JOURNAL MEDICAL INFORMATICS TECHNOLOGY
medinftech.org ISSN 2988-7003 (online)

Analysis of Service Quality on User Satisfaction in BPJS Kesehatan Website

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ARTICLE HISTORY
Received: 15 July 24
Final Revision: 28 September 24
Accepted: 16 October 24
Online Publication: 31 December 24

KEYWORDS
Healthcare Organizations, Regression Analysis, Service Quality, User Satisfaction, Website

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DOI
10.37034/medinftech.v2i4.56

A B S T R A C T

BPJS Kesehatan plays a vital role in providing health insurance to millions of Indonesians, making it essential to assess the quality of service on their website to ensure efficient and accessible healthcare delivery. This study evaluates of service quality on user satisfaction with the BPJS Kesehatan website by analyzing 10 hypotheses related to information quality, system usability, and service effectiveness. The research employed a quantitative approach, utilizing a structured questionnaire and regression analysis with data from 32 respondents. Significant findings include a strong positive effect of service quality on system use ($\beta = 0.928$, $p = 0.002$) and a notable impact of system use on net benefits ($\beta = 0.337$, $p = 0.014$). The model's high R^2 value of 0.796 indicates that nearly 80% of the variance in net benefits is explained by the predictors, demonstrating that improved service quality and increased system use substantially enhance user satisfaction and perceived benefits. These results underscore the importance of focusing on service quality and user engagement to optimize outcomes from the BPJS Kesehatan website.

1. Introduction

Healthcare organizations increasingly rely on data driven approaches to enhance decision making processes and improve services delivery. In this context, understanding the factors that influence user satisfaction and operational efficiency through web platforms such as the BPJS Kesehatan website is crucial [1]. BPJS Kesehatan, Indonesia's national health insurance agency, is vital in providing healthcare services to millions, and its website is the focus of this study because it serves as a critical interface for users to access essential health information and services, making its effectiveness and user satisfaction crucial for public health outcomes.

This study focuses on exploring these relationships using a structured questionnaire and regression analysis, aiming to provide insights into how information quality, system usability, and service effectiveness impact user satisfaction and net benefits.

The BPJS Kesehatan website serves as a critical information hub for healthcare services in Indonesia, offering a range of functionalities from basic information dissemination to interactive user services [2]. Ensuring that this platform meets user needs and expectations is pivotal for enhancing its utility and effectiveness in delivering healthcare-related information and services efficiently. Therefore, examining the quality of information provided, the usability of the website, and the effectiveness of customer service becomes imperative to gauge user satisfaction accurately [3].

In this study, the DeLone and McLean Information Systems Success Model is applied to evaluate how service quality impacts user satisfaction with the BPJS Kesehatan website. The DeLone and McLean Model is a model that is used to measure the success of an information system according to the user's views [4]. The model serves as a comprehensive framework for assessing the success of information systems by examining key dimensions such as system quality, information quality, and service quality, which are crucial in determining user satisfaction [5]. Specifically, this study focuses on the service quality dimension encompassing aspects like responsiveness, reliability, and support provided to users and its direct influence on how satisfied users are with their experience on the BPJS Kesehatan website. By

leveraging the DeLone and McLean model, the research aims to provide actionable insights into improving the website's service quality to enhance overall user satisfaction and the perceived benefits of the platform.

Methodologically, this study employs a quantitative approach utilizing a structured questionnaire designed to capture perceptions and experiences of website users [6]. The questionnaire includes items that assess different facets of information quality, system usability, service quality, user satisfaction, and perceived net benefits [7]. Data collected from respondents will be analyzed using statistical techniques such as regression analysis in SPSS to test hypothesized relationships and validate the proposed theoretical models [8].

The objectives of this research are twofold. Firstly, to assess the impact of information quality, system usability, and service effectiveness on user satisfaction with the BPJS Kesehatan website and secondly, to explore how user satisfaction translates into perceived net benefits such as improved efficiency and better decision making in healthcare related tasks [9]. By achieving these objectives, this study aims to contribute empirical evidence that informs strategies for optimizing web-based healthcare platforms to better serve user needs and enhance overall healthcare delivery efficiency.

The findings of this research are expected to provide actionable insights for healthcare policymakers, website developers, and service providers to improve the design, functionality, and service delivery of web-based healthcare platforms. Ultimately, enhancing user satisfaction and maximizing net benefits through improved information dissemination and service efficiency can potentially lead to better health outcomes and increased user engagement with healthcare services in Indonesia.

