



## **STRATEGIES FOR IMPROVING NURSE PERFORMANCE THROUGH STRENGTHENING THE JOB CHARACTERISTICS, PERSONALITY, AND JOB SATISFACTION: A MIXED METHODS APPROACH AT COMMUNITY HEALTH CENTERS IN SOUTH TANGERANG CITY**

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### **Abstract**

Nurse performance is a crucial factor in determining the quality of health services at community health centers. This study aims to develop strategies to improve nurse performance by strengthening job characteristics, personality, and satisfaction. A mixed methods approach combined a quantitative survey of 141 Puskesmas nurses in South Tangerang City and qualitative analysis through the Delphi technique with Focus Group Discussion (FGD). Quantitative analysis was performed using path analysis to test the direct and indirect effects between variables and the Sobel test to assess the mediating role of job satisfaction.

The results showed that job characteristics, personality, and satisfaction directly, positively, and significantly affected nurse performance. Job characteristics and personality were also found to influence job satisfaction, while the mediating role of job satisfaction, although significant, was not stronger than the direct effect. Qualitative findings through Delphi-FGD supported the quantitative results by showing consistency between nurses' perceptions in the survey and their field experiences, thereby strengthening the validity of the findings. This study concludes that strategies to improve nurse performance in Puskesmas can be directed through three main focuses: strengthening job design, fostering upbeat personality, and increasing job satisfaction. The results of this study are expected to contribute to the development of human resource management in the health sector, while providing a practical basis for policymakers in designing interventions to improve service quality.

**Keyword:** Nurse Performance, Job Characteristics, Personality, Job Satisfaction

## **INTRODUCTION**

The quality of primary health care is a key indicator of health development. In Indonesia, Community Health Centers (Puskesmas) play a strategic role as first-level service providers focusing on promotive and preventive efforts and providing curative and rehabilitative services (Ministry of Health of the Republic of Indonesia, 2023). As a basic service institution, Puskesmas ensures community access to medical services and serves as the frontline in improving health levels, particularly in urban areas with high population density (Anita et al., 2019).

Nurses are one of the largest groups of health workers in Puskesmas and have diverse duties. In addition to providing nursing services, they participate in health education, counseling, and implementing various public health programs (Abdullah et al. 2021). Therefore, the performance of nurses contributes directly to the quality of service and the achievement of Puskesmas' objectives. However, preliminary survey results show that around 26% of South Tangerang City Puskesmas nurses still face quantity,

quality, efficiency, creativity, and work effectiveness obstacles. This condition indicates that although their role is vital, the performance of nurses is not yet fully optimal, thus requiring a more focused improvement strategy.

The issue of nurse performance cannot be separated from the influence of contextual and individual factors. Regarding job characteristics, nurses still face many challenges, such as high workloads, limited task variety, low autonomy, and a lack of constructive feedback. It is in line with the findings of Cotič et al. (2025), which emphasize that skill variety, role clarity, task significance, autonomy, and feedback are essential dimensions of job characteristics that directly impact motivation and performance. Empirical research also supports this view. Giawa and Tinambunan (2022) found that good job design positively affects nurse performance. This finding is reinforced by Permatasari (2022), who shows that job characteristics positively and significantly influence nurse performance.

In addition to job factors, personality aspects also play an important role in determining nurse performance. Each individual has different psychological characteristics, which influence their communication style, ability to collaborate, and capacity to adapt to high-pressure work conditions. The five main dimensions of the Big Five Personality (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience) have been proven to contribute to work behavior and performance effectiveness (Hasanah et al., 2022). This finding is reinforced by the research of Widyawati et al.(2022), which confirms that personality significantly influences nurse performance.

