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Change-inducing interventions in health education settings

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Abstract *The article aims to analyze the participants' perception of the effect of interventions developed within a project nested in the Support Program for Institutional Development of the Unified Health System (PROADI-SUS). We adopted normative assessment from the perspective of a qualitative research approach. Twenty-one health professionals from five intervention projects representing the five Brazilian regions were involved in the research. The changes perceived and made tangible were identified as a result of the interventions. Among the conclusions, we underscore a convergence between perceptions and intentions of the evaluated project.*

Key words *Intervention project, Residency, Change and Health Education*

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Introduction

The interventions – commonly understood as interdictions or impositions – in this work are employed as actions undertaken to obtain changes in a specific reality. Minayo[1], in short, conceives change as the result of some social or pedagogical intervention on institutions and stakeholders.

Intervention actions can unfold into innovative activities not usually envisioned by community members. In cultural, social, political, and ideological terms, interventions can drive action toward collective confrontation of community issues[2].

Within policies and programs, an intervention – in specific spaces and times – can be translated into an organized action system to resolve a problematic situation involving

agents (the stakeholders); a structure (the set of resources and rules, which exceed the stakeholders' control); processes (relationships between resources and activities), and an objective (the future state towards which the action process is oriented)[3](p.61).

Building on Guba and Lincoln, Champagne *et al.*[4] note that any assessment device is an intervention, just as healthcare can be considered an intervention[4]. Expanding this idea, we place the interventions predominantly in the field of fourth-generation assessment.

Guba and Lincoln[5] affirm that fourth-generation assessment seeks to transcend the preceding generations focused "on measurement, description, and value judgment, to encompass a level where the main dynamic is negotiation"[5] (p. 13). The authors believe that fourth-generation assessment is anchored in two essential elements: responsive approach (determining which questions should be asked and what information should be collected from information in groups of interest) and constructivist methodology (based on the assumption of a reality people build under the influence of cultural and social factors that produce socially shared constructions). From this perspective, the assessment is not restricted to an expert since technical, practical, and liberating interests converge, appearing as a negotiation process[6]. Gomes and Lima[7] observe that:

Although the fourth-generation assessment has included plural values in "what to evaluate", this is still one of the biggest challenges, as it directly affects the concentration of power of those who, conventionally, define what should be evaluated according to their values and interests[7](p.329).

Also, in the intervention-evaluation relationship – based on Patton – assessment: (a) does not focus only on results previously predicted by interventions within the linear cause-effect logic; (b) facilitates the emergence of transformation processes and (c) helps people learn to think evaluatively to guarantee a more lasting impact than specific results generated during the very assessment[7,8].

In this sense, intervention is understood as the product of the relationship between stakeholders, structures, and processes in a given context and moment, considering their singularities, with the expected result of changing this reality[9].

In the educational field, if we consider that "teaching requires understanding that education is some type of intervention in the world"[10] (p.96), building an intervention plan represents a concrete opportunity to translate actions into the transformation of reality.

The Hospital Sírio-Libanês (HSL) has been developing experiences that associate the training of professionals with intervention projects under the Support Program for the Institutional Development of the Unified Health System (PROADI-SUS), in partnership with the Ministry of Health (MS) and with the participation of the National Council of Health Secretaries (CONASS) and the National Council of Municipal Health Secretariats (CONASEMS). One of the main experiences is the Development of the Residency and Preceptorship Management Programs in the Unified Health System (DGPSUS) Project developed in all federated units in the country[11].

The priority objective of this project is qualifying health residency programs and preceptorship of residents and undergraduates in the SUS. It employs the so-called active methodologies as one of its structuring axes. Such methodologies are used in training health professionals who participate in the DGPSUS and interventions in the actual context of the world of work of the participants trained by the project. Intervention proposals are materialized through Intervention Projects (IP), which are technical-scientific and political work oriented towards changes in a given reality from the identification of management, health, and education needs in the health and educational territories of the participants.

In the IPs, the object of study and learning focuses on problems linked to the concrete reality of the participants and a proposal for intervention to address these problems. Its formulation seeks to articulate knowledge and action[12] to

propose and implement technical and political responses geared to best practices in the SUS. Hence, there is a mediation between knowledge, actions, and policies[11].

