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Health literacy and TB-related stigma among nurses in Jayapura, Papua: A cross-sectional study

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Abstract

Background: Tuberculosis (TB) remains a significant global and national health concern. In Papua, the TB treatment success rate has yet to reach national targets. One of the key barriers to achieving this goal is the stigma surrounding TB patients.
Purpose: To identify the relationship between TB-related health literacy and nurse stigma at Abepura Regional Hospital.
Method: A quantitative correlational study was carried out between April and June 2024, involving 125 purposively selected nurses from Abepura Regional Hospital. Data collection was conducted using a TB literacy questionnaire and a TB-Related Stigma questionnaire. The data were analyzed using univariate analysis and the *Chi-square* test.
Results: Most respondents were female, non-Papuan, in early or late adulthood, held a bachelor's degree, and had 5-20 years of work experience. The majority were civil servants without prior TB-related training and were assigned to the Emergency and Pulmonary Rooms. While most respondents demonstrated good TB-related literacy, nearly 40% exhibited stigma toward TB patients. No significant correlation was found between TB health literacy and nurses' stigma.
Conclusion: Despite possessing sufficient TB knowledge, nurses still exhibited a high level of stigma toward TB patients. Enhancing awareness and understanding among nurses and the community is essential through health promotion initiatives and strengthening the role of community and religious leaders.

Keywords: Health Literacy; Nurse; Stigma; Tuberculosis.

INTRODUCTION

Tuberculosis (TB) continues to be a significant health issue both globally and nationally. Indonesia ranks as the second-highest country in TB incidence and is among the top three contributors to the global TB burden. In 2022-2023, the TB treatment success rate remained below 90%, while the case detection rate reached 84% in 2022, still falling short of national targets. In Papua, the TB treatment success rate stands at 78%, which is lower than the national target of 87% (Health Office of Papua Province, 2023).

One of the challenges in achieving TB control targets is the stigma associated with TB patients. In the health context, social stigma refers to negative perceptions linked to individuals or groups with specific characteristics related to a disease (British Red Cross, 2020). Previous studies indicate that TB patients frequently experience stigma, with 71.6% of patients reporting stigmatization (Elavarasi, Smitha, Manasa, & Kruthika, 2024). Another study found that 48% of respondents held negative perceptions of TB (Manglapy, Fani, Sabata, & Miarso, 2023).

Stigma presents a significant barrier to TB elimination efforts, both globally and in Indonesia. It

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contributes to delays in diagnosis, treatment access, and case detection, while also complicating the treatment process (Datiko, Jerene, & Suarez, 2020; Fuady, Arifin, Yunita, Rauf, Fitriangga, Sugiharto, & Wingfield, 2023). This can lead to treatment non-adherence, an increased risk of drug resistance, prolonged treatment durations, and higher transmission rates (Fuady et al., 2023). Additionally, stigma negatively impacts economic stability, increasing the risk of unemployment (Zimmerman, Smith, Banay, Kau, & Garfin, 2022). It can also affect mental well-being, potentially leading to mental health disorders such as depression (Elavarasi et al., 2023).

Health literacy is an important factor in addressing TB-related stigma. Defined as the ability to obtain, understand, and apply health information for better health outcomes, health literacy is essential in preventing TB transmission (Penaloza, Navarro, Jolly, Junkins, Seas, & Otero, 2019; World Health Organization, 2017). Research on TB literacy and stigma among healthcare workers in Semarang found that over half of the respondents (61.6%) had low TB literacy and exhibited high stigma toward TB patients. A bivariate analysis revealed a significant correlation between literacy levels and stigma (Mubarokah, Nurjanah, Handayani, Astarini, Maharani, Masitoh, & Yulianah, 2022). Similarly, another study found that 48% of respondents had limited TB knowledge and held negative perceptions of TB patients, with a Spearman rank test confirming a relationship between low TB literacy and stigma (Manglapy et al., 2023).

