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INFORMATION TECHNOLOGY IN BRAGANÇA PARÁ, BRAZIL: CHALLENGES FOR THE QUALIFICATION OF COMMUNITY HEALTH AGENTS

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ABSTRACT

Objective: the present study aims to evaluate the skills of Community Health Agents of the Municipality of Bragança-Pará, Brazil, in the use of Technology of Information and communication (ICT). **Methodology:** This is a study with a quantitative approach of a descriptive nature. The research was carried out in the city of Bragança in the state of Pará, in the period of May and June of 2019 and counted on the application of an instrument containing closed questions in order and a practical evaluation was performed to verify the skills of the CHA with the ICTs. **Results:** by analyzing all the data obtained through the data collection, as well as correlating them, it is possible to notice the visible unpreparedness of the CHAs in relation to the use of information and communication technologies. **Conclusion:** Technological tools nowadays allow for a multitude of health work processes that can occur in dynamic and interactive ways synchronously or asynchronously and the CHA can not be left out of these transformations.

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INTRODUCTION

Primary care is characterized by a set of health-related actions, which cover the individual and the collectivity that surrounds them, through the promotion and protection of health, the prevention of injuries, the diagnosis, the treatment, the rehabilitation, the reduction and maintenance of health aiming at the development of Integral health care. It has its activities through the exercise of practices of care and management, democratic and participatory, in the form of work by team, directed to populations of defined territories assuming the sanitary responsibility, taking into account the Dynamism Existing in the territory in which health service users are inserted (Brazil, 2017).

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From this perspective, the national policy of primary care has in family health the foundation necessary to expand and consolidate the practices of primary care. Thus, the qualification of the Family Health Strategy (FHS) and other strategies of organization of primary care are extremely important and should follow the guidelines of primary care and the Unified Health System (SUS), in order to set up a progressive process and singular that it considers and includes the local and regional specificities (Brazil, 2017). Within this context, the Community Health Agents (CHA) play an important role, since they know densely the local reality in which they are inserted because they are usually part of the community. Thus, they recognize the values, the language, the dangers, among other factors pertinent to their actions within the FHS (Maciazeki-Gomes, de Souza, Baggio, & Wachs, 2016). It is important to emphasize that the Community Health

Agents Program (PACS) started in 1987 in the state of Ceará by means of actions aimed at the maternal infant group, which ultimately generated help to reduce infant mortality rates. Taking into account the potentialities presented by the program, the same, in 1991, was expanded to the national scope and with the advent of the Family Health Program (PSF) – today defined as the Family Health strategy –, the tasks of CHA were expanded to Care and attention to the health of families and communities (Freitas, Coriolano-Marinus, Lima, & Ruiz-Moreno, 2015). Nowadays, CHS have as attributions in FHS the promotion of the integration of health teams with the community; Work with the families' adstriction on a defined geographic basis; Develop educational actions with families; Perform and update registration; Guiding families on the use of available health services; To develop health promotion activity, keeping the health team informed about families at risk; Accompany through home visits all families and individuals under their responsibility and assist in the prevention and promotion of health in malaria and dengue programs (Brasil, 2017). Thus, CHA can be considered the link between community and health services, and its importance is highlighted since they are fundamental parts for the realization of the current model of assistance offered by the SUS in the context of the health strategies of Family. Thus, it stands out as a bookie of emancipating actions and practices in health from its interaction with the community that is inserted in professional practice (Freitas *et al.*, 2015; Maciazeki-Gomes *et al.*, 2016). In this context of advances and implementation of CHA practices, emerged the insertion of Information and Communication Technologies (ICTs) in Primary Care. Thus, it is clear that the progressive volume of information generated by these technologies brings substantial transformations to the process of knowledge acquisition by the individual. And in the health area, this process becomes more imperative, especially with regard to the implementation of technologies that can help health professionals, especially the Community Health Agent working in primary care to improve the process of continuing education, where connecting information technology can improve their work processes (Queiroz, Silva, & Oliveira, 2014; Silva, Ferreira, & Carneiro, 2018). There are few studies that show the relationship of CHAs with ICT use and / or skills. With this in mind, the importance of conducting research on the subject becomes pertinent. Thus, the present study aims to evaluate the skills of Community Health Agents of the Municipality of Bragança-Pará, Brazil, in the use of ICTs.