This production is built on the SUS principles – universality, equity, comprehensiveness, and social participation; the clinic management guidelines[13,14], targeting comprehensiveness, humanization, and quality of care; the constructivist approach to education, supporting the transformation of practices; and collective and participatory management.

The intervention within the DGPSUS is unrelated to clinical research or experimental studies in general. Its conception is associated with social management, whose central axes are participation, dialogue, deliberation, and emancipation[15].

As part of this broader project, this study's object is the perception of the possible DGPSUS effects in the residency programs and undergraduate internships in the host municipality/region part of the 2018-2020 triennium.

When dealing with an effect analysis, we should distinguish two critical concepts, per Champagne *et al.*[16]: analysis of effects and normative assessment. The authors argue that:

The effect analysis is interested in the set of possible effects of an intervention, while normative assessment is only interested in the effects sought by the intervention [...] The object of effect analysis is the causal relationship between services and effects. At the same time, normative assessment does not examine this relationship and is limited to comparing the observed effects with the expected results[16](p.159).

The present study is related to normative assessment. Thus, the central question is: Is the perception of participants involved in DGPSUS interventions regarding post-intervention effects related to the results initially expected by the intervention projects?

From this perspective, this article aims to analyze the perception of participants involved in DGPSUS interventions and the expected results for interventions within the original intervention projects conceived by the Project in the 2018-2020 triennium.

In terms of expected results, understanding that the investigation's objective is a program to support changes in health education in the Unified Health System (SUS), we expected to find results that indicated a change in the reality of preceptorship in health undergraduate courses and residencies and the management of residency programs.

In summary, the study hypothesizes that intervention projects in preceptorship and residence management with tangible results and whose actions have continued to promote changes in the settings of professional training practices.

Methods

Theoretical-methodological framework

We opted for the concept of change as a framework for our study. Minayo[17] points to change as a critical social intervention and program assessment concept. When reflecting on social change, the author observes that some social scientists associate this concept with simultaneous transformations in social organizations and mentalities. In contrast, others focus on changes resulting from specific interventions.

Related to these two logics for thinking about change, we mention Haferkamp and Smelser[18], who mention that there appears to be a point of tension between the search for general theories and conducting specialized studies within social change studies. These authors argue that any theory of change must encompass three interrelated elements: (i) structural determinants of social change; (ii) social change processes and mechanisms; and (iii) social change directions. They draw attention to the fact that the accumulated consequences of sequences preceding change are among the structural determinants of different processes of social change.

After discussing social change, Minayo[17] focuses on changing educational and social interventions and values. Even at the risk of falling into a simplistic view of the subject, we highlight some ideas from this author and Terrén[19], and the dialogue between the two authors. Seeking to understand educational change and its context, Terrén observes that such change

can be seen as an exhaustion of Enlightenment concepts of progress and rationality, or as the advent of a new economic era of disorganization and flexibility in the economic domain, or even as the abandonment of classical methodologies in producing and managing knowledge[19](p.11).

Advancing his analysis, Terrén situates the crisis of some educational parameters in understanding social change through the cultural, socioeconomic, and organizational dimensions. With an essential highlight regarding this crisis, Minayo observes that "it was not the education values that went into crisis but rather its tradi-

tional praxis"[17] (p.61). The author highlights this to confirm that, more than ever, formal education is a powerful indicator of human development in society.

Terrén presents us with the "post-bureaucratic paradigm", currently a draft, to advance educational change. He argues that this paradigm:

Is thus characterized by its emphasis on specific short-term objectives, structural flexibility, the opening of multidirectional channels of information and communication, and individuality and creativity as fundamental drivers of environmental adaptation[19](p.28).

Terrén and Minayo highlight constructivism as a pedagogical model that best reflects the current desire for educational change. Based on Terrén, Minayo observes that this model, "which translates into methods and practices, values the particular, the variable, the contingent, the flexible, local interest, and the engagement of individuals and their potential"[17] (p.63).

Continuing with the analysis of the contexts of educational changes, Minayo warns that it is necessary to incorporate a new conception of time and temporality. In other words, it becomes relevant to conceive of time as "qualitative, flexible, which escapes predictability, and whose organizational implementation requires a system of trust from organizations in their members whom they intend to reach with their action"[17] (p.63). Concluding his discussion, Minayo notes:

Any intervention or social assessment needs to be understood within its level of specificities regarding the changes it proposes, but it must also consider the broader contexts of organization of the social and cultural system and the universe of values at a given historical moment[17] (p.69).

