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RESEARCH

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DETERMINANTS FOR TUBERCULOSIS AND HIV: PEOPLE IN THE STREET SITUATION

Determinantes para tuberculose e HIV: pessoas em situação de rua

Determinantes de la tuberculosis y el HIV: personas en la situación de la calle

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ABSTRACT

Objective: To analyze determinants of tuberculosis and HIV in homeless people. **Method:** Quantitative, cross-sectional research conducted in 2017 at a Reference Hospital for Infectious Diseases in João Pessoa/PB, Brazil. The sample consisted of 10 homeless people diagnosed with tuberculosis. Ethical precepts were observed according to Resolution 466/2012 of the National Health Council. The analysis was performed through the Statistical Package for the Social Sciences (SPSS) program. **Results:** 7 (70%) men, 6 (60%) illiterate. It was reported that 10 (100%) do not attend health services, 9 (90%) perform sexual activity without condoms, 7 (70%) use illicit drugs. The determinants of HIV and tuberculosis are associated with homelessness and length of stay. **Conclusions:** It is necessary to develop and comply with policies aimed at achieving better living conditions and access to health care for homeless people.

DESCRIPTORS: Homeless people; Tuberculosis; HIV; Health vulnerability; Public health.

RESUMO

Objetivo: Analisar determinantes para tuberculose e HIV de pessoas em situação de rua. **Método**: Pesquisa quantitativa, transversal, realizada em 2017 em um Hospital de Referência para Doenças Infectocontagiosas em João Pessoa/PB, Brasil. A amostra foi composta por 10 pessoas em situação de rua diagnosticadas com tuberculose. Foram observados os preceitos éticos conforme Resolução 466/2012 do

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Conselho Nacional de Saúde. A análise foi realizada através do programa *Statistical Package for the Social Sciences* (SPSS). **Resultados:** 7 (70%) homens, 6(60%) analfabeto. Registrou-se que 10(100%) não frequentam serviço de saúde, 9(90%) realizam atividade sexual sem preservativo, 7(70%) utilizam drogas ilícitas. O escore dos determinantes para HIV e tuberculose estão associados ao tempo em situação de rua e ao tempo de internação. **Conclusões:** É necessário desenvolver e cumprir políticas que visem alcançar melhores condições de vida e de acesso a assistência à saúde para as pessoas em situação de rua.

DESCRITORES: Pessoas em situação de rua; Tuberculose; HIV; Vulnerabilidade a saúde; Saúde pública.

RESUMEN

Objetivo: Analizar los determinantes de la tuberculosis y el HIV en personas sin hogar. **Método:** Investigación cuantitativa y transversal realizada en 2017 en un Hospital de referencia para enfermedades infecciosas en João Pessoa/PB, Brasil. La muestra consistió en 10 personas sin hogar diagnosticadas con tuberculosis. Se observaron preceptos éticos de acuerdo con la Resolución 466/2012 del Consejo Nacional de Salud, el análisis se realizó a través del programa Paquete estadístico para las ciencias sociales (SPSS). **Resultados:** 7 (70%) hombres, 6 (60%) analfabetos. Se informó que el 10 (100%) no asiste a los servicios de salud, el 9 (90%) realiza actividad sexual sin condones, el 7 (70%) usa drogas ilícitas. Los determinantes del VIH y la tuberculosis están asociados con la falta de vivienda y la duración de la estadía. **Conclusiones**: Es necesario desarrollar y cumplir con políticas destinadas a lograr mejores condiciones de vida y acceso a la atención médica para las personas sin hogar.

DESCRIPTORES: Personas sin hogar; Tuberculosis; VIH; Vulnerabilidad de la salud; Salud pública.

