

# **SOCIAL DETERMINANTS OF TUBERCULOSIS IN HOUSEHOLD CONTACTS AND INDEX CASES: A STUDY IN LIMA, PERU**

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**Abstract:** Tuberculosis (TB) remains a significant public health challenge, with social determinants playing a critical role in disease transmission and outcomes. This study investigates the influence of social determinants on TB transmission in household contacts and index cases in Lima, Peru. A comprehensive assessment of household contacts and index cases was conducted, examining factors such as socio-economic status, living conditions, access to healthcare, and social support networks. Data were collected through interviews and medical records review. The study highlights the impact of social determinants on TB transmission dynamics within households and provides valuable insights for targeted interventions to improve TB control and prevention strategies in vulnerable populations.

**Keywords:** Tuberculosis, social determinants, household contacts, index cases, Lima, Peru, socio-economic status, living conditions, access to healthcare, social support networks, TB transmission, public health.

## **INTRODUCTION**

Tuberculosis (TB) continues to be a major global health concern, particularly in low and middle-income countries. Peru is one such country that faces a high burden of TB, and Lima, its capital city, is no exception. TB transmission dynamics are influenced by various social determinants, including socio-economic status, living conditions, access to healthcare, and social support networks. Understanding the impact of these determinants is crucial for developing effective TB control and prevention strategies, especially in households where close contacts with index TB cases may lead to further transmission.

This study aims to investigate the role of social determinants in TB transmission within households and their effect on the health outcomes of both household contacts and index TB cases in Lima, Peru. By identifying the specific factors that contribute to TB transmission, policymakers and healthcare professionals can tailor interventions to address the underlying social determinants and improve TB control efforts in the region.

## **METHOD**

Study Design:

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This study employed a cross-sectional design to assess the social determinants of TB in household contacts and index cases in Lima, Peru.

#### Study Population:

The study population comprised households with confirmed TB index cases and their respective household contacts. Participants were recruited from various health facilities and TB treatment centers in Lima.

#### Data Collection:

Data were collected through face-to-face interviews with household contacts and index TB cases using structured questionnaires. The interviews explored socio-economic status, living conditions, access to healthcare services, and social support networks.

#### Medical Records Review:

Information on TB diagnosis, treatment history, and clinical outcomes for index cases and household contacts was obtained from medical records available at the health facilities.

#### Ethical Considerations:

Ethical approval was obtained from the relevant institutional review boards. Informed consent was obtained from all participants before their inclusion in the study.

#### Data Analysis:

Quantitative data collected from interviews and medical records were analyzed using appropriate statistical methods, such as chi-square tests, logistic regression, and descriptive statistics. The analysis aimed to identify associations between social determinants and TB transmission within households.

#### Data Integration:

The quantitative findings were complemented by qualitative insights obtained from open-ended questions during the interviews, providing a more comprehensive understanding of the social determinants' impact.

#### Interpretation of Results:

The study results were interpreted to identify key social determinants influencing TB transmission in households and their potential implications for public health strategies.

This study is expected to provide valuable insights into the role of social determinants in TB transmission dynamics within households in Lima, Peru. By understanding these determinants, policymakers and healthcare professionals can develop targeted interventions to address the underlying factors

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contributing to TB transmission and improve TB control efforts in the region. Additionally, the study's findings may have broader implications for TB control strategies in other settings facing similar challenges related to social determinants.

## **RESULTS**

The study included a total of [number] households with confirmed TB index cases and their household contacts in Lima, Peru. The analysis of social determinants revealed several key findings:

### **Socio-Economic Status:**

Household contacts from lower socio-economic backgrounds had a higher risk of TB infection compared to those from higher socio-economic status households.

### **Living Conditions:**

Overcrowded living conditions and limited access to adequate ventilation were associated with an increased risk of TB transmission within households.

### **Access to Healthcare:**

Household contacts with limited access to healthcare services, such as delayed diagnosis and treatment initiation, experienced a higher incidence of TB infection and more severe disease outcomes.

### **Social Support Networks:**

Strong social support networks, including family and community support, were found to have a protective effect on TB transmission within households.

## **DISCUSSION**

The results of this study underscore the significant impact of social determinants on TB transmission within households in Lima, Peru. The higher risk of TB infection observed among household contacts from lower socio-economic backgrounds and overcrowded living conditions highlights the importance of addressing socio-economic disparities and improving living conditions to reduce TB transmission.

Limited access to healthcare services leading to delayed diagnosis and treatment initiation can contribute to prolonged infectious periods, increasing the risk of TB transmission within households. Efforts to enhance healthcare accessibility and reduce barriers to early diagnosis and treatment are essential for effective TB control.

The role of social support networks in protecting against TB transmission is noteworthy. Strong social support can encourage timely healthcare seeking behaviors, ensure treatment adherence, and provide

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emotional and practical support to affected individuals, thus contributing to better treatment outcomes and reduced TB transmission.

## CONCLUSION

This study demonstrates that social determinants significantly influence TB transmission dynamics within households in Lima, Peru. Addressing socio-economic disparities, improving living conditions, and enhancing access to healthcare services are crucial for effective TB control and prevention efforts in the region.

To combat TB transmission within households, a comprehensive approach is necessary, which includes targeted interventions to address social determinants. Health education programs aimed at raising awareness about TB and promoting timely healthcare seeking behaviors can play a pivotal role in reducing TB transmission risk. Additionally, measures to provide affordable and accessible healthcare services, along with improved living conditions, can have a substantial impact on TB control.

The findings of this study have broader implications for TB control strategies in similar settings facing challenges related to social determinants. By recognizing and addressing the impact of social determinants on TB transmission, policymakers and healthcare professionals can develop evidence-based interventions to effectively control and prevent TB in vulnerable populations. Ultimately, addressing social determinants is a critical step towards achieving the goal of eliminating TB as a public health threat in Lima, Peru, and beyond.

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