2. Research Method

This study aims to analyze user satisfaction with the BPJS Kesehatan website by testing 10 hypotheses. The research methodology will include the research design, population and sample, research instruments, data collection procedures, and data analysis methods. BPJS Kesehatan is Indonesia's national health insurance provider, serving a vast and diverse population with a critical need for accessible healthcare services. The website is a primary touchpoint for users seeking information and services, making it crucial to evaluate its quality to ensure it meets the needs of its millions of users efficiently and effectively.

This study uses a quantitative approach with a survey method. The research design employed is explanatory research to test the causal relationships between independent and dependent variables [10].

Population in this study consists of all users of the BPJS Kesehatan website in Indonesia. The research sample is selected using purposive sampling technique, with inclusion criteria being users who have used the BPJS Kesehatan website at least twice in the past three months. The target sample size is 32 respondents to ensure the validity and reliability of the study results.

The selection of 32 respondents aligns with current guidelines recommending a minimum of 30 participants to achieve statistically valid and reliable results in quantitative research. This sample size allows for the use of parametric tests and enhances the accuracy and generalizability of the findings [11].

The research instrument used is a questionnaire designed based on the DeLone and McLean Information Systems Success Model. The DeLone and McLean Information Systems Success Model was chosen over other evaluation models because it offers a well-established, holistic approach to evaluating both technical and user-centric aspects of information systems, making it particularly suitable for assessing the multifaceted performance of the BPJS Kesehatan website [12]. The DeLone and McLean model is a widely recognized framework for evaluating information system success, making it ideal for assessing the effectiveness of the BPJS Kesehatan website. By examining factors such as system quality, information quality, and user satisfaction, the model provides a comprehensive approach to understanding the overall performance and impact of the website [13]. The questionnaire consists of several sections, which are summarized in Table 1**.** This table outlines the variables measured, along with their respective explanations:

Table 1. The Research Instrument

No.	Variables	Explanation
1	Information Quality (IQ)	Measures the quality of information provided by the website.
2	System Quality (SQ)	Measures the efficiency and technical performance of the website.
3	Service Quality (ServQ)	Measures the quality of support and services provided
4	User Satisfaction (US)	Measures the frequency and intensity of website usage.
5	System Use (SU)	Measures the frequency and intensity of website usage.
6	Net Benefits (NB)	Measures the benefits perceived by users after using the website

The research instrument can be divided into 10 hypotheses because each component affects different dimensions of user interaction with the system. By segmenting these influences into separate hypotheses, the study can thoroughly evaluate how each quality element impacts the final outcomes of the user experience, as well as identify significant relationships between these variables to provide a more comprehensive understanding of the factors influencing the effectiveness and benefits of the system [14]. These hypotheses are detailed in Table 2:

Table 2. The Research Hypotheses

Hypotheses ID	Explanation
H1	There is a significant effect of information quality (IQ) on system use (SU).
H2	There is a significant effect of information quality (IQ) on user satisfaction (US).
H3	There is a significant effect of system quality (SQ) on system use (SU).
H4	There is a significant effect of system quality (SQ) on user satisfaction (US).
H5	There is a significant effect of service quality (ServQ) on system use (SU).
H6	There is a significant effect of service quality (ServQ) on user satisfaction (US).
H7	There is a significant effect of system use (SU) on user satisfaction (US).
H8	There is a significant effect of system use (SU) on net benefits (NB).
H9	There is a significant effect of user satisfaction (US) on net benefits (NB).
H10	There is a significant effect of system use (SU) on net benefits (NB).

Data collection is conducted online through the distribution of questionnaires using digital survey platforms. The questionnaires will be disseminated via social media, email, and BPJS Kesehatan user forums to reach the target sample. Respondents will be provided with a brief explanation of the research objectives and assurance of data confidentiality.