INTRODUCTION

Tuberculosis (TB) is a public health problem[1], considered a priority by the Ministry of Health of Brazil since 2003 and is currently one of the five diseases most in focus.[2] In 2018, in Brazil, about 72,788 new cases were diagnosed , which corresponds to a rate of 34.8 cases per 100 thousand inhabitants[3]. In the most vulnerable populations, incidence rates are higher than the national average of the general population, being 30 to 67 times higher in the population living on the streets.[4]

Poverty is one of the main reasons why TB remains a public health problem. The severity and negative impact of this pathology are inversely proportional to the Human Development Index, and the uneven distribution of the disease is influenced by several factors, such as land mass, uncontrolled population growth and the concentration of people living around cities and villages. The relationship between poverty and TB is well documented, as well as the risks related to socioeconomic indicators, such as population groups, poverty and unemployment.[5]

In Brazil, TB is one of the most frequent co-infections that lead to the death of people infected by the Human Immunodeficiency Virus (HIV).[6] The prevalence of TB/HIV co-infection mainly affects the poorest and most marginalized segments of society, that is, those who are the most receptive and vulnerable to the disease.[7]

It is estimated that, in the world, 9% of patients diagnosed with TB are infected with HIV and that the number of co-infected globally reaches six million people. Brazil reports an average of 85,000 cases of tuberculosis per year, with approximately 8% of those diagnosed with tuberculosis also infected with HIV.[8]

It should be noted that the worsening of social and economic conditions results in significant degradation of living conditions, increasing the vulnerability of individuals and, consequently, the risk of co-infection with TB/HIV. In this sense, national planning for restructuring health care systems is as important as financing, leading to integrated systems of health care and decentralized care to improve adherence to treatment.[2]

The individual affected by a disease rethinks the aspects that involve life and death and needs to develop coping strategies that resemble the concept of resilience, implying in overcoming the difficulty experienced, enabling the construction of new paths in the face of adversity. When the peculiarities of an infection such as HIV, which is chronic and incurable, are experienced, coping strategies are necessary for the construction of new trajectories.[9]

The most vulnerable group to TB has been the homeless population, as a result of poverty, lack of employment, lack of knowledge of the disease, HIV co-infection, lack of fixed residence, low immunity, immigration and the use of psychoactive substances.[10]

Studies that address homeless people are scarce, especially in the perspective of understanding how individuals conceive the health-disease process and face health problems. Addressing the meanings of health for people living on the streets is also to provide a space for them to voice themselves and their issues, because in the context in which they live they tend to remain in an invisible position, devoid of the condition of citizens.[11]

The main factors for the greatest impact of the HIV epidemic in Brazil are related to the individual and to the social and institutional contexts, especially the failure to adopt safe practices in sexual relations and drug use, discrimination, social inequalities and difficulties in accessing services. These aspects strongly characterize the homeless population in Brazil.[12]

In this context, the present study emerged from the following question: What are the determinants for tuberculosis and HIV of people living on the streets? In this perspective, the objective was to analyze determinants for tuberculosis and HIV of people living on the streets.

METHOD

This is a cross-sectional study, with a descriptive characteristic and quantitative approach, carried out in a Reference Hospital for Infectious Diseases located in the city of João Pessoa/PB, Brazil, between the months of September and October of the year 2017. The study population was composed of 15 individuals, with the sample comprising 10 of them, corresponding to 66.6% of the population.

The eligibility criteria established were: homeless people hospitalized at the data collection site, with verbal communication skills, diagnosed with tuberculosis. Homeless people who did not have tuberculosis were excluded, as well as those who did not sign the Informed Consent Form (Termo de Consentimento Livre e Esclarecido — TCLE).

For data collection, an instrument containing two stages was used: sociodemographic characterization and determinants that contribute to tuberculosis and HIV (sexual practices, hygiene and life habits, behaviors, respiratory symptoms, data on tuberculosis and HIV). Data were collected through interviews and medical records to ascertain clinical and sociodemographic data. The interview time per individual was approximately 30 minutes. Data collection was performed by the researcher.

The sociodemographic items and those that make up the determining factors for the diagnosis of Tuberculosis and HIV were processed in the *Statistical Package for the Social Sciences* (SPSS) 19.0 Program, through the absolute and relative frequency, mean, standard deviation of the mean. Statistical analysis was performed using the T Test, Chi Square, Anova Test and Odds Ratio. In all the tests mentioned above, it was considered statistically significant when $p \leq 0.05$.

