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**The Effect of Health Worker Performance and loyalty on Patient Satisfaction through service quality as an intervening variable on BPJS patients at Tamalate Health Center Makassar City**

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# The Effect of Health Worker Performance and loyalty on Patient Satisfaction through service quality as an intervening variable on BPJS patients at Tamalate Health Center Makassar City

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**Abstract**

Puskesmas and BPJS are two health service support facilities that are closely related and cannot be separated in health services in Indonesia. Patient satisfaction is one of the important indicators that must be considered in providing health services. Service quality is an indicator of achieving patient satisfaction, including the role of health workers while planning health services, with the efficiency and effectiveness of health care providers being a key factor in the overall success of these services. Patients receiving BPJS at Tamalate Health Center in Makassar City were the subjects of this investigation, which aimed to identify the relationship between health worker performance and loyalty and patient satisfaction via service quality as a mediating variable. The Tamalate Health Center in Makassar City is the site of this quantitative study that employs a causal survey technique. A questionnaire was used as the tool. Path analysis is then used as the data analysis approach. Service quality for BPJS patients at Makassar City's Tamalate Health Center was shown to be directly impacted by health staff performance and loyalty. At Makassar City's Tamalate Health Center, BPJS patient satisfaction is directly impacted by the loyalty and performance of health workers. At the Tamalate Health Center in Makassar City, BPJS patients' satisfaction is indirectly affected by the performance of health workers via the level of service they get. For BPJS patients at the Tamalate Health Center in Makassar City, customer loyalty indirectly affects happiness via service quality.
**Keywords**: loyalty, satisfaction, health worker performance, service quality, health center

## 1. Introduction

One of the efforts that can be made to improve the degree of public health is to organize health services (Fatima & Indrawati, 2019). Puskesmas and BPJS are two health service support facilities that are interrelated in health services in Indonesia (Sofiana et al., 2020). Puskesmas as one of the health service providers has the function of providing first-level health services (Endartiwi, 2020).

Patient satisfaction is one of the important indicators that must be considered in providing health services (Karaca & Durna, 2019). Patient satisfaction is also a measure of health system performance and a basis for encouraging health service providers to be more responsible to their patients (Nurmawati & Pramesti, 2022).

The outcomes of interviews with the community in the working area of the Tamalate Makassar City Health Center revealed that people who use health facilities as BPJS participants want more quality of service refers to the quality displayed by health workers in charge of serving patients both in terms of hospitality and timeliness of service. Then based on observations made, it was found that there were still health workers who did not care about patients. In addition, there is still the work behavior of health workers who come and go home before time.

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Service quality is a must and an indicator to achieve patient satisfaction which ultimately leads to the creation of patient loyalty (Yanuarti et al., 2021). Given the importance of health professionals in planning and executing health services, it stands to reason that their performance would be a factor in the health care system's success (Ita et al., 2021; Telaumbanua, 2020).

On the other hand, patient loyalty is based on a very positive attitude and is a patient's attachment to a place that is reflected in repeated visits (Widodo & Prayoga, 2022). Loyal patients not only visit for treatment again, but also maintain a positive attitude towards the health care providers they get (Wartiningsih et al., 2020).

Puskesmas, health workers and BPJS patients are elements that are interrelated with one another so that they cannot be separated in the health service system in Indonesia, therefore the formulation of the problem in this study is whether there is an effect of health worker performance and loyalty on patient satisfaction through service quality as an intervening variable on BPJS patients at Tamalate Health Center, Makassar City.

Patient satisfaction is an indicator of service quality, this shows the success of health service providers to meet patient expectations for the health services received (Manzoor et al., 2019). If the health service lives up to or exceeds the patient's expectations, the patient will be satisfied. One possible indicator of healthcare service quality is the frequency with which patients return for further treatment (Chen et al., 2019; et al., Lotfi 2019).

If a health organization wants to succeed, it needs competent employees (health workers). Health care providers are deemed competent if they are able to meet the expectations set by an organization, in this case the puskesmas (Ballard et al., 2020). The level of performance that health professionals achieve in their organizations is influenced by their attitudes and actions while on the job, including meeting their tasks as allocated (Oktaviana & Wahyono, 2020).

