasing the capacity to meet the needs. According to the National Guidelines for Comprehensive Care for Adolescents, it is through the use of a model of local care formulated according to regional specificities that one meets health needs. Comprehensive care should be the objective of the health care network as a whole, breaking financial, geographical, cultural and symbolic barriers that prevent young individuals from having access to health services.

In Recife, the municipality where this study was carried out, the Municipal Health Plan from 2018 to 2021 required a broad social debate about local health policies. Although the PMS indicates a set of goals, the adolescent population was not highlighted in the proposal. Despite what was defined in the PMS, Recife has a high adolescent mortality rate, when compared to other states. Additionally, interpersonal violence involving adolescents accounted for 23% of notifications from 2009 to 2018.

Given the abovementioned context, this study used the following as a research guiding question: How do Primary Health Care professionals perceive adolescents, recognize their needs and carry out their health actions, considering the flaws of local public policies? The object comprised the recognition and the meeting of adolescents’ health needs.

The present study aims to identify characteristics for the planning of comprehensive care anchored on health needs. The lack of information about the adolescent population, in their social, cultural, affective, and political dimensions and the absence of strategies that prioritize comprehensive care for adolescents justify the present study.

The aim of the study was to analyze the recognition and the meeting of adolescents’ health needs, from the perspective of Primary Health Care professionals.

Method

This is a descriptive and exploratory study, with a qualitative approach, on the health needs of adolescents, which is part of a larger project on the policies, institutions and professionals aimed at comprehensive health care for children and adolescents. To guarantee the quality of the study, the guidelines for qualitative research provided in the Consolidated criteria for reporting qualitative research (COREQ) were followed.

The study was approved by the Research Ethics Committee and authorized by the Municipal Health Secretariat of Recife. All ethical aspects were observed, the participants signed the Free and Informed Consent form and the interviews were encoded, guaranteeing the anonymity.

The theoretical and methodological framework used in the study comprised the Theory of Praxis Intervention of Nursing in Collective Health (TIPESC), a dynamic and participatory methodology, based on the historical and dialectical materialist worldview. The first two stages of TIPESC were developed, which consist of capturing and interpreting objective reality, in the three dimensions of the reality phenomenon: structural, particular and singular.

Characterizing the dimensions of a reality allows identifying protective and weakening processes and understanding how health and disease are determined, including the expression of health vulnerabilities and needs. Understanding the dimensions of objective reality provides tools for the construction of resolutive intervention projects, with the opening of new processes that modify the reality of the health of the individual and the community.

In the phenomenon of adolescents’ health needs, the structural dimension consists of national, state and municipal public policies, which directly impress on young individuals a certain way of being and existing in society; the particular dimension consists in the organization of health services and the articulation of the care network, which ultimately determines young people’s access to the services; in the singular dimension is the professionals’ understanding of adolescence, adolescents and how they perceive, welcome and satisfy health needs. In this study,
the singular dimension was prioritized, and the health needs category was used to analyze the results.

Health needs are not restricted to biological demands, such as health problems or diseases, suffering or risks. It also comprises the deficiencies or vulnerabilities related to the way of life and identity, expressed in the required condition for the enjoyment of life and health ideals, such as social and environmental aspects such as housing, food, education, employment and environment.

Individuals develop as social beings and health needs originate in the social reproduction relations. The production and reproduction relations are the basis of the health needs of individuals, thus determining the health-disease process. To recognize these needs, potent epidemiological instruments should be used to capture the production of different social groups, in addition to ethical and political competence that allows the professional to recognize what health needs are.

The scenario was the III Sanitary District of Recife, which has a PHC network consisting of eight teams located in seven Family Health Units (FHUs). All professionals with higher education (nurse, medical doctor, psychologist, dentist, physiotherapist, pharmacist and nutritionist) from the FHUs and NASF were invited to participate, totaling 51 professionals and establishing the convenience limit of one team per FHU for data collection.