There are 20 questionnaires, with each hypothesis containing one unique questionnaire, except for Q3, which is included in H1, H5, and H8; Q13, which is included in H3 and H7; Q14, which is included in H2 and H7; and Q15, which is included in H4 and H9. This ensures comprehensive coverage and validation across all hypotheses while maintaining relevance and specificity for each hypothesis tested [14]. These questionnaires and their mapping to hypotheses are shown in Table 3**:**

Table 3. Questionnaire (Q)

Hypotheses ID	Q ID	Questionnaire
H1	Q1	The information provided by the BPJS Kesehatan website is accurate.
H1	Q3	The information provided by the BPJS Kesehatan website is relevant to my needs.
H1	Q12	I frequently use the BPJS Kesehatan website.
H2	Q2	The information provided by the BPJS Kesehatan website is complete.
H2	Q4	The information on the BPJS Kesehatan website is easy to understand.
H2	Q14	I agree with the experience of using the BPJS Kesehatan website.
H3	Q5	The BPJS Kesehatan website is easy to use.
H3	Q6	The BPJS Kesehatan website functions well without many interruptions.
H3	Q13	I routinely use the main features of the BPJS Kesehatan website.
H4	Q7	The BPJS Kesehatan website has an attractive appearance.
H4	Q8	The BPJS Kesehatan website loads pages quickly.
H4	Q15	The BPJS Kesehatan website meets my expectations.
H5	Q9	The technical support or customer service of BPJS Kesehatan quickly responds to issues.
H5	Q11	I feel helped by the BPJS Kesehatan customer service.
H5	Q12	I frequently use the BPJS Kesehatan website.
H6	Q10	The technical support or customer service of BPJS Kesehatan provides effective solutions.
H6	Q16	I feel comfortable using the BPJS Kesehatan website.
H6	Q18	The BPJS Kesehatan website helps me make better health decisions.
H7	Q13	I routinely use the main features of the BPJS Kesehatan website.
H7	Q14	I agree with the experience of using the BPJS Kesehatan website.
H8	Q12	I frequently use the BPJS Kesehatan website.
H8	Q17	The BPJS Kesehatan website helps improve my work efficiency.
H9	Q15	The BPJS Kesehatan website meets my expectations.
H9	Q19	I feel a positive impact from using the BPJS Kesehatan website.
H10	Q20	The BPJS Kesehatan website helps me save time in accessing health information.

Each variable is measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree) [15].

This research methodology integrates a quantitative approach with statistical analysis using SPSS software. The data collected consists of survey results from 32 respondents who use the BPJS Kesehatan website. Each respondent completed questionnaires designed to measure variables related to the research hypotheses.

Firstly, validity testing was conducted to evaluate each question in the questionnaire using significance values (p-values). Questions were considered valid if their p-value was less than 0.05, indicating significant correlation with the measured variables [16]. Subsequently, reliability testing was performed by calculating Cronbach's Alpha to measure the overall internal consistency of the questionnaire. The questionnaire was deemed reliable if Cronbach's Alpha exceeded 0.700 [17].

Regression analysis was conducted to identify the relationships between predictor variables (T1 to T8) and the dependent variable (T9). The variable T1-T9 represents the total score of each questionnaire based on hypotheses consisting of multiple questions. This regression analysis helped to understand the strength of the relationship between predictor variables and the dependent variable within the context of the study. Finally, an F-test using ANOVA was employed to test the overall significance of the regression model. The regression model was considered significant if its p-value was less than 0.05, indicating that at least one of the predictor variables significantly influenced the

dependent variable [18]. T-tests were also conducted to evaluate the significance of each predictor variable individually in the regression model [19]. This methodology was designed to provide a comprehensive understanding of the factors influencing user satisfaction and net benefits from using the BPJS Kesehatan website.

This methodology, it is expected that the research can provide a clear picture of the factors affecting user satisfaction with the BPJS Kesehatan website and offer recommendations for further improvements. The results of this study can also contribute to the literature on evaluating health information systems in Indonesia.

3. Result and Discussion

The research by Deu et al., the study investigated the impact of service quality on public satisfaction among BPJS healthcare users at Kabila Public Health Center, revealing that service quality has a positive influence on user satisfaction, with an R Square value of 0.630 indicating that 63% of satisfaction can be attributed to service quality improvements. The research, which involved 50 respondents and utilized quantitative methods, concluded that while service quality is a significant factor, the remaining 37% of satisfaction is influenced by other variables such as awareness, regulation, organization, income, skill and ability, and service facilities. Overall, the findings emphasize the importance of enhancing service quality to improve public satisfaction among BPJS users, while also acknowledging the role of additional factors in this relationship [20].