This will also affect patient loyalty, as one would expect. Goetz et al. (2019) defines customer loyalty as "the condition in which consumers have a positive impression of a location and intend to utilize its services going forward." In this case, the customers are patients. According to Huang et al. (2019), patient loyalty shows that a person is committed to constantly giving services, even if a patient's behavior changes because of the circumstance.

This study is relevant to prior investigation on patient satisfaction, such as "Puskesmas Accreditation Status with Patient Satisfaction Levels" (Nurjannah et al., 2019). This study aimed to determine if there was a correlation between health centers' accreditation status and the level of satisfaction among its outpatient patients by analyzing five different facilities in Semarang City. This brings us to the next piece of investigation: The connection between age, education level, health facilities, and patient satisfaction at the Muara Laung Health Center, published in 2019 by Arifin et al. The purpose of this study was to identify any associations between patient satisfaction, physical environment, age, and degree of education. What follows is a study titled "A nurse-patient communication perspective on patient satisfaction" (Khairani et al., 2021). Finding out the connection between nurse-patient communication and patient happiness is the driving force for this study. Furthermore, a study entitled patient satisfaction with the variety of food ingredients in the hospital (Tanuwijaya et al., 2019). The study aims to determine the relationship between food variations in hospitals and patient satisfaction.

However, in this study no one has applied path analysis and used intervening variables in reviewing direct effects and indirect effects that will show service quality and patient satisfaction, especially BPJS user patients, thus indicating that this investigation is very important to do because no one has examined it before, so that the outcomes of this study can later be used as evaluation material and reference data for the Tamalate Health Center including the Health Office in making various programs and policies as an effort of the puskesmas in providing first-level health services to the community.

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## 2. Method

The causal survey method was used to conduct this quantitative investigation. The technique used for analyzing the data is path analysis. This study introduces the following layout:

Figure 1.
*Design Research*
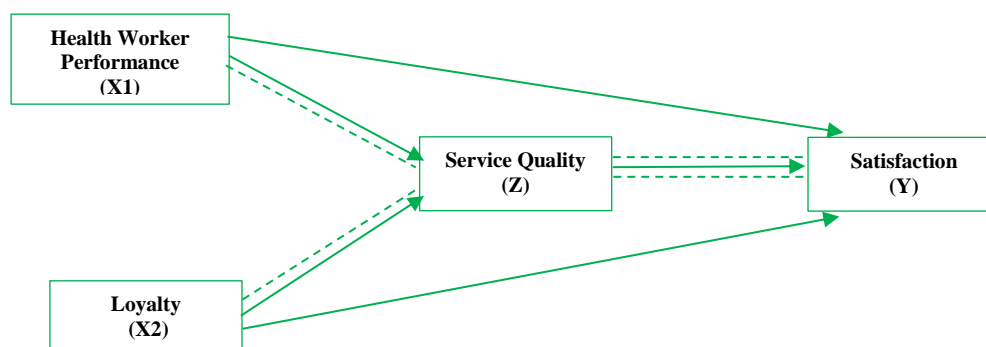


Description:
**-----** : Indirect influence
——— : Direct effect

The investigation is scheduled to be conducted in Tamalate, Makassar City, and will last for a full year. All of the patients participating in this study are BPJS users, and a non-absolute sample will be generated using the Cochran algorithm. Here are the outcomes of calculating the sample size using this method:

$$n = \frac{z^2 pq}{e^2} = n = \frac{(1,96)^2 (0.5)(0,5)}{(0.10)^2} = 96$$

Purposive random sampling will be employed to select 96 participants in order to collect study data. The study's independent variables ($X_1$) include health personnel' performance as determined by observable metrics such as reliability, assurance, responsiveness, and empathy. As determined by measures of cognitive, emotional, and conative loyalty, loyalty is the independent variable ($X_2$). The variable that stands in between is the quality of service, which is determined by factors such as comfort, timeliness, human relations, information, accessibility, and affordability. Next, we have the dependent variable (Y), which is patient satisfaction as determined by metrics related to health service quality, access, processes, and systems used.

