Tuberculose, dificuldades e facilidades para Enfermeiros

Tuberculosis, difficulties and facilities for Nurses

Tuberculosis, dificultades e facilidad para las Enfermeras

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Resumo

O estudo propôs analisar as facilidades e dificuldades enfrentadas por profissionais enfermeiros no enfrentamento da tuberculose dentro do campo da atenção primária à saúde. Tratou de estudo transversal com abordagem qualitativa, amostragem foi formada por 36 participantes, todos profissionais enfermeiros. Aplicou-se o programa estatístico IRaMuTeQ e também fez uso da análise do conteúdo de Laurence Bardin e Minayo para discutir tanto as categorias apriorísticas quanto as não apriorísticas. No estudo ficou nítido que as dificuldades são diversificadas, sendo elas: questões pessoais dos profissionais, estrutura física e organizacional, conscientização de pacientes e familiares no processo terapêutico e a gestão, sendo essa última o ponto crítico mais apontado como dificuldade, já em questão das facilidades apontou o trabalho multiprofissional e protocolos bem definido pelo Programa Nacional de Controle da Tuberculose. O estudo comprova que o quesito gestão é o primordial para a engrenagem de todo o processo de enfrentamento da tuberculose, servindo de referência para melhorias e adequações.

Palavras-chave: Serviços de saúde; Enfermeiros; Equipe técnica de saúde; Assistência ao paciente; Tuberculose.

Abstract

The study proposed to analyze the amenities and difficulties faced by nurses' professionals in the fight against tuberculosis within the field of primary health care. This was a cross-sectional study with a qualitative approach. The sample consisted of 36 participants, all of whom were nurses. The statistical program IRaMuTeQ was applied and we also applied Laurence Bardin and Minayo content analysis to discuss both aprioristic and non-aprioristic categories. In the study it was clear that the difficulties are diversified, such as: personal matters from the professionals, physical and organizational structure, awareness of patients and family about the therapeutic process and the administration, the latter being the one most pointed out as difficult; regarding the amenities, the multi-professional work and protocols defined by the National Tuberculosis Control Program were pointed out. The study proves that the administrative question is the key to the function of the entire process of fighting tuberculosis, serving as a reference for improvements and adjustments.

Keywords: Health services; Nurses; Health technical staff; Patient assistance; Tuberculosis.

Resumen

El estudio propuso analizar las facildad y dificultades a las que se enfrentan los profesionales de enfermería para hacer frente a la tuberculosis en el ámbito de la atención primaria de salud. Se abordó un estudio transversal con un enfoque cualitativa, el muestreo fue formado por 36 participantes, todos profesionales de enfermería. Se aplicó el programa estadístico IRaMuTeQ y también utilizó el análisis de contenido de Laurence Bardin y Minayo para discutir las categorías aprioristas y no aprioristas. En el estudio, quedó claro que las dificultades están diversificadas, siendo: cuestiones personales de los profesionales, estructura física y organizativa, concienciación de los pacientes y familiares en el proceso terapéutico y gestión, siendo este último el punto crítico más señalado como dificultad, ya en cuestión de las instalaciones señaló el trabajo multiprofesional y los protocolos bien definidos por el Programa Nacional de Control de la Tuberculosis. El estudio demuestra que el tema de la gestión es el principal para el engranaje de todo el proceso de afrontamiento de la tuberculosis, sirviendo de referencia para mejoras y adaptaciones.

Palabras clave: Servicios de salud; Enfermeras; Equipo técnico de salud; Atención al paciente; Tuberculosis.

1. Introduction

Tuberculosis (TB) is characterized by being an infectious contagious disease that has a chronic evolution, being caused by *Mycobacterium Tuberculosis*, widely denominated Bacillus of Koch. During its evolution, the lungs are affected first, however, it is possible that organs such as kidneys, bones and meninges are also affected (Coutinho et al., 2012).