Despite numerous studies on TB in Indonesia, research focusing on TB stigma among healthcare professionals, particularly nurses, remains limited. As frontline workers, nurses play a crucial role in epidemic control and are at high risk of exposure to TB. Stigma among nurses can impact the quality of care provided to TB patients. The lack of research on TB stigma among nurses may hinder efforts to optimize their role in TB patient care (Fathana, Lestari, & Wardani, 2020).

Abepura Regional Hospital has the second-highest TB case burden in Jayapura City. Preliminary data from 2024 indicate that among 32 TB-HIV co-infected patients, 37.5% discontinued treatment, 40.62% completed treatment, and only 21.88% were cured. This results in a low treatment success rate of 21.88%. Additionally, previous qualitative research at Abepura Hospital found that parents of children with TB reported experiencing social stigma from their communities (Anggraeni, Nuryastuti, & Nurrochmad, 2024).

RESEARCH METHOD

A quantitative correlational approach with a cross-sectional design to explore the relationship between TB-related health literacy and nurses' stigma. Conducted at Abepura Regional Hospital from April to June 2024, the study involved 125 nurses working across 11 outpatient and inpatient wards. These wards included the VCT Polyclinic, Lung Polyclinic, Internal Polyclinic, Lung Inpatient Ward, Children's Ward, Male and Female Internal Wards, Surgical Ward, Neurology Ward, Emergency Department, and ICU. Respondents were selected using purposive sampling. Eligible nurses were those actively working in inpatient or outpatient wards (not on leave) and who voluntarily consented to participate.

Data collection was carried out using a structured questionnaire consisting of three sections: demographic data, TB literacy, and TB-related stigma. The demographic section covered variables such as age, gender, education, years of experience, residence, employment status, ethnicity, and TB-related training. The TB literacy questionnaire included 20 items rated on a Likert scale: very difficult (1), quite difficult (2), quite easy (3), and very easy (4). The stigma questionnaire contained nine items assessing aspects like fear, avoidance, empathy, willingness to help, blame, anger, perceived danger, exclusion, and mandatory TB treatment. Responses were measured on a three-point Likert scale: Agree, Neutral, and Disagree. Both questionnaires were validated for reliability and accuracy.

Data analysis involved univariate and bivariate methods using statistical software. Univariate analysis was used to describe respondent characteristics and study variables, with results presented in tables. Bivariate analysis was conducted using the Chi-square test to assess the association between TB literacy and stigma. Ethical approval for this study was granted by the Ethics Committee of the Faculty of Public Health, Cenderawasih University, under approval number 065/KEPK-FKM UC/2024.

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RESEARCH RESULTS

Table 1. Characteristic of the Respondents (N=125)

Variables	Results
Age (Mean±SD)(Range)(Year)	(36.82±8.713)(17-65)
Age (n/%)	
Late Adolescent (17-25 years old)	6/4.8
Early Adulthood (26-35 years old)	51/40.8
Late Adulthood (36-45 years old)	50/40.0
Early Elderly (46-55 years old)	17/13.6
Late Elderly (56-65 years)	1/0.8
Gender (n/%)	
Female	100/80.0
Male	25/20.0
Education (n/%)	
High School	2/1.6
Diploma	59/47.2
Bachelor + Professional degree	61/48.8
Postgraduate	3/2.4
Department (n/%)	
VCT Polyclinic	2/1.6
Internal Polyclinic	2/1.6
Pulmonary Polyclinic	12/9.6
Pulmonary Ward	16/12.8
Men Internal Ward	10/8.0
Women Internal Ward	12/9.6
Pediatric Ward Emergency	14/11.2
Emergency Room	22/17.6
ICU	10/8.0
Surgical Ward	16/12.8
Neurological Ward	9/77.2
Health Literacy (n/%)	
Good	119/95.2
Poor	6/4.8
Nurse Stigma (n/%)	
Positive	77/61.6
Negative	48/38.4

