



## Tuberculosis in the street population: a systematic review

Tuberculose na população de rua: revisão sistemática

La tuberculosis en la población de la calle: una revisión sistemática

### How to cite this article:

Hino P, Yamamoto TT, Bastos SH, Beraldo AA, Figueiredo TMRM, Bertolozzi MR. Tuberculosis in the street population: a systematic review. Rev Esc Enferm USP. 2021;55:e03688. doi: <https://doi.org/10.1590/S1980-220X2019039603688>

-  Paula Hino<sup>1</sup>
-  Thais Tiemi Yamamoto<sup>2</sup>
-  Shyrlaine Honda Bastos<sup>1</sup>
-  Aline Ale Beraldo<sup>3</sup>
-  Tânia Maria Ribeiro Monteiro de Figueiredo<sup>4</sup>
-  Maria Rita Bertolozzi<sup>5</sup>

<sup>1</sup> Universidade Federal de São Paulo, Escola Paulista de Enfermagem, São Paulo, SP, Brazil.

<sup>2</sup> Secretaria Municipal de Saúde, Coordenadoria de Vigilância em Saúde, São Paulo, SP, Brazil.

<sup>3</sup> Ministério da Saúde, Coordenação Geral do Programa Nacional de Imunizações, Brasília, DF, Brazil.

<sup>4</sup> Universidade Estadual da Paraíba, Departamento de Enfermagem, Campina Grande, PB, Brazil.

<sup>5</sup> Universidade de São Paulo, Escola de Enfermagem, Departamento de Enfermagem em Saúde Coletiva, São Paulo, SP, Brazil.

### ABSTRACT

**Objective:** To analyze evidence of the occurrence of tuberculosis in people living on the streets provided by the literature. **Method:** Systematic review conducted in the databases PubMed, EMBASE, LILACS, and SciELO electronic library. Analysis of the empirical material was guided by Hermeneutics. The main themes which give shape to the association between tuberculosis and street population were sought to be understood. **Results:** Initially, 343 articles were identified, but only seven met the eligibility criteria. The literature shows that homeless people with tuberculosis presented unfavorable treatment outcomes when compared to the population with fixed residence. Some of the associated reasons were abusive consumption of alcohol and other drugs and associated diseases, such as human immunodeficiency virus and others. **Conclusion:** Despite the importance of this theme, analysis of the scientific production has provided evidence of the need for studies aimed not only at comprehending the occurrence of disease in this vulnerable group, but specially ways of fighting it.

### DESCRIPTORS

Tuberculosis; Homeless Persons; Vulnerable Populations; Community Health Nursing; Review.

### Corresponding author:

Paula Hino  
Rua Napoleão de Barros, 754, Vila Clementino  
CEP 04024-002 – São Paulo, SP, Brazil  
[paula.hino@unifesp.br](mailto:paula.hino@unifesp.br)

Received: 12/06/2019  
Approved: 09/19/2020

## INTRODUCTION

Tuberculosis (TB) is a worldwide public health problem which is particularly severe in Brazil. The magnitude of this disease as of 2018 is shown by indexes such as an incidence rate of 34.8/100,000 inhabitants, human immunodeficiency virus (HIV) tests conducted in 75.5% of new cases, and TB/HIV co-infection of 8.8%. Regarding treatment outcome, the results fall short of recommendations by the Brazilian Ministry of Health, since the percentages of cure and treatment abandonment among new cases confirmed by laboratory were, respectively, 71.4% and 10.8%, with a mortality rate of 2.2/100,000 inhabitants in 2017. Regarding special populations, in 2018, prison population corresponded to 10.5% of new cases and people living on the streets (PLS) were in the second position, with 2.5% of the total new cases of TB<sup>(1)</sup>.

Launched in 2017, the National Plan for Ending Tuberculosis as a Public Health Problem (*Plano Nacional pelo Fim da Tuberculose como Problema de Saúde Pública*) reinforces the political commitment and is based on strategies of access to prevention, diagnosis, and disease treatment. This enables planning actions to improve epidemiological indicators, with the goals of reducing, until 2035, the incidence rate of TB to less than 10 cases/100,000 inhabitants and the mortality rate to less than one death/100,000 inhabitants. Aiming at this, the Plan is based on three pillars (Prevention and integrated care centered on people with TB, Dynamic policies and support system, and Intensification of research and innovation), considering the analysis of socioeconomic and health status in the different scenarios<sup>(2)</sup>.

Given the specificities of life on the streets, revealing the consequences of social exclusion and extreme poverty, PLS are highly vulnerable to many diseases, including TB. PLS have a 56 times higher risk of acquiring TB in comparison to the general population<sup>(1)</sup>. Also, some conditions which aggravate disease control in this group are emphasized, especially the unawareness of being ill and of health precautions, lack of a life project, the difficulties of accessing health services, stigma, prejudice, among other factors<sup>(3)</sup>.