According to WHO, TB is the second largest cause of death due to infectious-contagious disease worldwide (World Health Organization, 2011). Even though it is a preventable and curable disease, it is still considered a public health problem, especially in developing countries. Annually, an estimated two billion people have latent tuberculosis infection, with approximately 5.4 million new cases. Brazil occupies the 18th place in the ranking of the 30 countries with the highest disease burden (Silva et al., 2013).

In 2003, the Ministry of Health prioritized this endemic disease in Brazil through the development of activities and strategies to strengthen Primary Health Care (PHC), guaranteeing increased access and improved quality of care for people with TB. It is possible to identify, in the country, a heterogeneous spatial distribution in the different regions, presenting a variability of incidence rate of 11 to 68.4 cases per 100 thousand inhabitants (Brasil, 2015). It is worth noting that approximately 4,500 people die each year from TB in Brazil, in addition, the treatment abandonment rate is still high, building up to 17% (Silva et al., 2014). Since 1997, the World Health Organization (WHO) has begun to recommend the use of the Directly Observed Treatment Short Course (DOTS). This strategy consists of, starting from the treatment, enabling the reduction of the rate of morbidity, mortality and transmission of the disease. DOTS has in its objective to guarantee the correct use of the drug treatment, being able to prevent the continuity of resistant bacilli. It is based on administering the treatment in a standardized way, with short duration and with direct supervision of an observer in the initial phase of the treatment, at least for all cases of positive bacilloscopy (sources of infection) (Bergel et al., 2005).

This strategy, which is recommended by WHO, is based on five essential components, namely: an effective management system for the supply of medicines; political commitment with increasing and sustainable funding; information system that allows monitoring, evaluation of actions and their impacts; case detection through bacteriology with quality control; standardized treatment, with supervision of the medication and patient support (El et al., 2015).

What is perceived is that high incidence rates are still seen in all Brazilian states. In a study to analyze the spatial distribution of TB incidence in the Brazilian Northeast between 2005 and 2010 was observed, in the results, that during the period evaluated, the state of Paraíba was responsible for 29.88 new cases per 100,000 inhabitants, and within this state the municipalities with the highest incidence per 100,000 inhabitants were: Patos (1.832); Santa Rita (417,38); Mamanguape (215,74); Itamaracá (190,38); and Pombal (143,47) (Barbosa et al., 2013).

The patient with tuberculosis goes through several professionals, and it's challenging to understand the hardship on confronting this disease, so what are the amenities and difficulties faced by professionals in the fight against TB? Thus, this study aimed to analyze them in primary health care.

2. Method

Type of study

For the design of this research, cross-sectional study with qualitative approach, because it was the one that would best respond to the objective of the study, according to what is observed, the qualitative study requires the researcher to interpret it and does with what even issues his opinions, conclusions and/or recommendations about what is being studied (Pereira et al., 2018).

Scenario of study

The study was carried out in the Health Strategy for the Family (HSF) of the municipality of Patos, Paraíba, located in the Paraíba backlands, with a population of 106,314 inhabitants (IBGE,2016), the referred municipality presents the primary care organized in 4 Administrative Management Districts (AMD), each AMD is responsible for 10 Family Health Teams (FH-t), totaling 40 FH-t registered with the Ministry of Health, which represents 96.10% of population coverage, however, from these, 39 HSF units had reports of confirmed tuberculosis.

The social determinants of health in this municipality are closely linked to economic, cultural, ethnic/racial, psychological and behavioral aspects. In social aspects one can observe the ways in which society behaves, its cultural means and human interrelationships. In the

economic aspects of Patos, it is observed that it is a municipality classified as of high importance for the entire backland of the state of Paraíba (capital of the backlands) and it reflects a direct influence on the municipalities in the backlands of Pernambuco and Rio Grande do Norte respectively.

The growing industrial facilities in this municipality bring with them an increasing human flow in search for jobs, a behavior that deflates in disorganized agglomerations in the urban center and in neighborhoods that do not stop growing. In the geographic aspects, what draws attention is that, although a small municipality, it has a high population density of 210.2 inhabitants/km2. The center of the city has several alleys and pathways, where several families live, there are neighborhoods where access and traffic have geographical barriers associated with unplanned irregular housing.

