Profile and knowledge of Brazilian Amazon Primary Health Care professionals on maternal and child health

Perfil e conhecimento dos profissionais da Atenção Primária à Saúde da Amazônia brasileira sobre saúde materno-infantil

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ABSTRACT This study aimed to evaluate the social and professional profile and knowledge of Primary Care professionals on maternal and child health. Cross-sectional descriptive study, from May to July 2018. It included 30 nurses and 73 Community Health Workers (CHW) from the municipality of Bragança, Pará. The form had three phases: participants' profile; close-ended questions on their profile, knowledge and resourcefulness on the First Week of Integral Care guideline; and four open-ended questions. Quantitative data was analyzed through Microsoft Office ExcelTM 2016, as qualitative data was arranged through word clouds and similarity trees in IRaMuTeQTM. The majority of nurses and CHW were female (70.9%) and worked in urban areas (60.2%), as 40% of nurses were graduated recently, with an 80% specialization courses, and 83.6% CHW had completed high school. On both categories, 82.5% did not know the First Week of Integral Health guideline, although the word clouds and similarity trees had shown that several national standardized orientations were provided. First Week of Integral Care guidelines' insufficient knowledge by nurses and CHW in the municipality points to fragility in Primary Care on maternal and child health. Although basic orientations are provided, improvement is necessary.

KEYWORDS Primary Health Care. Family Health Strategy. Postpartum period. Newborn.

RESUMO *Este estudo buscou avaliar o perfil socioprofissional e o conhecimento de profissionais da atenção primária sobre saúde materno-infantil. É um estudo transversal descritivo, realizado de maio a julho de 2018. Incluiu 30 enfermeiros e 73 Agentes Comunitários de Saúde (ACS) do município de Bragança, Pará. O formulário possuiu três fases: perfil dos participantes; perguntas fechadas sobre perfil, conhecimento e habilidade sobre a diretriz Primeira Semana de Saúde Integral; e quatro perguntas abertas. Os dados quantitativos foram analisados por meio do Microsoft Office ExcelTM 2016, enquanto os dados qualitativos foram organizados por meio de nuvens de palavras e árvores de similaridades no IRaMuTeQTM. A maioria dos enfermeiros e ACS eram mulheres (70,9%) e trabalhavam em áreas urbanas, enquanto 40% dos enfermeiros formaram-se recentemente, sendo 80% por cursos de especialização; 83% dos ACS possuíam ensino médio completo. Em ambas as categorias, 82,5% não conheciam a diretriz da Primeira Semana de Saúde Integral, embora as nuvens de palavras e as árvores de similaridade tenham mostrado que várias orientações padronizadas nacionalmente eram fornecidas. O conhecimento insuficiente da diretriz Primeira Semana de Saúde Integral por parte dos ACS e enfermeiros do município indica a fragilidade da atenção básica na saúde materno-infantil. Ainda que sejam fornecidas orientações básicas, há necessidade de melhora na qualidade do serviço.*

PALAVRAS-CHAVE *Atenção Primária à Saúde. Estratégia Saúde da Família. Período pós-parto. Recém-nascido.*

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Introduction

Maternal and child mortality is a major public health problem, notoriously severe in developing countries, where 94% of maternal deaths were reported by the World Health Organization, from 2000 to 2017[1]. Brazilian mortality data indicate higher rates related to black women, low-income, and low access to assistance, elucidating that there is a discrepancy among the affected populations[2]. The Northern region has one of the highest maternal and infant mortality rates, with highlights to the state of Pará, in which there were 15.4 infant deaths per thousand live births in 2018 – higher than the national rate, which was 12.35[3].

In this sense, the Ministry of Health proposes actions that compose the First Week of Integral Health (PSSI) guideline, a protocol of attention that aims to provide integral and multiprofessional care to the puerperal mother and the newborn during the first week after birth, in order to identify signs of risk that may compromise the growth and healthy development of the newborn. It also guides the mother on the care with the newborn, encouraging breastfeeding, offering support to difficulties, checking vaccination and scheduling consultation, thus contributing to the reduction of child morbidity and mortality[4].

