Relationship Between Smoking Habits Physical and Environment with Pulmonary Tuberculosis Incidence at Singotunan Public Health Centre, East Java

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Abstract

The working area of Singotrunan Public Health Center recorded the highest number of suspected and confirmed pulmonary TB cases in Banyuwangi Regency in 2022, with suspected cases increasing from 742 in 2021 to 1,699, and confirmed cases rising from 151 to 655. This study is conducted to determine the relationship between the physical environment and smoking habits with the incidence of pulmonary TB in the working area of Singotrunan Public Health Center. This study used a quantitative approach with a case-control design. The sample consisted of 18 case groups and 18 control groups. Data were collected through questionnaires and observation, and analyzed using the Chi-Square test. The results showed a significant relationship between lighting conditions and the incidence of pulmonary TB ($p = 0.008$; OR = 9.100), as well as smoking habits ($p = 0.007$; OR = 8.600). Smoke is one of the main sources of indoor air pollution. Harmful substances in cigarette smoke, including fine particles ($PM_{2.5}$), can damage the respiratory tract and weaken the immune system. Exposure to cigarette smoke also increases the number of airborne particles that can carry tuberculosis (TB) bacteria, increasing the risk of infection, especially in enclosed spaces with poor ventilation. In conclusion, there is a significant relationship between poor lighting conditions and smoking habits with pulmonary TB incidence. Therefore, public health interventions should emphasize the importance of ventilation and lighting, and controlling smoking habits inside the home to improve indoor air quality and reduce tuberculosis transmission.

Keywords: Pulmonary Tuberculosis, Smoking, Physical Environment