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ANALYSIS OF THE IMPLEMENTATION OF TELE-EDUCATION ON TUBERCULOSIS IN THE MUNICIPALITY OF PRAIA GRANDE

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Abstract: The article analyzes the implementation of tele-education on tuberculosis for professionals in the family health strategy in the municipality of Praia Grande SP. It focuses on advances and limits of distance course as part of the Permanent Education Program. The course was based on the Manual of Recommendations for Tuberculosis Control in Brazil – Ministry of Health, 2011, in partnership with the ``Instituto de Infectologia Emílio Ribas da Baixada Santista`` and the Center for Epidemiological Surveillance of the State of São Paulo. It performs a qualitative approach, documentary research, interviews and observation. Distance learning used a problematizing pedagogical strategy to transform practices. 30 students from the course (nurses, doctors and dentists) who work in the FHS in the city were followed. By analyzing the content, categories were constructed: a) the obvious practical nature of distance learning was highlighted, with flexible schedules; there was a real transforming impact on daily practice; and the need for more support from managers at all levels was made explicit in order to provide more time and structure for access to this tool. It is concluded that tele-education is of great relevance for the qualification of primary health care professionals and, consequently, has a positive impact on improving the quality and resolution of care provided to users of the Unified Health System.

Keywords: tuberculosis, tele-education, permanent education

INTRODUCTION

In recent years, the science, technology and technological innovation (STI) triad has played a prominent role on the world stage in the most diverse sectors, whether public or private. As a product of CTI, the development of Information and Communication Technologies (ICT) is considered an important lever in the economic perspective for increasing the productivity of different countries[1].

With regard to health, ICTs also stand out, playing a facilitating and fundamental role in the reform of health systems, in improving access to services, in the development of quality of care and in the productivity gain of the system itself[2].

Considering the Brazilian Constitution, the Unified Health System (SUS) is given the responsibility of "ordering the training of human resources in the health area"[3]. From this perspective, there have been concerns and joint actions by the Ministries of Health and Education to ensure integration between teaching and service4. Some strategies emanating from this concern are the Education Program for Work for Health (PET-Health) and the National Policy for Permanent Education in Health - PNEPS[5].

The PNEPS [6] criticizes the strategy usually chosen for professional training for health work, which "consists of the transmission of knowledge within the logic of the 'school model', with the aim of updating new approaches, new information or technologies in the implementation of a new policy". He also disagrees with the fact that professionals, in order to be trained, must be placed in a classroom "isolated" from reality.

Permanent education planning is carried out by the Permanent Commission for Teaching-Service Integration (CIES), with the participation of representatives of municipal and state managers, in addition to universities and social representation, thus being the body responsible for Education management.

The quest to improve the quality of services is based on improvement and continuous professional development; thus, the great qualitative advance for education is the internet, which made possible several

arrangements of distance education, uniting ICT[7].

Tele-education is an important alternative, within ICT, which enables workers of SUS (Unified Health System) to access training and professional qualification. The Ministry of Health has invested in this practice and it is possible to consider it, currently, as a reality in public services[8]. When applied from the perspective of Permanent Education in Health (EPS), it enables the transformation of the professionals' praxis through the problematization of the work process[9].

Tele-education is based on the use of systematically organized didactic resources, presented in different information supports and used in isolation or in combination, and may be conveyed by various means of communication. Tele-education, such as Distance Education, aims to improve health work processes through management critically reflected in the EPS environment, allowing qualification of national reach with low cost and high efficiency, contributing to the organization of services, avoiding physical displacement of these professionals, who can perform it in the workplace.

Rabbit[10] emphasizes the importance and benefits of tele-education. Cook et al.[11], in a systematic review study, concluded that the effectiveness of tele-education is comparable to traditional methods, but it brings better results than leaving continuing education to the professionals' own initiative. Kelmer et al.[12] emphasize the importance of strict planning for remote activities, since re-planning is unfeasible. Thus, the success or failure of tele-education will be based, in large part, on the degree of planning.

In 2006, a set of institutional reforms of the SUS (Unified Health System) were agreed between the three spheres of management (Union, States and Municipalities) generating a series of documents, the Pact for Health.

These documents, among many other things, urge SUS (Unified Health System) managers to commit to prioritizing actions that have a fundamental impact on improving the health situation of the Brazilian population[13].