Table 1 presents the respondents' characteristics, showing an average age of 36.82 years with a standard deviation of ±8.713, within an age range of 17 to 65 years. The majority of participants were in early or late adulthood, each accounting for approximately 40%. Women made up the predominant gender (80%). Nearly half (48.8%) held a Bachelor of Nursing degree or Nurse Profession qualification. In terms of work experience, over a third had been employed for 5-10 years (37.6%), while 36% had worked for 11-20 years. Most respondents were

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civil servants (83%), and more than half (52.8%) identified as non-Papuan. Additionally, a significant proportion (72%) had not received TB-related training. The highest number of respondents worked in the Emergency Room (17.6%), followed by the Surgical Ward (12.8%) and Pulmonary Ward (12.8%). Regarding TB health literacy, the majority (95.2%) demonstrated good knowledge, though a small fraction (4.8%) exhibited poor literacy. While most respondents (61.6%) held a positive attitude toward TB patients, nearly 40% still displayed negative stigma.

Table 2. TB Literacy and TB-related Stigma (N=125)

Variables	Stigma		p-value
	Positive (n=77)	Negative (n=48)	
Health Literacy (n/%)			
Good	71/92.2	48/100	0.081
Poor	6/7.8	0/0	

Table 2 shows 71 nurses (92.2%) had good TB literacy and a positive attitude toward TB patients, while 48 nurses (100%) had good literacy but still exhibited negative stigma. Additionally, 6 nurses (17.8%) had poor literacy but maintained a positive stigma, and no nurses were found to have both poor literacy and negative stigma. The Chi-square test results indicated no significant relationship between TB literacy and nurse stigma, with a p-value of 0.081, which is greater than the significance level (α = 0.05).

DISCUSSION

Health literacy

The findings indicate that nurses at Abepura Hospital possess a strong understanding of TB, as evidenced by 95.2% of respondents demonstrating good health literacy on the disease. Sufficient knowledge about TB plays a crucial role in enhancing comprehension of its causes, symptoms, prevention, and treatment. Individuals with a solid grasp of TB are more likely to recognize the importance of completing treatment and the risks associated with drug resistance if treatment is not fully adhered to (Zhang, Yang, Qiao, Wang, Bai, Yangchen, & Chodron, 2020).

Furthermore, strong TB knowledge contributes to greater awareness of disease transmission (Jing, Dong, Huang, Liu, Xue, Dong, & Sun, 2024). Higher health literacy helps individuals understand how TB spreads and how to prevent it, such as by practicing proper coughing etiquette, ensuring adequate ventilation, and seeking immediate treatment upon diagnosis (Zhang et al., 2020).

The study also revealed that most respondents had not attended TB-related training. However, their good TB literacy may be attributed to their formal education background. Formal education plays a key role in improving health literacy, which encompasses the ability to acquire, comprehend, and apply health information to make informed health decisions (Zakaria, 2022). Individuals with formal education typically develop essential skills such as reading, writing, and critical thinking, enabling them to understand medical information, follow treatment instructions, and seek credible health resources. Strong health literacy empowers individuals to prevent illness, adopt proper health practices, and maintain a healthy lifestyle (Nurmala, 2020).

Stigma

This study also identified the presence of negative stigma toward TB patients, with data revealing that nearly 40% of respondents held such stigma. These findings align with previous research indicating that TB-related stigma remains prevalent among both the general public and healthcare professionals (Chen, X Du, Wu, Xu, Ji, Zhang, & Zhou, 2021, Baskaran, Vasudevan, & Anandaraj, 2023 and Manglapy et al., 2023),

A high level of stigma can have serious consequences for TB patients, affecting both their physical and mental well-being. Stigma has been linked to mental health issues, including increased anxiety and depression. TB patients who experience stigma often report heightened anxiety levels (Dewi, Sari, Agustin, & Sari, 2023), and studies have shown an association between TB-related stigma and moderate to severe depression (Fuady, Arifin, Yunita, Rauf, Fitriangga, Sugiharto, & Wingfield, 2024).

