

Path Analysis: Characteristics of Health Service Providers on the Quality of Dental and Oral Health Services

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ABSTRACT

Background: Dental and oral health play a crucial role in improving people's quality of life. Optimal efforts from dental and oral health workers are essential to achieve better health outcomes. This study aimed to analyze the influence of service provider determinants on the quality of dental and oral health services in hospitals.

Subjects and Method: A cross-sectional study was conducted in Semarang City from March to April 2024. A total of 200 patients aged 20–59 years were selected using systematic random sampling. The dependent variable was the quality of dental and oral health services, while the independent variables were motivation, performance, and payment method. Data were analyzed using path analysis.

Results: Motivation positively affected the performance of health workers ($b=0.99$; 95% CI=0.98–1.00; $p<0.001$). Performance had a significant positive effect on service quality ($b=0.44$; 95% CI=0.06–0.83; $p=0.023$). Motivation also directly influenced service quality ($b=0.47$; 95% CI=0.08–0.85; $p=0.017$). However, the difference in payment method—between patients paying directly and those using BPJS—did not significantly affect service quality ($b=0.03$; 95% CI=–0.03 to 0.09; $p=0.415$).

Conclusion: The quality of dental and oral health services at Diponegoro National Hospital Semarang is significantly influenced by the motivation and performance of health workers, with performance mediating the effect of motivation. Payment method does not significantly influence perceived service quality.

Keywords: dental and oral health, payment method, health service, motivation, performance

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BACKGROUND

Health has a big role in improving people's living standards. This makes all countries strive to provide the best health services.

Health services are places and tools used as organizers of health service efforts, both promotive, preventive, curative, and rehabilitative services to individuals, families,

groups, and or communities (Widianti et al 2018). In general, it is stated that the more effective a health service is provided, the higher the quality or quality of the health service (Suprpto et al, 2021).

The quality of health services is a manifestation of the results of the performance of health workers that produce satisfaction from the community in the use of these services (Antari, 2019). Hospitals are one of the health facilities to provide health services to the community and have a very important role in accelerating the improvement of public health. Hospitals are required to improve the quality of better services, not only services that cure diseases but also preventive services. Therefore, hospitals are required to provide quality services in accordance with the set standards and can reach all levels of society (Chmielewska et al 2020).

Dental and oral health today can also support the acceleration of the Millennium Development Goals (MDGs) by 2015. However, public awareness is still low because more than 50% of the Indonesian population has dental and oral health problems, so it occupies the sixth position with the highest prevalence of diseases in Indonesia (Basic Health Research, 2018). Maximum dental health service efforts are needed from dental health workers to improve dental health. Dental and oral health services are professional health services carried out by dentists and are aimed at sick and healthy people (Variansi, 2020).

Dental and oral health services are influenced by the performance of dental and oral health workers including: motivation, work ability, work experience, service services, and facilities or facilities. Performance is defined as the willingness of an individual or group of individuals to be able to perform their tasks and complete them in accordance with their responsibilities and as expected (Yuniarti, 2021). In addition to performance,

motivation is an important thing at work because with motivation it is expected that every health worker is willing to work hard and enthusiastic to achieve high work productivity.

Based on the background description above, the researcher is interested in conducting a path analysis regarding the determinants of service providers on the quality of dental and oral health services in hospitals.

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study conducted in Semarang, Central Java, Indonesia, from February to April 2024.

2. Population and Sample

The population in this study is all dental poly patients at Diponegoro National Hospital and the sample in this study is 200 dental poly patients aged 20-59 years selected using systematic random sampling techniques.

3. Operational Definition

The quality of health services is a patient's assessment of health services at dental polyclinics according to the SERVQUAL method, which consists of tangible, reliability, responsiveness, assurance, and empathy.

Performance is the result of work achieved by dentists based on their ability to provide services to patients in accordance with the responsibilities given.

Motivation is the enthusiasm or encouragement possessed by individuals to achieve a goal.

Payment method, refers to the way patients pay for health services, either through the National Health Insurance (BPJS) or by out-of-pocket payment (general/ self-paying).

4. Study Instrument

The research instruments used for data collection were questionnaires and interviews.

5. Data Analysis

In this study, univariate analysis and path analysis were carried out. Data analysis using the STATA 17 application.