MATERIALS AND METHODS

It is a study with a quantitative approach of a descriptive nature. The quantitative model presents benefits for conducting research, such as operationalization and accurate measurement of a specific subject. (Dal-Farra & Lopes, 2013). The type of study in the descriptive modality allows the description of the characteristics of certain populations or phenomena. As a potentiality of its use for conducting researches, we find the use of techniques for the realization of data collection, such as the use of a questionnaire and systematic observation (Aragão, 2011). The research was conducted in the city of Bragança in the state of Pará, in the period of May and June of 2019. The choice of the municipality occurred because it established a work link with the collegiate of Secretaries of Health of the state of Pará (COSEMS-PA) through the project Virtual office. Bragança is a coastal city located in the northeast of the state of Pará, known as the Pearl of Caeté and considered the oldest

in the state where the colonization of the Amazon began, with 401 years. It has a current population of 130,184 thousand inhabitants with a territorial area of 2,091.919 km², with a population density of approximately 54 inhabitants/km². The municipality has approximately 220 rural communities, and most of the population is Concentrated in the urban area. The definition of the sample was made by means of a simple random sample calculation, which counted with 5% margin of error. Thus, the study was developed with a group of 89 community health agents, of both genders, who work in the FHS of urban and rural areas. The municipality has 330 CHA in its functional framework. They were included in the CHA study of both genders who were duly registered in a FHS and working for more than one (1) year in the FHS. They did not participate in the CHA study that did not have a link with a FHS, with less than 1 (one) year of professional activities or who were on vacation or medical leave during the research. After the opinion and approval of the Ethics in Research Committee (CEP) under the CAAE 14922619.4.0000.8767 number, data collection began through the realization of a personal contact with the coordination of primary care in the city of Bragança. Subsequently, the necessary days were scheduled for conducting the research with the CHA. The researchers requested the appointment of a meeting with the research participants to explain how the intervention would be developed. At that moment, they were informed about the objectives, benefits, risks and manner of participation of the research, in addition to ensuring confidentiality. At the time, the informed consent form was signed by the participants who agreed to participate in the study, taking into account resolution No. 466/12 that provides research on human beings. The site and time of the research were scheduled, and they were at the discretion of the selected participants, according to their availability and providing greater comfort and privacy for the realization of this, without interference in the routine of their Professional activities.

A questionnaire with closed questions adapted to the needs of the present study was used as an instrument for data collection. The collection of information in the questionnaires was elaborated in order to enable obtaining data consistent with the socioeconomic conditions of the participating CHA. The questionnaire was self-administered. In possession of the same, each participant responded individually. In a second moment the CHAs were evaluated in practice. This stage of the field research was carried out in a computer lab, where the CHA had to handle, without assistance, a computer equipment with internet access, and under the verbal command of the researchers the CHA was to execute the commands and perform the activities. It proposals within a maximum of 20 minutes. During the activity, the performance of each participant was observed and evaluated by the researchers with the aid of an evaluation instrument, which had a score scale from 0 to 10 per performance achieved in each stage of the experiment. The CHAs were assessed for the following requirements: a) Turn on computer equipment; b) Write a text of one paragraph in Word with health theme that will be indicated at the time of the activity by the researchers; c) Save this text and later search the file in the database of the computer equipment that was using; d) Access the internet and search the Google tool for educational material on health theme that will be indicated at the time of the activity; e) Switch off the computer equipment. For each topic, the time was timed and assigned a score, which was established according to the CHA performance in the activity. After this

the results were tabulated in a database developed in the Microsoft Excel 2013 program, and categorical and numerical variables were expressed using absolute and relative frequencies.

RESULTS AND DISCUSSION

Regarding the socioeconomic profile of community health agents, pertinent aspects such as gender, age, marital status, number of children, with whom they shared housing, self-declared skin color, schooling and monthly income were investigated (Table 01).