In addition to job characteristics and personality, job satisfaction also determines nurse performance. Job satisfaction reflects favorable emotional conditions when nurses feel they receive appropriate rewards, work in a supportive environment, have opportunities for promotion, and establish harmonious interpersonal relationships (Katebi et al., 2022; Wong, 2024). Romadhani et al. (2022) show that job satisfaction directly affects performance and acts as a mediating variable that connects individual factors with organizational performance. These findings are consistent with the research by Augustine et al. (2022), which confirms that job satisfaction has a positive and significant effect on nurses' performance.

Previous studies have shown that job characteristics, personality, and satisfaction directly and indirectly affect performance. However, most studies examine these variables partially, so they cannot explain the relationship between the three in a comprehensive causal model. In fact, nurses' performance is shaped by complex interactions between job aspects, individual psychological conditions, and job satisfaction.

Considering this gap, this study uses a mixed-methods approach to gain a more comprehensive understanding. Quantitative analysis tests job characteristics' and personality's direct and indirect effects on performance, with job satisfaction as a mediating variable. On the other hand, qualitative analysis

explores the experiences, perceptions, and challenges nurses face in carrying out their daily tasks. This study aims to present a more comprehensive picture through statistical evidence and a deeper contextual understanding by integrating these two approaches.

This study theoretically expands the understanding of human resource management studies in the health sector by integrating job factors, personality, and job satisfaction into one comprehensive model. From a practical perspective, the findings of this study are expected to serve as a reference for Puskesmas management and local governments in formulating strategies to improve nurse performance through strengthening job design, developing positive personalities, and increasing job satisfaction.

## **METHOD**

This study applied a mixed methods approach with a sequential explanatory design. In the first stage, quantitative data were collected and analyzed to test the direct and indirect effects between variables, followed by qualitative analysis to deepen understanding of the quantitative findings.

Quantitative data were obtained through a survey using a structured questionnaire distributed to 141 nurses in 31 Puskesmas in South Tangerang City. The instrument covered four main variables: job characteristics, personality, job satisfaction, and nurse performance. Validity and reliability tests were conducted, with Cronbach's Alpha values  $> 0.70$ , indicating adequate internal consistency. Quantitative data analysis used path analysis to identify direct and indirect effects and Sobel tests to assess the significance of job satisfaction mediation.

The qualitative stage was conducted using the Delphi technique through Focus Group Discussions (FGD) with purposively selected nurses from the quantitative respondents. Qualitative data confirmed, strengthened, and provided contextual explanations for quantitative findings. In the final stage, quantitative and qualitative results were compared and integrated in the interpretation. With this approach, the study is expected to present a more comprehensive picture of nurses' performance through statistical relationships and empirical understanding of their experiences in the field.

## **RESULTS AND DISCUSSION**

### **Research Data Description**

In this study, four main variables are analyzed descriptively: Nurse Performance (Z) as the dependent variable; Job Characteristics ( $X_1$ ) and Personality ( $X_2$ ) as independent variables; and Job Satisfaction (Y) as the intervening variable. The results of the descriptive analysis for each variable are presented in Table 1.

Table1. Summary of Descriptive Statistics for Research Variables

No	Statistical Measure	Performance (Z)	Job Satisfaction (Y)	Job Characteristics (X <sub>1</sub> )	Personality (X <sub>2</sub> )
1.	Number of Respondents (Count)	141	141	141	141
2	Mean	129.24	129.13	149.50	121.72
3.	Median	109.5	118	135.5	111.5
4.	Mode	128	132	147	120
5.	Standard Deviation	18.11	16.35	17.44	14.43
6	Variance	327.84	267.22	304.22	208.41
7	Range	101	86	89	77
8.	Minimum	59	75	91	73
9.	Maximum	160	161	180	150
10.	Sum	18223	18208	21,080	17163

### Prerequisite Tests

Prerequisite analysis testing is conducted to ensure data suitability prior to path analysis. The tests used include normality tests, homogeneity tests, and linearity tests.