6. Research Ethics

Research ethics including informed consent, anonymity, and confidentiality, are handled with care throughout the research process. The approval letter for the research ethics permit was obtained from the Research Ethics Committee of Dr. Kariadi Hospital, Semarang No.1612/EC/KEPK-RSDK/2023, on December 3, 2023.

RESULTS

1. Univariate Analysis

Univariate analysis in this study is divided into 2 types of data, namely categorical data and continuous data. The Payment Method variable showed that out of 200 respondents,

78 (39%) paid through the regular/non-BPJS scheme, while 122 (61%) used the BPJS insurance scheme. For continuous data, the Motivation variable had an average score of 11.80 (SD = 3.47), with a minimum score of 4 and a maximum score of 14. The Physical Facilities variable showed a mean score of 9.91 (SD = 3.10), ranging from 0 to 12. The Reliability variable had a mean score of 8.32 (SD = 2.30), with scores ranging from 2 to 10. The Responsiveness variable showed a mean score of 11.55 (SD = 3.46), ranging from 2 to 14. For the Guarantee variable, the mean score was 11.94 (SD = 3.65), with a minimum score of 0 and a maximum score of 14. The Empathy variable had a mean score of 8.75 (SD = 2.72), ranging from 0 to 10. Work performance showed a mean score of 12.80 (SD = 4.22), with scores ranging from 4 to 16.

Table 1. Distribution of Respondents by Payment Method (Categorical Data)

Payment Method	Frequency	%
Independent (self-payment)	78	39%
National Health Insurance (BPJS)	122	61%

Table 2. Descriptive statistics of service quality and related variables

Variable	Mean	SD	Minimum	Maximum
Physical Facilities	9.91	3.10	0	12
Reliability	8.32	2.30	2	10
Responsiveness	11.55	3.46	2	14
Guarantee	11.94	3.65	0	14
Empathy	8.75	2.72	0	10
Motivation	11.80	3.47	4	14
Performance	12.80	4.22	4	16

Table 3 shows the results of the Structural Equation Model on the factors that determine the latent variables of quality and the influence of performance on the quality of dental and oral health services assessed by patients at the dental poly of Diponegoro National Hospital, Semarang. The quality of health services was significantly shaped by patients' assessments of Reliability (b = 0.91; p<0.001), Assurance (b = 0.94; p<0.001),

Tangible (b = 0.87; p<0.001), Empathy (b = 0.92; p<0.001), and Responsiveness (b = 0.89; p<0.001). The quality of health services has improved with better officer performance. Every increase of 1 unit of performance score will be followed by an improvement in the quality of health services by 0.44 and statistically significant (b= 0.44; CI 95%= 0.06 to 0.83; p=0.023).

Furthermore, the quality of health services increases with high motivation, every increase of 1 unit of motivation score will be followed by an improvement in the quality of health services by 0.47 and statistically significant (b= 0.47; 95% CI= 0.08 to 0.85; p=0.017). Furthermore, the quality of health services did not show a significant difference according to the assessment of patients who paid directly and those who paid through BPJS (b = 0.03; 95% CI = 0.03

to 0.09; p = 0.415). In the Motivation and performance variables, officers' performance increases with increased motivation. Every increase of 1 unit of motivation will be followed by an increase in performance of 0.99 and statistically significant (b= 0.99; 95% CI= 0.98 to 1.00 p<0.001). All indicators show that this SEM model has a good model conformity with the following indicators: p = 0.075; RMSEA= 0.052; CFI= 0.996; TLI= 0.993; SRMR= 0.013; CD= 0.972.