Study population

The study population was comprised of primary health care professionals and the sample consisted of 36 professionals, all nurses who are in charge of coordinating TB control. Professionals who were not at the forefront in the fight against tuberculosis were excluded, or those who, although they were at the forefront, had no connection with the team, for example: professionals hired just to cover vacation from the nurses.

Variables of study and data collection

In order to collect the data, a script was drawn up consisting of only two subjective questions, asking: What were the amenities and What were the difficulties faced in the fight against tuberculosis in the municipal sphere? and from the discourses, there was a refinement and lapidation of responses (qualitative variables) categorizing them (aprioristic categories) into two blocks, amenities and difficulties. Data collection occurred between March and April 2017.

Data analysis

For the analysis of the data the stages of pre-exploration, selection of the units of analysis, categorization and, finally, the sub-categorization were respected.

Pre-exploration phase

At this stage, floating readings of speeches from the subjects were made, both from all responses to amenities and from responses to difficulties, making use of the inferences and interpretations that served as a foundation for later stages.

Phase of the selection of the units of analysis

The researcher, based on previous experiences in the process of working with patients with tuberculosis, established as **aprioristic categories** Amenities and Difficulties, because these are the most significant units of meanings in the professional/patient relationship that needed to be answered; in other words, these units of analysis were configured as the key questions for the process: What were the amenities pointed out in the treatment of tuberculosis from the perspective of professionals? and What were the difficulties pointed out in the treatment of tuberculosis from the perspective of professionals?

Phase of the categorization process of the subcategorization

The statistical program IRaMuTeQ (which is a free software linked to R for textual analysis) was applied to the formation of non-aprioristic categories through the statistical analyzes of the answers given by the professionals forming the clouds of words by similarity.

After the formation of the non-aprioristic categories through IRaMuTeQ, a more detailed analysis of the content of Laurence Bardin (Bardin, 2009) and Minayo (Minayo, 2001) was used to guide the qualitative work. For the analysis and discussion of the results of the data, the hermeneutic-dialectic method was used, where the discourses from the subjects were placed in contexts for better understanding.

The subjects involved in the study were assigned the letter I of interviewee and a numerical sequence that ranged from 1 to 36 according to the order in which the interviews took place, and the results were as follows: I1, I2, I3 and so on, respectively. It should be noted that 3 (three) professionals refused to participate in the survey and 1 (one) was not located.

Ethical aspects

This study was approved by the Research Ethics Committee from Faculdades Integradas de Patos, located in the city of Patos, Paraíba under the number CAAE: 58315516,6,0000,5181 and substantiated opinion number: 1,718,279.

3. Results and Discussion

From the results obtained in the study, in relation to the demographic data, the study had 36 participants, all health professionals (nurses), with a mean age of 33.8 years and a standard deviation of 3.8, ranging from 28 to 44 years old. The length of time at work ranged from 2 months to 10 years (M=6,33; SD=3,2). Regarding educational level, only one subject had only higher education, all the remaining 35 had postgraduate studies at the *lato sensu* level (Specialization in related areas). The income of these participants was classified as it follows: from 1 thousand to 2 thousand Reais (5.7%) and above 2 thousand Reais (94.3%).

The following are the data referring to the dimensions described by groups of *amenities* and *difficulties* that the professionals identified in each one of the questions raised with the sample.

In Graph 1, the *amenities* are presented, emphasizing that professionals could indicate more than one of them, therefore, the percentage refers to the total of professionals that pointed that characteristic more frequently.