Therefore, to provide such relevant assistance, each Primary Care team member's continuing training and education plays an essential role in these individuals' follow-up success, ensuring both physical and emotional comfort and preventing complications for both the mother and the child[5,6]. However, there are flaws in the quality of the attention provided by these professionals during the first week after birth, with very low or even non-existent home visit indicators[7-10]. In this context, Community Health Workers (CHW) tend to adopt their judgment to define risks, without the proper orientation of the nursing professional, who is responsible for leading the nursing team and has the attribution of supervising the CHW[11,12].

Thereby, considering that it is important to intensify the studies about the particularities of the Primary Care professionals involved in maternal and child health, especially because Brazil is a developing country with high maternal and neonatal death rates, this study aimed to evaluate primary health professionals' social and professional profile, as well as their knowledge on maternal and child health, in the municipality of Bragança, state of Pará, in the Brazilian Northern region.

Material and methods

Study design and ethical aspects

A cross-sectional descriptive study, with a quali-quantitative approach, was carried out from May to July 2018. The Guide to Consolidated Criteria for Reporting Qualitative Research (COREQ) adapted to Portuguese was used for methodological procedures of the study[13]. This research complies with the requirements established in the Nuremberg Code and the Declaration of Helsinki[14,15] and was based on the basic principles of bioethics present in Brazilian Resolution No. 466/12 from the National Health Council[16], which provides for research involving human beings. It has started after its approval by the Ethics and Research Committee of the Fundação Santa Casa de Misericórdia do Pará, under code 2.568.908/2018 and Ethical Appreciation Presentation Certificate 84239918.2.0000.5171, and every participant signed the research informed consent form.

Setting

The study occurred in the Basic Health Units (BHU) of the urban and rural areas from the municipality of Bragança, Pará, with an estimated population of 127,686 inhabitants, and located in the Northeast of the state, 210 kilometers from the state capital, Belém. The

municipality is territorially divided into six districts: Bragança, Vila do Conde, Caratateua, Nova Mocajuba, Tijoca, and Vila do Treme[17].

Bragança and other 16 municipalities belong to the 4th Pará state's Regional Health Center, entitled Caetés' Health Region. The Municipal Health Department of Bragança offers 22 BHU, including 30 Family Health Strategy (FHS), of which 17 are in the urban area and 13 in the rural area. As established by the Ministry of Health, the municipality has 58 health teams, however, only 30 are registered and implemented, corresponding to a 60% coverage of the population.

As determined by the Ministry of Health, the municipal Primary Health Care (PHC) includes 43 nurses, from which 30 are active in the FHS. There is a team of generalists among the medical doctors in the FHS, from the Brazilian federal government program entitled 'Mais Médicos' (More Doctors Program). Also, there are 335 CHW, of which 306 are active in the municipality. Bragança also has five teams from the Community Health Workers Program (PACS), with five nurses and 53 CHW.

The municipality has one philanthropic and two private hospitals, all of them affiliated to the Unified Health System (SUS), two of which with a Neonatal Intermediate Care Unit (NIMCU) with 10 beds each, and one with a Neonatal Intensive Care Unit (NICU) with 10 hospital beds. The high-risk prenatal clinic includes all the municipalities in Caetés' Health Region.

Participants' selection and approach

A quantitative survey of nurses and CHW was performed through the National Register of Health Establishments[18]. To define the number of nurses and CHW who would participate in the research, the sample size was calculated using the Epi Info® software version 7.2.1.0. Considering a total population of 43 nurses and 306 CHW, a 95% confidence level, and a sample error of 10%, the software indicated a sample size of 30 nurses and 73 CHW for the study.