Additionally, stigma contributes to delays in diagnosis and treatment, as well as non-adherence

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to therapy (Pradhan, Koirala, Bhandari, Dutta, García-Grau, Sampath, & Sharma, 2022). Many patients hesitate to disclose their TB status or seek medical care due to fear of discrimination in their workplace, social circles, or even healthcare facilities. This reluctance can lead to poor treatment outcomes and increase the risk of TB transmission within the community (Foster, Biewer, Vanqa, Makanda, Tisile, Hayward, & Nathavitharana, 2024).

Relationship Between Health Literacy and Stigma

Several studies have highlighted a strong link between literacy and stigma, indicating a significant correlation between TB literacy and stigma in communities. Research has found that 65.4% of respondents had low TB literacy, which corresponded with a high level of stigma (65.4%). Individuals with higher TB literacy tend to exhibit lower stigma levels, as greater knowledge and awareness foster more informed attitudes and behaviors, including TB prevention measures (Manglapy et al., 2023). This aligns with other findings showing that literacy plays a crucial role in influencing TB prevention behaviors, making it the most significant factor in shaping preventive actions (Yuantari, Manglapy, Nurmandhani, & Jaya, 2024).

However, the results of this study differ. The findings revealed no significant relationship between TB health literacy and stigma ($p = 0.081$). Although nurses demonstrated good TB literacy, negative stigma toward TB patients persisted. Similarly, previous research indicated that while most respondents had sufficient knowledge and positive attitudes regarding TB prevention and screening, stigma toward TB patients remained prevalent. High stigma levels among nurses may stem from various socio-cultural factors, such as myths, exaggerated fears, and personal experiences (Loh, Zakaria, & Mohamad, 2023).

Overall, TB literacy within communities is improving, yet social stigma against TB patients remains a significant challenge. Despite enhanced health literacy, many still associate TB with low socioeconomic status, poor hygiene, and cultural beliefs involving punishment or myths (John, Abdulkarim, & Martins, 2024; Adeoye, Michael, & Agbana, 2024). A qualitative study found that some respondents believed TB was caused by sin, divine punishment, or spiritual attacks (Adeoye et al., 2024). Stigmatization often arises when individuals deviate from social norms, leading to community or family isolation (Ali, Gupta, Addanki, Mannava, & Parashar, 2024).

Even among those with a solid understanding of TB transmission, avoidance of TB patients remains common due to fear and misconceptions. Many people, including healthcare workers, hesitate to interact with TB sufferers despite knowing that TB is treatable and that transmission risk decreases at certain treatment stages (Muhandiki, Matemba, Mabega, Kisonga, Matechi, Kigumi, & Kapyolo, 2023). Studies indicate that 66.7% of healthcare workers exhibit negative attitudes toward TB patients. While 75.9% expressed sympathy and a willingness to help, 30.6% perceived TB as a shameful disease. Additionally, 23.1% of respondents admitted to limiting conversations with TB patients due to fear of infection, and 8.3% felt the need to maintain physical distance (Sima, Belachew, Bjune, & Abebe, 2024). Furthermore, 52.57% of healthcare workers demonstrated negative stigma through unfavorable attitudes and stigmatizing behavior toward TB patients (Muhandiki et al., 2023).

CONCLUSION

Nurses possess sufficient TB literacy, however, the level of TB-related stigma remains high. This stigma may be influenced by sociocultural factors, including misconceptions, belief in myths, and an exaggerated fear of disease transmission. Enhancing knowledge and increasing awareness among nurses and the community is essential through health promotion efforts and by leveraging the influence of community and religious leaders to combat stigma. Future research should involve a larger sample size and utilize a random sampling technique for more comprehensive findings.

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