Graph 1 - Distribution of the affirmative answers given by the professionals of the Family Health Strategy about the amenities (n=36) from Patos, Paraíba, 2017.
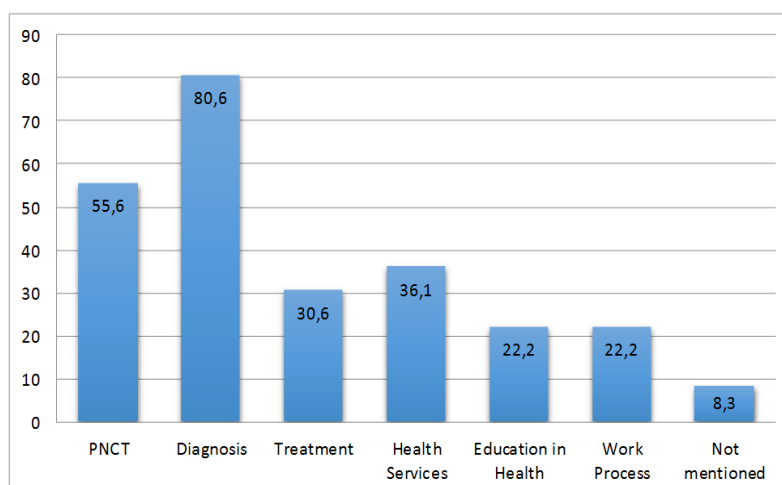
Source: Research data, 2018.

In Graph 2, the difficulties pointed out by professionals are presented as it follows:

Graph 2 - Distribution of the affirmative answers given by the professionals of the Family Health Strategy about the difficulties (n=36) from Patos, Paraíba, 2017.
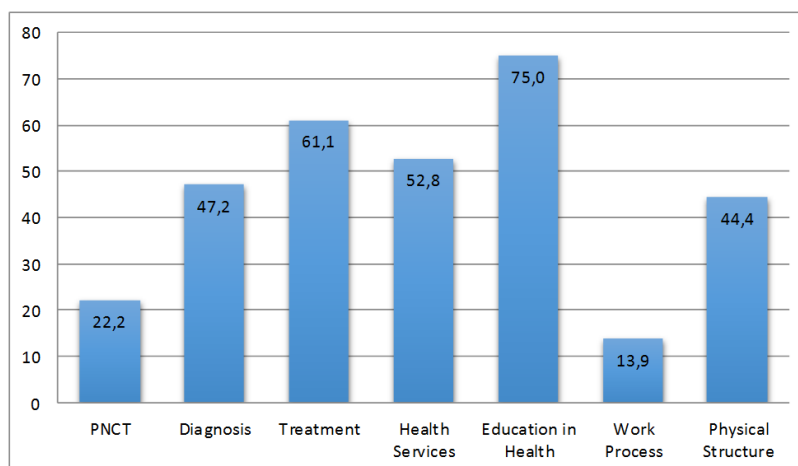
Source: Research data, 2018.

Regarding Graph 1, which has data collected from nursing professionals, answers were obtained about the main amenities found regarding the targeting of TB in the municipality studied. In the first dimension evaluated, the amenities of the Programa Nacional de Controle da Tuberculose (PNCT) – in English: National Program for Tuberculosis Control - were pointed out, where 55.6% of the professionals indicated that the program has as amenities the combination of drugs, accessibility to medication and protocols from the Ministry of Health that are well defined, as shown in the speeches below:

The dispensation of medicines by the SUS (National Public Healthcare System), ease access of the patient to the nursing professional from the Family Health Strategy and the prescription of exams by that same professional. (I7).

I believe that today the greatest amenity has been the possibility of finding the treatment of tuberculosis in a nearby health unit, having access to the team (community health agent, doctor, nurse, physiotherapist, psychologist), in short, it brings to the most disadvantaged part of the population or even physically disabled ones, an even-handed right. (I14).

In another aspect, graph 2, that evaluated the difficulties pointed out by the nursing professionals regarding the PNCT, obtained in its main findings the non-effectiveness of the program itself, regarding its management/professional practice and inefficacy on its responses within the municipality, although it has been a small portion (22,2%).

Lack of incentive from the administrative sector to supervise and present the current situation of the disease in the municipality, lack of accessibility to treatment due to the centralization of distribution of the medications, delay in the scheduling of the tests and delivery of the results. (I16).