The research participants were 30 nurses and 73 CHW, which answered the research form, including active nurses linked to the Municipal Health Department and active CHW linked to any FHS in the municipality. Exclusion criteria were professionals who were not present at the service during the data collection period, nurses linked to any program or sector other than the FHS, and CHW linked to the researcher's PACS or FHS.

The research was presented to the nurses during a Primary Care team's usual professional meeting and they were invited by the researcher in person right after, through telephone contact or through cell phone application, afterward followed by scheduling for the form answering. As for the CHW, the nurse responsible for the FHS was asked to schedule a meeting between them and the researcher, during which the purpose of the study was explained and the participants were recruited.

Data collection procedures

The research took place at the participants' BHU workplace and the Municipal Health Secretariat, after accepting and signing the informed consent form. It occurred using a semi-structured form for the nurses and CHW, in a place that maintained the participant's privacy and that did not interfere with the data collection.

The research form had three phases: the first phase corresponded to the participants' profile, presenting the variables gender, age group, graduation, academic background, length of service in PHC, and location of the FHS they worked. The second phase included their knowledge and resourcefulness of the PSSI, and the third phase contained four open-ended questions that changed whether the participant was a nurse or a CHW.

The open-ended questions applied to nurses included: *"When you have the opportunity to assist the puerperal woman, what care do you examine, evaluate, and guide?"*, *"When you have the opportunity to provide assistance to the*

newborn, which care do you evaluate, examine and guide?". The ones directed to CHWs form included: *"When you have the opportunity to make the home visit to the puerperal woman, what care do you advise her to?", "When you have the opportunity to make home visits to the newborns, what care do you check, record, guide and encourage the Family to?".*

Data analysis

The data obtained were put in a Microsoft Office Excel™ 2016 dataset, as well as tabulated and analyzed using its statistical program. Closed questions were analyzed through the same software and presented as tables. The open-ended questions were categorized and quantified according to their frequencies using the IRaMuTeQ (Interface of R pour les Analyzes Multidimensionnelles de Textes et de Questionnaires) software,

which generated word clouds and similarity trees.

Results

According to the survey, most nurses (66.7%/n = 20) and CHW (57.5%/n = 42) works in urban areas. Women were the majority among the healthcare workers, corresponding to 66.7% (n = 20) of the total. For both genders, nurses showed to be younger, with the most prevalent age group between 25 and 30 years old (30%/n = 9), and the CHW (34.2%/n = 25) were 45 years of age or older. However, the majority of both categories declared one to five years of service time (79.6%/n = 86). In relation to academic background, 40% (n = 12) of nurses are recently graduates and 80% (n = 24) of the total have a specialization courses, as 83.6% (n = 61) CHW reported complete high school (*table 1*).

Table 1. Characterization of nurses and community health workers profile included. Bragança-PA municipality, Brazil, 2018

Identification	Nurses		CHW		Total	
	N	%	N	%	N	%
Area						
Urban	20	66.7	42	57.5	62	60.2
Countryside	10	33.3	31	42.5	41	39.8
Total	30	100.0	73	100.0	103	100.0
Gender						
Female	20	66.7	53	72.6	73	70.9
Male	10	33.3	20	27.4	30	29.1
Total	30	100.0	73	100.0	103	
Age Group (years)						
20 to 24	0	0.0	0	0.0	0	0.0
25 to 29	9	30.0	6	8.2	15	14.6
30 to 34	6	20.0	12	16.4	18	17.5
35 to 39	7	23.3	12	16.4	19	18.4
40 to 44	3	10.0	18	24.7	21	20.4
45 years or older	5	16.7	25	34.2	30	29.1
Total	30	100.0	73	100.0	103	

Table 1. (cont.)