Table 1. Socioeconomic profile of community health agents in the city of Bragança Pará, Brazil, 2019

Variable	n°	%
GENRE		
Male	25	28,08
Female	64	71,91
AGE (years)		
18 a 28	5	5,61
29 a 39	30	33,70
40 a 50	39	43,82
Mais de 50	15	16,85
MARITAL STATUS		
Single	21	23,59
Married or lives with spouse	68	76,40
NUMBER OF CHILDREN		
No children	9	10,11
1 child	14	15,73
2 children	25	28,08
3 children	25	28,08
4 Children or more	16	17,97
HOME		
with parents	7	7,86
with the spouse	58	65,16
with family members	20	22,47
with friends	1	1,12
Alone	3	3,37
SKIN COLOR		
White	2	2,24
Black	3	3,37
Brown	84	94,38
SCHOOLING		
Incomplete Elem.	2	2,24
Complete Elem.	2	2,24
Incomplete medium	16	17,97
Complete medium	60	67,41
Incomplete higher	4	4,49
Complete higher	5	5,61
INCOME		
Upto 1 salary	46	51,68
From 1 to 2 salaries	42	47,19
From 2 to 3 salaries	1	1,12

Source: Search data, 2019.

In the variable referring to gender, women predominated with 71.91%, men appear with 28.08%. This disparity in the quantitative between men and women is common in studies conducted with CHA, since the predominance of CHA women is similar to that observed in other studies conducted with this category. Reinforcing the stereotype of women as responsible for health care. It is worth mentioning that the female presence is also accentuated in other health professions, such as nursing technicians and nurses (Baptistini, Figueiredo, 2014; Castro *et al.*, 2017). Regarding age, it is observed that there is a predominance of the age group from 40 to 50 years with 43.82% followed by the age group from 29 to 39 years with a frequency of 33.70%. This variable is similar to that of other studies, such as Rabelo, Bueno, & Andrade, (2018). Second Guimarães, Sousa e Muracari (2017), This age profile demonstrates a workforce that can be considered mature and

productive. Still according to these authors, for many, to become CHA was the mechanism of joining and/or rejoining the labor scope. Another evidence of this study was related to marital status, where 76.40% of the interviewees were married or lived together with the partner, followed by 23.59% of single CHA. In line with the dwelling, it was found that 65.16% of the participants lived with the spouse, and the residence could be own or rented, corroborating the findings of Freitas and collaborators (2017); Souza e Oliveira (2019). Freitas and collaborators still affirm that marital status or marital bond of these professionals can also be an indicator of permanence in the micro-area where they live and work. The distribution of CHA to the variable referring to race demonstrates that the color of the self-declared skin was the brown, with 94.38% of the interviewed participants, eluding the research of Freitas and Collaborators (2015), who also conducted a study in the northern region of Country. According to Castro *et al.*, (2017), the predominance of the brown breed may be linked to the regional characteristics related to racial miscegenation, which is very common in the state of Pará. Regarding the level of schooling, most of them have completed high school (67.41%), which can be considered a high school level, considering that the requirement required by the Ministry of Health is to have elementary school. Moreover, it is important to emphasize that this variable resembles that found in other pertinent studies conducted in the area (Castro *et al.*, 2017; Guimarães, Sousa, & Mucari, 2017; Souza & Oliveira, 2019). Regarding family income, the classifications of up to 1 minimum wage (51.68%) predominated and from 1 to 2 salaries (47.19%), such data can be corroborated by many researches, such as Freitas and collaborators (2015). However, according to the studies of Souza e Oliveira (2019) and Aguiar, Viana, Silveira, Brito, & Carvalho, (2018), CHA have income of up to 3 or more minimum wages, which can be considered a high income in relation to the others. As for the results of the practical evaluation, participants were encouraged to do some computer activities. Table 02 refers to the action of turning on the computer equipment, where 75.28% (68) managed to perform this step. However, 24.71% could not perform the command. As for the scores obtained, they vary between 10 and 0 and in relation to the time, 51.68% took 1-2 minutes to perform this activity and 12.35% took 5-6 minutes.