Study design

The study is grounded on a qualitative research approach, understood as a set of interpretative practices that seek to consider meaning and intentionality related to actions, relationships, and social structures[20,21].

Based on this approach, we opted for the normative assessment methodological design. Unlike assessment research, it can be considered an *ex-post* analysis of an intervention using scientific methods. Normative assessment is "the activity that consists of making a judgment about an intervention, comparing the resources used and their organization (structure), the services or goods produced (process), and the results obtained, such as criteria and standards"[9] (p.34).

The normative assessment generally focused on intervention projects (IP) implemented in the 2018-2020 period in developing the DGPUS. A total of 161 IPs were prepared during this period, of which 152 were completed (94%) and 133 (83%) had results with evidence. A convenience sample was adopted to select the interventions, choosing five successful intervention experiences – one per each region of the country. The selected experience must have had: (a) tangible results concerning what it proposed; (b) implementation of at least two years after its planning; (c) the possibility of continuing some activity resulting from its results in 2023; (d) consent from the management of which the activity to be observed is part of and (e) consent of the members who were involved in 2023 to be interviewed and participate in an activity to be observed. The DGPSUS coordination office and professionals who supervised the implementation of the interventions selected the five experiences based on these criteria.

Semi-structured interviews were held in each selected experience with at least two professionals who somehow participated in the IP implementation. The questions were as follows: (1) How was your experience in the intervention you participated in? (2) How do you evaluate the implementation of this intervention? (3) What do you highlight specifically that attests or should attest to consider the successful result of the IP implementation? (4) Have you noticed any ongoing action or activity that resulted from the intervention in which you participated? (5) Based on your experience, what aspects should remain or change in future interventions?

The interviews were recorded on a cell phone, generating audio files with the ".m4a" extension, saved on a computer. Regarding transcription, each recorded interview was listened to with pauses so that it could be typed in a Word file. In the end, the researchers listened to the recording of each interview. They compared their listening with the transcribed text to ensure the fidelity of the statement, and adjustments were made to the text if necessary.

The analytical processing of interview transcripts was based on Gomes[22] adaptation of Bardin's thematic analysis technique[23]. The analysis started after comprehensively reading the material to:

(a) distribute excerpts, sentences, or fragments from each analysis text per the classification scheme... [which, in principle, could be the interview questions]; (b) read the parts of the texts in

each class of the classification scheme in dialogue; (c) identify, through inferences, the core meanings indicated by the parts of the texts in each class of the classification scheme; (d) dialogue between the core meanings and the initial assumptions and, if necessary, make other assumptions; (e) analyze the different cores of meaning in the several classes of the classification scheme to search for broader themes or axes around which the different parts of the analyzed texts can be discussed; (f) regroup the parts of the texts by themes found; (g) prepare an essay by theme to cover the meanings of the texts and their articulation with the theoretical concept(s) that guide(s) the analysis [...] As a final step... [an] interpretative synthesis will be created through a wording that can dialogue with the themes, objectives, questions, and assumptions of the research[24](p.83).

The Hospital Sírio-Libanês Human Research Ethics Committee approved the research project.

Results

Characterization of the IPs and the subjects involved

In general, the intervention projects (IP) focused on in this study had the following characteristics: (a) they represent capitals and cities in the inland region of the five Brazilian regions; (b) they cover diverse thematic areas, all of which dialogue with the macro-problems constructed and listed by the Project and validated with partners Ministry of Health, CONASS, and CONASEMS[11] and (c) the presence of universities, hospitals, and primary care network predominates regarding institutions (Chart 1).

Regarding the respondents, we generally observed that the following predominate: females, self-reported brown skin color, medical graduation, graduates from other DGPSUS editions, and professionals who were not working at the residency during the field visit (Table 1).

Change as an indicator of success

Change appears to be a central theme based on understanding the group of statements of the interviewed subjects. In this sense, we see a convergence between the respondents' perception and the intentions of the intervention projects (IP), with the main result of generating change in the setting of management practices or preceptorship within the residency programs.

Given the IP results pointed out by the respondents, we can assume that change points to successful actions. In the set of statements, this theme can be classified into two themes: perceived change and tangible change.