Questionnaires are used as investigation data collection methods to get quantitative data. A likeart scale is employed in this method. Additionally, the instrument generated will be processed through the following in order to obtain a legitimate instrument for this study:
a. Aiken V formula is used in a content validity test conducted by three experts. An instrument is considered to meet content validity if its Aiken V index is more than 0.75.
b. Use confirmatory factor analysis to construct a validity test; if the factor loading value is more than 0.40, the item is deemed valid.

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c.   The instrument's reliability is met refers to the reliability test utilizing the Cronbach alpha formula and an alpha value greater than 0.70 (Hartini et al., 2019).

The statistical technique in analyzing investigation data to achieve investigation objectives is to use multivariate statistical analysis, namely path analysis (patch analysis) which is then carried out a partial t test with the criteria, if t count ≥ t table at a significance level of 0.05 then the hypothesis is accepted and a sobel test is also carried out with the criteria if z < 0.05 then the hypothesis is accepted (Adiputra et al., 2021).

By setting a significance of 0.05, it will show that the confidence level in this study is 95%.

## 3.   Results and Discussion
### Results
### Research instruments and data collection techniques (OK)

The method of data collection employed is a Likert scale questionnaire with alternative answers: very suitable (SS), suitable (S), not suitable (TS), and very unsuitable (STS). The AIKEN V formula is used to test the content validity of each instrument developed for each variable. Refers to the V index value > 0.60, the content validity test conditions are determined (Gregory, 2015). The content validity test findings are summarized as follows :

Table 1
*Summary of Content Validity*

| Instrumen | Number of Items | Average V index |
|---|---|---|
| Health worker performance | 10 | 0,87 |
| Loyalty | 10 | 0,88 |
| Service Quality | 9 | 0,86 |
| Satisfaction | 8 | 0,81 |

The outcomes of the test and the opinions of experts indicate that the instrument is legitimate, as indicated in the table above. The next step in guaranteeing the validity of test concepts is CFA. The maximum likelihood method is used in CFA to ascertain the construct's validity. Included in the list of requirements are outcomes with the Measure of Sampling Adequacy (MSA) and the Kaiser Meyer Olkin (KMO) measurement both above 0.50. For the purpose of doing more investigation, Bartlett's test yielded a sig value of 0.00. Therefore, the anti-image correlation value > 0.50 was determined to be included in the component analysis. The item validity is more than 0.40, as shown by factor loading (Sudaryono, 2019). The construct validity of each study instrument was examined using the SPSS For Windows tool. This is how the test outcomes appear:

a.   The outcomes of the construct validity test of the health worker performance instrument (OK)

The assessment of health worker performance is conducted using a set of 5 indicators, which are assessed as observable variables consisting of a total of 10 items. Indicator 1, 2, 3, 4, and 5 each consist of 2 components. The test results are summarized in the table below:

Table 2
*Summary of KMO Test and Bartlett Test*

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .859 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx..chi-square | 1729,069 |
| | Df | 45 |
| | Sig. | .000 |

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Refers to trial outcomes, the Bartlett's test outcomes indicated a sig value, according to the information gathered from assessing the construct validity of health workers' performance. The sample sufficiency for factor analysis has been reached since the value of the anti-image correlation on 10 items has an MSA > 0.50, which can subsequently be incorporated into the identification of parameters. The value of the correlation is 0.00, which falls short of 0.05, and the KMO and MSA coefficients of 0.85, which are larger than 0.50. Additionally, it was discovered that ten items in total displayed their corresponding factor loads refers to their indications using the maximum probability method. There are 10 items with factor loading values greater than 0.4 for signals 1, 2, 3, and 5. To determine whether the factor model is appropriate, the 10 items are then removed and re-rotated using a goodness-of-fit test. The test parameters include a chi-square value of 605.628 and a significance threshold of $0.00 < \alpha$ (0.05). This process determines that the health worker performance instrument has 10 statement items that make up a factor. All relevant elements are incorporated in five indicators as visible variables and have greatly helped in measuring the hidden variable, according to the investigation.