#### 1. Normality Test

The normality test is performed using the Chi-Square method by comparing the observed frequency ( $f_o$ ) and the expected frequency ( $f_h$ ) based on the theoretical normal distribution. This test uses the following formula:

$$X^2 = \sum \frac{(f_o - f_h)^2}{f_h}$$

In this study, the number of interval classes used is 6, so the degrees of freedom (df) are calculated using the following formula:

$$dk = k - 1 = 6 - 1 = 5$$

With a significance level of  $0\alpha = 0,05$ , based on the Chi-Square table, the following is obtained  $X_{tabel}^2 = 11,070$ . According to Supardi (2013, p. 138), the basis for decision-making in normality tests is as follows:

Ho: The data is usually distributed.

H1: The data is not normally distributed With the testing criteria:

- If  $x^2 < x^2$ , accept Ho, and *hit tab*
- If  $x^2 > x^2$ , reject Ho *hit tab*

The overall results of the normality test can be seen at 2.

Table 2. Summary of Normality Test Results

Variable	$X^2_{hitung}$	$X^2_{tabel}$	Decision (H0 )	Conclusion
Performance (Z)	3.530	11.070	Accepted	Normally Distributed

<b>Job Satisfaction (Y)</b>	4,303	11,070	Accepted	Normally Distributed
<b>Job Characteristics (X1)</b>	4,462	11,070	Accepted	Normally Distributed
<b>Personality (X2 )</b>	4,608	11,070	Accepted	Normally Distributed

## 2. Homogeneity Test

The basis for decision making in the Homogeneity Test is carried out using the F-test procedure according to Supardi U.S. (2016:142–143), by determining the significance level  $\alpha=0.05$  to test the hypothesis:

$H_0 : \sigma_1^2 = \sigma_2^2$  (variance 1 is equal to variance 2 or homogeneous)

$H_1 : \sigma_1^2 \neq \sigma_2^2$  (variance 1 is not equal to variance 2 or heterogeneous)

The F-test statistic is formulated as:  $F_{hitung} = \frac{\text{varians terbesar}}{\text{varians terkecil}}$  (Supardi U.S., 2016:143), With the following testing criteria:

- Accept  $H_0$  if  $F_{\text{calculated}} < F_{\text{table}}$ ; and
- Reject  $H_0$  if  $F_{\text{calculated}} > F_{\text{table}}$

The overall results of the homogeneity test can be seen in

Table 3. Summary of Homogeneity Test Results

<b>Variable</b>	<b>F<sub>calculated</sub></b>	<b>F<sub>table</sub></b>	<b>Decision (<math>H_0</math>)</b>	<b>Conclusion</b>
<b>X<sub>1</sub> - Z</b>	1.077	2.67	Accepted	Homogeneous
<b>X<sub>2</sub> - Z</b>	1,573	2.67	Accepted	Homogeneous
<b>Y - Z</b>	1,227	2.67	Accepted	Homogeneous
<b>X<sub>1</sub> - Y</b>	1.138	3.06	Accepted	Homogeneous
<b>X<sub>2</sub> - Y</b>	1.282	3.06	Accepted	Homogeneous

## 3. Linearity Test

The linearity test determines whether the relationship between the independent and dependent variables is linear. The testing criteria are as follows: if the Sig. Linearity value is  $< 0.05$ , then the relationship is considered linear. Conversely, if Sig. Linearity is  $> 0.05$ , then the relationship is not linear. The overall results of the linearity test can be seen at 4

Table 4. Summary of Linearity Test Results

<b>Variable</b>	<b>Sig. Linearity</b>	<b>Significance Level</b>	<b>Conclusion</b>
<b>X<sub>1</sub> over Z</b>	0.022		Linear
<b>X<sub>2</sub> over Z</b>	0.018	0.05	Linear
<b>Y over Z</b>	0.048		Linear

## Path Analysis

Path analysis determines independent variables' direct and indirect effects on dependent variables, with job satisfaction as the intervening variable.