Perceived change

When referring to the results of the IPs, the respondents – explicitly – point out change.

We are also very interested in changing the reality [...] we want people to interfere in their reality and change it (Vitória, 1).

I think [there was] a change in practice and knowledge (Rio Verde, 2).

I'm managing to change here depending on what they [the residents] are bringing (Palmas, 2).

So, I would tell you that the interventions I experience have greatly changed (Pelotas, 1).

In other statements, even if the change is not made explicit, it is implicit when talking about shifts from one situation to another, such as from the non-standardization of assessment to a more standardized action or action from an isolated area to joint action involving more than one area. Thus, change is seen by comparing the moment before and after the intervention. In this sense, "interventions seek to support different thinking, which drives action and change – from status A to status B"[2].

It was effective. We can even see the shift in the programs themselves [which now have standardized assessment] (Palmas 1).

Today we make the patient's anamnesis together. So, the two areas [Physical Education and Nutrition] are in the same anamnesis, whether listening to the specific part of nutrition or vice versa (Pelotas, 3).

Even if such change or aspects that reveal it are attributed to the level of what is perceived, we cannot, in evaluative terms, minimize this fact. Regarding social reality, the perception and interpretation about situations are fundamental. As Thomas and Thomas observe, "If men define situations as real, they are real in their consequences"[24] (p.572). In order to expand this idea, we can turn to Berger and Luckmann[25], who consider that the very perception of the senses is shaped by the subjective meanings attributed to an objectively lived experience. Based on these authors, we can assume that if professionals realize that there has been a change after developing intervention projects, they can adopt ways of acting in their daily lives per what they consider to be change. Thus, objective and subjective change merge.

Chart 1. Characterization of the Intervention Projects of the Triennium 2018-2020, DGPSUS, PROADI HSL, involved in this study.

Region	State	Municipality	Title	Thematic area	Main objective	Expected outcomes	Institutions involved
N	TO	Palmas	Alignment of the assessment processes of the health residency programs that make up the PIRS	Assessment of programs	Implement assessment processes based on a collectively constructed assessment plan	Assessment plans collectively constructed by the MFC, SFC, SC, SM, and REO programs	Palmas School of Public Health Foundation
NE	PE	Recife	Preceptorship, Interdisciplinarity, and Mental Health	Education-service-community articulation	Strengthen the role of preceptorship in a training model aligned with the reality of the territory and the needs of residents	Equip preceptors to be multipliers of interdisciplinary preceptorship actions in mental health	Recife Health Secretariat
CO	GO	Rio Verde	Qualification of Preceptorship practice in the Undergraduate and Medical Residency Programs of the Municipal University Hospital of Rio Verde	Qualification and training of preceptors	Organize qualification workshops to prepare HMU's higher education professionals to receive students in their professional environment, including in the education-service integration process	HMU higher education professionals receiving the students in their work environment to promote education-service integration, recognizing students as partners/members of the work process	Municipal University Hospital – Rio Verde Municipal Health Secretariat
SE	ES	Vitória	Integrated planning in territories with residency programs in family and community medicine in Vitória	Integration between programs and education-service-community articulation	Agree on integrated planning guidelines, facilitate and support implementation in care education units, emphasizing territories with PRMFC	Integration and shared responsibility of the stakeholders involved, achieving integration of residencies, articulation with graduation, articulation of theory and practice, formalization of agenda guidelines, articulation with the service network, participation of residents in health councils	Vitória Municipal Health Secretariat and Technical and Professional School (ETSUS-Vitória)
S	RS	Pelotas	The experience of interprofessional preceptorship in undergraduate courses during the COVID-19 pandemic	Interprofessional work	Promote actions to develop skills and abilities in preceptorship in the several health professions (occupational therapy, nutrition, medicine, pharmacy, veterinary medicine, physical education, dentistry, nursing, physiotherapy, and psychology) in order to generate practical training fields for graduation academics	Creation of a common discipline for several courses in the curricular structure and practice setting for undergraduates to facilitate interprofessional and interdisciplinary action	Federal University of Pelotas and Pelotas Municipal Health Secretariat

Source: Authors.

Table 1. Absolute and proportional distribution of respondent profiles.