b. The results of the validity test of the patient loyalty construct (OK)

Three indicators are used as observable variables to measure the patient loyalty instrument, which has ten items distributed among it. Indicator 1 has four items, indicator 2 has three items, and indicator 3 has three items. The test results summary is displayed in the table below:

Table 3
*Summary of KMO Test and Bartlett Test*

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .860 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx..chi-square | 1818,458 |
| | Df | 45 |
| | Sig. | .000 |

When it came to the construct validity of the patient loyalty instrument, Bartlett's test findings showed a considerable (sig) value. Since the value falls short of 0.05 and the KMO and MSA coefficients are both larger than 0.50, we may conclude that the sample is sufficient for factor analysis with a value of 0.00. This means that the anti-image correlation may be considered while choosing variables, as its MSA value on 10 items is more than 0.50. In addition, the Maximum Likelihood method revealed that 10 items had distinct factor loads depending on their independent variables. Indicators 1, 2, and 3 all include 10 items with factor loading values of 0.4 or below, as can be seen by reviewing these ten things. Furthermore, a total of 10 components are retrieved and then rotated to assess the factor model's adequacy using the goodness of fit test. Both the significance value (0.00) and the chi-square value (588,481) are lower than the $\alpha$ (0.05) threshold, as a result of this. Every valid item is included in three indicators as an observable variable, and the study shows that it significantly influences measuring the hidden variable.

c. The results of the validity test of the service quality construct (OK)

Using five indicators as observable variables, the service quality instrument is evaluated based on its nine components. in which indication 1 has two items, indication 2 contains four items, indicator 3 contains two items, and indication 5 contains one item. A summary of the test findings is shown in the table below:

Table 4
*Summary of KMO Test and Bartlett Test*

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .844 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx..chi-square | 1577.820 |
| | Df | 36 |
| | Sig. | .000 |

The service quality measure's construct validity was examined, and the findings of Bartlett's test were found to be statistically significant. With a p-value of 0.00, which is below the significance level of 0.05, and KMO and MSA coefficients of 0.84, both more than 0.50, the sample is considered sufficient for component analysis. So, we may use the eight items' anti-image correlation values in the factor computation since their MSA value is more than 0.50. Also, following their recommendations, the Maximum Likelihood method revealed that a total of nine components exhibited appropriate factor loading. Refers to this analysis of the nine items, factor loading values more than or equal to 0.4 were found for indicators 1, 2, 3, and 4. Next, nine components are extracted and rotated again using the goodness of fit test to see whether the factor model is sufficient. These outcomes fall below the α (0.05) requirement, since they provide a chi-square value of 471.441 and a significance value of 0.00.All relevant elements are incorporated in five indicators as visible variables and have greatly helped in measuring the hidden variable, according to the investigation.

d. The outcomes of the validity test of the patient satisfaction instrument construct (OK)
The patient satisfaction instrument is evaluated using four indicators as observable variables; it has eight items distributed throughout it. There are two components in each of the first four indicators, and the first indication is no exception. A summary of the test findings is shown in the table below:

Table 5
*Summary of KMO Test and Bartlett Test*

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .833 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx..chi-square | 952,385 |
| | Df | 28 |
| | Sig. | .000 |

When it came to the construct validity of the patient satisfaction measure, Bartlett's test yielded a considerable (sig) value. Refers to the fact that the KMO and MSA coefficients are more than 0.50, and the value of 0.00 falls short of 0.05, it may be concluded that the sample is sufficient for factor analysis. Consequently, the anti-image correlation data on seven items has an MSA value more than 0.50, which might be considered for component determination. Furthermore, eight out of ten items demonstrated appropriate factor loads when using the Maximum Likelihood method, according to their recommendations. Factor loading values of 0.4 or greater were found in eight items total, all of which correspond to indicators 1, 2, 3, and 4. After that, we rotate and remove the eight components to determine whether the factor model is acceptable using the goodness of fit test. The outcomes show that the chi-square value is 232.082 and the significance value is 0.00, both of which fall short of the α (0.05) threshold.