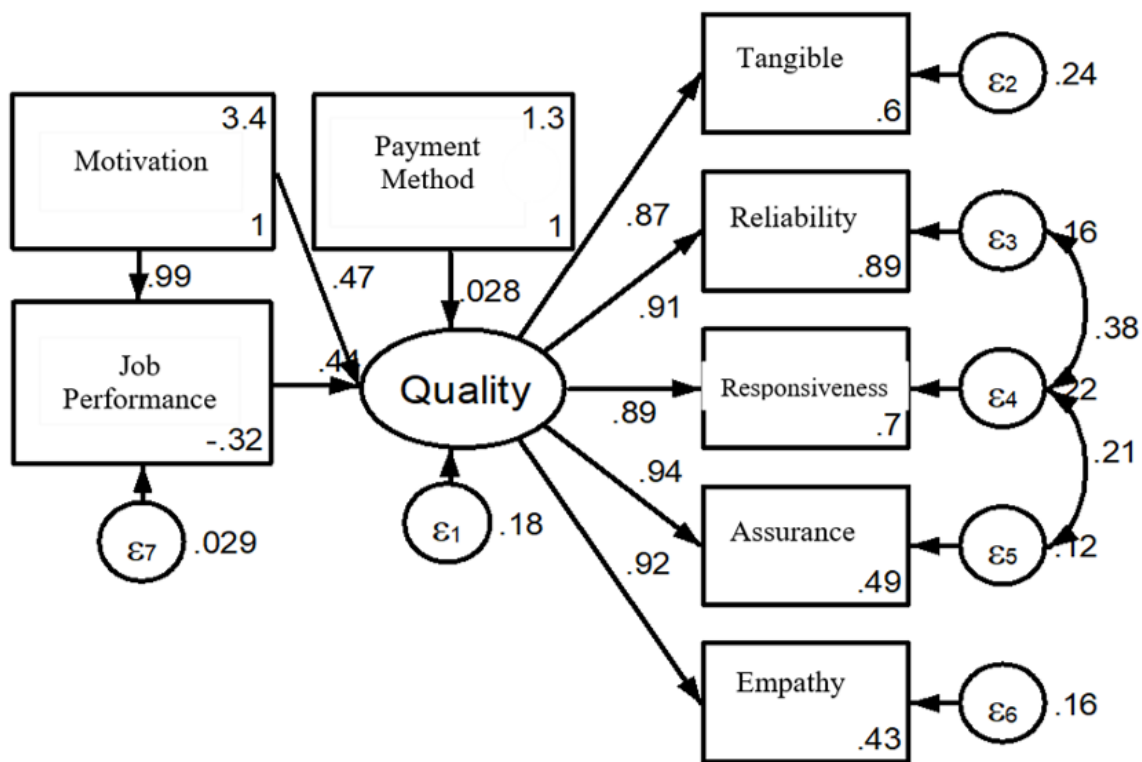


Figure 1. Structural Output Model Equation Model with Estimation of Service Provider Determinants On Health Service Quality

Figure 2 explains the estimation of the structural model of path analysis that has been carried out in this study. The model

estimation in the path analysis uses the value of path coefficient and standard error.

Table 3. Estimation of the structural equation of the service determinant model on the quality of health services

Dependent Variables	Independent Variables	b	95% CI		p
			Lower Limit	Upper Limit	
Direct Effect					
Quality	← Performance	0.44	0.06	0.83	0.023
	← Motivation	0.47	0.08	0.85	0.017

Dependent Variables	Independent Variables	b	95% CI		P
			Lower Limit	Upper Limit	
Indirect Effect	← Payment Status	0.02	0.03	0.09	0.415
Performance	← Motivation	0.99	0.98	1.00	<0.001
Measurement					
Physical Facilities	← Kualitas	0.87	0.84	0.91	<0.001
Reliability	← Kualitas	0.91	0.89	0.94	<0.001
Responsiveness	← Kualitas	0.89	0.85	0.92	<0.001
Guarantee	← Kualitas	0.94	0.91	0.95	<0.001
Empathy	← Kualitas	0.92	0.89	0.94	<0.001
RMSEA	= 0.052				
CFI	= 0.996				
TLI	= 0.013				
CD	= 0.972				

DISCUSSION

1. The Effect of Motivation on Performance

In this study, there was a positive influence between motivation and performance of health workers. High motivation will make the performance of health workers high, low motivation of health workers will make the performance of health workers low. This research is in line with research conducted by Hemakumara (2020), which states that there is a positive influence of high motivation on the performance of health workers. The motivation that exists in health workers can increase the intention to work. Lack of motivation will cause health workers to have no purpose in doing their work, causing a decrease in performance in these health workers.

2. The Effect of Performance on the Quality of Health Services

In this study, it was found that the quality of health services increased with better officer performance. Good performance of health services will increase the assessment of patients towards these health services. On the other hand, a decrease in performance in health services will reduce the assessment of health services from patients. This research is in line with the statement of Wilmington et al

(2022) that performance in workers greatly affects the quality produced from a job.