Although there are some public policies aimed at PLS, there are many challenges to developing actions aimed at controlling TB, given the complexity of guaranteeing quality assistance which accounts for this group's life situation and health needs<sup>(3)</sup>. Poverty and social exclusion result from society's organization, whose mode of production privileges some to the detriment of many others' lives. Social reproduction processes derive from this form of production.

The important contribution from professionals in the teams of *Consultório na Rua* (Street Clinic) for TB control is emphasized<sup>(3-5)</sup>. These teams, created in 2011, represent advancements in health care for PLS, as they started offering integral care to people who faced many obstacles to access health services. A new way of providing care results from the profile and competence of health professionals who understand the role of social determinants in the health-disease-care process<sup>(6)</sup>.

PLS are a key population in TB control and priority actions were thus selected by the Ministry of Health, some of which were the conduction of an active search for respiratory symptoms in any opportunity of contact with health professionals and regardless of time coughing, and the conduction of bacilloscopy or fast molecular test, in addition to culture with a sensitivity test<sup>(1)</sup>.

TB is a socially determined disease; therefore, the way of life on the streets reinforces vulnerability to this disease for diverse reasons which consequently emerge, such as: homelessness, insufficient sleep, rest and nutrition, alcohol and drug abuse, struggle for survival, difficulties in performing self-care, and other reasons.

An increase in this theme's visibility is currently observed; this is mainly due to an increase in people living in this condition and the growing presence of studies which deal with the population living on the streets. The number of people in this situation in Brazil has increased due to the ongoing destruction of the role of the state and of other social and labor rights, in addition to social inequality.

Such contexts require broadening the discussion on this group, reflecting hence about health practices and improving care offered to these people. Thus, given the impact of TB on this vulnerable group and the scarcity of Brazilian studies on this theme, this Systematic Review is justified. It aims at providing a minimal support for improving health care offered to this group, with the main objective of analyzing evidence available in the literature on TB in people living on the streets.

## METHOD

This is a Systematic Review whose purpose was to understand the state-of-the-art of the occurrence of TB in the population living on the streets by analyzing scientific articles. To meet this objective, the following guiding question was proposed: what is the scientific evidence for the occurrence of TB in PLS?

A bibliographic research of scientific articles was performed in the databases PubMed, EMBASE, LILACS, and SciELO.

### Chart 1 – Descriptors used in the search strategy.

```

("homeless persons"[MeSH Terms] OR ("homeless"[All Fields]
AND "persons"[All Fields]) OR "homeless persons"[All Fields]
OR "homeless"[All Fields]) AND (("tuberculosis"[MeSH Terms]
OR "tuberculosis"[All Fields]) AND ("epidemiology"[Subheading]
OR "epidemiology"[All Fields] OR "prevalence"[All Fields] OR
"prevalence"[MeSH Terms]) AND ("homeless persons"[MeSH Terms]
OR "homeless"[All Fields] AND "persons"[All Fields]) OR "homeless
persons"[All Fields] OR "homeless"[All Fields])) AND "loattrfree full
text"[sb]

```

The following eligibility criteria were defined: available scientific articles published in Portuguese, English or Spanish and with no restrictions of year of publication. Review articles were excluded from this study. The data was collected in October 2018 and resulted in the selection of seven articles.

The selected studies were evaluated based on title and abstract and were analyzed by two independent reviewers. In case of doubt or disagreement, a third reviewer would

participate in the analysis. All the selected studies were thoroughly read.

Concerning the study’s protocol, this Systematic Review was based on the reviewing protocols established by the Cochrane collaboration, aiming at obtaining evidence related to the study object.

Evaluation of methodological quality is conducted by the guaranteeing that the studies’ design and report are unbiased. The instrument used for study evaluation was Strengthening the Reporting of Observational Studies in Epidemiology (STROBE), which provides for classifying studies as A (meeting 80% of the criteria), B (50 to 80% of the criteria), and C (inferior to 50% of the criteria)<sup>(7)</sup>.

## RESULTS

The bibliographic search led to the identification of 343 studies, 229 of which were in PubMed, 105 in Embase, and nine in LILACS. During screening, two duplicate articles were excluded, and 341 studies remained, 321 of which were excluded, since they did not correspond to the study’s theme, and other two had no abstract. Eighteen studies were selected; however, 11 were excluded due to not including the study population and/or not meeting the eligibility criteria. Seven articles were thus selected as illustrated in Figure 1.

The seven studies are summarized in Chart 2 with reference, study design, time of follow-up, main findings, outcome, and STROBE category.