As universities play a fundamental role in the production of knowledge and are responsible for professional training, effective articulation between universities and health services is essential, considering the need to train human resources in SUS (Unified Health System) perspective.

In this scenario, this article analyzes the proposition of `` Universidade Católica de Santos `` to act within this new paradigmatic proposal in education, understanding tele-education as a powerful tool, which may contribute to changing the praxis of professionals, improving the scenario of Health of the Metropolitan Region of Baixada Santista - RMBS.

Due to the current epidemiological scenario in the RMBS and the possible impact on society, tuberculosis (TB) was selected as the central theme in this distance course. Brazil is part of the group of 22 high-burden countries that concentrate 80% of TB cases in the world, occupying the 16th position in absolute number of cases. In this condition, actions are considered a priority by the World Health Organization. In the country, from 2005 to 2014, an average of 73,000 new cases of TB were diagnosed per year and, in 2013, there were 4,577 deaths[14].

The state of São Paulo notifies about 20,000 cases of TB per year and about 800 deaths, with TB as the main cause. There has been a decline in morbidity and mortality in recent years, and in 2014 the incidence rate was 37.4 cases per 100,000 inhabitants. The distribution of cases is not homogeneous across the state; the highest incidence rates are found in the RMBS (78.7 cases per 100,000 inhabitants in 2014) and the lowest in the interior of the

state[15].

In 2013, in the municipality of Praia Grande, 219 new cases of TB were reported, corresponding to an incidence rate of 76.1 cases per 100,000 inhabitants, data provided on 6/24/2015 by the Tuberculosis Division[16].

In this context, the present work had as its general objective to analyze the implementation of tele-education in tuberculosis in the city of Praia Grande SP and as specific objectives, to identify the facilities and difficulties experienced by professionals in the use of the tool, to describe the expectations of health professionals in relation to tele-education and to verify the impact of tele-education in the daily work of health professionals. Later, after obtaining the results, it was necessary to analyze the political dimension as a facilitator and/or obstacle.

MATERIAL AND METHODS

This research is characterized as an exploratory descriptive study with a qualitative approach. The choice of the municipality of Praia Grande SP, as a pilot city for its implementation, is justified considering its structured primary care network, mainly with the expansion of the Family Health Strategy (ESF). It is one of the main references in the RMBS in services and projects developed related to the ESF, with coverage of 71% of the population. In addition, it is inserted in a worrying epidemiological context in relation to TB control.

The research universe comprised 30 health professionals, including nurses, doctors and dentists who work at the ESF in Praia Grande, who were appointed by the Municipal Health Department, after the University offered the course free of charge to its managers.

The orientation of the course followed the EPS perspective, using a problematizing pedagogical strategy to transform professional practices and work organization itself, based on the health needs of people and populations.

The course was created by the research group "Observatory of Health Promotion" at Unisantos, in partnership with ``Instituto de Infectologia Emílio Ribas da Baixada Santista`` (IER) and the Center for Epidemiological Surveillance of the State of São Paulo (CVE). Based on the Manual of Recommendations for Tuberculosis Control in Brazil – Ministry of Health[17] (BRASIL, 2011) was scheduled for ten weeks of activities. Each week, students accessed at least one video produced by the group, a set of texts and performed an interactive activity (forum, text production, questionnaire resolution). At the end of the activity, there was a discussion of a case as a form of evaluation. The virtual learning environment used was based on the *Moodle* platform, free and open source *software*, adapted to the needs of the course by the University.

The 30 professionals selected to take the course were appointed by the Municipal Health Department. Professionals who did not complete the course were excluded from this study. After the end of the study, the research subjects (11 professionals identified from E1 to E11) were contacted and, after signing the Free and Informed Consent Term - TCLE, answered a semi-structured questionnaire with guiding questions. The responses were recorded and confidentiality was guaranteed.

All recordings were transcribed in detail, faithful to the statements. After this procedure, the data categorization stage began through exhaustive and repetitive reading of the transcribed testimonies, aiming to identify the most relevant information.

Content Analysis was used as a theoretical reference for interpreting the results, justified by the need to know the research subjects in depth through their speeches, since "content analysis seeks to know what is behind the words on which it focuses "[18].