The PNCT is a health policy integrated into the National Public Health System (SUS) that has in its strategies, the development of actions ranging from Epidemiological Surveillance, protection measures, integration with basic care up to evaluation, follow-up and monitoring. These components have attributions that are defined between the federal, state and municipal spheres. These attributions, in turn, have goals that must be achieved in all the federated units (Chirinos et al., 2011). No studies have been found evaluating the PNCT in this area; however, since 2000 the Brazilian Ministry of Health (Brasil, 2014), has established new intrinsic and intersectoral relationships that allow the discussion on TB to be broadened, bringing new approaches to its improvements and its control, be it with users, managers or health professionals. Adding these factors to new diagnostic technologies for its treatment, making it possible to guarantee a higher quality of health services.

In the diagnostic dimension, 80.6% emphasized amenities for identification of patients by Community Health Agents, for the requesting of exams by doctors and nurses, as well as active search in primary care; and it's necessary to understand the following:

The bond between the Community Health Agents and the affected patients, without it the patients would be invisible to the health system, the bonds enable the identification of the patient. (I24).

Regarding the difficulties for diagnosis seen in Graph 2, 47.2% answered that there is too much paperwork to perform the tests, as well as the lack of availability for the follow-up exams of the disease and failures in the active searches. The speeches exemplify some of the difficulties:

Lack of access to exams by the patient, major delay in diagnosis, lack of training for the team, lack of communication between health services and lack of active search from the Community Health Agents. (I7).

We do not have the possibility to collect the biological material in the health unit, since it does not have adequate physical space or a specific refrigerator to store the samples collected. (I11).

Because it is an infectious-contagious disease, early diagnosis is essential for control in the event of a breakdown of the transmission chain, in this area, PHC (Primary Health Care) is one of the levels of attention. It is identified in the literature that difficulties in diagnosis are linked to the delay of the search for treatment, where the health professional is inserted with the offer of active search and information dissemination as strategies to facilitate diagnosis (Dantas et al., 2014).

When difficulties are encountered by health professionals from the Basic Health Units in diagnosing the disease, it will result in a spontaneous demand for emergency services, which are therefore not ready to deal with these patients, who are referred, still undiagnosed, to hospitals that are connected with the SUS program (Abimbola et al., 2015).

Regarding the treatment dimension, it was possible to observe that the difficulties outweighed the amenities. Only 30.6% emphasized amenities that include accessibility to the nurse, consultation and home visits and other variables. 61.1% reported difficulties with tuberculosis/HIV coinfection, long duration of treatment, adverse and collateral effects, lack of input and medication, no adherence to treatment/DOT (Directly Observed Therapy) by professionals, lack of incentive (feeding, milk, basic food and breakfast) for patients, discontinuation of treatment after some signs and symptoms, and control of contacts. Accordingly, the reports from the professionals demonstrate some of those difficulties, such as:

The unveiling of other diseases along with tuberculosis, such as HIV/SIDA. (I1).

The preconception and the myths surrounding the disease generating fear and anguish to the patient, the paperwork obstacles and its delays cause the patient himself to discredit that he is ill, the side effects added to the long duration of treatment. (I2).

There are many users who move away and interrupt the treatment no matter how much we explain the importance of completing it. (I11).

The various difficulties can be highlighted when spoken of the TB treatment; the author emphasizes that sometimes low adherence to treatment results in low investment in the maintenance and financing of programs, unmotivated professionals with little knowledge to deal with common situations, and the difficulty of access to health services for the most vulnerable parts of the population, such as the unemployed, street dwellers, chronic alcoholics and drug users (Ruffino-Netto, 2007).

The benefits and incentives (breakfast, milk, transportation vouchers and basic food) are offered as a goal to promote the improvement of care for TB patients. These benefits are part of the PNCT, which also provides nutritional or transportation support. In a scenario where there is a high incidence of people with nutritional deficits and in vulnerable economic situations, such incentives tend to improve patient adherence to treatment, becoming a relevant practice and as mentioned by the professionals participating in this study, difficulties in this exact area are pointed out, which may make it difficult to conduct treatment (Paiva et al., 2014).