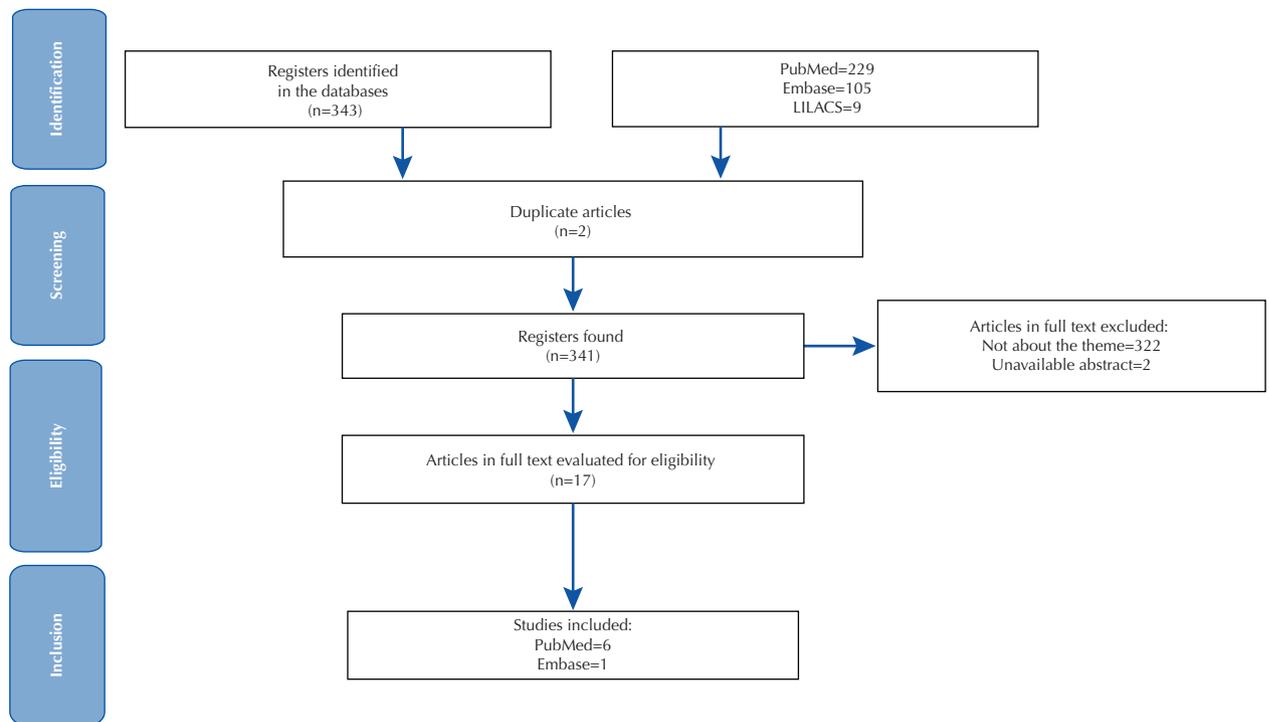


Figure 1 – Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart for study selection.

Chart 2 – Summary of the characteristics of the included studies.

| Reference   | Study Outline   | Time of Follow-up | Main findings  | Outcome   | STROBE |
|---|-----------------|-------------------|--|---|--------|
| Haddad MB, Wilson TW, Ches MS, Ljaz K, Marks SM, Moore M. Tuberculosis and homelessness in the United States, 1994-2003. JAMA 2005; 293(22):2762-6. | Cross-sectional | 1994-2003         | Out of the total cases, 11,369 (6.4%) were PLS, and most (86.5%) were male, aged 40 to 49 (35.8%), and self-reported as black (44.8%). Among PLS, there was a higher prevalence in substance use (53.8% for alcohol abuse, 29.5% for non-injection drug abuse, and 14.0% for injection drugs); 34.0% presented TB/HIV co-infection, and 9.1% were imprisoned during the diagnosis. Medication supervision was conducted in 86.0% of PLS. | Both groups (living on the streets and with residence) presented a 9% mortality rate.<br><br>Cure rate was 77% and treatment abandonment was 12%. | A      |

continue...

