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Analysis of the epidemiological profile of abandonment to tuberculosis treatment

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Abstract: Tuberculosis (TB) is an infectious disease. The main route of transmission is the inhalator pathway, and the lung, the main organ, is attacked. *Mycobacterium Tuberculosis* as etiological agent. The aim of this study was to describe the epidemiological profile of the abandonment of tuberculosis treatment. This is an epidemiological study of the descriptive retrospective type, whose data were collected through the secondary database of the Notifiable Diseases Information System (SINAN). Approximately 7.88% of cases had treatment abandonment as evolution. The male sex reached 73.07%, The municipality was Recife, with 53.50%, The brown race with 59.72% was the most observed, the age group was 20-39 years, was the most prevalent with 59.04%. Schooling represents 15.83% of the 5th to 8th incomplete grade. We conclude that the abandonment of tuberculosis treatment needs to be seen as something relevant, aiming to achieve the reduction of abandonment

rates.

Keywords: Abandonment; Tuberculosis; Treatment

1. Introduction

Tuberculosis (TB) is an infectious, transmissible disease that affects mainly the lungs, but may affect other diseases and/or systems. Having as etiological agent *Mycobacterium tuberculosis* or Koch bacillus, TB is a serious problem for Brazilian public health. Other diseases such as HIV and the presence of resistant bacilli make the TB situation even more complex. New cases are reported annually, reaching approximately 70,000 new cases and approximately 4,500 deaths from tuberculosis occur (BRASIL, 2020). The main route of transmission is the inhalator pathway, through the aerosols, and the lung, the main organ attacked. Another route of infection is hematogenous or lymphatic (NOGUEIRA *et al.*, 2012).

By penetrating the organism, *M. tuberculosis* can spread to several organs, characterizing Extra Pulmonary TB, but the most relevant form for public health is pulmonary, because it is responsible for the transmission chain (BRASIL, 2019).

The diagnosis of TB is made through bacilloscopic tests, rapid molecular test for tuberculosis, culture for mycobacteria or even complementary image tests such as chest X-ray. Its treatment is free and available in the Unified Health System (SUS) (BRASIL, 2018).

Although treatment is offered free of charge, the TB index is still quite high, in 2017, 10 million people became ill from tuberculosis, and 1.3 million people died from the disease worldwide. In Brazil, in 2018, 75,717 new cases of the disease were diagnosed, totaling an incidence coefficient of 36.2 cases/100,000 inhabitants. Similarly, in Pernambuco, 5026 new cases of TB were reported (BRASIL, 2019).

To develop TB control strategies, there is in the State of Pernambuco the Tuberculosis Control Program, which is responsible for epidemiological surveillance of the disease, having as main objectives: to support municipal programs in the identification and training of health services on tuberculosis control actions; monitor epidemiological indicators and monitor compliance with the goals established in sus management instruments; maintain close articulation with the State and Regional Reference Laboratory; to perform intra- and intersectoral articulations that can strengthen tuberculosis control actions at the Federal, State, Municipal, private initiative and society levels, contributing to the improvement of the population's health promotion (BRASIL, 2019).

These high rates can be attributed to several factors; however, abandonment is one of the main problems in the treatment of TB. Several reasons lead to abandonment such as: drug toxicity, long duration of the process, socioeconomic conditions, adverse reactions, among other socially

determinant aspects (VIANA; REDNER, REDNER, 2010. RAMOS, 2018).

People affected by HIV represent about 10% of the annual cases of tuberculosis, because they are more susceptible to acquiring tuberculosis, thus reducing the chances of TB control in the world, which leads to an increase in the incidence of especially cases of death (BRASIL, 2017).

In the face of the above, the relevance of this study is evident. Thus, the objective is to describe the epidemiological profile of the abandonment of tuberculosis treatment. In addition, to verifying the incidence and prevalence of TB, to analyze treatment abandonment.

2. Methodology

This is an epidemiological study of the comparative descriptive retrospective type, whose data were collected through the secondary database of the Notifiable Diseases Information System (SINAN), provided by DATASUS/Ministry of Health. The population consisted of the records in the notification forms for the disease "tuberculosis" in the SINAN Database in Pernambuco from 2020 to 2021. The Informatics Department of the Unified Health System (DATASUS) provides information that can serve to support objective analyses of the health situation, evidence-based decision-making and the development of health action programs.

The tabulation of the data in the Department of Informatics of the Unified Health System (DATASUS) was carried out through SINAN, which is fed by the notification and investigation of cases of diseases and injuries that are on the national list of diseases of compulsory notification, including tuberculosis, which is the target of the study. The variables studied in the tuberculosis database were: gender, age group, race, year of notification, municipality of notification.

