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PERCEPTION OF DOCTORS AND NURSES REGARDING TUBERCULOSIS-RELATED FACTORS

PERCEPÇÃO DE MÉDICOS E ENFERMEIROS SOBRE FATORES RELACIONADOS À TUBERCULOSE

PERCEPCIÓN DE MÉDICOS Y ENFERMEROS SOBRE FACTORES RELACIONADOS CON LA TUBERCULOSIS

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ABSTRACT
Objective: to identify, based on the perceptions of doctors and nurses working in the Family Health Strategy, the factors that influence the dynamics of tuberculosis in Quiterianópolis, Ceará, Brazil. **Methodology:** This qualitative, descriptive and exploratory study was conducted in May 2025 and employed the focus group technique with doctors and nurses from the municipality's Family Health Strategy. The data were submitted to Bardin's analysis. **Results:** The results were presented in two thematic categories, namely: Sociodemographic factors and patient environments and Clinical and behavioral factors of patients. **Final considerations:** The study showed that social, environmental, and behavioral factors are relevant for adherence to tuberculosis treatment in Quiterianópolis, Ceará, Brazil.
Keywords: *Tuberculosis; Perception; Primary Health Care.*

RESUMO
Objetivo: identificar, na percepção de médicos e enfermeiros da Estratégia Saúde da Família, os fatores que influenciam a dinâmica da Tuberculose no município de Quiterianópolis-CE. **Metodologia:** Trata-se de uma pesquisa qualitativa, com abordagem descritiva e exploratória, utilizando a técnica de grupo focal com médicos e enfermeiros das ESF do município, o qual foi realizado no mês de maio de 2025. Os dados foram submetidos à análise de Bardin. **Resultados:** Os resultados foram apresentados em duas categorias temáticas, a saber: fatores sociodemográficos e ambientes dos pacientes; e fatores clínicos e comportamentais dos pacientes. **Considerações finais:** O estudo mostrou que fatores sociais, ambientais e comportamentais são importantes para a adesão ao tratamento da tuberculose em Quiterianópolis-CE.
Descritores: *Tuberculose; Percepção; Atenção Primária à Saúde.*

RESUMEN
Objetivo: identificar, en la percepción de médicos y enfermeros de la Estrategia de Salud Familiar, los factores que influyen en la dinámica de la tuberculosis en el municipio de Quiterianópolis, Ceará, Brasil. **Metodología:** Se trata de una investigación cualitativa, con un enfoque descriptivo y exploratorio, utilizando la técnica de grupo focal con médicos y enfermeros de la ESF del municipio, que se llevó a cabo en el mes de mayo de 2025. Los datos se sometieron al análisis de Bardin. **Resultados:** Los resultados se presentaron en dos categorías temáticas, a saber: factores sociodemográficos y entornos de los pacientes y factores clínicos y conductuales de los pacientes. **Consideraciones finales:** El estudio demostró que los factores sociales, ambientales y conductuales son importantes para la adherencia al tratamiento de la tuberculosis en Quiterianópolis, Ceará, Brasil.
Descriptores: *Tuberculosis; Percepción; Atención primaria de salud.*

INTRODUCTION

Tuberculosis (TB) is an infection caused by the bacterium *Mycobacterium tuberculosis*, which primarily affects the lungs but can spread to other body organs.[1] In 2022, the global incidence of tuberculosis reached 7.5 million cases, the highest recorded by the World Health Organization (WHO), reflecting the recovery after the COVID-19

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pandemic.[2] In 2023, Brazil reported 80,012 new cases of tuberculosis, corresponding to an incidence rate of 37.0 cases per 100,000 inhabitants. Annually, more than 80,000 people continue to be diagnosed with the disease in the country.[3] According to the 2025 Epidemiological Bulletin,[4] the state of Ceará recorded an average of 3,668 new TB cases per year in the last decade.

The TB burden in Quiterianópolis, Ceará, Brazil, is evidenced by mortality and incidence data. According to data from the Notifiable Diseases Information System (SINAN)[5], the municipality recorded three deaths related to the disease, one as the underlying cause and two in which it was mentioned as an associated cause. Regarding incidence, although the 2024 records showed a significant drop to only one new case, the previous period (2020-2023) was marked by a persistent disease, with an average of almost four new cases annually (four cases in 2020, 2021, and 2023, and three in 2022). The continued occurrence of cases and, above all, deaths, highlights the need for constant surveillance in the local context.