### 1. Path Relationship Model Between Variables in Substructure 1

The relationship model between variables in substructure-1 consists of one endogenous variable, namely Performance (Z), and three exogenous variables, namely Job Characteristics (X1), Personality (X2), and Job Satisfaction (Y), as well as one residual variable, namely  $\varepsilon_1$ . The path model in substructure-1 is as follows:

$$Z = \beta_{z1}X_1 + \beta_{z2}X_2 + \beta_{z3}Y + \varepsilon_1$$

The results of the path coefficient calculations in Substructure 1 can be seen in 5

Table 5. Path Coefficient Values in Substructure-1

Performance	Unstandardized Coefficients		Standardized Coefficients	t	P > t
	B	Std. Error	Beta		
Job Characteristics	0.338	0.071	0.409	4.735	0.000
Personality	0.251	0.040	0.258	6.240	0.000
Job Satisfaction	0.316	0.085	0.343	3.720	0.000

Table 6. Model Summary Substructure-1

Model Summary				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.944	0.891	0.888	4.50893

Based on 5, it is known that Job Characteristics positively affect Performance with a coefficient of  $\beta = 0.409$ . Personality also positively affects Performance with a coefficient of  $\beta = 0.258$ . Job Satisfaction also positively affects Performance with a coefficient of  $\beta = 0.343$ . Thus, the path model for sub-structure 1 is as follows:

$$Z = 0,409 X_1 + 0,258 X_2 + 0,343 Y + 0,109$$

At 6, it can be seen that the R-square output value is 0.891. It means that 89.1% of the Performance variable (Z) can be explained by the Job Characteristics (X1), Personality (X2), and Job Satisfaction (Y) variables, so that the remaining 10.9% or  $\varepsilon_1 = 0.109$  is influenced by other variables that are not included in this study. Figure1

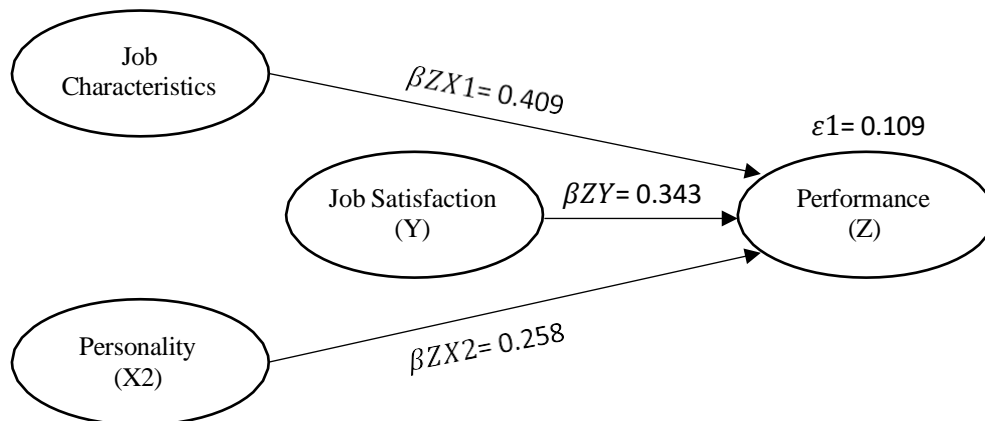


Figure 1: Empirical Causal Relationship Model Between Variables in Substructure-1

## 2. Path Relationship Model Between Variables in Substructure 2

The model of relationships between variables in substructure-2 consists of one endogenous variable, namely Job Satisfaction (Y), and two exogenous variables, namely Job Characteristics (X1) and Personality (X2), as well as one residual variable, namely  $\varepsilon$ . Based on this relationship, the path model in substructure-2 is as follows:

$$Y = \beta_{Y1}X_1 + \beta_{Y2}X_2 + \varepsilon_2$$

The results of the path coefficient calculations in substructure-1 can be seen in:

Table 7. Path Coefficient Values in Substructure-2

Job Satisfaction	Unstandardized Coefficients		Standardized Coefficients	t	P > t
	B	Std. Error	Beta		
Job Characteristics	0.753	0.032	0.837	23.480	0.000
Personality	0.167	0.038	0.158	4.435	0.000