For the theoretical basis, a search was made in the databases and data PubMed, Literature Latino-Americana y del Caribe em Ciências de La Salud (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE), Scientific Electronic Library Online (SciELO) and the Portal of the Virtual Health Library (VHL), with the objective of seeking an answer to the answer to the leading question: What is the profile of individuals who abandon tuberculosis treatment?

For the analysis of these data, percentage calculations were used to observe the dispersion among the collected variables, analyzed by simple percentage. The information was analyzed through the Microsoft Excel program for data formatting.

3. Results and Discussion

A total of 11,216 reports of tuberculosis cases in the state of Pernambuco were observed from 2020 to 2021. And 7.88% (n=884) cases had the evolution of the treatment. The year with the highest number of cases of abandonment was 2020 with 69.68% (n=616) (Figure 01).

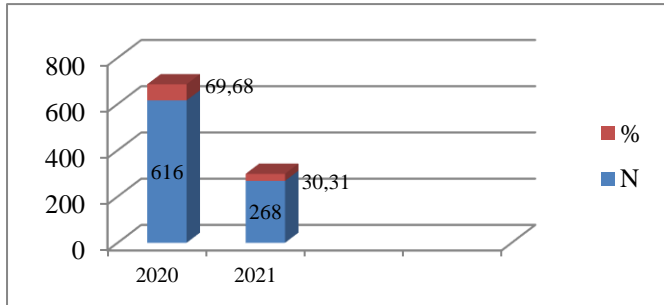


Figure 01: Proportion of tb abandonment cases according to the year of notification. Source: Ministry of Health/SVS - Notifiable Diseases Information System - SINAN Net. Accessed: 12/09/2022

Males reached the highest dropout rate with 73.07% (n=646) (Figure 02).

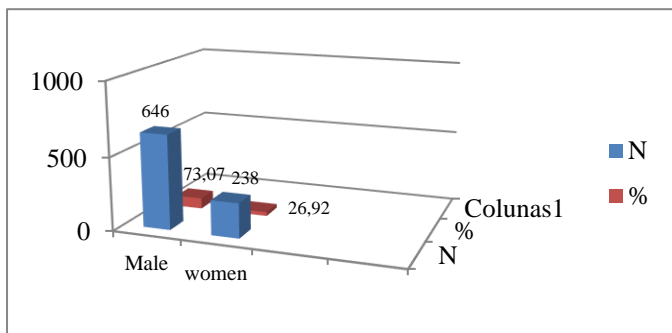


Figure 02: Proportion of tb abandonment cases according to gender. Source: Ministry of Health/SVS - Notifiable Diseases Information System - SINAN Net. Accessed: 12/09/2022.

The municipality with the highest number of notifications was Recife, with 53.50% (n=473), (Figure 03).

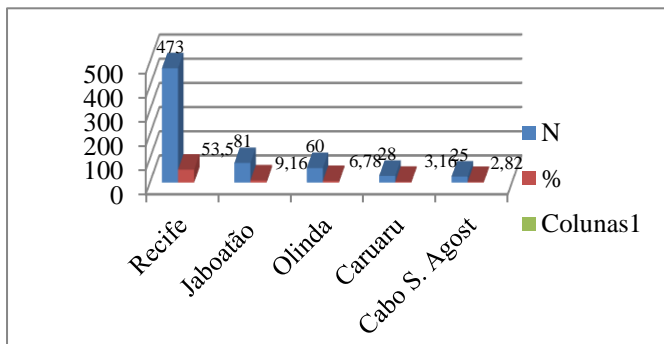


Figure 03: Proportion of tb abandonment cases according to the municipality. Source: Ministry of Health/SVS - Notifiable Diseases Information System - SINAN Net. Accessed: 12/09/2022.

The brown race with 59.72% (n=528) was the most observed among those who abandoned treatment (Table 1).

Table 1. Distribution of cases of tuberculosis abandonment by breed in Pernambuco from 2020 to 2021.

Race	2020	2021	N	%
Ign/White	00	0	50	6,96
White	4	7	01	1,42
Black	4	9	3	0,52
Yellow	5	3	8	0,90
Brown	369	159	528	59,72
Indigenous	04	0	04	0,45
TOTAL	616	268	884	99,97

Source: Ministry of Health/SVS - Notifiable Diseases Information System - SINAN Net. Accessed: 12/09/2022.

In relation to the age group of 20-39 years had higher prevalence, representing 59.04% of the cases, then appear to 40-59 years with 26.47% (n=234) (Table 2).

Table 2. Distribution of TB abandonment cases according to age group in Pernambuco from 2020 to 2021.