However, to interrupt this cycle of transmission and mortality, it becomes imperative to understand the TB dynamics, which requires transcending the biomedical aspect and entering the field of social determinants, which exert a direct influence on the occurrence of tuberculosis. The TB distribution is directly associated with living conditions, access to services, and social inequalities.[6]

In this context, Primary Health Care (PHC), the preferred entry point to the Unified Health System (SUS), is configured as a privileged locus for tackling the disease, due to its territorial and longitudinal character. In Brazil, the Family Health Strategy (ESF) is the primary tool for operationalizing these actions. Among the ESF professionals, doctors and nurses play a decisive role in the TB care pathway and are technically responsible for detection and supervision of treatment, as well as care coordination.[7]

Given this, it is important to delve deeper into the analysis of these professionals' perception of the risk factors that still influence the TB incidence in the territory, since their direct involvement in the clinical and managerial process places them in a unique position to identify the clinical, operational, and social factors that impact the dynamics of the disease in the territory. This research aims to contribute directly to the improvement of healthcare practices and support local public policies focused on the prevention and control of the disease.

Thus, the study is guided by the following question: What factors, in the perception of doctors and nurses of the Family Health Strategy (ESF), can influence the dynamics of tuberculosis in Quiterianópolis? Given this context, we aim to identify, from the perspective of doctors and nurses of the Family Health Strategy, the factors that influence the TB dynamics in Quiterianópolis, Ceará, Brazil.

METHODS

This qualitative, descriptive, and exploratory study was conducted in of Quiterianópolis, located in the Inhamuns region of the state of Ceará, Brazil, approximately 414 km from the capital, Fortaleza. According to the latest census by the Brazilian Institute of Geography and Statistics (IBGE)[8], the municipality has a population of 20,213 inhabitants and a population density of 19.40 inhabitants per km².

The local health network consists of private clinics, a small hospital and maternity ward, four PHC Units (UBS) in the town center and seven in rural areas, organized by coverage areas.

The study participants were doctors and nurses from the Family Health Strategy (ESF) at the UBS, responsible for monitoring patients with tuberculosis. These professionals were chosen because of their central role in the clinical and managerial management of treatment in PHC. They are responsible for case detection, care coordination with the multidisciplinary team, and coordination with the referral and counter-referral service network. The following professionals were included in the study: 1) Those who had been working in the Family Health Strategy (ESF) for at least six months; 2) Those who showed availability to participate in the study and agreed to do so by signing the informed consent form; and 3) Those who performed their duties in the rural or urban area of the municipality. The following were excluded: 1) Professionals on any leave or removal; and 2) Those who did not consent to participate or did not sign the informed consent form.

Data were collected through a focus group session, guided by a semi-structured roadmap, with the participation of six doctors and ten nurses. The session lasted three hours and began with an integration activity that used stickers and a map of the municipality to stimulate territorialized reflection on tuberculosis. The discussion was guided by questions based on three guiding lines:

1. **Contributing factors to TB cases**: This study aimed to understand the elements that influence the occurrence of TB in the territory. Questions included: What factors influence the occurrence of TB in the municipality? Are there population groups or geographic areas with greater vulnerability? Are there specific causes that you observe more frequently?
2. **Difficulties faced**: This line aimed to map the obstacles in controlling the disease. The questions asked were as follows: What are the main challenges in implementing prevention and treatment strategies? What obstacles prevent the rapid identification of cases? What are the main reasons for patients abandoning treatment?
3. **Actions taken**: This line aimed to identify control and care practices. Questions asked were as follows: How has the Family Health Strategy (ESF) been acting in TB control? How is the active search for symptomatic respiratory patients conducted? What actions do you consider most effective in controlling the disease in the municipality?

The session concluded with a brief opportunity for final remarks and acknowledgments. It was recorded with the participants' permission, as per the Informed Consent Form, to ensure the accuracy and detail of the information collected. To preserve the anonymity of the participants, alphanumeric codes were assigned according to their professional category and order of participation: E1 to E10 for nurses and M1 to M6 for doctors.

The content analysis technique, as proposed by Minayo and Costa[9], was adopted to analyze data. The information obtained from the guiding questions of the focus group was systematically examined and categorized. To this end, we proceeded with a careful listening to the recordings, which were manually transcribed in Microsoft Word software and subsequently subjected to careful reading.

Next, a thorough analysis was conducted to define the context, allowing the identification of data patterns and trends. This process resulted in the definition of two thematic categories for this study: (1) Patients' sociodemographic and environmental factors, and (2) Patients' clinical and behavioral factors.

The ethical and legal aspects of this research followed the provisions of Law N°14.874 of May 28, 2024[10], which addresses human research, as well as the norms established by Resolution N°510 of April 7, 2016, which defines ethical guidelines for studies of this nature, ensuring human dignity, the protection of participants, and the prevention of possible harm[11]. Notably, the study was approved by the Research Ethics Committee, under CAAE N°86243325.7.0000.5037 and Opinion N°7.554.644.

RESULTS

The identified categories encompass sociodemographic and environmental aspects of patients, as well as their clinical and behavioral characteristics. Following this, the main results for each category are presented, illustrated by excerpts from participants' statements reflecting their perceptions of tuberculosis patient care.

