

Service Quality : As A Intervening Variable in Factors Affecting Health Status in Central Java, Indonesia

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Abstract:

Improving public health is one of the main objectives of health sector development in Indonesia, including in Central Java Province. Despite significant efforts to improve health services in Indonesia, major challenges remain, particularly regarding disparities in access to and quality of health services between urban and rural areas and between different socioeconomic groups. The method used in this study is Structural Equation Modelling-Partial Least Square (SEM-PLS), which is suitable for analyzing complex and non-linear relationships between variables. The data used are secondary data obtained from publications by the Central Java Health Office in 2023. The results of the study indicate that the environment and healthy lifestyle behaviors have an indirect effect on health status.

Keywords — Central Java Province, Degree of Health, Intervening Variable, SEM-PLS.

I. INTRODUCTION

Improving public health is one of the main goals of health sector development in Indonesia, including in Central Java Province. Data from the Indonesian Ministry of Health shows that despite significant efforts to improve health services throughout Indonesia, including Central Java, major challenges remain. There are still considerable disparities in access to and quality of health services, particularly between urban and rural areas and between different socioeconomic groups [1].

According to the 2023 Central Java Provincial Health Profile, although life expectancy in Central Java has increased, there are still major issues that need to be addressed, particularly the relatively high maternal mortality rate (MMR) and infant mortality rate (IMR). For example, in 2022, the maternal mortality rate in Central Java was recorded at 122 per 100,000 live births, which is still far from the target of 70 per 100,000 live births as outlined in the Sustainable Development Goals (SDGs). On the other hand, the infant mortality rate also remains

concerning, at around 19 per 1,000 live births, although it has decreased compared to previous years.

Additionally, the prevalence of stunting (short stature) among children under five years of age (infants) in Central Java remains a serious concern. Data from the Central Java Provincial Statistics Agency indicates that the prevalence of stunting in 2022 reached 28.5%, higher than the national average of 24%. Stunting is directly linked to the quality of health services during pregnancy, childbirth, and the fulfillment of nutritional needs during childhood growth [2].

One important factor that influences the level of public health is the quality of health services. The quality of health services encompasses various dimensions, such as accessibility, quality of medical services, health facilities, skills of medical personnel, and public trust in the health care system [3]. In this context, the quality of health services in Central Java must continue to be improved in order to have a positive impact on the level of public health.

There are many factors that influence the quality of health services, including the quality of health infrastructure, the quality and skills of medical

personnel, and the management systems implemented in health facilities [4]. However, in addition to internal factors within the health care system, external factors such as the socioeconomic status of the community also play a major role in determining the health status of individuals. Socioeconomic factors such as family income, education level, and access to health information can influence a person's decision to utilize available health services.

Based on these findings, this study aims to examine the role of health service quality as a mediating variable between factors that influence the health status of the community in Central Java. Specifically, this study will explore how socioeconomic factors (such as income, education level, and accessibility to health facilities) can influence health service quality and ultimately affect the health status of the community. Additionally, it is important to explore the role of other variables such as healthy lifestyle patterns, dietary habits, and community participation in health activities as elements that also influence the level of health [5].

The method used in this study is *Structural Equation Modelling-Partial Least Square (SEM-PLS)*, a statistical method that is well suited for analyzing complex and non-linear relationships between variables [6]. SEM-PLS allows researchers to test direct and indirect relationships between factors that influence health status, as well as to identify which variables have the greatest influence on improving public health quality in Central Java.

The results of this study are expected to provide significant contributions to the development of health policies in Central Java by offering a deeper understanding of the relationship between the quality of health services and the factors influencing the level of public health. As such, it is hoped that the findings of this study will serve as a foundation for local governments and policymakers in formulating more effective strategies to improve the level of public health in Central Java Province.

II. LITERATURE REVIEW

A. Degree of Health

The level of public health is a reflection of the quality of life and overall well-being of a community. Indicators used to assess the level of public health include life expectancy, maternal and infant mortality rates, disease prevalence, and the nutritional status of children [7]. Social, economic, environmental, and healthcare factors play a crucial role in determining the level of public health. In this context, the quality of healthcare services is an indispensable factor, as it serves as a bridge between external factors and achieved health outcomes. Therefore, it is essential to continuously improve the quality of healthcare services across all regions, including Central Java, to create a healthy and prosperous society.