Identification	Nurses		CHW		Total	
	N	%	N	%	N	%
Time of service (years)						
1 to 5	14	46.7	68	93.2	82	79.6
6 to 10	6	20.0	3	4.1	9	8.7
11 to 15	6	20.0	1	1.4	7	6.8
Over 15	4	13.3	1	1.4	5	4.9
Total	30	100.0	73	100.0	103	
Academic Background						
Undergraduate	6	20.0	-	-	-	-
Specialization courses	24	80.0	-	-	-	-
Master degree	0	0.0	-	-	-	-
Doctorate degree	0	0.0	-	-	-	-
Total	30	100.0	-	-	-	-
Schooling						
Primary School	-	-	1	1.4	-	-
High School	-	-	63	86.3	-	-
Undergraduate	-	-	9	12.3	-	-
Postgraduate	-	-	0	0.0	-	-
Total	-	-	73	100.0	-	-

Source: Data survey.

CHW: Community Health Workers.

Regarding their knowledge about the PSSI, most nurses and CHW did not know the guidelines. The majority (56.7%/n = 17) provided postpartum assistance to the puerperal patients and the newborns within 15 days, only 56.7% (17) ensuring ambulatory care. Nevertheless, CHWs home care performed assistance was lower, with 43.8% (n = 32) occurring up to seven days after the childbirth, alone (*table 2*).

Table 2. Nurses' and Community Health Workers' knowledge about the First Week of Integral Health in the city of Bragança-PA/Brazil, 2018

Knowledge about the First Week of Integral Health guideline	Nurses		CHW		Total	
	N	%	N	%	N	%
Do you know about the PSSI guidelines?						
Yes	5	16.7	13	17.8	18	17.5
No	25	83.3	60	82.2	85	82.5
Total	30	100.0	73	100.0	103	100.0

Table 2. (cont.)

| Knowledge about the First Week of Integral Health guideline	Nurses		CHW		Total	
	N	%	N	%	N	%
How long after childbirth can you assist the puerperal patient and the newborn?						
Up to 7 days after	2	6.7	32	43.8	34	33.0
7 to 10 days	3	10.0	12	16.4	15	14.6
Up to 15 days after	17	56.7	26	35.6	43	41.7
30 days	7	23.3	3	4.1	10	9.7
42 days or more	1	3.3	0	0.0	1	1.0
Total	30	100.0	73	100.0	103	100.0
Which is your assistance category?						
Home care	3	10.0	-	-	-	-
Ambulatory care	17	56.7	-	-	-	-
Both	10	33.3	-	-	-	-
Total	30	100.0	-	-	-	-
Which professionals share the care of the puerperal patient and the newborn with you?						
Only CWH	11	36.7	2	2.7	13	12.6
CWH and other	2	6.7	1	1.4	3	2.9
Physicians, CHW and others	1	3.3	1	1.4	2	1.9
Nurses	0	0.0	7	9.6	7	6.8
None	16	53.3	62	84.9	78	75.7
Total	30	100.0	73	100.0	103	100.0

Source: Data survey.

PSSI: First Week of Integral Health; CHW: Community Health Workers.

When it comes to the word clouds, the one derivated from the nurses' destined question: *"When you have the opportunity to assist the puerperal woman, what care do you examine, evaluate, and guide?"* the most mentioned words were: feeding (n = 22), care (n = 18), breast (n = 16), exclusive breastfeeding (n = 15), hygiene (n = 13), surgical wound (n = 12), lochia (n = 11), and reproductive period (n = 10). As for the similarity tree to the question *"When you have the opportunity to provide assistance to the newborn, what care do you examine, measure, and guide the Family to?"*, exclusive breastfeeding was the center of the picture (n = 22), interconnected to: vaccine, care and hygiene (n = 17), physical exam (n = 15), navel (n = 13), and newborn screening test (n = 11) (*figure 1*).