Variable	N	%
Gender		
Male	5	24
Female	16	76
Reported skin color		
White	9	43
Brown	11	52
Prefers not to declare	1	5
City of residence		
Palmas (TO)	4	19
Pelotas (RS)	4	19
Recife (PE)	5	24
Rio Verde (GO)	3	14
Vitória (ES)	5	24
Graduation		
Physical Education	1	5
Nursing	7	33
Physiotherapy	1	5
Medicine	8	38
Psychology	3	14
Occupational Therapy	1	5
Highest title		
Specialization	14	67
Masters Degree	7	33
DGPSUS graduates		
Yes	14	67
No	7	33
Residence work		
Yes	6	19
No	15	71

Source: Authors.

Tangible change

When reflecting on what remained evident from the changes in the results obtained in the interventions, the respondents initially sought to list something tangible.

[What was concrete] was the [assessment] instrument, which we created. It is the unified instrument for residency plans, which is then directed towards care, management, and education actions (Palmas, 3).

[A group on the influence of the intervention] produced a [...] booklet with the territory's support network. So, this was very tangible and concrete. I have this material (Recife, 1).

We created, at the time [...] the NAV [Assessment Center] ordinance, the assessment plan, the review of the instruments that had been used until then (Palmas, 4).

I will talk about the last concrete evidence that will happen on the seventh, the day after tomorrow. It is an integration seminar that we... integration with the services, educational institutions, and training institutions (Vitória, 3).

So, concretely, I implemented some active methodologies at CAPS, such as clinical simulation, role-playing, and the inverted room, which is another methodology (Recife 2).

University... and it reached over 3.4 thousand people (Rio Verde, 10).

Based on the construction of this IP, we held the first preceptorship meeting at RAPS [Psychosocial Care Network] in Recife (Recife, 1)

[Concretely] the residency in Vitória was institutionalized [...] when you put this [the program's formalization] in an official document [...] this also adds value, but it brings responsibility, and the official institutionalization documents [...] It is the first step (Vitória, 4).

[Specifically] we managed to set up a discipline called Ciranda dos Saberes [English translation, "Ring-around-the-rosey of Knowledge"], which was to bring together first-year residents who were working in different spaces [...], which was very well evaluated by the residents (Recife, 4).

In these cases of presenting results, one way to highlight it is promoting tangibility. Very concrete evidence presents something that can be understood as a tangible or felt product[26]. One respondent used measurement to support presenting change evidence.

We have grown a lot in continuing education [project created from the intervention], such as, for example, in 2022 alone, we had 44 qualifications at the Municipal Hospital alone (Rio Verde, 1).

Another way found by the respondents to underscore change was presenting a pattern attributed to the actions that did not exist before the completion of the intervention project.

[I would highlight] the alignment of the programs [concerning assessments]. I see a more harmonious speech between the coordination offices, a more effective planning based on these assessments (Palmas, 1).

Preceptors and tutors could visualize the movement of residents, and residents could also visualize this movement (Palmas, 2).

The most significant success in this IP was the inclusion of the [health services] professional in the preceptorship process (Rio Verde, 1).

It emerged after the IP. That is why I talked about the seed planted at the beginning, and it was from the IP because the entire creation of this current gigantic flow [including residents in health

services] started to develop from the IP (Rio Verde, 3).

Making something tangible can relate to showing something really existing. Guba and Lincoln observe that "there is no single, 'real' reality, but only multiple realities constructed by human beings"[5] (p.74). If we accept this statement, we can assume that showing the reality of change appears through different names. One of the most common strategies from the conventional perspective is that something is tangible to the extent that it has some measurable amount. On the other hand, in constructivist logic, constructions exist in the minds of the builders and cannot be reduced to measurable entities; these – at most – can support a construction[5]. This situation can be seen in all the respondents' statements, where naming patterns predominate to show that tangible changes occurred from the interventions.

Discussion

We can establish some inferences from the interpretation of the respondents' statements concerning the effects of the intervention projects implemented. Such inferences – which translate instead into process dimensions than change products – can be summarized as follows: (a) groups were set from the implemented IP, involving other professionals who did not directly participate in the implemented actions; (b) the IP results facilitated the establishment of continuing actions experienced by the professionals involved in them; (c) strategies to enable the continuing change exceeded the scope of residency programs and were expanded to other health education actions and (d) the expanded actions beyond the IP scope translated a recognized possibility to produce changes in the public sector, more specifically in the educational field of the Unified Health System.

