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Relationship between Access to Health Services and Quality of Health Services with Compliance with Tuberculosis Treatment in Kolaka Regency

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ABSTRACT

Introduction: This study examines the factors associated with low tuberculosis treatment coverage in Kolaka Regency using a cross-sectional study design. The main objective of this study is to examine the relationship between access to health services and quality of health services with compliance with tuberculosis treatment in Kolaka Regency.

Method: This type of research is quantitative, design cross-sectional study. The study was conducted at 14 Community Health Centers in Kolaka Regency. The study population consisted of 449 confirmed tuberculosis patients, with a sample of 208 patients taken using the cluster simple random sampling method. The sample distribution was carried out according to the population proportion in each community health center.

Result: The calculated X^2count of 37.627 indicates a significant difference, with a correlation coefficient (ϕ) of 0.436 indicating a moderate relationship between access to health services and the calculated X^2count of 9.504 indicating a significant relationship, with a correlation coefficient (ϕ) of 0.224 indicating a weak relationship between the quality of health services and medication adherence.

Conclusion: Develop an effective monitoring system to monitor the quality of healthcare services and medication adherence and integrate service quality data into healthcare applications.

Introduction

Tuberculosis continues to be a significant global health challenge, with complex and worrying trends according to World Health Organization (WHO) data.[1] In 2020, approximately 10 million new cases of tuberculosis were recorded with 1.5 million deaths worldwide, making tuberculosis one of the 10 leading causes of global death and the leading cause of death from a single infectious agent, surpassing HIV/AIDS.[2] The Covid-19 pandemic has further exacerbated this situation, significantly

impacting access to and provision of Tuberculosis health services.[3] The latest WHO report shows an increase in the number of new TB cases to 7.5 million in 2022, the highest figure since monitoring began in 1995 and surpassing pre-Covid levels.[4] Although the gap between estimated cases and diagnosed cases is narrowing, the 8.7% decline in the global incidence rate from 2015 to 2022 is still far from the WHO target.[5]

The WHO End Tuberculosis Strategy sets a target of reducing the incidence of tuberculosis by 50% by 2025 compared to the 2015 baseline, as a milestone for achieving SDG 2030 and the target of End Tuberculosis by 2035.[6] Achieving this target faces major challenges, especially with the increase in the incidence of Tuberculosis globally for two consecutive years.[7] Of the 30 countries with a high burden of tuberculosis that account for 87% of global cases, eight countries dominate two-thirds of the total cases, with India (27%), Indonesia (10%), and China (7.1%) as the top three.[8] Although several countries, including India, Indonesia, and the Philippines, have shown recovery beyond 2019 figures, the challenges in controlling Tuberculosis globally remain enormous and require more intensive and coordinated efforts to achieve the established WHO and SDG targets.[9]

The global prevalence of Tuberculosis (TB) in the last three years has shown a fluctuating trend, although specific prevalence data are not always reported directly by WHO.[10] Based on WHO estimates, the global prevalence of Tuberculosis in 2020 is estimated to be around 14 million cases, an increase from 13 million cases in 2019.[11] This increase was largely due to disruptions to Tuberculosis services due to the COVID-19 pandemic.[12] In 2021, although specific prevalence data are not yet available, the WHO estimates that approximately 10.6 million people fell ill with tuberculosis. For 2022, although exact prevalence figures have not yet been released, the increase in the number of newly diagnosed cases to 7.5 million (the highest since 1995) indicates that global tuberculosis prevalence is likely to remain high or even increase.[13]

In 2020, Indonesia reported 351,936 cases of tuberculosis (TB), a 38% decrease compared to 2019. Most TB cases were found in people of productive age.[14] In 2021, there were an estimated 969,000 TB cases in Indonesia, a 17% increase from the previous year. Indonesia previously ranked third globally after India and China with 824,000 cases in 2020.[15] Indonesia currently ranks second in the world after India, with 969,000 cases and 93,000 deaths per year, equivalent to 11 deaths per hour. According to the 2022 Global TB Report, the productive age group, particularly those between 25 and 34, is the most affected.[16] Preliminary data for 2023 shows approximately 118,438 cases, with an estimated total of 900,000 cases, placing Indonesia second in the world in terms of the number of TB cases.[17]

The urgency of this issue lies in the need to improve the TB management system and enhance the quality of healthcare services to reduce mortality and meet national standards for treatment coverage, thereby reducing the burden of disease and improving public health in Kolaka Regency.[18] This situation is correlated with various interrelated risk factors, ranging from limited access to health services, quality of health services, government policies and the role of the community.