Figure 1. Similarity tree designed by the IRaMuTeQ platform, based on the answers given by the Primary Health Care nurses to the question: *"When you have the opportunity to provide assistance to the newborn, what care do you examine, evaluate, and advise the Family to?"*
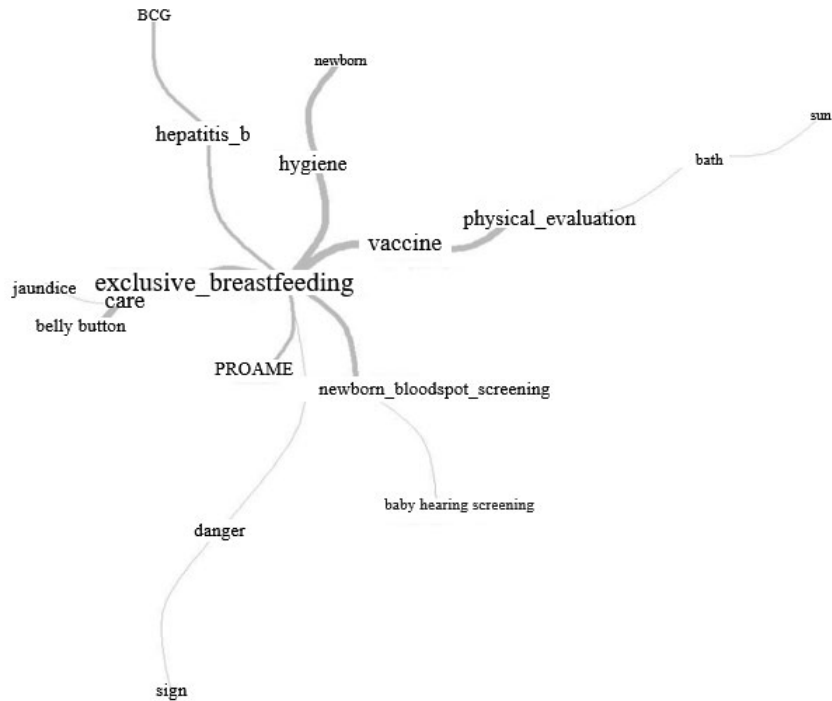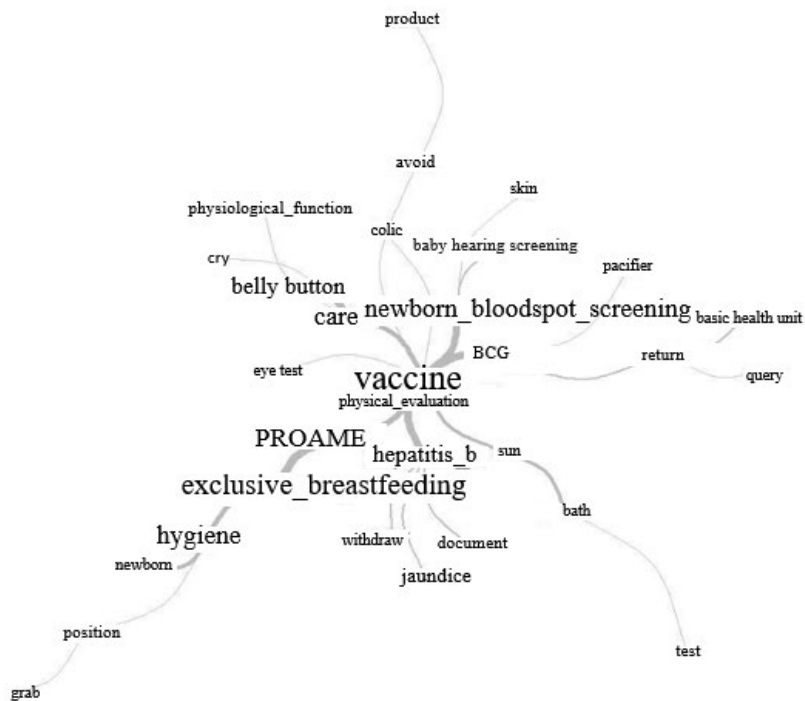

Source: The authors.
BCG: Bacille Calmette-Guerin vaccine; PROAME: Program to Encourage Exclusive Breastfeeding.