Both the results attributed to the IPs and their successful actions can be attributed to the individuals involved directly or indirectly in these projects. They implemented actions that – in their perception – could better address the problems that gave rise to the interventions. Habermas[27] argues that individuals, not systems, are the prominent figures of social actions and signify their actions. In this sense, individuals are the backbone of social actions. Therefore, individuals or groups generate social facts depending on the meaning of these actions. *Mutatis mutandis*, we can consider that changes actually occurred due to the involvement of professionals who attributed meaning to the actions they implemented. Thus, we can assume that change is possible through people's leadership, even in different settings and locations.

Expanding the idea that actions targeting change can be attributed to the professionals involved, we can consider that the interventions emerged as a space of opportunities to develop communicative actions that made a difference in the actions' success.

Specifically, the effects of professionals' actions from intervention projects can be illustrated with initiatives that transcended residency and were successful in local health systems. An outstanding example is the influence of the group originating from the IP in Pelotas (RS), which managed to implement interdisciplinary actions in groups of other professionals in the fight against the COVID-19 epidemic. Another example is the Rio Verde (GO) IP, which began at the Municipal University Hospital and exceeded the walls of that hospital, influencing the implementation of Quality and Continuing Education Centers throughout the municipality.

The fact that health professionals are the leading players in achieving IP results can somewhat attest to the change since – as we saw in the theoretical-referential framework – changes occur in social organizations and mentalities[17]. After implementing IP actions, these professionals began to see their activities and practice settings differently against the moments that preceded the IPs. This new perspective on the intentions projected in the projects drove changes in the field of practices.

The changes perceived and made tangible were observed in our study of local health services. These changes could have an impact on these services. However, this will only be possible to assess over a more extended period with a study in which different views on the unfolding of changes can be triangulated through different research strategies.

Finally, we note that some challenges still need to be addressed to drive the advance of the IP effects over time and local spaces. Among them, we highlight the possibility of evaluating the effects of IP implementation in training people who are more prepared and suited to the needs of the SUS and its clients. We recognize that the SUS, which DGPSUS is committed to supporting, is a system undergoing implementation and qualification. The educational system geared to training health

professionals must accompany this consolidation process and offer training focused on the needs of the Brazilian population and the guidelines of this public system. This articulation and fine-tuning is essential; Brazilian educational systems must actively shape themselves to accompany and sustain this process.

This understanding needs to be clarified in the present research. We fail to observe that the movements supported within the DGPSUS should be a trigger for continuous change that feeds on the transformations of the Brazilian public health system. The changes achieved should be permanent and articulated to achieve commitments with the SUS. We know that governance changes interfere with the longevity of projects, and it does not propose this longitudinal perspective in the DGPSUS project due to the very nature of PROADI-SUS. Within this program, it is not expected to produce reports after project completion. This shortcoming may result in a loss of follow-up and difficulty in monitoring actions. Considering the Haferkamp and Smelser[18] triangular perspective, perhaps we can only consider that we could think about the existence of change processes and mechanisms after implementing the IPs, and we would only lack a glimpse of the directions of this change and its implications for the structural determinants of educational actions promoted by the evaluated project.

Final considerations

Let us consider perception as an indicator of changes. We can observe that in the repertoire of responses – which professionals produced when faced with the research questions – change emerged as a possibility for resident training to occur closely committed to their current realities. Also, in the repertoires of responses, in terms of normative assessment, we can attest to the convergence between perceptions and intentions of the project under assessment.

Although we focused on a specific period based on listening to professionals' responses, we consider that training projects – such as the evaluated interventive ones – can make training achievements more perennial; that is, the gain is individual in the change of each participant and is group-oriented when we consider that the interventions occurred singularly in the territories in which they were implemented. We also cannot ignore the fact that active methodologies can expand through their tools incorporated into the daily routine of health services, expanding gains beyond the evaluated project.

Collaborations

R Gomes was responsible for the conception and design of the study, collection and analysis of information, drafting and critical revision of the text, agreeing to be responsible for all aspects of the work. JM Oliveira and E Soeiro contributed to the collection and analysis of information, review of the article, agreeing to be responsible for all aspects of the work. VR Bezerra contributed to the conception of the study and critical review; and approved the final version, agreeing to be responsible for all aspects of the work.

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