All relevant items are incorporated in four indicators as observable variables, and the analysis shows that they have much helped in measuring the hidden variable.

e. Reliability test (OK)
The Cronbach alpha formula was employed to conduct the reliability test on each instrument in this study with the assistance of the SPSS 20 program. The reliability

requirements of an instrument are satisfied when the reliability coefficient value, as determined by the calculation outcomes exceeds 0.70 (Azwar, 2019). The reliability test findings for each instrument in this study are summarized below:

Table 6
*Reability Test Summary*

| Instrument | Reliability Value | Description |
|---|---|---|
| Health worker performance | 0,95 | Reliable |
| loyalty | 0,96 | Reliable |
| Service quality | 0,95 | Reliable |
| Satisfaction | 0,93 | Reliable |

Refers to the table above, the reliability coefficient value of the health worker performance instrument is 0.95, the loyalty instrument is 0.96, the service quality instrument is 0.95, and the satisfaction instrument is 0.93, which the four instrument reliability values are greater than.

**Research Results**

In answering the problem formulation and achieving the objectives of this study, inferential analysis techniques are used, namely path analysis using the help of the spss version 20 program. The following is a summary of the analysis outcomes and path diagrams in this study :
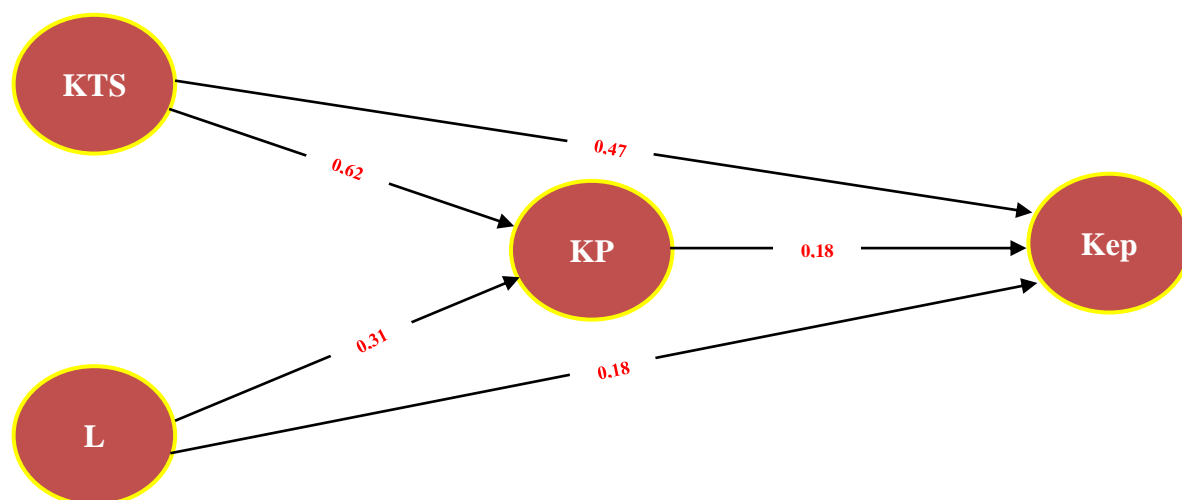
Table 7
*Summary of Analysis Results (OK)*

| Independent variable | Dependent variable | Intervening variable | Direct effect value | Sig-P | Indirect effect value | Total value |
|---|---|---|---|---|---|---|
| Kindergarten Performance | Qualification. servant | | 0,62 | 0,00 | | 0,62 |
| Loyalty | Qualification. servant | | 0,31 | 0,00 | | 0,31 |
| Kindergarten Performance | Satisfaction | Qualification. servant | 0,47 | 0,00 | 0,62*0,31=0,19 | 0,47+0,19=0,66 |
| Loyalty | Satisfaction | Qualification. servant | 0,18 | 0,03 | 0,31*0,31=0,09 | 0,18+0,09=0,27 |
| Qualification. servant | Satisfaction | | 0,31 | 0,00 | | 0,31 |