As for the CHWs answers to the question *"When you have the opportunity to make the home visit to the puerperal woman, what care do you advise her to?"* were: care (n = 41), nutrition (n = 38), hygiene (n = 37), BHU appointment and return (n = 35), exclusive breastfeeding and Program to Encourage Exclusive Breastfeeding (PROAME) (n = 31), postpartum period (n = 17), bleeding (n = 16), surgical wound (n = 14), position and ideal position for breastfeeding (n = 11). Also, their replies to the question *"When you have the opportunity to give home care to the newborn, what care do you suggest to the family?"* were: vaccine (n = 52) in the center, connecting the other words: exclusive breastfeeding (n = 51), PROAME, newborn screening test and BCG (n = 50), Hepatitis B (n = 49), care, navel and hygiene (n = 40) (*figure 2*).

Figure 2. Similarity tree designed by the IRaMuTeQ platform, based on the answers given by the CHWs to the question: "When you have the opportunity to give home care to the newborn, what care do you advise?"

Source: The authors.

BCG: Bacille Calmette-Guerin vaccine; PROAME: Program to Encourage Exclusive Breastfeeding.

Discussion

There was a greater quantity of family health strategy professionals working in the municipality' urban area, which can be justified due to the 17,200 households located in it following the Brazilian Ordinance No. 2,436 of September 21, 2017, which approves the National Primary Care Policy and recommends that the FHS functioning must follow the population profile, vulnerabilities, risks, and the community dynamics[19]. Furthermore, in the last decades, an inversion in the proportion of household situation of Bragança population has happened, when urban zone residency started to prevail, although the majority of the population of the state of Pará resides in rural areas[20,21].

The elements that make up the sociodemographic and educational profile of this sample are consistent with those characteristics found among health professionals in other studies[22-27]. When observing the CHW and nurses work time of one to five years, the PSSI unfamiliarity was unexpected, as it is a health policy implemented since 2004, and active search and health care activities for mothers and their newborns must be carried out. Furthermore, the survey measured the frequency of the CHWs' and nurses' home care in the first week after discharge, and showed lower frequency of nurses visit, although the PSSI recommends attributing a strategic nature to these programme actions. However, the qualitative data of the research showed they can provide several orientations on the subject to the family.

Thereby, in a study developed by Silva et al.[28] in the city of Recife, Brazil, women's care during home visits and the participation of physician and/or nurse with CHW in the visits resulted in a significantly higher accomplishment of breast examination, abdomen, and stitches exam. Such find opposes the present research result, in which the biggest part of home care is done only by CHW, bringing losses for the women's health during the period.

It is notorious that ambulatory care cannot get the better possible results as home care would, since home care must be understood as an important educational method[29]. Besides, this supports the fact that the CHWs, as part of the community, approximate their communities with the formal health system, persuading community members of the value of the clinic[28]. However, researchers suggested[1,2] the nurses' choice to perform outpatient care was due to the fact that they consider it is possible to guarantee postpartum care in ambulatory care[29,30].

Amongst the cares proposed to the puerperal patient, there are: physical exam and general condition, complaints, besides presence of danger signs such as: fever, purulent secretions, bleeding assessment, aspect of surgical scar, breastfeeding, emotional condition, hygiene, family planning, healthy eating, and appointment scheduling at the BHU after one month postpartum[29]. Considering the fact that 17.5% of the professionals in the study knew the PSSI guidelines, and through the word clouds method used in this study, it was possible to notice that the answers of some nurses and CHW are in line with the PSSI. However, these cares need to be put into practice by the healthcare professionals at the PHC.