For the determining factors that contribute to Tuberculosis and HIV, a point was assigned for the variables answered as risk for HIV/AIDS and/or Tuberculosis and zero points for the non-risk ones, with a score determined at the end through the sum of the variables. Individuals with a score greater than or equal to three points were identified as at risk for HIV/AIDS and/or Tuberculosis.

It should be noted that the research followed the ethical principles established in Resolution No. 466/2012 of the National Health Council (Conselho Nacional de Saúde) regarding the Regulatory Guidelines and Norms for Research Involving Human Beings (Diretrizes e Normas Regulamentadoras de Pesquisa Envolvendo Seres Humanos), being approved according to CAAE 70792017.2.0000.5176, approval number 2.199.293, dated on August 2 of the year 2017.

RESULTS AND DISCUSSION

The average age of the subjects varied from 37.8 ± 8.16 years, n = 7 (70%) was male. The time living on the street averaged 8.3 ± 5, with a maximum of 21 and a minimum of five years. It is noteworthy that n = four people were diagnosed with Tuberculosis and HIV concomitantly and n = six with tuberculosis, being n = four (40%) being characterized as a new case and n = six (60%) as a recurrence.

As for opportunistic diseases n = six (60%) was diagnosed with pneumonia, n = four (40%) did not register opportunistic diseases. Table 1 reveals the sociodemographic characteristics of the study subjects.

Table 1 - Sociodemographic characteristics of homeless people diagnosed with tuberculosis. João Pessoa, Paraíba, Brazil, 2017, N=10

Variables	N	%
Education level		
Illiterate	6	60%
Incomplete elementary school	3	30%
Incomplete high school	1	10%
Activity exercised to obtain money		
Truck unloader	1	10%
Petrol attendant	2	20%
Beggar at the traffic light	2	20%
Hawker	2	20%
Has no activity	3	30%
Monthly income		
100 - 200 reais	7	70%
300 - 500 reais	2	20%
700 - 900 reais	1	10%

Source: Research data, 2017.

Table 2 expresses data on health determinants, frequency of service, diagnosis and previous treatment for STIs, previous hospitalizations, time of diagnosis and whether TB-HIV treatment was early or not.

Table 2 - Data on health determinants of homeless people diagnosed with tuberculosis. João Pessoa, Paraíba, Brazil, 2017, N=10

Variables	N	%
Attends health service		
Yes	-	-
No	10	100%
Diagnosis and previous treatment for STIs or suggestive for.		
Candidiasis	3	30%
Trichomoniasis	6	60%
Syphilis	1	10%
How many times have you been hospitalized for tuberculosis or HIV?		
Once	1	10%
Twice	1	10%
Three times	2	20%
Four times	1	10%
Five times	3	30%
Seven times	1	10%
Twelve times	1	10%

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Variables	N	%
How long have you been diagnosed with HIV?		
Does not have	6	60%
One year	1	10%
Six years	1	10%
Twelve years	1	10%
Seventeen years	1	10%
How long have you been diagnosed with Tuberculosis?		
One month	1	10%
Two months	2	20%
One year	1	10%
Two years	3	30%
Four years	1	10%
Five years	1	10%
Ten years	1	10%
Early treatment for Tuberculosis?		
Yes	6	60%
No	4	40%
Early treatment for HIV?		
Yes	4	40%
No*	6	60%

Source: Research Data, 2017. *They were not diagnosed with HIV.

As for health information, the subjects studied obtained an average score of 7.3 ± 1.94 points, with a minimum of four and a maximum of 11, revealing that all participants are at risk for HIV/AIDS infection and tuberculosis, since the established cutoff point was three points.

The results presented in Table 3 are related to the determining factors for vulnerability to tuberculosis and HIV in homeless people with a previous diagnosis, such as data on sexual activity, condom use, hygiene and use of alcohol and other drugs.