...continuation

| Reference   | Study Outline   | Time of Follow-up | Main findings  | Outcome  | STROBE |
|---|-----------------|-------------------|--|--|--------|
| Heo D, Min HG, Lee HH. The clinical characteristics and predictors of treatment success of pulmonary tuberculosis in homeless persons at a public hospital in Busan. Korean J Fam Med 2012; 33:372-80.                        | Cross-sectional | 2001-2010         | Most PLS were male (96.5%); the mean age was 46.7 years. Smokers amounted to 66.2%, 45.1% had previous TB treatment and, out of these, 13.4% were cured after recurrence; 62.7% developed some type of chronic disease after exposure to TB, 58.4% developed alcohol dependence and 53.5% developed malnourishment.  | Cure rate was 35.2%, Abandonment: 21.8%, Death: 19.7%, Transference: 9.9%, Treatment failure: 1.4%. Outcomes presented as "no information" amounted to 12%.  | B      |
| Feske ML, Teeter LD, Musser M, Graviss EA. Counting the homeless: a previously incalculable tuberculosis risk and its social determinants. Am J Public Health 2013;103(5):839-48.   | Retrospective   | 1995-2004         | PLS (n=248) were mostly male (96.8%), black (53%), between 40 and 59 years-old (71%), drug user (64.4%), alcohol user (73.4%), smoker (91.9%), with a record of incarceration (88.3%), single (94%), with pulmonary TB (96%) and in a situation of homelessness six months before TB diagnosis (13%).  | The incidence of TB was 9.5/100,000 among people with residence and 411/100,000 among PLS.<br><br>Hospitalization lasted four times longer for PLS: 70 days, whereas, for people with residence, this was 13.6 days.   | A      |
| Bamrah S, Woodruff RSY, Powell K, Ghosh S, Kammerer JS, Haddad MB. Tuberculosis among the homeless, United States, 1994-2010. Int J Tuberc Lung Dis 2013;17(11):1414-9.   | Cross-sectional | 1994-2010         | The street population represented 6% of notified cases. From 2006 to 2010, the incidence rate of TB ranged from 36 to 47 cases/100,000 inhabitants. Most were male, black (52%), between 25 and 64 years-old (52%), among people born in the USA, and between 25 and 44 years (51%), among those born outside the USA. TB-HIV co-infection was 22% in PLS and 5% in people with residence.   | Both PLS and people with residence presented an 8% death rate and 85% of PLS completed the treatment. The study presented no data on treatment abandonment. PLS had a 10 times higher TB incidence, twice the chance of not completing treatment, and were more inclined to substance abuse. | A      |
| Uchimura K, Ngamvithayapong-Yanai J, Kawatsu L, Ohkado A, Yoshiyama T, Shimouchi A, Ito K, Ishikawa N. Characteristics and treatment outcomes of tuberculosis cases by risk groups, Japan, 2007-2010. WPSAR 2013; 4(1): 11-8. | Cross-sectional | 2007-2010         | TB in the street population represented 1.4% of cases notified in Japan. The biggest proportion was observed in males (94.7%) aged 15 to 64 (70.2%), with a mean age of 59 years, and most had pulmonary clinical form (91.3%). Most cases occurred in cities with more than one million inhabitants (67.3%). The presence of cavities in the lung was observed in a higher proportion in the population living on the streets when compared to other risk groups (48.9%). Comorbidity due to Diabetes Mellitus was present in 16.6% of cases in PLS and TB/HIV co-infection amounted to 0.7%. | Regarding PLS, 55% were cured, 11.1% died, 2.7% abandoned treatment, 16.7% were transferred, 14.3% were under treatment, and 1.6% had treatment failure.<br><br>Regarding gender, death rate was 17.5% for males and 4.8% for females.   | B      |
| Korzeniewska-Kosela M, Kus J, Lewandowska K, Siemion-Szczesniak I. Tuberculosis in homeless persons in Poland. PrzeglEpidemiol 2015; 69:445-51.   | Cross-sectional | 2004-2013         | TB afflicted 90.5% of males and the mean age was 49.8 years; previous TB treatment (16%); pulmonary TB (98%); positive bacilloscopy (70.7%), and resistance to isoniazid (2.9%).   | Regarding treatment outcome, the following was observed: 44.1% cure, 24.8% treatment abandonment, 7.2% death, 5.2% transference, 0.4% undergoing treatment, 0.4% treatment failure, and 17.9% no information.  | B      |
| Ranzani OT, Carvalho CRR, Waldman EA, Rodrigues LC. The impact of being homeless on the unsuccessful outcome of treatment of pulmonary TB in São Paulo State, Brazil. BMC Med 2016;14(41):1-13.                               | Cohort          | 2009-2013         | PLS comprised 2.8% of the notified cases. There was a higher concentration of PLS in major cities. Most were male (87.1%), brown (40.5%), 35 to 45 years old (31%), had 4 to 7 years of education (45%), and had the pulmonary form (80.4%). The percentage of TB/HIV co-infection was 17.3% and of Diabetes Mellitus, 2.9%. Usage of alcohol and drugs among PLS was three times more frequent when compared to people with residence.  | The percentage of unsuccessful treatment was 57.3%, with loss to follow-up (39.0%) and death (10.5%) being the main problems.<br><br>Directly Observed Treatment (TDO) was administrated to 69.6%.   | A      |

The analyzed articles were published between 2005 to 2016, predominantly in 2013 (n=3). Most used data from national or state databases<sup>(8-12)</sup>, whereas others used data from health institutions<sup>(13-14)</sup>.