Table 2. Abilities: Turnon Computer Equipment

Variable	n°	%
Turnonthecomputer:		
Yes	68	75,28
No	22	24,71
Pontuations		
0 (zero)		
3 (three)	22	24,71
5 (five)	6	6,74
6 (six)	4	4,49
7 (setven)	2	2,24
8 (eight)	2	2,24
9 (nine)	8	8,98
10 (ten)	8	8,98
	37	41,57
Time		
Between 1 and 2 min:	46	51,68
Between 3 and 4 min:	6	6,74
Between 5 and 6 min:	11	12,35
Between 7 and 8 min:	7	7,86
Between 9 and 10:	1	1,12
Didnot realize:	18	20,22

Source: Search data, 2019.

Table 03 shows the data regarding the use of Microsoft Office wordprocessing, Word. In this activity, it was found that most do not know how to type texts represented by 56.17% of participants. The most predominant score was 0 with 47.19% frequency. Failed to perform the task 51.68% of CHAs.

Tabela 3. Abilities: can use wordprocessing

Variable	n°	%
Tapstext in Word:		
Yes	39	43,82
No	50	56,17
Pontuation:		
0 (zero)	42	47,19
1 (one)	1	1,12
2 (two)	2	2,24
3 (three)	6	6,74
5 (five)	7	7,86
8 (eight)	13	14,60
9 (nine)	10	11,23
10 (ten)	8	8,98
Time:		
Between 5 and 6 min:	4	4,49
Between 7 and 8 min:	3	3,37
Between 9 and 10 min:	10	10,11
More than 10 min:	30	30,33
Didnot realize:	46	51,68

Source: Search data, 2019.

Already table 04 holds the data obtained as to save the text produced and fetch it in the computer. The negative result of this activity stands out, since most participants could not perform it with 82.03% (73) of non-accomplishment index.

Table 4. Abilities: Save text and fetch it from the computer

Variable	n°	%
Download and Save the text:		
Yes	16	17,97
No	73	82,03
Pontuation:		
0 (zero):	73	82,03
5 (five):	5	1,12
8 (eight):	8	3,37
10 (ten):	10	13,48
Time:		
Between 1 and 2 min:	9	10,11
Between 3 and 4 min:	5	5,61
Between 9 and 10:	2	2,24
Didnot realize:	73	82,03

Source: Search data, 2019.

Table 5. Abilities: Access the internet and search the database

Variable	n°	%
Access the internet and search database:		
Yes	13	14,60
No	76	85,40
Pontuation:		
0 (zero)	76	85,40
3 (three)	1	1,12
8 (eight)	5	5,61
9 (nine)	2	2,24
10 (ten)	5	5,61
Time:		
Between 1 and 2 min:	5	5,61
Between 3 and 4 min:	2	2,24
Between 5 and 6 min:	3	3,37
Between 7 and 8 min:	1	1,12
Between 9 and 10:	1	1,12
More than 10:	1	1,12
Didnot realize:	76	85,40

Source: Search data, 2019.

In the analysis of the ability to access the Internet and search the database, 76 (85.40%) could not perform the proposed activity in this assessment, thus obtaining a score of 0 on the scale of scores. Regarding the time taken to accomplish this task, the same percentage mentioned above was classified as "Not done" according to the parameters of the research instrument (Table 05). Table 06 refers to the ability to turn off the computer equipment, where most participants were able to perform this assessment item with 68.53% correspondence when completing the assessment criterion. Scores ranged from 0 to 10 on the scoring scale and most completed the assessment item of the last item of the practical assessment instrument between 1 and 2 minutes with 53.93% of participants.

Table 6. Abilities: Turning Off Computer Equipment

Variable	n°	%
Turn off the computer:		
Yes	61	68,53
No	28	31,46
Pontuation:		
0 (zero):	28	31,46
4 (four):	2	2,24
5 (five):	12	13,48
8 (eight):	6	6,74
9 (nine):	1	1,12
10 (ten):	40	44,94
Time:		
Between 1 and 2 min:	48	53,93
Between 3 and 4 min:	6	6,74
Between 5 and 6 min:	5	5,61
Between 7 and 8 min:	2	2,24
Didnot realize:	28	31,46

Source: Search data, 2019.