Age group	2020	2021	N	%
Ign/White	01	0	01	0,11
<1 Year	0	0	0	0,00
01 to 4	01	0	01	0,11
05 to 9	0	02	02	0,22
10 to 14	01	03	04	0,45
15 to 19	24	08	32	3,61
20 to 39	352	170	522	59,04
40 to 59	165	69	234	26,47
60 to 64	24	04	28	3,16
65 to 69	17	07	24	2,71
70 A79	28	03	31	3,50
80 and over	04	01	05	0,56
TOTAL	616	268	884	99,94

Source: Ministry of Health/SVS - Notifiable Diseases Information System - SINAN Net. Accessed: 12/09/2022.

Regarding the education of individuals who did not complete the treatment regimen 15.83% (n=140) had incomplete 5th to 8th grade, however, a failure in this variable was observed, considering that 43.89% (n=388) were white or ignored, thus compromising the result. However, it was still observed that most of the individuals who had no AIDS associated with Tuberculosis, reaching 65.38% (n=578). However, it was noticed that 20.13% (n=178) were blank or ignored (Table 3).

Table 3: Proportion of cases of abandonment of TB treatment associated with AIDS.

AIDS	2020	2021	N	%
Ing./White	136	42	178	20,13
Positive	82	46	128	14,47
Negative	398	180	578	65,38
TOTAL	616	268	884	99,98

Source: Ministry of Health/SVS - Notifiable Diseases Information System - SINAN Net. Accessed: 12/09/2022.

The reduction in tb treatment dropout rates is still a factor that generates a lot of concern, considering that in Brazil, this rate is high, thus causing the continuation of the contagion, considering that individuals with TB who do not adherence to therapy remain sick and remain a source of transmission. Aggravating the situation further, abandonment leads to drug resistance and recurrence of the disease, which impose difficulties to the healing process, increasing the time and cost of treatment (CHIRINOS; MEIRELLES, 2011).

We recorded 11,216 cases of Tuberculosis in the state of Pernambuco from 2020 to 2021, and it was observed that the rate of treatment abandonment was 7.88%, The year with the highest dropout rate was 2020 with 69.68%. The municipality of Recife reached the highest rate of cases, with 53.50%. The findings of this study identified that males reached the highest rate of tb treatment abandonment, with 73.07%.

Corroborating the findings of this study, Giroti *et al* (2010) showed that males are characterized by having the highest dropout rate. The same study also attributes this fact to the demands of work and family responsibility that make it difficult to go to the consultations in the health unit and may lead to interruption of medication or follow-up.

Regarding the variable color/race most affected, it was mixed with 528 cases of abandonment reaching 59.72%. Corroborating this study, another study showed that brown color has a higher prevalence among individuals with those who abandon treatment (FURLAN; OLIVEIRA; MARCON, 2012).

The study also showed that the highest prevalence of schooling takes place in incomplete elementary school, but specifically from the 5th to the 8th grade, reaching 15.83%. A failure was noticed in this variable, because whites and ignored variables correspond to 43.89%. These data are confirmed in another study that shows that prevalence occurs more frequently in incomplete elementary schooling (LOPES *et al.*, 2013).

The study also identified that in relation to the variable age group of 20-39 years obtained higher prevalence among those who abandoned treatment, representing 59.04% of the cases, then appears to 40-59 years with 26.47%. Another study also identified that the highest proportion of abandonment is found among young adults, some risk factors may explain the prevalence in this age group, such as being alcoholics, not eating properly, not accepting the disease, in addition to the presence of comorbidities (FERREIRA *et al.*, 2018)

It was also observed that most of the individuals who abandoned treatment did not have AIDS associated with Tuberculosis, reaching 65.38%. In fact, the study by Chirinos and Meirelles (2011) showed that AIDS is a factor present in most patients with a history of abandonment to TB treatment.

Mutire *et al* (2011) also identified in their study that TB/HIV co-infection was prevalent among individuals who abandoned TB treatment, causing higher transportation costs, since both diseases need to be treated in separate clinics.

Furthermore, the study by Naidoo *et al* (2013)

concomitantly with this, described that the increase in side effects and the burden of medications for the two treatments impacts on the day-to-day of these patients who have demands associated with work and family, thus being a double challenge that cooperates for the unfavorable prognosis and outcome of the disease.

Moreover, it is possible to affirm that TB affects especially the economically active population, especially men of productive age, this is possible to be confirmed by observing the most affected age group identified in this study. These data portray one of the social problems generated by TB, which is the inability to work of a productive age group, often preventing the only income provider of the family from obtaining it, leading to the situation of precariousness and social exclusion (SÁ *et al.*, 2017).

4. Conclusions

This study allowed identifying the epidemiological profile of abandonment to tuberculosis treatment that, associated or not, contribute to an unfavorable outcome, such as treatment abandonment. In this context, we see the importance of knowing the risk factors that contribute to abandonment, considering that non-treatment acceptance is a challenge for disease control in Brazil.