Another factor highlighted in this study is the difficulty in the lack of material resources, a study carried out showed that lack of material resources, such as disposable items, lack of vehicles to perform home visits or active search for the absent patients, puts the professionals in incoherent situations where they have to negotiate with patients and other services strategically, in an attempt to solve the frailties that are present in the organization of the health services (Ferreira et al., 2015). The lack of human and material resources can jeopardize the involvement of the health team with TB control actions and, consequently, the quality of the services offered. The interviewees expressed this in their comments:

Lack of incentive for acquiring food (milk used to be delivered for them), for very poor patients. (I8).

Lack of necessary resources to perform educational activities, sputum collection, laboratory support, difficult access to medications for follow-up treatment. (I13).

Lack of material, lack of physical structure, lack of professional training. (I27).

Lack of collectors, lack of access to laboratories, lack of diagnostic support tests. (I33).

In the health services dimension, only 36.2% of the participants listed amenities (graph 1), which reports the bonds between FHS (Estratégia de Saúde da Família - ESF) and the Expanded Family Health Center (Núcleo Ampliado a Saúde da Família) regarding family and user, access to FHS, to the referral and counter-referral system, and coordination of independent tuberculosis; what was made clear is that:

The health unit welcomes the patient and it doesn't allow him/her to be lost, because the Community Health Agents that make up the team have the means to follow him/her up and send the information to the other members of the team. (I18).

In another aspect, graph 2 also shows the difficulties encountered for the health services dimension, where 52.8% of the participants reported difficulties related to it. In this scenario, it is observed that several difficulties could be faced with an adequate supply of health services and effectiveness in their systems, where there is sometimes a resistance to the release of demands that are necessary to conduct the diagnosis, treatment and other aspects that involve TB. Not all responsibilities fall on the professionals working in the FHS unit, but there are aspects that involve management in its various spheres that hinder or delay some progress.

The expansion of access to health care, especially in primary care, for most of the Brazilian population is one of the important advancements in the implementation of the National Public Health System (SUS), which has as its fundamental principles universality, equity and social participation. However, there are still several difficulties and challenges to guarantee universal and equitable access to health services, in a national scenario marked by deep demographic, epidemiological and social inequalities (Souza et al., 2015).

In the dimension of health education, few amenities were quantified when compared to the difficulties. The literature states that when it comes to the empowerment of TB patients as a strategy for disease control, it is emphasized the importance of health education as a political act, which can promote dialogue between health professionals and users, autonomy and incentive to an active posture of these subjects in their political and social environments (Fernandes et al., 2010; Santos et al., 2017). In this aspect, it was found that:

There is a shortage of training for teams and not just for a professional category. (I16).

Health services have low capacity to offer a high level prevention of the disease within the communities. (I31).

Based on the guidelines of the National Tuberculosis Control Program (PNCT), the development of health education, communication and social mobilization actions within the scope of the Family Health Strategy is aimed at strengthening the capacity to cope with problems linked to the health-disease-care process in the context of TB.

Finally, the work process dimension brought in its amenities: sensibility of the community health agents, empathy from the nurses in working with the community agents, bond between agents and users, interaction with the physician, presence of the specialist physician in the team and the coordinator with qualification in the area, corresponding to 22.2%; in this aspect, the work process in the referred municipality happens under the following optics:

Planning of interventions with the team to control tuberculosis, reports of confirmed cases, clarification of doubts about breaking taboos. (I32).

Capacity of the health unit to send symptomatic respiratory patients to specialists and request for diagnostic exams. (I36).

In the difficulties, only 13.9% reported having problems in this dimension, the ones reported were: non-participation of the professionals in the active searches, missing control book of patients with tuberculosis, missing control book of symptomatic respiratory patients, rejection of requests for examinations by nurses in the local sphere and lack of preparation of nurses to control tuberculosis; all of this was very clear in what the interviewees said:

I do not have a follow-up book, the municipality is not offering laboratory tests and X-ray exams. (I26).