The inclusion criteria were: working in PHC for a year or more providing assistance to adolescents. Data collection was carried out by the researchers, who lived in the municipality, were trained to conduct the interviews and worked at a Higher Education institution that maintains practical activities in the District. They were introduced to the participants a few moments before the interview, by a Basic Health Unit (BHU) professional, who assisted in the recruitment of professionals. The participants were interviewed in person, in a reserved space and in the presence of the researchers only, for approximately 20 minutes, using a digital recorder and field notes. The interview script consisted of a characterization of the participants and guiding questions about the attention to adolescents in PHC.

Fifteen interviews were carried out, and six other professionals refused to participate, claiming lack of interest in the study or unavailability. The entire content was transcribed by two researchers and validated by the participants who authorized the use of the interviews, without the need to redo or modify the content.

To support the qualitative analysis, the webQ-DA software and content analysis techniques were used. The coding was performed and reviewed by the researchers and for the analysis, the interviews were classified according to the participants’ characterization. Tree codes were established for the content analysis, previously defined based on the topics proposed in the semi-structured script. Other software resources, such as more frequent words, word cloud and matrices questions were applied, seeking the relationship between the content of the interviews and the participants’ characteristics. The crossing of data from the matrices showed results that were not perceptible in the manual analysis.

Results

Eleven women and four men participated in the study, all of which were 30 years of age and older and most of them were married. Seven respondents were nurses, three were medical doctors and the remainder were dentists, psychologists, physiotherapists, nutritionists and social workers; all performed assistance activities. Six interviewees had specialization as the highest level of professional qualification, eight had a Master’s Degree and only one had just a bachelor’s degree.

One-third of the participants had children; three had children under 12 years old, two between 12 and 18 years old and five had children aged 19 years or older, indicating that half of the participants had already experienced adolescence with their own children. As for the children’s gender, five participants were parents of boys, two were parents of girls and three were parents of both boys and girls.

Eight participants reported having taken courses or had training on the topic of adolescent health and all had worked in PHC for more than five years. As for the time in the current position, three had been working there for less than five years, eight between five and nine years and four had worked in the same function for at least 10 years.

The results were organized into five empirical categories.
Adolescent and adolescence

All respondents characterized the adolescent. The webQDA descriptors resource allowed us to differentiate between positive or negative characteristics and identify that the positive characteristics came only from interviews with nurses and doctors.

The adolescents were described as healthy and sought the FHU due to a specific complaint, such as the start of sexual activity, unaware of the diseases and in need of a lot of support, as they lack information. Some are interested in participating in FHS activities when family support is available, whether in cases of health problems or prevention.

On the other hand, a set of sources referred to the adolescents as being immature and fragile, uninterested, reckless, idle and with poor eating habits. The respondents also mention excessive social demands on someone still so young and the marginalization of adolescence.

Individual and social group needs

The interviewees associated the demands brought to the service with the health needs, with the most frequent ones being related to sexuality, prevention or diagnosis of sexually transmitted infections, family or prenatal planning, issues related to obesity, dental care, domestic violence, family problems and conflicts, and mental health care, which are routinely referred to NASF psychologists or to the Psychosocial Support Centers (CAPS) in the territory.

...they [adolescents] are very exposed, very vulnerable, open to everything, susceptible to everything, there are drugs among them, violence [...], alcohol [...]. If they are not having sex, drinking alcohol, smoking, they do not fit the model. So this is very dangerous, very delicate, very serious. So, imagine what this teenager will be like, a future adult and a person who is already in that context today [...]. (I4)

Other needs mentioned are not perceived as health demands, including those related to the social, economic, family and territorial context.

The problem is the social issue [...] since the systems are not articulated and we as Family Health Unit, as Primary Health Care, we cannot reach them. (I7)

Political and regulatory organization

This category identified how professionals articulate the municipality’s guidelines with the meeting of the recognized health needs. They highlighted the importance of political organization and regulations that support health actions. However, the lack of specific planning for the adolescent public and the lack of incentive for the health teams generate consequences and the adolescent’s access to the health service is compromised.