Given that performance greatly affects the quality of work, further interventions are needed to be able to improve performance. Health service providers must play an active and responsive role in supervising and improving performance so that patients feel satisfied and give a good assessment of the quality of health services obtained.

3. The Effect of Motivation on the Quality of Health Services

In this study, it was found that the quality of health services increased with better motivation of officers. The high motivation possessed by service providers will improve the quality of health services. On the contrary, low motivation owned by service providers will reduce the quality of health services. This research is in line with Werdhiastutie et al (2020) stating that motivation is closely related to quality in a job. This is based on the enthusiasm of individuals in achieving a goal of success.

4. The Effect of Cost Status on the Quality of Legal Services

In this study, it was found that the quality of health services did not show a significant difference according to the assessment of patients who paid directly and those who

paid through BPJS. This is in line with research according to Muzdalifah (2020) stating that there is no significant influence of payments using BPJS on the quality of health services. In this case, the service and attention of health services to BPJS participants and non-BPJS participants do not have a very far difference because each has their own satisfaction and shortcomings that are felt between patients. This makes health services that have fair and equal quality for all groups and provide comfort to all patients who use health services.

5. The Relationship between Physical Facilities and the Quality of Health Services

In this study, there is a relationship between quality and physical facilities. According to Ismagilova et al (2019) the key aspects of physical facilities include price, ranking relative to competitors, marketing communication and actualization, and word-of-mouth effects. According to Zygiaris et al (2022), there is a positive relationship between physical facilities and patient satisfaction. Patients view physical facilities as one of the important factors in assessing the quality of services and make physical facilities a basic service expectation. The quality of health care plays an important role in satisfying customers.

6. The Relationship between Reliability and Quality of Health Services

In this study, there is a relationship between quality and reliability. According to Jonkisz et al (2022) the provision of medical services at the specified time and the commitment of medical staff, as well as the maintenance of accurate medical records, significantly improve the quality of medical services. In the identification of gaps, reliability is the most important in patient perception and as a priority in the improvement plan of health facilities. Hercos et al (2017) emphasized the view that special attention should be paid to

reliability in the health care system. Goul et al (2021) stated that reliability is one of the most important factors in the health care system according to patients.

7. The Relationship between Response and Quality of Health Services

In this study, there is a relationship between quality and responsiveness. According to Sumi and Kabir (2021), responsiveness is one aspect of quality assessment that can be easily improved. Rapid global advances in electronic platforms can start new efforts and expand the need to improve the quality of health services in terms of responsiveness. Inadequate training, poor user experience, and poor preparation have resulted in a decline in the quality of health services in the field of responsiveness. Management and authorities must pay attention to and evaluate electronic learning as a means of improving health services, responsiveness by providing training and education massively following global developments in electronic media.

8. The relationship of assurance to the quality of health services

In this study, there is a relationship between quality and guarantee. According to Aboubakr and Bayoumy (2022), assurance includes keeping promises, providing services without making mistakes, treating all patients equally, providing services on time, and speed in operation. Satisfaction in insurance is caused by problems in discussions that occur in the provision of health services by doctors to patients and the adequacy of resources. Guarantee is a commitment built by health service providers in providing the best service to patients. When the commitments made have been carried out properly, the guarantee aspect is high so that patient satisfaction is also high. Low commitment to providing services to patients to health care providers makes the quality value of health services low.

9. The Relationship of Empathy to the Quality of Health Services

In this study, there is a relationship between the quality of health services and empathy. According to Sharifi et al (2021), empathy means understanding the needs of service users, and has a big role in communicating with health service users, in this case patients. Empathy encompasses questions about interactions between healthcare providers and service users. Good communication makes patients feel cared for and feel that health services provide a forum to be able to express their feelings, complaints, and what patients want. Good communication will increase the empathy aspect and give a good assessment to the quality of health services.

The quality of health services at Diponegoro National Hospital Semarang is influenced by performance and motivation. Performance is influenced by motivation. The quality of health services at Diponegoro National Hospital Semarang is not affected by differences in payment method.

AUTHOR CONTRIBUTION

Rosalia Indri Dewanti is the main researcher in this study who determines the topic, conducts research, and collects data. Didik Gunawan Tamtomo and Bhisma Murti became the main research assistants in this study.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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