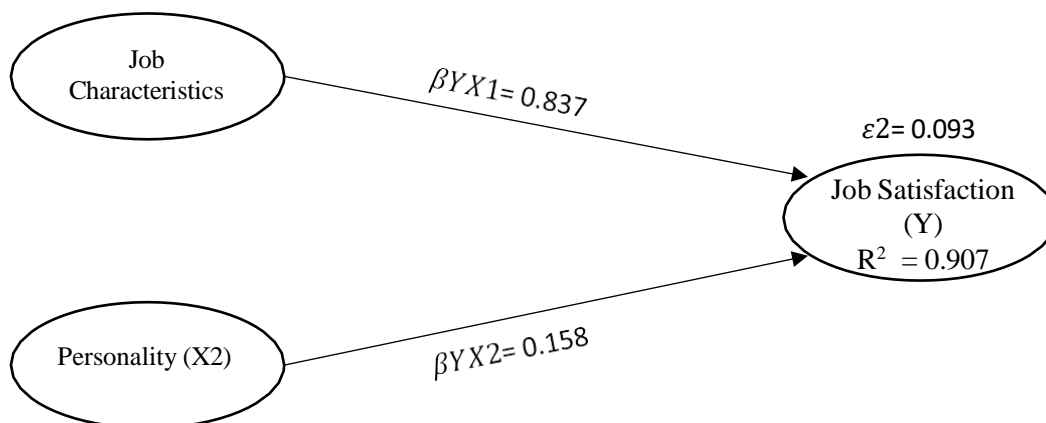
Table 8. Model Summary Substructure-2

Model Summary				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
2	0.952	0.907	0.905	4.52442

Based on Table 7, it is known that Job Characteristics have a positive effect on Job Satisfaction with a coefficient of  $\beta = 0.837$ . Personality also positively affects Job Satisfaction with a coefficient of  $\beta = 0.158$ . Thus, the path model in sub-structure 2 is as follows:

$$Y = 0,837 X_1 + 0,158 X_2 + 0,093$$

On table 8, it can be seen that the R-square output value is 0.907. Means that 90.7% of the job satisfaction variable (Y) can be explained by the job characteristics variable (X1) and personality variable (X2). In comparison, the remaining 9.3% or  $\varepsilon_2 = 0.093$  is influenced by other variables not included in this study. The path diagram for Substructure-2 is presented in Figure 2 at 2



## 2 Figure Empirical Causal Relationship Model Between Variables in Substructure-2

### 3. Indirect Effect Analysis

Indirect effect analysis was conducted to determine how job satisfaction mediates the relationship between job characteristics and personality on nurse performance. The indirect effect calculation results were obtained using the indirect effect calculator.

For Mediation Models, the Sobel Test Calculator for the Significance of Mediation was used to confirm whether the mediator variable (Y) actually significantly influences the independent variable ( $X_1$ ) on the dependent variable (Z).

Table 9. Summary of Sobel Test Results

Variable	Indirect Effect	Sobel Test (Zcalculated)	Ztable
<b>X<sub>1</sub> - Z</b>	0.287	3.988	1.65
<b>X<sub>2</sub> - Z</b>	0.054	2.896	1.65

Based on table 9, it can be seen that the indirect effect of the Job Characteristics variable ( $X_1$ ) on Performance (Z) through Job Satisfaction (Y) is 0.287, which means that there is a positive indirect effect of Job Characteristics on Performance through Job Satisfaction. The Sobel test value or Z(calculated) is 3.988, greater than Z(table) 1.65 at a significance level of 0.05. Thus, the Job Satisfaction variable (Y) can be a mediator in bringing the influence of the Job Characteristics variable ( $X_1$ ) on the Performance variable (Z). Furthermore, it is known that the indirect effect of the Personality variable ( $X_2$ ) on Performance (Z) through Job Satisfaction (Y) is 0.054, which means that there is a positive indirect effect of Personality on Performance through Job Satisfaction. The Sobel test value or Z(calculated) is 2.896, greater than Z(table) 1.65 at a significance level of 0.05. Thus, it can be concluded that the Job Satisfaction variable (Y) can mediate the influence of Personality ( $X_2$ ).