 [...] there is a child health policy, [...] we see there is Pink October, Blue November, but there is nothing aimed at adolescence. There are no actions, although we know that everyday life is much more important than an action. But I think the system is very flawed, not just the municipality; I am thinking at the national level, of investing in these adolescents, in general. (I10)

Other professionals are unaware of public health policies for adolescents and complain about the precariousness of the referral service network. They mentioned the discontinued care that weakens one of the fundamental principles of PHC, which is the bonding. There is no specific schedule, but only care of spontaneous demand.

Adolescent care is included in other policies, in women’s health policy and in sexual and reproductive health. (I8)

Some interviewees mentioned the need to expand the adolescent’s health care network, the lack of structure and support for the health teams, the lack of physical resources, a busy schedule and the lack of time as barriers to the efficient implementation of actions. This situation compromises the access of young people to health care networks in a satisfactory and effective way.

In practice, when we are faced with the situation, we are stuck in primary health care and with the problem at hand, because there is nowhere to send them. The network has [...] but it is not enough to meet the demand. [...] So it would be necessary to expand this care network, both in Primary Care and in Secondary and Tertiary Care. (I7)

Professional, team and intersectoral actions

This category sought to analyze the strategies used by respondents to satisfy the needs of adolescents, based on individual, team or inter-
sectoral work. Positive points were emphasized, such as welcoming, immunization, medical consultation, nursing consultation, dental care, follow-up with health agents and the search for articulation with the team.

Our services are ‘open door’ and, then, when the adolescent comes to the reception or when the health agent identifies, during a home visit, we try to do as much as possible to give this support, especially in matters of sexuality and psychological issues. (I7)

Others highlighted negative points, such as the lack of specific groups for adolescents and an assistance schedule. The lack of conditions to meet the health needs or offer resolutive care was attributed to the professional’s initiative and personal engagement, disconnected from the public policy context.

If it [the team] gets involved, it can accomplish anything, all you need is the willingness to do it, you know? I think this is what is missing. People are not so dedicated anymore, that interest that existed when I started. We had events, made things happen, you know? [...] it is no use working with adolescents if you do not identify with them. (I3)

The lack of partnerships or intersectoral articulation generates concerns mainly in relation to the referral and counter-referral system. Some expressed interest in seeking partnerships inside the territory and with other sectors, identifying common objectives and greater effectiveness in the predicted actions.

I think one of the things that I feel the most needed is the question of the precariousness of the network, of how things take time to be done. It is the participation of the Child Protective Services, the Public Ministry and we see situations that need to be dealt with immediately. (I11)

The School Health Program (PSE) stood out for contributing to the development of actions, increasing access to the adolescent public by PHC and an opportunity to help the adolescent by being able to carry out activities at school and work on themes relevant to adolescence.

The bonding I have here is with the municipal school, that is where we provide the PSE program and we routinely go there, and their presence, those who are at school, they are really well tutored, even by the principal, regarding school absences, a rebellious attitude, they [adolescents] are always under control. (I2)

**Potentials and limits in adolescent care**

The potentials are located in the FHU, represented by access, welcoming, scheduling consultations, free demand and the trust placed in the team, capable of expanding the field of care and increasing the offer of services in the areas covered by the FHU. The professionals highlighted facilities for consultations at the FHU with a dentist and a nurse, appointments for gynecological prevention and welcoming, important moments for listening, precisely because it makes it possible to meet the health needs that are not directly associated to the biological body. However, the content of some interviews describes the full meeting of health needs in contradiction to the problems reported regarding the structure and resources of the service and the municipality.

You see, they [the adolescents] are taken care of and all their needs are addressed. Any adolescent who comes here is able to schedule an appointment in the same week [...] there is no delay for consultations, either with a nurse, or with the doctor [...] and when they come, we approach the whole thing, we make the exams, also provide guidance about some specific situations and refer them to a more specific professional, when we deem necessary. But this depends a lot on the spontaneous demand, on their seeking, if they do not come seeking, in fact there is no care. (I4).

As a limitation, there is a concern regarding the inefficiency of the network, referrals and the scarcity of appointments for specialized outpatient consultations. The lack of a public policy aimed at adolescents and the difficulties in welcoming cases of greater complexity also have an impact on care. One perceives a rupture in the care model that goes from late childhood to adulthood, without considering adolescents as a priority group.