Three of the studies were from the United States of America<sup>(8-9,14)</sup>, one was from Korea<sup>(13)</sup>, one from Japan<sup>(10)</sup>, one from Poland<sup>(11)</sup>, and one from Brazil<sup>(12)</sup>. The findings regarding the epidemiological characteristics revealed that, regardless of residence status (homeless or with residence), TB afflicted mostly males, predominantly in the economically active age group, ranging from 15 to 64 years<sup>(10)</sup>, 25 to 64 years<sup>(9,12)</sup>, and 40 to 60 years or more<sup>(8,11,13-14)</sup>. Concerning skin color, some studies pointed the predominance of black people among PLS and in people with fixed residence<sup>(8,14)</sup> and brown among PLS<sup>(12)</sup>, whereas people with fixed residence were mostly white<sup>(12)</sup> and Asian<sup>(9)</sup>. Some studies pointed that the use of alcohol and drugs was most frequent in the PLS when compared to people with residence<sup>(8-9,12-14)</sup>. Only one Brazilian article was included in this study<sup>(12)</sup>.

Concerning treatment outcome, most studies pointed that PLS presented less favorable outcomes, such as a lower cure rate and higher death and abandonment rates, when compared to people with residence<sup>(8-9,11-13)</sup>, who presented higher adherence to TB treatment<sup>(8,10-13)</sup>. The death rate was proportional for two studies, with 9%<sup>(8)</sup> and 8%<sup>(9)</sup>, and higher among PLS in comparison with people with residence<sup>(11-12)</sup>.

Corroborating that PLS presented a higher vulnerability to TB disease, in addition to difficulties of access to TB diagnosis and treatment, among other conditioning factors, a study conducted in the United States of America identified that 6.4% of TB cases occurred in PLS between 1994 and 2003. The authors affirm that, given the relation between TB and precarious life conditions, planning actions for reducing the incidence of this disease in the population living under such circumstances requires knowledge of characteristics and singularities of this group, in addition to comprehension of socioeconomic indexes such as education and income<sup>(8)</sup>.

The context of vulnerability, which includes aspects related to individual and social vulnerability, is also associated to a difficulty in adhering to TB treatment. A study conducted in the United States of America from 1994 to 2010 investigated 270,948 TB notifications, 6% of which were in PLS. It showed a nearly ten times increase in incidence in this period, lower adherence to treatment, and a higher likelihood of substance abuse. In this sense, the authors emphasize the challenge of incorporating actions aimed at reducing the load of the disease in this population, aiming at complying with the national goal of TB elimination<sup>(9)</sup>.

## DISCUSSION

This systematic review has provided an analysis of the main findings of studies investigating the epidemiological profile of TB in street population. Most of the literature indicates similarities regarding the occurrence of disease in this group.

TB is still a public health problem and a challenge in many countries, since its control depends on the conjugation of intersectoral, institutional, and social actions, in addition

to those that deal with biological factors. Only one Brazilian study on the epidemiological characteristics of TB in street population was identified. The results of this study reveal that, in São Paulo state, there is a high load of the disease in PLS and that homelessness and associated conditions impact on treatment adherence. The findings reveal that homelessness led to a sharp reduction in treatment success, which demands the implementation of specific interventions to reach this vulnerable population through public policies<sup>(12)</sup>.

PLS are known to be more susceptible to falling ill and dying from TB, given the vulnerability context imposed by life on the streets. Death was observed to be proportional in the two populations (with and without fixed residence) in both studies conducted in the United States of America, with 8%<sup>(9)</sup> and 9%<sup>(8)</sup>; however, other studies revealed a higher rate for the street population<sup>(10-13)</sup>.

A study developed in a city in Spain showed that infectious diseases represent the second most frequent disease group in PLS, and TB was observed in 6.1% of this group, in relation to 0.1% of people with residence. Homelessness, use of injection drugs, and difficulties in maintaining healthy life habits may contribute to the emergence of TB, hepatitis B and C, HIV, among other infectious and contagious diseases, and PLS presented 40 times more chances of developing TB when compared to people with residence<sup>(15)</sup>. Another study, conducted in Portugal, also revealed that PLS presented a higher use of alcohol and drugs, in addition to other conditions, such as previous TB treatment, TB/HIV co-infection, and higher rates of unfavorable treatment outcomes<sup>(16)</sup>.

The results for this study demonstrate that PLS were more likely to use alcohol and other drugs, abandon TB treatment, and die as a consequence in comparison with people with residence. Such fact emphasizes the importance of offering health care that accounts for these questions and for the singularities of life on the streets. In addition to social vulnerability, health professionals should be aware of other possible situations which may compromise treatment adherence. The need for continuous follow-up of PLS is thus reinforced<sup>(1)</sup>.