Figure 2.
*Path Diagram*

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a.  The effect of health worker performance on service quality for BPJS patients at Tamalate Health Center, Makassar City. (OK)

    Refers to the table above, it shows that the direct effect of the health worker performance variable on service quality has a coefficient value of 0.62 (positive), it can be interpreted that the performance of health workers has a positive effect on service quality, it can also be interpreted that for an increase in the value of the health worker performance variable will be followed by an increase in service quality value. Then the p-sig significance value of $0.00 < \alpha$ (0.05) is obtained which indicates that the Nol Hypothesis (Ho) in this test is rejected and the working hypothesis (H1) is accepted, so It may be said that there is a direct effect of health worker performance on service quality for BPJS patients at Tamalate Health Center, Makassar City. and significant.

b.  The effect of loyalty on service quality for BPJS patients at the Tamalate Health Center in Makassar City. (OK)

    According to the data in the table, customer loyalty positively affects service quality, and vice versa; boosting the loyalty variable also boosts service quality. The loyalty variable has a positive direct influence on service quality with a coefficient value of 0.31. The investigation rejects the null hypothesis (Ho) and accepts the working hypothesis (H2) since the p-sig significance value falls short of $\alpha$ (0.05). So, it's safe to say that the loyalty of BPJS patients at Makassar City's Tamalate Health Center has a direct bearing on the quality of treatment they get. critical and paramount.

c.  The effect of health worker performance on BPJS patient satisfaction at Tamalate Health Center Makassar City. (OK)

    Refers to the table above, it shows that the direct effect of the health worker performance variable on patient satisfaction has a coefficient value of 0.47 (positive), it can be interpreted that the performance of health workers has a positive effect on patient satisfaction, it can also be interpreted that for an increase in the value of the health worker performance variable, it will be followed by an increase in patient satisfaction value. The p-sig significance value of $0.00 < \alpha$ (0.05) indicates that Ho is rejected and the working hypothesis (H3) is accepted in this test. Thus, it is evident that the performance of health workers at Tamalate Health Center, Makassar City, has a direct and substantial impact on the happiness of BPJS patients.

d.  The effect of loyalty on BPJS patient satisfaction at Tamalate Health Center, Makassar City. (OK)

    Refers to the table above, it shows that the direct effect of the loyalty variable on patient satisfaction has a coefficient value of 0.18 (positive), it can be interpreted that loyalty has a positive effect on patient satisfaction, it can also be interpreted that an increase in the value of the loyalty variable will be followed by an increase in patient satisfaction. Then the p-sig significance value of $0.00 < \alpha$ (0.03) is obtained, which indicates that Ho in this study is rejected and the working hypothesis (H4) is accepted, so It may be said that there

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is a direct effect of loyalty on BPJS patient satisfaction at Tamalate Health Center, Makassar City and significant.

e. The effect of service quality on BPJS patient satisfaction at Tamalate Health Center Makassar City. (OK)

With a direct influence of the service quality variable having a coefficient value of 0.18 (positive), the preceding table suggests that patient satisfaction is positively correlated with service quality. A correlation between the value of the service quality variable and an increase in patient satisfaction is also possible. The p-sig significance value of $0.00 < \alpha$ (0.05) indicates that Ho is rejected and the working hypothesis (H5) is accepted in this investigation. Thus, it is evident that the happiness of BPJS patients at Tamalate Health Center Makassar City is directly and significantly correlated with the quality of treatment they get.