Exactly that, the lack of a specific policy for you to be [...] supporting these adolescents. I think that is missing, a more effective and efficient policy to meet this demand, which is unfortunately forgotten. (I10)

The lack of structure at the FHU, the intense routine due to the high demand for work and the lack of specialized professionals were highlighted, among other aspects that hinder health promotion and disease prevention actions. Regarding the structure of services, there is the difficulty of professionals in finding permanent education actions. The participants’ speeches demonstrate the unpreparedness felt by the health team to as-
sist adolescents, which culminates in the disinterest for the topic.

Because unfortunately, the problem is a national, political, and social one, and we cannot do it as a health team, as Primary Care, we can’t move forward [...]. And within the Family Health, we have many limitations. For several reasons, because of the demand, of professional training, which we know is important [...]. We need specialized professionals who can provide greater support, [...] even services for these adolescents to use. (17)

Other professionals complained about the lack of adherence by adolescents and many consultations are carried out on demand, focusing on the complaint.

The difficulty [...] is precisely [...] adherence to treatment or advice. You can give the referral, and it can be scheduled for that date, with such professional, in such a place. And it took us a lot of work to get it, and they [the adolescents] do not show up. (113)

Discussion

It is important to start this discussion by reinforcing that comprehensive care is the foundation for obtaining a better quality of health promotion, prevention, recovery and rehabilitation actions11. The interviewees recognized the potentials and difficulties that compromise the comprehensive care of this population. There is a circular relationship between the production of health services and the meeting of needs that occurs through the consumption of the actions4. In this sense, the absence of specific actions for adolescents in the Municipal Health Plan is reflected in the participants’ speeches, who recognize the demands covered by PHC programmatic actions as needs, even if limited, without, however, having powerful instruments to deal with the peculiarities of the adolescent population.

The characteristic of the participants who have been working in PHC for more than five years, with training in adolescent health and a master’s degree shows a structure of human resources in health that is potentially prepared to develop effective and transforming actions in the territories. However, they lack normative guidelines, municipal public policies and technical support.

Some interviewees highlighted the adolescents’ lack of knowledge about care of their own health. It is noteworthy that the construction of knowledge for health care with adolescents should be based on playful strategies, such as music, dramatizations and videos, valuing the educational experience in groups, building shared knowledge, strengthening the bond with the team and, consequently, having greater possibilities for intervention12.

When analyzing the results under the generational approach, it is pertinent to consider that, just as the experiences occur in different ways, the generations are also not homogeneous. There is an influence of the biological rhythm, but that does not define a generation alone13. Therefore, the professionals are faced with users who demand specific care and the understanding of the generational aspects did not emerge in the interviews. The generational clash occurs between professionals and adolescents, also in the recognition of vulnerability and the meeting of needs and, consequently, in the empathy to propose interventions. The experiences related to the adolescents’ health-disease process need to be explored and valued in the creation of actions, strategies and public policies, in contrast to the prescriptive and imposing model of health care.

At the phase of life characterized by vulnerabilities, adolescents are exposed to violence, accidents, neglect, lack of protection, affective and social abandonment, inadequate housing, social exclusion, issues related to sexuality, difficulty in having access to culture, education and health services14.

The interviewees mention the importance of the social aspects but speak little about their actions in this context. It is essential to consider the historical, social and cultural aspects to understand the adolescents’ needs and see them as participants in their own history and agents of transformation in society. For that purpose, the adolescents must be perceived as social, critical subjects, where they can exercise participation and autonomy to develop their citizenship and consolidate values15. The engagement of the teams in the creation of participatory and emancipatory strategies is a powerful path to be followed.

Danish researchers analyzed records of non-specific complaints of pre-adolescents, considered an indicator of low well-being. They concluded that children with frequent non-specific complaints and low self-assessment use primary care services more often than children without complaints or with good self-assessment. They also emphasize that the increase in non-specific complaints is a global phenomenon and requires early interventions to prevent morbidities and an
increase in health costs\textsuperscript{16}. Considering the results of the present study, the structure for monitoring and prevention actions is an urgent necessity. The reports indicate that actions must be carried out primarily on spontaneous demand, with limited and curative actions.