The studies included in this review showed no significant differences in relation to DOT coverage when comparing PLS and people with residence. The World Health Organization recommends conducting medication supervision; however, an alternative to this modality is articulation with social assistance services, which may be partners in administering DOT and generally have professionals with competence to apply social protection mechanisms to PLS. In case of failure of strategies which maintain people supported by social assistance, it is possible to resort, as a last alternative, to the social hospitalization regime, which may make treatment adherence possible and guarantee a favorable outcome<sup>(1)</sup>, even if it takes place in an extreme situation. However, such strategy does not modify life situation, assuming that these people's situation is a product of a process which belongs, before anything, to the social sphere and is a consequence of social inequality, in addition to the absence of a providing State which shelters the population.

Because it is a socially determined disease, TB mostly afflicts PLS, given the situation imposed on them by life on the streets. One emphasizes the importance of health professionals who are sensible to work with this vulnerable group through a human, multidisciplinary approach and help this population search for possibilities of overcoming this condition. In Brazil, activities developed by the teams of *Consultório na Rua* enable providing care to PLS in the health service, so that their health needs are valued, fostering bonds with and trust of health professionals<sup>(17)</sup>.

A study conducted in Curitiba, Paraná state, has analyzed the constitutive elements of the work process of health professionals engaged in *Consultório na Rua* as related to ideological knowledge, represented by the public policies which guided the process of teamwork, such as: access to health, health as a constitutional right, intersectoral work, and the needs of PLS<sup>(18)</sup>.

In a study conducted with professionals of the *Consultório na Rua* team, reports showed that health assistance of PLS demanded training the health team to recognize this population's health needs, which derive from diverse conditions that increase vulnerability to TB, treatment abandonment, and death. Thus, the performance of a trained team may contribute to disease control, considering that this situation is beyond the health sphere and demands intersectoral actions<sup>(5)</sup>.

A systematic review reinforced the importance of developing intersectoral actions for the street population, considering the high occurrence of TB in this group and the difficulties to control the disease, such as prevention, early diagnosis, and treatment<sup>(19)</sup>.

To promote treatment adherence, in addition to creating bonds between health professionals and people living on the streets, recommended actions include: *Projeto Terapêutico Singular* (Singular Therapeutic Project), partnering up with the Psychosocial Support Network, and offering incentives to guarantee treatment success (community restaurant, free transportation, shelters, and others). Health professionals should work in teams to identify respiratory symptoms and, by doing so, speeding up TB diagnosis and guaranteeing immediate and timely treatment commencement<sup>(1)</sup>. Health practices aimed at PLS should be understood from a broad perspective, understanding people as protagonists of their own care<sup>(20)</sup>.

Controlling TB in PLS poses a challenge to society, especially in current times, when social inequality and unemployment are growing, with a significant increase of PLS as an implication. This group's health needs impact on treatment adherence, considering that TB is socially determined and stigmatized. Comprehending this disease as a social phenomenon is thus fundamental. The Theory of Social Determination of the Health-Disease Process reinforces and contributes to the interpretation of the health-disease process and to overcoming traditional models of care<sup>(5)</sup>.

As TB is considered a neglected disease, with low social visibility, mainly for affecting people with difficulties or no access to dignity in life and work, the need for understanding falling ill as a social phenomenon is emphasized. This demands interventions that consider their singularities,

including actions which go beyond the health sector. Recognizing social inequality implies understanding the process which produces it and identifying the mediating elements between macrosocial processes and epidemiological profiles in different social groups. Such interpretation is indispensable to fight social inequality in the sphere of public policy, in the daily life in health assistance, and in citizen practice<sup>(21)</sup>.

The evidence found in the articles selected to comprise this study show relevant health data, which reinforces the need for a political commitment so that care practices are incorporated into PLS both through state and civil society efforts with the objective of fighting the singularities deriving from the dynamics of life of this vulnerable group<sup>(22)</sup>.

The studies selected in this systematic review proposed a description of the occurrence of TB in PLS. Variable health statuses were observed, which makes comparison between different realities difficult.

Considering that PLS are vulnerable to TB, the participation of nurses in the multiprofessional team is emphasized, since their specific qualification enables the creation of bonds with PLS. In addition to this, nurses have instruments to identify needs and thus actively work for the control of this disease, conducting actions that range from the development of health promotion activities, prevention, and early diagnosis to treatment and cure. Health actions for PLS must include not only early diagnosis, but also strategies for treating TB on an individual basis, accounting for health needs, social context, and necessary resources to enable treatment adherence, aiming at reducing bacillus transmission and deaths in this population.