Table 3 - Determining factors for vulnerability to tuberculosis and HIV of homeless people diagnosed with tuberculosis. João Pessoa, Paraíba, Brazil, 2017, N=10

Variables	N	%
Sexual activity with condom use		
Yes	1	10%
No	9	90%
Fixed partner		
Yes	2	20%
No	8	80%
Place where you perform sexual activity		
In the street	10	100%
Types of sex performed		
Oral	2	20%
Anal	7	70%
Vaginal	1	10%
Have sex in exchange for a financial sum		
Yes	3	30%
No	7	70%
Had sex with drug user		
Yes	3	30%
No	7	70%
Shower daily		
Yes	10	100%
No	-	-
Gets wet in the rain		
Yes	3	30%
No	7	70%
Place where you sleep		
In the street	10	100%
Do you share a razor?		
Yes	3	30%
No	7	70%
Do you have a tattoo?		
Yes	9	90%
No	1	10%
Do you use illicit drugs?		
Yes	7	70%
No	3	30%
What drugs do you use?		
Crack	3	30%
Marijuana	4	40%
Does not use	3	30%
Alcoholism		
Yes	7	70%
No	3	30%
Smoking		
Yes	5	50%
No	5	50%

Source: Research data, 2017.

The clinical manifestations of homeless people diagnosed with tuberculosis who participated in this study are shown in Table 5.

Table 4 - Clinical manifestations of homeless people diagnosed with tuberculosis. João Pessoa, Paraíba, Brazil, 2017, N=10

Clinical manifestations	N	%
Diarrhea	4	40%
Fever	5	50%
Pain	7	70%
Body stains	5	50%
Joint pain	3	30%
Limited movements	3	30%
Cough	9	90%
Secretion	7	70%
Hemoptysis	3	30%

Source: Research data, 2017.

The influence of variables to test the hypotheses of this research is shown in Chart 1.

Chart 1 - Statistical tests of association between variables of homeless people diagnosed with tuberculosis. João Pessoa, Paraíba, Brazil, 2017, N=10

Variables	Test	P	Conduct
Association of education in early HIV treatment.	Chi Square	0.150	Hypothesis is rejected
Association of education in early treatment for tuberculosis.	Chi Square	0.150	Hypothesis is rejected
Influence of education on the score of determinants for tuberculosis and HIV.	Anova	0.230	Hypothesis is rejected
Gender association in early adherence to tuberculosis treatment.	Chi Square	0.206	Hypothesis is rejected
Gender association in early adherence to HIV/AIDS treatment.	Chi Square	0.527	Hypothesis is rejected
Association between determinant score and time spent on the streets.	t Test	0.001	Hypothesis is accepted
Association between the score of determinants and assistance in the health service.	Chi Square	0.493	Hypothesis is rejected
Association between the determinant score and the previous diagnosis of Sexually Transmitted Disease.	Chi Square	0.493	Hypothesis is rejected
Association between determinant score and type of previous Sexually Transmitted Disease (candidiasis, trichomoniasis, gonorrhea, vaginosis, syphilis, others).	Anova	0.30	Hypothesis is rejected
Association between determinant score and length of hospitalization.	t Test	0.001	Hypothesis is accepted
Association of opportunistic infections (pneumonia, bronchitis, others) and early adherence to treatment related to the diagnosis of HIV/AIDS.	Chi Square	0.527	Hypothesis is rejected
Association of opportunistic infections and early adherence to treatment regarding the diagnosis of tuberculosis.	Chi Square	0.527	Hypothesis is rejected

Source: Research data, 2017.

When applying linear regression, it was obtained as a result that age explains in 50% ($R^2 = 0.494$) and education in 59% ($R^2 = 0.059$) the determinants that contribute to the vulnerability to tuberculosis and HIV in homeless people investigated in this study. Early treatment for tuberculosis has the power to explain the determinants of vulnerability to tuberculosis and HIV by 80% ($R^2 = 0.080$).