Actions focused on attention to the biological body were more easily perceived as health needs by the participants. The professionals pointed out difficulties to carry out interventions in complex health situations, either due to the lack of training or the lack of resources. A study that explored the perspective of adolescents’ parents on the vulnerabilities identified a relationship with exposure to drugs, early sex, inadequate eating habits and need for access to health services. Although parents prioritize medical and dental consultations, educational actions are appreciated and considered important in the health care of adolescents\textsuperscript{17}.

From the perspective of adolescent attending public schools, the lifestyle was the reason for seeking health care, described positively by physical and psychological well-being, nutrition, physical activity, and negatively by the vulnerability represented in drug use and abuse. Adolescents, despite labels and stereotypes that are reinforced daily, have worldviews imbricated in critical and political positions, influenced by the lifestyle and they do not fit the institutional protocols that do not consider listening and participation as priority elements\textsuperscript{18}.

A study carried out in northeastern Brazil identified that the young population of a territory treated by the Family Health Strategy (FHS) seeks PHC services and participates three times more often in educational and preventive actions than the population outside the coverage area. The areas covered by the FHS are more socially vulnerable and, therefore, the actions go beyond biological complaints and are consistent with the principles of the FHS, indicating the potential for equity\textsuperscript{19}. In the present study, the bonding and access of adolescents to the service, described as positive points, constitute a potential for the structuring of care focused on the group’s health needs.

In another sense, a study carried out in southeastern Brazil sought to discuss the difficulties of adolescents in perceiving the FHU as a space for health production and promotion. The lack of adolescents at the service was explained by the lack of welcoming and bonding. We highlight the need for the health service to overcome the pathological view of adolescence, always characterized as a turbulent period, of crises and rebellion, and to establish a commitment with the adolescent, valuing their expanded knowledge about health and about the territory and their capacity to contribute to care planning\textsuperscript{2}.

The participants acknowledged that there are broader needs than those expressed as demands, but they did not indicate potent instruments to legitimize these needs and to satisfy them, always returning to the biopsychosocial approach. The problematic perception of adolescence is aggravated by speeches about the adolescent as an inept, unprepared and incomplete subject, with an invalid assertion and invisible needs. Adolescence as a generational category cannot be analyzed solely by the chronological focus, although this is a frequent approach in the literature, as pointed out by authors of an integrative review on violence by intimate adolescent partners\textsuperscript{20}.

The importance of bonding, dialogue and family support in issues related to sexuality was observed. A study carried out in southern Brazil described the importance of the pregnant adolescent’s family, as a fundamental support point. Although the adolescents have an initial support from friends and people not connected to the family, the support is effectively established by the parents and closest relatives\textsuperscript{21}.

One way to reverse the reification of needs, seen as the process of naturalization and historical decontextualization of demands, is the search for social ways of overcoming\textsuperscript{1}. The transposition of the focus on the adolescent by the adolescence category becomes a viable path. By expanding individual actions into the collective, with participatory, aggregating, emancipatory, informative and constructive strategies, it is possible to bring the health service closer to the expectations and needs of adolescents.

The work process of the teams has shown unsatisfactory results, as observed in a study carried out in the state of Minas Gerais. The components related to care and the monitoring of health conditions by the PHC showed to be insufficient in relation to the performance in the territory\textsuperscript{22}.

A review study carried out by Chinese researchers on mental health policies for adolescents in low or middle-income countries, identified aspects that define the inclusion of the topic in the local political agendas: problems such as low political awareness and will, lack of prioritization of the adolescent population problems in the presence of other diseases that affect adults, the professionals’ reluctance of participating in political debates, the adolescents’ legal incapacity
to advocate on their own behalf and defend their rights and needs, social and cultural values translated into stereotypes about adolescence, among others. The authors point out that the participation in non-governmental organizations supplies or minimizes the lack of care services, but on the other hand, they obscure the urgency of public policies, favoring the fragmentation of local actions and plans25.