## CONCLUSION

The efforts for controlling TB must include specific actions for the street population, given their singularities. Analysis of the scientific literature has shown that there are many challenges to be faced in controlling TB in PLS, since this population is more susceptible to falling ill and there are many obstacles to treatment adherence.

Even though Brazil represents one of the 22 countries with the highest concentration of TB worldwide, this study has pointed the scarcity of studies on Brazilian epidemiological characteristics which deal with the occurrence of TB in street population.

The need for studying contents related to neglected diseases – such as TB – in health courses is emphasized to sensitize future professionals to provide proper care, with an integral approach, and to provide them with instruments which enable the recognition of health needs. Public policies to contribute with social protection for this group are emphasized as urgent. Finally, new studies that investigate this theme, dealing with issues that range from health-disease process in the context of PLS to fighting strategies, are extremely important. The reduction of inequalities through public policies for this population is also emphasized as fundamental; these should guarantee their exercise of citizenship so as to provide them access to housing, health care, education, and jobs.

## RESUMO

**Objetivo:** Analisar as evidências disponíveis na literatura sobre a ocorrência da tuberculose em pessoas que vivenciam situação de rua. **Método:** Revisão Sistemática realizada nas bases de dados PubMed, EMBASE, LILACS e biblioteca eletrônica SciELO. A hermenêutica norteou a análise do material empírico. Buscou-se apreender os principais temas que corporificaram a associação entre a tuberculose e a população que vivencia situação de rua. **Resultados:** Foram identificados, inicialmente, 343 artigos, mas apenas sete atendiam aos critérios de elegibilidade. A literatura mostrou que pessoas nessa condição e que tinham tuberculose apresentaram desfechos do tratamento desfavoráveis quando comparadas à população com residência fixa, sendo alguns dos motivos associados o uso abusivo de álcool e outras drogas e doenças associadas, como o vírus da imunodeficiência adquirida, entre outros. **Conclusão:** Apesar da importância do tema, a análise da produção científica evidencia a necessidade de estudos voltados não só à compreensão da ocorrência da doença nesse grupo vulnerável, mas principalmente às formas de enfrentamento.

## DESCRITORES

Tuberculose; Pessoas em Situação de Rua; Populações Vulneráveis; Enfermagem em Saúde Comunitária; Revisão.

## RESUMEN

**Objetivo:** Analizar la evidencia disponible en la literatura sobre la ocurrencia de la tuberculosis en personas que viven en las calles. **Método:** Revisión sistemática realizada en las bases de datos PubMed, EMBASE, LILACS y biblioteca electrónica SciELO. La hermenéutica guió el análisis del material empírico. Se estudiaron los principales temas que daban forma a la asociación entre la tuberculosis y la población que habita la calle. **Resultados:** Inicialmente, se identificaron 343 artículos, pero sólo siete cumplían con los criterios de elegibilidad. La literatura mostró que las personas en esta condición y que tenían tuberculosis presentaban malos resultados de tratamiento cuando se comparaban con la población con residencia fija. Algunas de las razones se asocian con el abuso de alcohol y otras drogas y enfermedades asociadas, como el virus de inmunodeficiencia adquirida, entre otras. **Conclusión:** A pesar de la importancia del tema, el análisis de la producción científica muestra la necesidad de estudios dirigidos no sólo a comprender la ocurrencia de la enfermedad en este grupo vulnerable, sino principalmente las formas de confrontación.

## DESCRIPTORES

Tuberculosis; Personas sin Hogar; Poblaciones Vulnerables; Enfermería en Salud Comunitaria; Revisión.