Fluctuations in tuberculosis (TB) treatment coverage in Indonesia and Southeast Sulawesi are influenced by various factors that impact the effectiveness of TB control programs. Low treatment coverage is often caused by unequal access and varying quality of health services.[19] Patients may not receive treatment consistently, causing fluctuations in treatment coverage and affecting TB program outcomes.[20] Delayed TB diagnosis and poor treatment adherence also contribute to this problem, as inconsistent treatment can lead to drug resistance. Poor quality healthcare hinders treatment effectiveness.[21]

Suboptimal service quality, local government policies that do not fully support tuberculosis control programs, and minimal community involvement exacerbate this situation. Significant improvements in all these aspects are needed to achieve national targets and reduce the prevalence of tuberculosis in Kolaka Regency. Without systemic improvements involving all stakeholders, the gap between detected and treated cases will continue to widen, complicating.

Method

This study was quantitative, with a cross-sectional design. The analysis began with univariate analysis to understand baseline characteristics, followed by bivariate analysis to explore relationships between variables, and concluded with multivariate analysis to identify key risk factors while controlling for confounding variables.

The study was conducted at 14 community health centers in Kolaka Regency. The study population consisted of 449 confirmed tuberculosis patients, with a sample of 208 patients taken using the Cluster Simple Random Sampling method. The sample distribution was based on the population proportion in each community health center.

Result

Table 1 showed that there was a significant relationship between access to health services and treatment adherence in tuberculosis patients. Of the total 208 patients, 31.73% (66 patients) had good compliance, while 68.27% (142 patients) had poor compliance. Patients who had good access to health services had a higher level of compliance (56.63%) than those with poor access (15.20%). Conversely, patients with poor access to health services had low treatment adherence (84.80%). The calculated X^2 value of 37.627 indicated a significant difference, with a correlation coefficient (ϕ) of 0.436 indicating a moderate relationship between access to health services and treatment adherence.

Table 2 showed that there is a relationship between the quality of health services and treatment adherence in tuberculosis patients. Of the 208 patients, 31.73% (66 patients) showed good compliance, while 68.27% (142 patients) had poor compliance. Patients who received good quality health services had a higher level of compliance (40.32%) than those who received poor quality services (19.05%). Conversely, patients who received poor quality services tended to have low compliance (80.95%). The calculated X^2 value of 9.504 indicates a significant relationship, with a correlation coefficient (ϕ) of 0.224 indicating a weak relationship between the quality of health services and treatment adherence.

Table 1.
The Relationship Between Access to Health Services and Treatment Compliance in Tuberculosis Patients

Access Health Services	Treatment Compliance of Tuberculosis Patients				Σ	%	X_{Count}	ϕ
	Not enough		Good					
	f	%	f	%				
Not enough	106	84.80	19	15.20	125	100.0	37.627	0.436
Good	36	43.37	47	56.63	83	100.0		
Total	142	68.27	66	31.73	208	100.0		

Table 2
The Relationship Between the Quality of Health Services and Treatment Compliance of Tuberculosis Patients

Quality of Health Services	Treatment Compliance of Tuberculosis Patients				Σ	%	X_{Count}	ϕ
	Not enough		Good					
	f	%	f	%				
Not enough	68	80.95	16	19.05	84	100.0	9.504	0.224
Good	74	59.68	50	40.32	124	100.0		
Total	142	68.27	66	31.73	208	100.0		

Discussion

The Relationship Between Access to Health Services and Treatment Compliance in Tuberculosis Patients

There is a significant relationship between access to healthcare services and treatment adherence in tuberculosis patients. Of the 208 patients, 56.63% with good access to healthcare services had high adherence, while 84.80% with poor access had low adherence. The X^2 value of 37.627 indicates a significant difference, with a correlation coefficient of 0.436 indicating a moderate relationship between healthcare access and adherence.

The results of this analysis align with a summary of respondents' responses, which showed that despite the availability of anti-TB drugs (41.3%), treatment adherence in Kolaka Regency remains low due to accessibility barriers. Most respondents cited long distances to facilities (64.9%), high transportation costs (69.7%), long waiting times (59.6%), and a lack of healthcare workers as key factors. This suggests that despite drug availability, access and quality of care are key barriers to TB treatment adherence.

According to Andersen's Behavioral Model of Health Services Use theory, the quality and ease of access to health services are key factors in service use and health outcomes.[22] In the context of this study, the results indicate that respondents who rated access to health services as good had better tuberculosis treatment coverage, while those who rated access as poor tended to have low coverage.[23] This is consistent with the theory that poor access factors contribute to low tuberculosis treatment coverage, which is relevant to the challenges faced in Kolaka Regency.

Previous relevant research supports these findings. Studies have shown that improved access to health facilities improves adherence to tuberculosis treatment and health outcomes.[24] Other studies have also highlighted that limited access affects the effectiveness of tuberculosis treatment and patient outcomes.[25] Other research findings emphasize that increasing access to and quality of health services contributes to reducing tuberculosis cases.[26] These results underscore the importance of good access in increasing tuberculosis treatment coverage, providing a strong context for the challenges in Kolaka Regency.

On the ground, many patients in Kolaka Regency report difficulties accessing adequate healthcare services, including geographical constraints, lack of facilities, and limited resources. Field data shows that quality healthcare facilities are often unavailable in areas where they are most needed, hampering tuberculosis treatment coverage.[27] This shows that access factors are the main problem in the low coverage of tuberculosis treatment in Kolaka Regency, in accordance with the findings of this study.