Intersectoriality is a complex act, but important as a political strategy to expand actions with good quality. The PSE was mentioned as a potential means to reach the adolescents. The organizational values and cultures of both services are different and must be considered when planning joint actions to achieve effective results. Agreements and collaborations with new partners are essential to produce conditions of care, protection and well-being for adolescents24. Health actions promoted at school can strengthen the protagonist role of adolescents, although they depend on the combination of knowledge, structural conditions, organization of the sectors and spaces involved, teams and professionals25.

The interviewees’ services do not have a favorable structure for the adolescents’ access and permanence. Among the reasons for not seeking the health services pointed out by adolescents from the state of Bahia are geographical and organizational barriers that involve the lack of the required care, dissatisfaction with the care provided or access to private health plans that suppresses the search for PHC27. The lack of physical resources has been reported. For effective comprehensiveness, knowledge about the reality of the assigned community and the collective work must be expanded through teamwork – multi-professional, transdisciplinary and intersectoral, overcoming the sporadic character of the actions26.

The interviewees highlighted welcoming as a fragmented activity, which is not integrated with the others and does not favor care. Welcoming, a communication action, the act of welcoming and listening to the population seeking health care networks provide appropriate responses to each demand and throughout the search trajectory27. Welcoming favors the relationships between health professionals and adolescent clients, when they seek the PHC in any situation, but it presupposes the team’s willingness, organization and training to evaluate and assist, seeking as much resolutivity as possible29.

The referral to the care network was considered deficient, with the exception of CAPS, a referral service for mental health demands. Although the PHC is the gateway to the network and the matrix support responsible for referrals and monitoring, a study carried out in a municipality in the state of Minas Gerais identified that the network deficiency has as direct consequence the intersectoral and intrasectoral isolation of the CAPS, which now adopts a position central to Mental Health Care, dissociated from the PHC29.

The lack of commitment by the professionals was questioned by the interviewees and the personal initiative was considered a way to achieve positive results in care. However, from the perspective of comprehensive care for special populations, it depends not only on the professionals who carry out the care actions, but also on the managers, responsible for the planning of human and material resources of the services30.

**Final considerations**

The present study sought to analyze the recognition and the meeting of adolescents’ health needs, from the perspective of PHC professionals. The results showed that the understanding of adolescence is based on stereotypes and a fragile articulation with social, economic, political and historical contexts, limiting the recognition and the meeting of health needs. Health production spaces must incorporate training into planning, hold debates about adolescence as a generational category, understand the concepts of health and disease, the potential for strengthening and weakening that can anchor transformative interventions.

In itself, adolescence is a period of significant individual changes, but one that depends on collective strategies to meet the needs. Adolescents constitute a category, and this makes them potent for collective growth and vulnerable to the impacts of the macro-social context. Vulnerability, in turn, is felt and recognized by health services as an individual demand, making it difficult to modify the collective deterioration potential.

The needs reported by the participants reveal the limitations that the Municipal Health Plan imposes on the health work process. The absence of specific goals for adolescents puts them on an equal footing with other service users, offering them the same menu of needs. One questions whether adolescents are invisible or whether health services, since their implementation, are unable to recognize this population, their needs and to meet them.
Therefore, the reported demands related to family planning, STIs and family conflicts, although recognized, do not extrapolate the routine of health actions, while other topics relevant to adolescents are left out due to the impossibility of meeting them.

The study limitation is the participation of a single district in the municipality. The interviews, although enlightening, lacked a deeper understanding of some topics, such as other needs discussed in the literature and which were rarely mentioned, such as violence, use and abuse of alcohol and other drugs, marginalization and involvement in crime, which justify continuing studies, to disclose new knowledge and the use of resources available in the utilized software.

Collaborations

MR Apostolico contributed with the study concept and design, methodology, data analysis, conclusions and final writing of the manuscript; RP Barros, PRCM Holanda and ADS Sousa contributed with the study research, data analysis, methodology, conclusions and final writing of the manuscript.

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