Lack of preparation from the Nursing team to follow up the patients, since they have no access to updates and improvements from the patients. (I31).

It is known that the work process must be done jointly with the entire team, it is reported in this scenario that there are bonds between professionals and patients that go beyond the professional aspect, making it necessary to stress that for an effective work process to occur, the creation of such bonds is essential throughout the whole operation.

4. Final Considerations

With the conclusion of the study, it was observed that the proposed objective was completely achieved, understanding all the phenomena involving the therapy of tuberculosis disease.

The present study clarifies that professionals who work directly in the fight against tuberculosis have encountered many difficulties that range from the professional, organizational, and functional aspects to patient and family awareness and social angles in the administration, this last one being the most pointed out as limiting for the operability of facing tuberculosis.

Therefore, it is hoped that this work can encourage the achievement of new research focused on tuberculosis in several other Brazilian municipalities, who experience such similar realities in the aspects of social vulnerability for the emergence and maintenance of tuberculosis disease.

Thank You Note

References

Abimbola, S, Ukwaja, K. N., Onyedum, C. C., Negrin, J., Jan, S., & Martinuket, A. L. C. (2015). Transaction costs of access to health care: Implications of the care-seeking pathways

of tuberculosis patients for health system governance in Nigeria. *Global public health*. 10(9):1060-77. DOI: 10.1080 / 17441692.2015.1007470.

Barbosa, I. R., Pereira, L. M. S., Medeiros, P. F. M., Valentim, R. S., Brito, J. M., & Costa, I. C. C. (2013). Análise da distribuição espacial da tuberculose na região Nordeste do Brasil, 2005-2010. *Epidemiol. Serv. Saúd***e**. 22(4): 687-95. DOI: 10.5123/S1679-49742013000400015

Bardin, L, (2009). *Análise de Conteúdo*. Lisboa, Portugal; Edições 70, LDA.

Bergel, F., & Gouveia, N. (2005). Retornos frequentes como nova estratégia para adesão ao tratamento de tuberculose. *Rev. Saúde Pública*. v. 39, n. 6, p.898-905. DOI: 10.1590/0102-311X00124513

Brasil. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde (2015). *Boletim Epidemiológico: Detectar, tratar e curar: desafios e estratégias brasileiras frente à tuberculose.* [Internet] Brasília: Ministério da Saúde. Available at: http://www.saude.gov.br/images/pdf/2015/marco/25/Boletim-tuberculose-2015.pdf

Brasil. Ministério da Saúde. Secretaria de Gestão Estratégica e Participativa. Departamento de Articulação Interfederativa (2014). *Caderno de Diretrizes, Objetivos, Metas e Indicadores: 2013-2015.2*. ed. Brasília: Ministério da Saúde. Available at: http://bvsms.saude.gov.br/bvs/publicacoes/caderno_diretrizes_objetivos_2013_2015_2edicao.pdf

Chirinos, N. E. C., & Meirelles, B. H. S. (2011). Fatores associados ao abandono do tratamento da tuberculose: uma revisão integrativa. *Texto Contexto Enferm*. v. 20, n. 3, p. 406-599. Available at: https://www.scielo.br/pdf/tce/v20n3/23.pdf

Coutinho, L. A. S. A., Oliveira, D. S., Souza, G. F., Fernandes Filho, G. M. C., & Saraiva, M. G. (2012). Perfil epidemiológico da tuberculose no município de João Pessoa–PB, entre 2007-2010. *R Bras Ci Saúde*. v. 16, n. 1, p. 35-42. DOI:10.4034/RBCS.2012.16.01.06

Dantas, D. N. A., Enders, B. C., Queiroz, A. A. R., Coura, A. S., Silva, M. P. M., & Menezes, R. M. P. (2014). Fatores associados à primeira escolha de local para o diagnóstico da tuberculose. *Rev. Gaúcha Enferm.* v. 35, n. 3, p. 75-81. DOI: 10.1590/1983-1447.2014.03.44767