PATIENT'S SOCIODEMOGRAPHIC AND ENVIRONMENTAL FACTORS

Health professionals highlighted that factors such as low schooling levels, poverty, and poor housing conditions are central elements in TB infection among patients in the municipality. The following statements from participants illustrate how these issues manifest themselves in case management.

> *When we do home visits, we see some tiny, poorly ventilated houses with many people living inside. This also facilitates transmission. (M3)*
> *And overcrowding in homes. You notice that a house that has someone diagnosed with TB is usually overcrowded. It is a small home with a large number of people. (M5)*

These statements not only describe a physical condition but also reveal the professional's perception of the intrinsic relationship between the domestic space and the chain of disease transmission, pointing to the need to understand the relevant patient's context. Furthermore, participants reported extreme difficulties faced by many patients, including a lack of essential resources for self-care and nutrition, which further compromises treatment.

> *Sometimes the patient does not even have the financial means to buy the styrofoam cooler. (E3)*

> *[...] He would go 15 to 20 days without showering. He only had a hammock, lived in a house that did not have a door, and that did not have anything. So, how were we going to offer treatment to a patient like that who did not even have anything to eat? That was the difficulty, besides him being highly alcoholic and a smoker too. Thus, he preferred to leave the treatment aside and drink. That was a huge consequence. (E5)*

This powerful account concretely exemplifies how social vulnerability can interfere with clinical practice and impact outcomes. The account shows that, in practice, the provision of treatment is hampered by the lack of fundamental living conditions, rendering the clinical protocol ineffective. Furthermore, the association of this vulnerability with other risky behaviors, such as alcoholism, is perceived as a complex cycle to break.

> *Generally associated with poverty and low economic conditions, right? Also, smoking and weakened immunity. (E2)*
> *However, it is closely linked to this issue of poverty, without a doubt. (M4).*
> *We are in a municipality with many needs. We work in the rural area. We suffer and see the housing conditions of the people. (M6)*

Based on the professionals' reports, it is evident that sociodemographic factors and environmental conditions exert a strong influence on the incidence and severity of tuberculosis. Poverty and substandard and overcrowded homes are recurring elements among affected patients, creating a landscape of intense social vulnerability. These conditions hinder not only access to information and early diagnosis, but also compromise adherence to treatment and the effectiveness of disease control measures.

PATIENT'S CLINICAL AND BEHAVIORAL FACTORS

The duration of treatment, the amount of medicine, and side effects were identified as factors that discourage patients from correctly following the therapeutic regimen. There were reports of patient resistance to the continuous use of medicines and a need for more rigorous monitoring strategies by the team.

> *So, time, the number of pills, and the side effects are the main ones. (M5)*
> *[...] We counted the blister packs and the pills, because we suspected that he was not taking them properly [...] He said he felt much gastric pain. (E3)*
> *She was quite a difficult patient because she resisted treatment due to the side effects. (E1)*

> *She would take one pill, then another, and it was distressing. There were days when she really wanted to give up. (E8)*

Emotional aspects were widely discussed as obstacles to the diagnosis and treatment of tuberculosis. Participants reported cases of depression, isolation, and psychological distress, with a direct impact on adherence to treatment. The importance of multidisciplinary support, especially psychological counseling, was emphasized.

> *In our field, the patient diagnosed with tuberculosis suffers from depression [...]. This emotional issue directly influences the diagnosis. (E6)*
> *We have to ask for help from the psychologist [...], which I did not even think would affect it, but we see that it does. (E2)*
> *It affects it a lot. You have no idea. It is six months of treatment. (E8)*

The stigma surrounding tuberculosis is still found in society, influencing patient behavior and hindering access to care. Shame, fear of exposure, and prejudice are identified as barriers that affect the active search for diagnosis and treatment.

> *Another thing that ends up hindering things is self-exclusion of these people due to shame in seeking help [...] the stigma itself, and prejudice. (M1)*
> *[...] we hear a lot, for example, oh, so-and-so has tuberculosis, God forbid I get near him [...]. It is a subject that should be discussed in the UBS. (E4)*

These statements show that professionals perceive a dual movement related to the disease's stigma, self-exclusion, and prejudice from others. This social situation is a barrier to accessing care, requiring interventions that far exceed the clinical perspective. Reports indicate that TB treatment is marked by difficulties related to both clinical and behavioral factors. The prolonged medicine use duration, the number of pills, and side effects were cited as frequent reasons for patients' demotivation and resistance.

Also highlighted were the emotional impacts, such as sadness, seclusion, and psychological distress, which directly interfere with adherence to treatment. Furthermore, social stigma persists, causing shame, fear, and isolation, which compromises the care process. These elements reveal the complexity involved in coping with the disease and how it affects different dimensions of patients' lives.