By analyzing all the data obtained through the data collection, as well as correlating them, it is possible to notice the visible unpreparedness of the CHAs in relation to the use of information and communication technologies that are, or should be, effective in the daily work of the workers same. Given this profile, it is identified the need to suggest measures to improve the use of computer equipment to improve the professional qualification and work processes of CHAs since the advancement of technology and, especially, computer science, comes increasingly and rapidly transforming production processes. But it is not only the daily life and economic dynamics of society that have changed. Health activities have also undergone significant developments in recent years. It is identified the need for awareness and qualification with regular updating of CHAs in basic computer knowledge for application in their work routines. CHAs should be aware of the need to acquire this knowledge to improve skills and competencies necessary for personal and professional improvement and improvement of community service. Glimpsing their professional recognition, interacting and integrating the health team (Maciazeki-Gomes, de Souza, Baggio, & Wachs, 2016). According, Maciazeki-Gomes, de Souza, Baggio, & Wachs (2016) CHAs are considered important mediation mechanisms between the community and health services. Thus, the CHA needs to understand and assume its role, to be the link between the community and the health unit and, moreover, that in recent decades we have had a great advance in the development of health care technology (Ferreira *et al.*, 2019). Computer courses for the ACS should be based on the need to adapt to the change process to meet the new professional profile, which requires new skills and abilities. It is also identified the need to establish a continuous

and basic computer training and development program, consisting of workshops with schedules defined in the annual planning periods according to the identified needs. The awareness of CHA professionals regarding the use of computer technology to improve the development of their activities will result in the reorientation of the final product, in order to benefit the patient, reduce costs and streamline the work. The CHAs needs constant improvements for its performance to be effective and effective regarding the guidelines that regulate the profession, providing the registration of health information that will be extremely important for the promotion of family health. However, according to Sousa and Pelogi (2018), the quality of the information being collected by the ACS has been questioned in the literature for several reasons, including the fact that the information is still recorded in printed forms, requiring typing time for the data. electronic media.

In addition, the agents need to understand their role in the development of research, such as the epidemiological profile survey according to Musse and collaborators (2015), corroborated by Sousa and Pelogi (2018). This data collection is possible through the records that these professionals make during home visits. Given this scenario, the necessary updating of CHAs through continuing health education is confirmed. It is necessary to expose to the CHA the benefits of new knowledge and skills, the use of information and communication technologies for distance education in the process of permanent education in Primary Health Care and to reinforce the importance of theory and practice interaction and the development of critical vision, analytics and the ability to solve health problems in the community. From this perspective, the process of continuing education arises in order to enable the constant development of the skills and competencies of CHAs, because in view of the current technological expansion within the context of health services, new challenges are emerging regarding the expected profile CHA (BRAZIL, 2018). It is essential to establish strategies to overcome the identified difficulties, jointly ACS and municipal management regarding adherence to computer courses. Evaluate if the strategies used are being implemented correctly contributing to the motivation and search for knowledge construction of the CHA.

Conclusion

Through the study outlined, it is possible to identify that the profile of Community Health Agents of Bragança is similar, in several points, to what is proposed by the National Policy of Primary Care. In this context, the real needs of the realization of constant qualifications that enable the permanent education in health emerge, which are the qualification and improvement of the knowledge of the CHA to act in the scenario of primary care. It is redundant to mention that technological evolution has brought many benefits that have facilitated human life, providing comfort. Although redundant, discussions about the impact they have on certain areas of knowledge are not exhausted yet, social inclusion does not happen in the same proportion as exclusion. Technological tools nowadays allow for a multitude of health work processes that can occur in dynamic and interactive way synchronously or asynchronously and the CHA cannot be left out of these transformations because they know the local reality densely because they are part of the community. They recognize the values, language, dangers and opportunity of this community, being the foundation of health in their area.

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