The content analysis technique was applied, confirming the qualitative approach of this study, when the analysis of the interviews was conducted after the survey, that is, the data collection. Starting from this stage, some units of records were grouped, which provided the identification of common and recurrent aspects in the responses, thus allowing knowledge of the problem to be studied.

The treatment of the results consisted of a deep analysis of the content of the interviews, first involving the organization of a matrix, presenting not only the categories and subcategories, but also the description, computing the frequencies referring to the categories/subcategories confirmed throughout the analysis.

Then, the interpretation began, using, in this study, the inductive-constructive approach, which takes the data as a starting point, building, from them, the categories and from these the theory, considering that its purpose is not to generalize or test hypotheses, but to build an understanding of the investigated phenomena.

As a result of common and recurring elements, some record units could be grouped, which outlined a basic profile of the reality to be studied.

RESULTS AND DISCUSSIONS

The implementation of a tele-education proposal presents complexities inherent to its own dynamics, added to the difficulty of the health network, with emphasis on the governing body, in providing hours of effective work to serve the population to carry out the policy of permanent education in service. It was decided, for the analysis of the main analytical category (interactive tele-education as a tool for permanent education), to present the subcategories that emerged from the interviewees' speeches, in three dimensions of analysis. The first one focused on the condition of the course, evaluating its quality, relevance of the theme and the propriety of tele-education itself. As a second focus of analysis, the difficulties and obstacles to implement permanent education actions. And third, the influence of the chain of managers on permanent education actions in the professional development of the actors studied.

TELE-EDUCATION DIMENSION

The professional training process through permanent education depends on the availability and disposition of the professional, as well as on the offer of educational processes. Tele-education, for obvious reasons, presents itself as an important tool due to its flexible schedule and access.

Godoy, Guimaraes and Assis[19], when pointing out that the promotion of health education, mediated by the Internet, is increasingly consolidated as a common practice.

This is the recurring point in the speeches, such as:

> [...] Oh, I like it, I think it's very practical. You don't have to go to any face-to-face classes. So, the internet made our life much easier, really... (E2).

> [...] It's a valid tool, because we don't always have the willingness to go to the place, we gain time and adjust the schedule to do the study itself (E7).

To Oliveira[20], distance education or tele-education has been widely used in various activities related to teaching and learning. It still considers it an important alternative for the access of health network workers to professional training actions, in addition to generating savings by reducing travel expenses.

All professionals participating in the research point to the benefit of distance learning in avoiding displacement, breaking

barriers such as distance, time and cost. The observation is immediate and is evident in this speech.

> [...] Just the fact that you don't have to move is very good. So you really have the possibility, if you can't do it during your working hours, do it in your free time (E9).

In the municipality studied, if the health professional had to travel from his work point to receive face-to-face training, there would be distances of more than 20 km, with up to one hour spent in the displacement.

The statements of the research participants also point to the ease of access to information as reported by the respondents.

> [...] We, doctors and health professionals, have an obligation to be recycling ourselves, seeking new information. [DE] is an important mechanism, also because of our lifestyle, we work a lot, we don't have time to pick up a book, read it (E3).

But attention must be paid to the fact that tele-education is just a tool. The disposition of the health professional, linked to the service, for permanent education is in the perspective of being able to solve their daily problems.

In order to emphasize the importance of EPS, it is necessary to problematize the work process in the training process, to meet the needs of the population involved, transforming health practices[21].

This was also clear in this research, as shown in the following excerpts:

> [...] It brings a lot to our reality, the system is practical, the service is practical. [...] We realize that the contents are extremely focused on our practice, focused on what we experience. Therefore, it's very valid, it's very good (E8).

Tele-education, therefore, as long as it is linked to the professional's concrete interest, is capable of being significant for the improvement of the service. It is not the scope of this work to analyze the direct effect of the proposed course on professional practice, but it is understood that the first step towards change has to be the reflective process on the practice itself.

Two concepts are fundamental, namely, the understanding of health and education. As for health, we have in Rezende[22] that "it is a human and dialectical posture in the face of permanent conflicting situations generated by the antagonisms between man and the environment" and in Mendes[23] the reaffirmation of the importance of considering health in its positivity, that is, studying it as "a process of social production that expresses the quality of life... as a condition for the existence of men in their daily lives".

Health, therefore, has to be understood as a process and as a negotiation, hence justifying the need for constant improvement, continuous training and permanent education. On the other hand, Silva and Trad[24] consider that training and qualifications are not enough to transform health practices in a perspective of integrating professionals as a true health team, reaffirming the concepts of Paim (1993) quoted by Silva and Trad[24].