EI, K. A., Joobeur, S., Skhiri, N., Cheikh, M. S., Mribah, H., &Rouatbi, N. (2015). Fight against tuberculosis in the world. *Rev Pneumol Clin.* v.71, n.2, p. 181-187. DOI: 10.1016/j.pneumo.2014.03.004

Ferreira, R. C., Caliari, J. S., & Figueiredo, R. M. (2015). Concepções de enfermeiros sobre o tratamento supervisionado da tuberculose no Brasil. *Revista Ibero-Americana de Saúde e Envelhecimento.* v. 1, n. 2, p. 219. DOI: 10.24902/r.riase.2015.1(2).219

Fernandes, M. C. P., & Backes, V. M. S. (2010). Educação em saúde: perspectivas de uma equipe da Estratégia Saúde da Família sob a óptica de Paulo Freire. *Revista Brasileira de Enfermagem.* v. 63, n. 4, p. 567-573. Available at: https://www.scielo.br/pdf/reben/v63n4/11.pdf

Paiva, R. C. G., Nogueira, J. Á., Sá, L. D., Nóbrega, R. G., Trigueiro, D. R. S. G., & Villa, T. S. C. (2014). Acessibilidade ao diagnóstico de tuberculose em município do Nordeste do Brasil: desafio da atenção básica. *Revista Eletrônica de Enfermagem.* v. 16, n. 3, p. 520-6. DOI: 10.5216/ree. v16i3.23491

Pereira, A. S., et al. (2018). *Methodology of cientific research.* [*e-Book*]. Santa Maria City. UAB / NTE / UFSM Editors. Accessed on: July, 7th, 2020. Available at: https://repositorio.ufsm.br/bitstream/handle/1/15824/Lic_Computacao_Metodologia-Pesquisa-Cientifica.pdf?sequence=1.

Projeção População de Patos, Paraíba (2015). Acessado em 12 de março em: http://www.ibge.gov.br/.

Minayo, M. C. S (org.) (2001). *Pesquisa Social. Teoria, método e criatividade.* 18 ed. Petrópolis: Vozes.

Ruffino-Netto, A. (2007). Recidiva da tuberculose. *Jornal Brasileiro de Pneumologia*. V. 33, n. 5, p. 27-28. Available at:
https://www.jornaldepneumologia.com.br/detalhe_artigo.asp?id=308

Santos, D. T., Garcia, M. C., Costa, A. A. N. F., et al (2017). Infecção latente por tuberculose entre pessoas com HIV/AIDS, fatores associados e progressão para doença ativa em município no Sul do Brasil. *Cad. Saúde Pública.* 33 (8); e00050916 DOI: 10.1590/0102-311X00050916

Silva, C., Andrade, M., & Cardoso, M. (2013). Fatores associados ao abandono do tratamento de tuberculose em indivíduos acompanhados em unidade de saúde de referência na cidade do Recife, estado de Pernambuco, Brasil, entre 2005 e 2010. Epidemiol. Serv. Saúde. V. 22, n. 1, p. 77-85. DOI: 10.5123/S1679-49742013000100008

Silva, P. F., Moura, G. S., & Caldas, A. J. M. (2014). Fatores associados ao abandono do tratamento da tuberculose pulmonar no Maranhão, Brasil, no período de 2001 a 2010. *Cadernos de Saúde Pública*. V. 30, n.8, p. 1745-1754. DOI: 10.1590/0102-311X00124513

Souza, M. S. P. L., Aquino. R., Pereira, S. M., Costa, M. C. N., Barreto, M. L., Natividade, M., et al (2015). Fatores associados ao acesso geográfico aos serviços de saúde por pessoas com tuberculose em três capitais do Nordeste brasileiro. *Cadernos de Saúde Pública*. V. 31, p. 111-120**. DOI: 10.1590/0102-311X00000414

World Health Organization (2011). *Global Tuberculosis Control: Who Report 2011*. Genova.

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