In this sense, it is relevant the early identification of TB patients who are susceptible to abandonment, so as to ensure the application of available strategies, and thus ensure the support and, consequently, cure.

Thus, we conclude that the abandonment of tuberculosis treatment needs to be seen as something relevant by professionals, as well as by health services and managers, aiming to achieve the reduction of dropout rates, reducing the risks of drug resistance, the incidence of the disease and the failure of treatment regimens.

References

- [1] BRAZIL, Ministry of Health, Virtual Health Library. Circulation: 1st edition - 2017 - Brazil Free from Tuberculosis: National Plan to End TB as a Public Health Problem.
- [2] BRAZIL, Ministry of Health, Panorama of Tuberculosis in Brazil. Situational diagnosis based on epidemiological and operational indicators. Circulation: 1st edition - 2018 - electronic version, Available in: https://bvsm.sau.de.gov.br/bvs/publicacoes/tuberculose_brasil_indicadores_epidemiologicos_operacionais.pdf.
- [3] BRAZIL, Ministry of Health Virtual Health Library. Manual of Recommendations for Tuberculosis Control in Brazil, Health Surveillance Secretariat. Department of Communicable Diseases Surveillance 2nd updated edition, 2019. Available in: https://bvsm.sau.de.gov.br/bvs/publicacoes/manual_rec_omendacoes_controle_tuberculose_brasil_2_ed.pdf.
- [4] BRAZIL, Ministry of Health, Pernambuco State Health Department, Executive Secretariat for Health

Surveillance. Tuberculosis Control Program, 2019. Available in: <http://portal.saude.pe.gov.br/programa/secretaria-executiva-de-vigilancia-em-saude/programa-de-controle-da-tuberculose>. Lit: 13/09/2021.

- [5] CHIRINOS, N.E.C; MEIRELLES, B. H.S. Factors associated with the abandonment of tuberculosis treatment: an integrative review. *Text & Context-Nursing*, v. 20, p. 599-606, 2011.
- [6] FERREIRA, M. R. L; BONFIM, R. O; SIQUEIRA, T.C; ORPHAN, N. H. Abandonment of tuberculosis treatment: an integrative review. *Contemporary Nursing Journal*, v. 7, n. 1, p. 63-71, 2018.
- [7] FURLAN, M.C.R; OLIVEIRA, S.P.D; MARCON, S.S. Factors associated with the abandonment of tuberculosis treatment in the state of Paraná. *Acta Paulista de Enfermagem*, v. 25, p. 108-114, 2012.
- [8] GIROTI, S.K.O, BELEI, R.A; MORENO, F.N; SILVA, F.S. Profile of tuberculosis patients and factors associated with treatment abandonment. *Cogitare Sick*. 2010;15(2):271-77. doi: 10.5380/ce. v15i2.17860.
- [9] LOPES, H. MENEZES, R. M. P; COSTA, T.D; QUEIROZ, A.A.R; CIRINO, I.D; CUNHA GARCIA, M. C. Factors associated with the abandonment of pulmonary tuberculosis treatment: an integrative review. *Revista Baiana de Saúde Pública*, v. 37, n. 3, p. 661-671, 2013.
- [10] MUTURE, B.N; KERAKA, M.N; KIMUU, P.K; KABIRU, E.W; OMBEKA, V.O; OGUYA, F. Factors associated with default from treatment among tuberculosis: patients in Nairobi province, Kenya: a case control study. *BMC Public Health*.2011;11:696. doi: 10.1186/1471-2458-11-696.
- [11] NAIDOO, P; PELTZER, K; LOUW,J; MATSEKE, G; MCHUNU, G; TUTSHANA, B. Predictors of tuberculosis (TB) and antiretroviral (ARV) medication non-adherence in public primary care patients in South Africa: a cross sectional study. *BMC Public Health*. 2013; 26(13):396. Doi: 10.1186/1471-2458-13-396
- [12] NOGUEIRA, A. F. Tuberculosis: a general approach to the main aspects. *Revista Brasileira de Farmácia*, v.93, n.1, p.3-9, 2012.
- [13] SA, A.M.M; SANTIAGO, L.D.A.; SANTOS, N.V; MONTEIRO, N. P; PINTO, P. H. A; LIMA, A.M.D; IWASAKA-NEDER, P. L. Causes of treatment abandonment among tuberculosis patients. *Rev Soc Bras Clin Med*, v. 15, n. 3, p. 155-160, 2017.
- [14] VIANA, P.V; REDNER, P; RAMOS, J. P. Factors associated with the abandonment and death of cases of drug resistant tuberculosis (TBDR). *Cad. Public Health* 2018; v34, n5:e00048217 Article Available at: doi: 10.1590/0102-311X00048217.