The methodologies proper to health promotion require the technical and technological mastery typical of health practices. And the statements reveal, on the part of professionals, the dimension of professional qualification as an important strategy for updating new knowledge.

New knowledge and the reaffirmation of what was not practiced is expressed here:

> [...] because there were some things I didn't know, which I ended up learning with the course. All that material was very easy to understand and of great value. At least for me it was of great value. It added a lot to my day-to-day [...]. [For example] the PPD, he was not in the habit of asking (E6).

The registration units, referring to the need for updating in tuberculosis, reveal the recognition of their deficiencies in knowledge

and point to the change in the professional routine after the completion of the course. They also refer to the possibility of clarifying doubts, exchanging experiences with other professionals and the development of critical reflection in relation to the acquired information.

The incorporation of these technologies is causing changes in the routine of health work; are tools that allow the rapid sharing of information, enabling permanent training of the team[25].

Santos, Nogueira and Arcêncio[26] point to the importance of promoting the training of health teams in TB, as a tool for them to institute evaluation in their work processes and to contribute to success in the fight against tuberculosis.

It is concluded, therefore, that the use of distance education technology is an important tool that can positively impact the qualification of the care practice of the SUS (Unified Health System) service network, especially in primary health care. And that the interviewees' reports point to the importance of the professional development process through permanent education, using interactive tele-education as a tool for professional training, in addition to demonstrating satisfaction and recognition about the importance of incorporating this technology in their daily lives.

Tele-education can be well accepted as a strategy for permanent education, according to this statement obtained:

> [...] The content is excellent, excellent. It wasn't tiring because it was divided into weekly modules, so it wasn't tiring. It was possible to do, participate, do the tasks calmly. [...] it is a way that allows professionals to update themselves without demanding a lot of time. It's like chewing up the information and giving it in a more pleasant way for the person to absorb it. Very interesting (E3).

STRUCTURAL DIMENSION

As already presented, professional development is dependent on personal factors of availability and willingness, but access to educational activities must be provided. The main complaint, evidenced by the research participants, is centered on the lack of technological resources in the unit. A reduced number of computers was reported, with cases in which there is only one computer for the unit and that is intended for the administrative practice of scheduling appointments and accessing patient data. Thus, there was a need to use the home computer. They also refer to the overlapping of tasks that must be carried out by professionals, most often with an excessive number of demands that need to be met and resolved, as well as pointing to the lack of awareness of the unit manager.

The respondents reveal the lack of technological resources as an important factor that hinders the practice of tele-education, as exemplified by the extracts of their speeches:

> [...] because there are few computers here. The reception is a very crowded place, patients also see it, complain and start asking questions. There had to be a computer more reserved for us (E1).

> [...] Oh, I don't think you can take a distance learning course where you, inside the unit, cannot access the internet (E5).

The speeches of health professionals portray the reality of health units. There are few computers, which makes it difficult to access the course. This fact can be verified by surveying the number of computers in the units, found at the time of this study.

The study by Olivi[25] finds, in its results, that the scarce technological resources and inappropriate working conditions do not favor an environment conducive to carrying out tele-education activities.

POLITICAL DIMENSION

The entire chain of managers of health workers can bring commitment to professional development. With regard to organizational aspects, there is a need for planning, administrative changes and adaptation of activities in the daily lives of professionals to achieve sustainability. Discussing also about the difficulties in accessing distance learning, Andrade[27] points out, in his study, that work organization issues, such as time availability, are fundamental for accessing the tool, as well as the manager's political posture.

It is possible to verify that these obstacles are also present in the research.

> [...] to give you an idea, I changed my workload, I'm starting at 7 am. Because, from 7 am to 8 am, I can produce, because after that time, I start seeing people. Everyone arrives to talk, solve problems. [...] I'll only have time to do [the course] at home. I took the entire course there. (E8).

Another relevant aspect pointed out by the respondents concerns the overlapping of tasks carried out by health professionals. Barros and Cardoso[28] confirm this assertion, in a study carried out in Belo Horizonte, which revealed the difficulty of health professionals in reconciling permanent education activities with their other attributions. Nicolini[29] also deals with this theme, considering that permanent education demands a series of changes in work processes.