According to the results of the present study, regarding sociodemographic data, it was possible to view the age group of young adults as the highest occurrence. In a study carried out in the state of Paraná, Brazil, it was found that regarding deaths from tuberculosis, the incidence is higher in the 45-69 age group.[13]

The scientific literature corroborates the findings of this study, when in a research carried out in the state of Pará, Brazil, it demonstrated that TB is more common in males. This fact is justified by the low adherence of men to health prevention services.[14]

It is understood that the low level of formal education directly influences the low adherence and/or abandonment of TB treatment, since it allows a lesser understanding about the factors related to the pathology.[15]

Regarding TB/HIV co-infection, a study carried out in the state of Amazonas revealed that 7.7% of those investigated had it. Therefore, it is important to increase TB prevention strategies in HIV-infected individuals, collaborating to reduce mortality in this situation.[6]

Tuberculosis is labeled as a disease of poverty and inequality in health. The population living on the streets has an incidence 85% times higher than the general population.[16]

Living on the street has as etiology a number of factors, such as drug use, family conflicts and unemployment.[17] Being

on the street directly implies the characteristics related to the individuals' biopsychosocial, making them vulnerable to the health-disease process.[11]

Regarding the low adherence of people on the street to health services, this fact is understood in the literature as present due to the segregation of this population from the general population. In order to get closer to these individuals, the Street Clinic (Consultório na Rua — CnR) was created, a service that makes up the Psychosocial Care Network (Rede de Atenção Psicossocial — RAPS). It has a multiprofessional team that provides services directly on the street, seeking to create a bond with these people and carry out health promotion and disease prevention activities.[18]

Regarding the use of condoms during sexual intercourse, this study goes against one carried out in São Paulo – SP, which showed that about 70% of the interviewees used condoms in their sexual relations. Despite the widespread disclosure of the importance of condom use for the prevention of Sexually Transmitted Infections (STIs), it is important to increase strategies aimed at homeless people, as there is research that demonstrates low adherence to condom use.[19]

Regarding the use of drugs, the strategy of the Harm Reduction policy, widely used by the CnR, which aims to reduce adverse situations caused by drug use is highlighted. This policy is included in the care of people with problems in the abusive use of alcohol and other drugs, seeking to approach individuals in a comprehensive and holistic way.[20]

The use of alcohol and drugs is a factor that hinders the individual's decision to use condoms, especially when the use occurs before sexual intercourse. These factors gain greater dimension in the population studied and deserve attention from prevention programs, since there is a high proportion of homeless people who report the use of psychoactive substances and eventual sexual partnership.[12]

As for the clinical manifestations of TB, according to scientific studies, the most common are fever, cough, sweating and weight loss, corroborating the findings of this research.[3]

The performance of health teams, especially at the primary care level, in the search for the reduction of TB cases becomes important. The performance of the teams must take place in a comprehensive manner, managing the disease effectively, conducting an active search on symptomatic individuals and seeking to create a bond to reduce the number of treatment dropouts.[21]

CONCLUSIONS

Through the foregoing it is possible to conclude that this study achieved the proposed objectives. The main results obtained were: there is a considerable number of illiterate homeless people, who do not attend health services, do not use condoms in sexual relations and use illicit drugs, factors that according to the literature are associated with increased vulnerability to TB/HIV co-infection. It should be noted that there was an association between the score of the determinants and the time spent on the streets, as well as the length of hospital stay.

Thus, it is necessary to raise awareness not only of health professionals, but of the entire civil society in order to understand the vulnerabilities of the homeless population.

In view of the data presented, it is essential to include public actions and policies in the area discussed, with social, material and financial resources aimed at controlling and subsequently reducing infection with tuberculosis and HIV.

Health education is a device of great relevance, being used to overcome the lack of information and influence the attitudes of individuals towards promoting their health. However, it is necessary that professionals develop skills aimed at homeless people.

This study has as limitations the reduced number of individuals, few variables addressed and the cross-sectional method. However, it is highlighted that conducting research with homeless people diagnosed with tuberculosis is difficult to access and, therefore, the results of this study deserve relevance. It is necessary to implement longitudinal research with people diagnosed with HIV tuberculosis in order to better understand the changes and decisive factors that can influence the recovery of their health or adherence to the prescribed treatment.

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