### 4. Analysis of Direct and Indirect Effects

The magnitude of the direct and indirect effects on the Nurse Performance variable (Z) is presented in Table 10 at 10

Table 10. Direct and Indirect Effects on Nurse Performance

Variable	Effect		Conclusion
	Direct	Indirect Through Y	
Job Characteristics ( $X_1$ )	0.409	0.287	Direct Effect (0.409) > Indirect Effect (0.287)
Personality ( $X_2$ )	0.258	0.054	Direct Effect (0.258) > Indirect Effect (0.054)
Job Satisfaction (Y)	0.343	-	Direct Effect (0.343) > Indirect Effect (0)

shows table 10 that the coefficient of the direct effect of Job Characteristics on Performance is  $\beta = 0.409$ , while the indirect effect through Job Satisfaction is 0.287. This comparison shows that the indirect effect value is smaller than the direct effect (0.287 < 0.409). The job satisfaction variable



does not function effectively as an intervening variable in the relationship between job characteristics and performance.

Furthermore, the direct effect of Personality on Performance is  $\beta = 0.258$ , while the indirect effect through Job Satisfaction is only 0.054. It means that the indirect effect is smaller than the direct effect ( $0.054 < 0.258$ ), so Job Satisfaction also does not function effectively as an intervening variable in the relationship between Personality and Performance.

## Hypothesis Testing

Table 111. Hypothesis Testing Results

Hypothesis	Path	Path Coefficient	Statistical Test	Decision	Conclusion
1	Job Characteristics (X1 ) on Performance (Z)	0.409	$H_0: \beta_{X1Z} \leq 0$ $H_1: \beta_{X1Z} > 0$	H0 rejected H1 accepted	There is a significant positive direct effect of Job Characteristics on Nurse Performance
2	Personality (X2 ) on Performance (Z)	0.258	$H_0: \beta_{X1Z} \leq 0$ $H_1: \beta_{X1Z} > 0$	H0 rejected H1 accepted	There is a significant positive direct effect of Personality on Nurse Performance
3	Job Satisfaction (Y) on Performance (Z)	0.343	$H_0: \beta_{X1Z} \leq 0$ $H_1: \beta_{X1Z} > 0$	H0 rejected H1 accepted	There is a significant positive direct effect of Job Satisfaction on Nurse Performance
4	Job Characteristics (X1 ) on Job Satisfaction (Y)	0.837	$H_0: \beta_{X1Z} \leq 0$ $H_1: \beta_{X1Z} > 0$	H0 rejected H1 accepted	There is a significant positive direct effect of Job Characteristics on Job Satisfaction
5	Personality (X2 ) on Job Satisfaction (Y)	0.158	$H_0: \beta_{X1Z} \leq 0$ $H_1: \beta_{X1Z} > 0$	H0 rejected H1 accepted	There is a significant positive direct effect of Personality and Job Satisfaction
6	Job Characteristics (X1) on Performance (Z) through Job Satisfaction (Y)	0.287	$H_0: \beta_{X1Z} \leq 0$ $H_1: \beta_{X1Z} > 0$	H0 rejected H1 accepted	There is a significant positive direct influence of Job Characteristics on Nurse Performance through Job Satisfaction
7	Personality (X2 ) on Performance (Z) through Job Satisfaction (Y)	0.054	$H_0: \beta_{X1Z} \leq 0$ $H_1: \beta_{X1Z} > 0$	H0 rejected H1 accepted	There is a significant positive direct

## **Qualitative Analysis**

Qualitative analysis was conducted using the Delphi technique through Focus Group Discussions (FGD) with nurses at Community Health Centers in the South Tangerang City area. Selected questions were compiled based on job characteristics, personality, satisfaction, and performance indicators. The questions explored nurses' experiences performing their duties, perceptions of working conditions, and factors that support or hinder performance.