The lack of time during working hours to access the course and the lack of computers available in the units were challenges reported by the professionals. But another important obstacle refers to the role of the manager of health services. The lack of structure to carry out the course within working hours, according to the proposal presented by the University and expected by the health system, was reputed to the managers.

The statements of the participants demonstrate this dissatisfaction:

> [...] we didn't have days off to access at home" (E1).

> [...] We are already used to this condition. But when you want to do it, you end up using your own resources. I did it at my house... and it's no use waiting for them to give us a computer... (E2).

Considering that the tele-education tool is of great relevance for professional qualification, it is necessary to raise awareness on the part of managers of the importance of continuing education for these professionals, including during working hours, in addition to providing the structure and organization necessary, thus increasing the incentive for these workers to overcome their difficulties in handling technologies and enjoy their benefits.

According to Silva[30], it is up to the service manager to offer space in the work environments to optimize and democratize the use of available equipment and technology. But the workers surveyed understand the importance and accept alternatives.

> [...] if you can't use it at work, at least you could free up a period (E1).

> [...] I think it's important that, if the professional has to do it, he really needs at least one part-time period a week to stick to it (E6).

The studies show the challenge to incorporate tele-education as a practice in the routine of the services, although from the normative point of view it is considered and agreed with the managers; in everyday work processes this does not always occur[31]. For these authors, distance education is a device capable of contributing to the strengthening of working subjects and to the qualification of health work in the SUS (Unified Health System).

Knowledge on the part of health service

managers in relation to tele-education is decisive for its effectiveness; therefore, sensitizing them is a challenge for the implementation of tele-education[32].

For Oliveira[19], political interest can influence both positively and negatively the implementation of EPS in the work environment. It is necessary to make managers aware of the importance of this tool as a transformer of the work process and to promote the articulation between EPS and tele-education, contributing to the strengthening of the SUS (Unified Health System).

Tele-education as a tool has to preserve the quality of the course. The registration units reveal that health professionals were satisfied with the course, pointing to the identification of the content presented with the expectations of professionals. They considered that the results are positive in several scenarios, emphasizing interactive tele-education as an important tool for professional training.

They highlight that:

> *[...] you have to be constantly renewing, because we work in a multidisciplinary environment, so there are several areas of attention... I think it's very efficient, the theoretical part was excellent (E2).*

> *[...] the content was wonderful [...] many things, we've experienced it, we've seen it, but there were new things and I thought I had exhausted everything from TB, but no. The videos brought new things, how to handle it, posture... how to have a really clinical management with regard to TB (E8).*

Access to tele-education enhances the dissemination of knowledge, allowing professionals to access content in an individualized and interactive way, conducting their learning, which may be more significant according to the degree of interaction between the participants in the process. As stated by Kenski[33], distance course cannot be individual, but must value the exchange of information between teacher and tutor with students. Therefore, the education process from the perspective of critical and reflective training demands that teachers and tutors make their students subjects of this process.

CONCLUSION

From this study it was possible to observe the wide possibility of tele-education as an important tool for permanent education. The application of this technology is not recent, it is evident when it is described in different ways, in different concepts, but it is necessary to consider the existence of many obstacles to its consolidation in the daily activity of the health professional.

The interviewees' reports conveyed the importance of the professional development process through permanent education, in addition to demonstrating appreciation and recognition of the importance of incorporating this technology into their daily lives.

This study highlights the possibility of evaluating the results immediately, as soon as after the completion of the distance course, considering the concrete examples of change in their professional performance. This finding corroborates the importance of ICT, for the knowledge of managers at different hierarchical levels, demonstrating a positive impact on the quality of care for SUS (Unified Health System) users.

Despite not being the scope of the study, the analysis of the interviews exposes the additional difficulties in the implementation of new practices of permanent education, also presented by other works consulted, that is, the adherence of the local manager, suitable physical structure and real availability of the professionals of health.

It is concluded that the tele-education tool is of great relevance for the qualification of professionals working in primary care and for

improving the quality of care provided to users of the Unified Health System. However, for your proposal to be achieved, it is necessary to raise awareness on the part of managers of the importance of continuing education for these professionals, including during working hours, in addition to providing the necessary structure and organization, thus increasing the incentive for these workers to that they overcome their difficulties in handling technologies and that they can enjoy their benefits.

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