## REFERENCES

1. Brasil. Ministério da Saúde; Secretaria de Vigilância em Saúde, Departamento de Vigilância das Doenças Transmissíveis. Manual de recomendações para o controle da tuberculose no Brasil. Brasília: MS; 2018.
2. Brasil. Ministério da Saúde; Secretaria de Vigilância em Saúde, Departamento de Vigilância das Doenças Transmissíveis. Brasil livre da tuberculose: Plano Nacional pelo Fim da Tuberculose como Problema de Saúde Pública. Brasília: MS; 2017.
3. Hino P, Santos JO, Rosa AS. People living on the street from the health point of view. *Rev Bras Enferm* 2018;71 Suppl 1:732-40. doi: <http://doi.org/10.1590/0034-7167-2017-0547>
4. Alecrim TFA, Mitano F, Reis AA, Roos CM, Palha PF, Protti-Zanatta ST. Experience of health professionals in care of the homeless population with tuberculosis. *Rev Esc Enferm USP*. 2016; 50(5):809-16. doi: <http://dx.doi.org/10.1590/s0080-623420160000600014>
5. Hino P, Monroe AA, Takahashi RF, Souza KMJ, Figueiredo TMRM, Bertolozzi MR. Tuberculosis control from the perspective of health professionals working in street clinics. *Rev Latino Am Enfermagem*. 2018;26:e3095. doi: <https://doi.org/10.1590/1518-8345.2691.3095>.
6. Rosa AS, Santana CLA. Street clinic as good practice in collective health. *Rev Bras Enferm* 2018;71(1):501-2. doi: <https://doi.org/10.1590/0034-7167-201871sup102>
7. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The strengthening the reporting of observational studies in epidemiology: STROBE statement. *Int J Surg*. 2014;12(12):1495-9. doi: 10.1016/j.ijsu.2014.07.013
8. Haddad MB, Wilson TW, Ches MS, Ljaz K, Marks SM, Moore M. Tuberculosis and homelessness in the United States, 1994-2003. *JAMA*. 2005;293(22):2762-6. doi: 10.1001/jama.293.22.2762
9. Bamrah S, Woodruff RSY, Powell K, Ghosh S, Kammerer JS, Haddad MB. Tuberculosis among the homeless, United States, 1994-2010. *Int J Tuberc Lung Dis*. 2013;17(11):1414-9. doi: 10.5588/ijtld.13.0270
10. Uchimura K, Ngamvithayapong-Yanai J, Kawatsu L, Ohkado A, Yoshiyama T, Shimouchi A, et al. Characteristics and treatment outcomes of tuberculosis cases by risk groups, Japan, 2007-2010. *WPSAR*. 2013; 4(1):11-8. doi: 10.5365/wpsar.2012.3.4.016
11. Korzeniewska-Kosela M, Kus J, Lewandowska K, Siemion-Szczesniak I. Tuberculosis in homeless persons in Poland. *Przegl Epidemiol* 2015;69:445-51.
12. Ranzani OT, Carvalho CRR, Waldman EA, Rodrigues LC. The impact of being homeless on the unsuccessful outcome of treatment of pulmonary TB in São Paulo State, Brazil. *BMC Med*. 2016;14(41):1-13.
13. Heo D, Min HG, Lee HH. The clinical characteristics and predictors of treatment success of pulmonary tuberculosis in homeless persons at a public hospital in Busan. *Korean J Fam Med*. 2012;33:372-80. doi: 10.4082/kjfm.2012.33.6.372
14. Feske ML, Teeter LD, Musser M, Graviss EA. Counting the homeless: a previously incalculable tuberculosis risk and its social determinants. *Am J Public Health*. 2013;103(5):839-48. doi: 10.2105/AJPH.2012.300973
15. Patricio ST, Ajuria AF, Castro LC. Características de los ingresos hospitalarios de las personas sin hogar em Sevilla. *Rev Esp Salud Pública* 2016;90(10):e1-11.
16. Dias M, Gaio R, Sousa P, Abranches M, Gomes M, Oliveira et al. Tuberculosis among the homeless: should we change the strategy? *Int J Tuberc Lung Dis*. 2017;21(3):327-32. doi: 10.5588/ijtld.16.0597
17. Zuim RCB, Trajman A. Itinerário terapêutico de doentes com tuberculose vivendo em situação de rua no Rio de Janeiro. *Physis Rev Saúde Colet*. 2018;28(2):e280205. doi: <http://dx.doi.org/10.1590/s0103-7331201828205>

18. Kami MTM, Larocca LM, Chaves MMN, Piosiadlo LCM, Albuquerque GS. Tool and ideological knowledge in Street Outreach Office working process. *Rev Esc Enferm USP*. 2016;50(3):442-9. doi: <https://doi.org/10.1590/S0080-623420160000400010>
19. Silva EN, Pereira ACES, Araújo WN, Elias FTS. A systematic review of economic evaluations of interventions to tackle tuberculosis in homeless people. *Rev Panam Salud Pública*. 2018;42:e40. doi: <http://doi.org/10.26633/RPSP.2018.40>
20. Koopmans FF, Daher DV, Acioli S, Sabóia VM, Ribeiro CRB, Silva CSSL. Living on the streets: an integrative review about the care for homeless people. *Rev Bras Enferm*. 2019;72(1):211-20. doi: <https://doi.org/10.1590/0034-7167-2017-0653>
21. Bertolozzi MR, Takahashi RF, França FOS, Hino P. The incidence of tuberculosis and its relation to social inequalities: integrative review study on PubMed base. *Esc Anna Nery*. 2020;24(1):e20180367. doi: <https://doi.org/10.1590/2177-9465-ean-2018-0367>
22. Barata RB, Carneiro Junior N, Ribeiro MCSA, Silveira C. Health social inequality of the homeless in the city of São Paulo. *Saúde Soc*. 2015;24 Suppl 1:219-32. doi: <https://doi.org/10.1590/s0104-12902015s01019>



This is an open-access article distributed under the terms of the Creative Commons Attribution License.