When providing care to the puerperal woman and the newborn, especially in the first week of life, the risk factors for infant mortality in the early neonatal period should be considered, among which are low birth weight, prematurity and post-term, age, and low maternal education[28,31]. Furthermore, the municipality has an 18.01% birth rate and a total number of perinatal deaths in the historical series from 2011 to 2016 of 454 cases in the Caetés' Health Region, of which 119 (26.2%) were in Bragança[32]. Regarding maternal deaths, according to records from Brazil (2018), 46 deaths were reported from 2011 to 2016 in the region, ten of which (21.7%) occurred in Bragança[33]. Within the postpartum period of up to 42 days, 21 deaths were recorded in the region in the period, with seven (33.3) in the municipality[34]. In this context, these data point to the importance of training and continuing education of the professionals responsible for the binomial in the locality[28].

Therefore, in line with the necessity to reverse the exposed problem, it can be inferred that there is a high concern about the orientation of puerperal on the topic, fact proven by the presence of the expression 'exclusive breastfeeding', often linked to the word 'PROAME', as the core of the nurses similarity tree. The finding was consistent with studies[4,29] which point out the importance of frequent orientation to the puerperal and family members on breastfeeding, the nurses performance in raising awareness of the illustrated problem is ratified.

However, the mention of some topics related to physical evaluation in the PSSI guidelines, such as 'bloodspot test', 'hygiene', 'care', and 'navel', indicates superficial knowledge about the subject. Therefore, there are gaps in the performance of CHW, mainly regarding a complete and consistent theoretical formation for the physical evaluation of the newborn during home visits[36]. In this scenario, the lack of knowledge of the guidelines by Primary Care professionals points to an assistance model with weaknesses and points to the need to strengthen the continuing education process, both as a form of theoretical and technical support during healthcare, as well as for strengthening health education actions for the public served[37,38]. This finding is also evidenced in other studies, which point out that the academic formation and training of health professionals interfere in the practice of health education and in the care service[37,39].

Therefore, greater involvement of professionals in practices of education, prevention, promotion, and group approaches should be encouraged and incorporated into the daily life of the FHS, enabling the qualification of care through interprofessionality[37]. The adoption of these practices would also provide more resolute assistance, with a potential impact on avoidable maternal and perinatal deaths in the studied region[40].

Limitation can be cited on this study, such as the single centered experience and the qualitative data analysis procedure, that unabled to present the speeches of professionals in their entirety.

Conclusions

Despite having an executable nationally standardized practical application, the First Week of Integral Care guideline shows insufficient application by nurses and CHW, in the Amazon municipality of Bragança. It occurred due to multifactorial reasons, such as age, gender, work environment, academic background, graduation format, worktime, and socioprofessional profile. It is understood that most nurses and CHW work in urban areas, are women newly graduated from professional courses, that have been in the labour market just for one to five years, configuring recent professionals in the job market. The insufficient application of the guideline shows not only the lack of healthcare in the community, but also the absence of continuing training of these professionals, which ends up perpetuating inadequate care practices and maintaining a cycle of erroneous learning for the new generation of professionals that are emerging. Several reasons contributed to the results found in the study, such as age, gender, work environment, academic background, graduation format, work time, and socio-professional profile. The provision of continuing education to these professionals could improve these data, and greater monitoring of their workflow statistics is necessary since effective assistance would have an impact on the public health, considering the ongoing high maternal and neonatal mortality rates in the region.

Collaborators

Amador BM (0000-0001-6441-7399)* contributed to the design and planning of the study, collection, analysis and interpretation of data, preparation of the draft and critical review of the content, and participated in all versions of the manuscript. Silva ER (0000-0002-9109-4158)*, Fortunato VAL (0000-0002-3597-7634)* and Coelho RLB (0000-0001-6431-7988)* contributed to the collection, analysis and interpretation of data, preparation of the draft and critical revision of the content, as well as participating in all versions of the manuscript. Cunha KC (0000-0001-5361-5090)* and Chermont AG (0000-0001-8715-3576)* contributed to the design and planning of the study, critical review of the content, as well as participating in all versions of the manuscript. ∎

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