DISCUSSION

Social vulnerability was identified in this study as a relevant factor for TB treatment adherence, especially influenced by elements such as low income and lack of social support. Among the most significant factors are the financial difficulties faced by patients, which compromise treatment continuity. Furthermore, overcrowded and poorly ventilated housing conditions proved conducive to disease transmission.

Similarly, a study by Teixeira et al. (2020)[12] identified that the predominant profile of contacts consists of brown, less educated women under 40 residing in brick houses and living in human agglomerations, with a monthly income limited to one minimum wage. These factors contribute to the social and health vulnerability of these individuals.

Tuberculosis mortality in Brazil is higher among socially vulnerable people. Factors such as low income, unemployment, and low schooling levels have been identified as determinants in several regions of the country. Cities such as Recife, Foz do Iguaçu, Cuiabá, Curitiba, São Paulo, Rio de Janeiro, Porto Alegre, and Ribeirão Preto showed a higher number of TB deaths among poor, less educated people, showing that social inequalities exacerbate the impact of the disease.[13]

Social vulnerability was also cited by Lima et al.[14] as one of the main risk factors among people with tuberculosis, which makes it essential to consider social inequalities in the planning and monitoring of treatment. Thus, in addition to diagnosis, medicine, and regular appointments offered by health care networks, these individuals should also have access to social benefits or income transfer programs, indispensable resources to ensure adherence to treatment and promote the cure of the disease.

A study investigating the relationship between TB and socioeconomic factors identified several important associations. At the individual level, the incidence of the disease was correlated with alcoholism, low schooling, marital status, low income, inadequate diet, migration, and prior contact with infected individuals. At the collective level, factors such as GDP, HDI, and access to basic sanitation were identified as influential in the occurrence of TB in several countries.[15]

Furthermore, side effects were evidenced as a factor that challenges professionals in conducting treatment. Even if they do not manifest in all cases, adverse effects should be considered and monitored throughout TB treatment, as they constitute one of the leading causes of interruption and, frequently, of treatment abandonment, as highlighted in the study[16].

Adherence to tuberculosis treatment is a complex challenge, influenced by a combination of psychosocial, economic, and structural factors. The literature shows that social stigma, emotional distress, and financial difficulties are key factors in treatment interruption.[17]

The Ministry of Health clarifies that TB side effects deserve special attention, as they can arise during treatment and compromise the patient's well-being. According to the nursing protocol in PHC, the identification of these adverse effects by health professionals is essential for adopting appropriate actions, always under medical prescription.

Early detection of these events helps to minimize discomfort and avoid treatment interruption. Furthermore, patients should understand that, even with clinical improvement in the first few days, they should continue with the medicine until the completion of the therapeutic regimen, thus ensuring a cure for the disease.[18]

Finally, results related to prejudice and stigma surrounding the disease were presented. We should emphasize that tuberculosis generates several significant changes in patients' routines, affecting different aspects of life. In the family context, it can lead

to voluntary isolation; at work, it causes the interruption or reduction of productivity; in social life, it limits interactions; and on an emotional level, it stirs feelings such as shame, guilt, and fear of death and transmitting the disease to loved ones.

These impacts are exacerbated by stigma and prejudice, which permeate the living environments of people with TB. Furthermore, the diagnosis of the disease compromises the patient's self-perception, harming their self-esteem and interpersonal relationships, given that prejudice frequently results in social rejection.[19]

FINAL CONSIDERATIONS

This study achieved its objectives by analyzing the perception of doctors and nurses in the Family Health Strategy regarding factors related to the incidence and management of TB in Quiterianópolis, Ceará, Brazil. The investigation showed that sociodemographic and environmental conditions, combined with clinical and behavioral aspects, significantly interfere with the occurrence of the disease and adherence to treatment.

The results highlighted the social vulnerability of the affected population, the difficulty in adhering to the therapeutic regimen due to its prolonged duration and side effects, as well as the still strong social stigma, as the main obstacles. To strengthen actions to combat TB in the municipality, it is necessary to invest in community-oriented health education strategies, addressing the disease in an accessible way and combating prejudices that compromise care.

This study, however, has some limitations. The results are not generalizable because this qualitative study was conducted with professionals from a single municipality. However, the results offer an in-depth picture of the local context. The perception studied is restricted to the views of doctors and nurses, and future research could incorporate the perspective of other stakeholders in the multidisciplinary team and, especially, of the patients themselves.

Finally, it is important to integrate PHC actions with other services in the network and with social policies that ensure minimum conditions for a dignified life for the most vulnerable population. Only by strengthening the bond between professionals, users, and the community will it be possible to advance in the control of tuberculosis, reduce treatment abandonment rates, and promote improvements in the quality of life of people affected by the disease in Quiterianópolis, Ceará, Brazil.

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