Based on the FGD results, several group conclusions were obtained:

### **1. Job Characteristics**

Most nurses assessed that the variety of skills and clarity of tasks were quite good, but limited autonomy in decision-making was still an obstacle. It shows that the job design must be strengthened to increase motivation and job satisfaction.

### **2. Personality**

Discussion participants agreed that discipline, openness to experience, and emotional stability helped them adapt to work pressures. Several respondents also emphasized the importance of friendliness and teamwork in maintaining service quality.

### **3. Job Satisfaction**

Harmonious working relationships with colleagues and appreciation from superiors are the main factors driving job satisfaction. However, some nurses revealed that promotion opportunities are still limited, which can reduce job satisfaction.

### **4. Performance**

Nurses assessed their performance as generally good, especially regarding timeliness and accuracy of medical record keeping. However, the high administrative burden is sometimes considered to reduce effectiveness in providing direct services to patients.

The classification of responses shows that most nurses have similar perceptions of these factors, although there are minor variations in opinion. To ensure validity, these findings have been triangulated with human resource management experts, who confirm the qualitative results' consistency with theory and support the quantitative survey results.

## **Integration of Quantitative and Qualitative Results**

The results were integrated to see how much the quantitative and qualitative findings supported each other. The results of the quantitative path analysis showed that job characteristics, personality, and job satisfaction had a positive and significant effect on nurses' performance, with job satisfaction acting as a mediator. However, its contribution was smaller than the direct effect.

The results of qualitative analysis through Delphi–FGD reinforce these findings. Nurses stated that

task clarity, autonomy, skill variety, and organizational support affect job satisfaction and motivation. Personality traits like discipline, openness, and emotional stability are important for maintaining performance amid work pressure.

Additionally, job satisfaction derived from harmonious work relationships and appreciation from leadership is viewed as a performance-supporting factor. To clarify the comparison, the following table presents a comparison of the results of quantitative and qualitative analysis:

Table 12. Summary of Quantitative and Qualitative Analysis

No	Variable	Quantitative Analysis		Qualitative Analysis Average
		Average Score	Level	
1	Nurse Performance	4.06	Good	Good
2	Job Satisfaction	4.01	Good	Good
3	Job Characteristics	4.20	Good	Good
4	Personality	4.10	Good	Good

Based on table 12, the four research variables were placed in the good category from a quantitative and qualitative perspective. This consistency confirms that the respondents' perceptions in the survey align with their experiences in the field, thereby strengthening the validity of the findings. Quantitative analysis provides an overview of the causal relationship between variables, while qualitative analysis adds context and in-depth explanations. Thus, integrating the two reinforces the conclusion that strategies to improve nurse performance should be directed through strengthening job characteristics, developing positive personalities, and increasing job satisfaction.

## CONCLUSION

This study reveals that job characteristics, personality, and job satisfaction significantly influence the performance of nurses at Community Health Centers in South Tangerang City. Path analysis shows that job characteristics and personality directly affect performance and job satisfaction as a mediating variable. However, the direct effect of both is more dominant than the indirect effect, so that job satisfaction does not function effectively as an intervening variable in this relationship.

Qualitative results obtained through the Delphi–FGD technique support quantitative findings by confirming that clarity of roles, autonomy, skill variety, and positive personality traits such as discipline and emotional stability are key factors supporting performance. In addition, job satisfaction derived from harmonious working relationships, appreciation, and a conducive working environment is recognized by nurses as an important factor in maintaining work motivation.

Integrating quantitative and qualitative results shows strong consistency, strengthening the validity of the research findings. Thus, strategies to improve nurse performance can be directed through three main focuses: strengthening job design, developing positive personalities, and maintaining job

satisfaction.

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