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f.   The effect of health worker performance on satisfaction through the quality of service of BPJS patients at Tamalate Health Center, Makassar City. (OK)

Refers to the table above, it shows the variable effect of health worker performance on satisfaction through service quality which shows a coefficient value of 0.19 (positive) which is the value of indirect influence, so it can be interpreted that there is an influence of the health worker performance variable on satisfaction mediated by positive service quality, or it can also be interpreted that service quality as an intervening variable strengthens the effect of health worker performance on patient satisfaction. then obtained a p-sig sobel value of $0.00 < \alpha$ (0.05) or with a Z value of 3.44> Z table (1.96) so that it shows that Ho in this test is rejected and the alternative Hypothesis (H6) is accepted, so It may be said that there is an indirect effect of health worker performance on satisfaction through service quality on BPJS patients at the Tamalate Medical Center, Makassar City. It can also be stated that the service quality variable is significant and real in mediating the effect of health worker performance on patient satisfaction, or service quality significantly acts as a variable that mediates the indirect effect of health worker performance on satisfaction, so one may draw the conclusion that there is an indirect effect of health worker performance on satisfaction through service quality on BPJS patients at Tamalate Medical Center, Makassar City.

g.   The effect of loyalty on satisfaction through the quality of service of BPJS patients at Tamalate Health Center, Makassar City. (OK)

Refers to the table above, it shows the effect of the loyalty variable on satisfaction through service quality which shows a coefficient value of 0.09 (positive) which is the value of indirect influence, so that it can be interpreted that there is an influence of the loyalty variable on satisfaction mediated by positive service quality, or it can also be interpreted that service quality as an intervening variable strengthens the effect of loyalty on patient satisfaction. then obtained a significance value of p-sig sobel $0.00 < \alpha$ (0.05) or with a Z value of 2.65> Z table (1.96) so that it shows that Ho in this test is rejected and the alternative Hypothesis (H7) is accepted, so It may be said that there is an indirect effect of loyalty on satisfaction through service quality on BPJS patients at the Tamalate Health Center in Makassar City. It can also be stated that the service quality variable is significant and real in mediating the effect of loyalty on patient satisfaction, or service quality significantly acts as a variable that mediates the indirect effect of loyalty on patient satisfaction, so one may draw the conclusion that there is an indirect effect of loyalty on satisfaction through service quality on BPJS patients at the Tamalate City Makassar Health Center.

**Discussion**

Patient loyalty affects patient satisfaction through service quality. Loyal patients have high expectations, and good service quality helps meet or exceed those expectations, which in turn increases patient satisfaction. Therefore, improving service quality is the key to maintaining patient loyalty and satisfaction. (Widodo & Prayoga, 2022).

The performance of health workers directly affects the quality of care provided to patients, which in turn impacts the level of patient satisfaction. Improvements in the competencies, attitudes, and work ethics of health workers will improve the quality of care, which will enhance patient experience and satisfaction.(Ananda et al., 2023).

Patient satisfaction is an important factor in shaping loyalty. When patients are satisfied

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with the service they receive, they are more likely to return to use the same service in the future. Satisfaction can also influence patient behavior in recommending the service to others. (Ridwan & Saftarina, 2015). Satisfied patients tend to be loyal customers and can increase their loyalty to health care brands or institutions.

The assumption that there is an effect of health worker performance and loyalty on patient satisfaction through service quality as an intervening variable for BPJS patients at the Tamalate Health Center, Makassar City is proven in this study.

## 4. Conclusion

Refers to the analysis conducted, one may draw the conclusion 1) There is a direct influence on the performance of health workers on the quality of service for BPJS patients at the Tamalate Health Center in Makassar City. 2) There is a direct influence of loyalty on service quality for BPJS patients at the Tamalate Health Center in Makassar City. 3) There is a direct effect of health worker performance on BPJS patient satisfaction at Tamalate Health Center, Makassar City. 4) There is a direct effect of loyalty on BPJS patient satisfaction at the Tamalate Health Center in Makassar City. 5) There is a direct effect of service quality on BPJS patient satisfaction at Tamalate Health Center, Makassar City.  6) There is an indirect effect of health worker performance on satisfaction through service quality for BPJS patients at the Tamalate Health Center, Makassar City. 7) There is an indirect effect of loyalty on satisfaction through service quality for BPJS patients at Tamalate Health Center, Makassar City.

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