B. Structural Equation Modelling – Partial Least Square

Structural Equation Modeling (SEM) is a statistical technique used to analyze relationships between variables in a model involving latent and measured variables [8]. SEM can be used to test causal relationship models, both direct and indirect [9]. One SEM approach is Partial Least Square (PLS), which is more flexible because it is variance-based and does not require normal distribution assumptions [10].

C. Research Data

The data used is secondary data obtained from publications by the Central Java Health Office in 2023, which can be accessed on the website dinkes.jatengprov.go.id. A complete explanation of the variables is presented in Table 1.

TABLE I
RESEARCH VARIABLES

Latent Variables		Manifest Variables
Variabel Endogen	Degree of Health (DH)	Number of Maternal Deaths (y_1)
		Number of Infant Deaths (y_2)
Variabel Eksogen	Environment (EN)	Number of Family Cards Stop Defecating in Public (x_{11})
		Number of Family Cards Access to Proper Sanitation Facilities (x_{12})
		Number of Family Cards with Liquid Waste Management (x_{13})
	Healthy Living Behavior (HLB)	Number of Exclusive Breastfeeding (x_{21})
Number of Mothers Initiating Early Breastfeeding (x_{22})		

Quality of Health Services (QHS)	Number of Deliveries in Health Facilities (x_{31})
	Number of Community Health Centers (x_{32})
	Number of Toddlers Monitored for Growth and Development (x_{33})
	Number of Postpartum Mothers Receiving Vitamin A (x_{34})

III. RESULTS AND DISCUSSION

A. Measurement Model Evaluation

The evaluation of the measurement model is an assessment of validity and reliability that aims to determine whether the indicators used in this study are valid and reliable in explaining the latent variables.

TABLE III
LOADING FACTOR VALUE

Latent Variables	Indicators	Outer Loading	Validity
DH	y_1	0.940	Valid
	y_2	0.941	Valid
EN	x_{11}	0.911	Valid
	x_{12}	0.918	Valid
	x_{13}	0.849	Valid
HLB	x_{21}	0.913	Valid
	x_{22}	0.929	Valid
QHS	x_{31}	0.980	Valid
	x_{32}	0.853	Valid
	x_{33}	0.970	Valid
	x_{34}	0.980	Valid

Based on the data in Table 2, the results indicate that each research variable has a factor loading value above 0.7, so it can be concluded that all indicators are valid and significant in forming their respective latent variables.

TABLE III
EVALUATION VALUES OF THE FINAL MEASUREMENT MODEL

Latent Variables	AVE	Cronbach's Alpha	Composite Reliability	Validity
DH	0.885	0.870	0.939	Valid
EN	0.798	0.879	0.922	Valid
HLB	0.898	0.961	0.972	Valid
QHS	0.849	0.822	0.918	Valid

Based on the results of the analysis shown in Table 3, it can be concluded that all research variables used have acceptable and valid values.

B. Structural Model Evaluation

The structural model and inner model were evaluated using bootstrapping with resampling with 5000 samples.

TABLE IV
DIRECT STRUCTURAL MODEL

Variables	Original Sample	T Statistic	P-Value	Description
EN → DH	-0.567	2.049	0.041	Significant
EN → DH	0.699	8.996	0.000	Significant
QHS → DH	1.439	5.339	0.000	Significant
HLB → DH	-0.309	2.060	0.040	Significant
HLB → QHS	0.239	2.813	0.005	Significant

Based on Table 4, it can be concluded that p – value less than $\alpha(0.05)$ so that it can be concluded that the above variables have an overall effect.

TABLE V
INDIRECT STRUCTURAL MODEL

Variables	Original Sample	T Statistic	P-Value	Description
EN → QHS → DH	1.006	4.731	0.000	Significant
HLB → QHS → DH	0.343	2.768	0.006	Significant

Based on Table 5, it can be concluded that p – value less than $\alpha(0.05)$ so that it can be concluded that all structural model variables are indirectly significant. Thus, these variables can be accepted.

TABLE VI
NILAI R-SQUARE

Variables	R^2
DH	0.752
QHS	0.739

Based on Table 6, the values are as follows R^2 for the variable DH equal to 0.752, and value R^2 for the QHS variable 0.739.

IV. CONCLUSION

Based on the results of the study, it was found that the environment, quality of health services, and healthy lifestyle behaviors have a direct effect on health status, while the environment and healthy lifestyle behaviors have a direct effect on the quality of health services. Additionally, the environment and

healthy lifestyle behaviors have an indirect effect on health status.

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