The implication of these findings is that improving access to healthcare services can significantly increase tuberculosis treatment coverage. Interventions that could be considered include building new healthcare facilities, increasing drug availability, and training medical personnel. Improving access is expected to increase tuberculosis treatment coverage, which could reduce disease prevalence and improve health outcomes in Kolaka Regency.

The researchers' assumption that increased access would improve tuberculosis treatment coverage was validated based on these findings. The data support that access issues contribute to low tuberculosis treatment coverage, emphasizing the need for more inclusive health policies focused on improving access. Strategies designed to address these access issues will be a critical component of more effective tuberculosis control efforts in Kolaka Regency.

Overall, this study emphasizes the need for a comprehensive approach to improving access to healthcare services as part of the tuberculosis control strategy in Kolaka Regency. The government and health stakeholders need to implement interventions that improve access and quality of healthcare services to achieve better treatment coverage and more positive health outcomes for tuberculosis patients.

The Relationship Between the Quality of Health Services and Treatment Compliance of Tuberculosis Patients

From the analysis of 208 tuberculosis patients, it was found that 31.73% (66 patients) showed good treatment adherence, while 68.27% (142 patients) had poor adherence. Patients who received good quality health services had a higher

level of adherence (40.32%) than those who received poor quality services (19.05%). Conversely, patients with poor quality services tended to have low adherence (80.95%). The results of the statistical test showed a calculated X^2 value of 9.504, which indicated a significant relationship between the quality of health services and treatment adherence with a correlation coefficient (ϕ) of 0.224, indicating a weak relationship.

The analysis results support the findings of the recapitulation of respondents' answers. Data shows that 34.6% of tuberculosis patients in Kolaka Regency strongly disagreed that treatment should be started immediately after diagnosis, indicating a delay in starting treatment that could hinder treatment coverage. Dissatisfaction also emerged regarding drug availability (22.6% disagreed) and contact tracing (31.3% disagreed), which could worsen the TB treatment situation. Although 47.6% of respondents felt the government budget was inadequate and 51.9% considered international guidelines not yet fully implemented, there were positive indications with 67.8% of respondents considering TB policies in high-risk populations effective, and 58.7% feeling that infection prevention and management policies for drug-resistant TB had been well implemented.

The theory of access and quality of health services, as described by Andersen's Behavioral Model of Health Services Use, states that good quality health services can increase the use of health services and better health outcomes.[28] In the context of tuberculosis treatment, this theory explains that high quality health services should contribute to better treatment coverage.[29] However, the moderate association detected in this analysis suggests that although health care quality is important, other factors may also influence tuberculosis treatment coverage, and health care quality alone may not be sufficient to achieve optimal coverage.

Previous research supports these findings by showing that the quality of health services influences tuberculosis treatment outcomes, although not always significantly.[30] Study found that improving the quality of health services was associated with increased adherence to tuberculosis treatment, but other factors such as policy and access also played a role.[31] Research by An, Lee, and Shin showed that while service quality was influential, good access and community support also influenced tuberculosis treatment coverage.[32] Research results also shows that the quality of health services is one factor, but not the only one that influences treatment coverage.[33]

On the ground, data shows that the quality of healthcare services is often influenced by various factors such as resource availability, medical personnel training, and facility infrastructure. For example, in Kolaka Regency, some healthcare facilities may have varying service quality, which directly impacts tuberculosis treatment coverage. Limitations within healthcare facilities, such as drug shortages or inadequate medical personnel, can reduce service effectiveness and impact treatment coverage.

The implication of these findings is that improving the quality of healthcare services can have a positive impact on tuberculosis treatment coverage, but must be balanced with attention to other factors such as access, policies, and community support. To significantly increase tuberculosis treatment coverage, strategies that include improving the quality of healthcare services and increasing access and community support must be implemented. A holistic and integrated approach will be more effective in addressing the problem of tuberculosis treatment coverage.

The researchers' assumption that the quality of healthcare services influences tuberculosis treatment coverage proved valid, but the data indicate that the effect is moderate. This underscores the importance of a combination of factors to achieve optimal treatment coverage. A broader health strategy, focusing not only on improving service quality but also on other factors such as access and community support, is needed to increase tuberculosis treatment coverage in Kolaka Regency.

Conclusion

This study underscores the importance of improving the quality of healthcare services and access to medication adherence services. Recommendations for the Health Department include a focus on improving access and public education. Develop an effective monitoring system

to monitor the quality of healthcare services and medication adherence and integrate service quality data into healthcare applications.

For system developers, it is recommended to develop an effective monitoring system. Local governments are expected to implement more effective policies and strengthen community engagement. Community health centers need to improve the quality of services and educational programs. Future researchers are advised to delve deeper into the factors linking service quality and the relationship between government policies and treatment coverage. Tuberculosis patients are expected to better understand and adhere to treatment and actively participate in community activities.

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