In this study, total number of respondents in this study is 32, representing a significant sample size for conducting statistical analyses. The validation tests performed in SPSS are crucial to ensure the reliability and accuracy of the collected data. These tests assess various aspects such as the consistency of responses, the appropriateness of measurement scales, and the absence of systematic errors in data entry or processing. By validating the data through SPSS, we verify that our findings are based on sound and reliable information, enhancing the credibility and robustness of our research outcomes. This rigorous validation process helps to minimize biases and errors, thereby providing a solid foundation for drawing meaningful conclusions and insights from the study.

Table 4. Validity

	Q1	Q2	-	Q20
Signification	<0.01	<0.01	-	<0.01

If the significance (p-value) is less than 0.05, then the data is considered valid. In our study, the significance values for questions Q1 through Q20 were all below 0.05. This indicates that all data points are valid, which allows us to proceed with the reliability test. Since the significance values are consistently below the threshold, we can be confident in the accuracy and validity of our data. This foundational validity ensures that subsequent reliability testing will yield meaningful and trustworthy results, providing a robust basis for our analysis.

Table 5. Case Processing Summary

Cases	N	%
Valid	32	100.0
Excluded	0	0.0
Total	32	100.0

The Case Processing Summary in SPSS, as shown in Table 5, reveals that all 32 respondents in the study were successfully processed, representing 100% of the total sample. There were no cases excluded from the analysis, highlighting the completeness and integrity of our dataset. This comprehensive inclusion of all respondents ensures that our statistical analyses are based on a representative sample, maximizing the reliability and generalizability of our findings. The absence of excluded cases also underscores the careful attention given to data collection and management, reinforcing the validity and robustness of our research methodology. These factors collectively contribute to the credibility and trustworthiness of our study's outcomes and interpretations.

The Reliability Statistics, as presented in Table 6, demonstrate the reliability of the survey instrument used in this study.

Table 6. Reliability Statistics

Cronbach's Alpha	N of Items
.940	20

A Cronbach's Alpha value exceeding 0.700 indicates reliability [25]. In the context of this study, our Cronbach's Alpha coefficient measures at 0.940, indicating a high level of internal consistency among the survey items. This reliability coefficient suggests that the items in our questionnaire are closely related and consistently measure the constructs they intend to assess. A Cronbach's Alpha of 0.940 signifies strong reliability, affirming that our research instruments are dependable for measuring the variables under investigation. This high level of internal consistency enhances the confidence in our study's findings and supports the validity of our research outcomes.

The ANOVA results, as shown in Table 7, provide the significance of the regression model used in this study.

Table 7. ANOVA (F-TEST)

Model	Sum of Square	Df	Maen Square	F	Sig.
Regression	55.309	9	6.145	9.548	<.001
Residual	14.159	22	.644		
Total	69.469	31			

The ANOVA table provides the results of the F-test, which assesses the overall significance of the

regression model [21]. Predictor (constant) is H1, H2, H3, H4, H5, H7, H8, H9, H10 and dependent variable is H6. The regression sum of squares (55.309) represents the variation explained by the model, while the residual sum of squares (14.159) indicates the variation unexplained by the model. With 9 degrees of freedom (df) for the regression and 22 for the residual, the mean square for the regression (6.145) is substantially higher than the mean square for the residual (0.644). The F-value of 9.548, with a significance level (Sig.) of <0.001, is well below the 0.05 threshold, indicating that the regression model is statistically significant. This means that the combined effect of the predictors (H1, H2, H3, H4, H5, H7, H8, H9, H10) significantly explains the variability in the dependent variable (H9), confirming that the model provides a good fit for the data.

The detailed results of the multiple regression analysis are summarized in Table 8.

Table 8. Coefficients (T-Test).

Model	Unstandardized Coefficients		Std. Coefficients	t	Sig
	B	Beta	Beta		
(Constant)	.225	1.245		.181	.858
H1	-.221	.215	-.280	-1.030	.313
H2	.132	.184	.153	.716	.482
H3	.193	.209	.220	.925	.365
H4	.202	.218	.236	.927	.364
H5	.836	.236	.928	3.540	.002
H7	-.352	.324	-.309	-1.080	.289
H8	-.466	.289	-.461	-1.610	.122
H9	.127	.238	.091	.534	.599
H10	.858	.321	.337	2.677	.014

The table presents the results of a multiple regression analysis, showing the unstandardized coefficients (B), standardized coefficients (Beta), t-values, and significance (Sig) for each hypothesis (H1 to H10). The constant value of .225 with a t-value of 1.245 and a significance level of .858 indicates that the constant term is not statistically significant, meaning it does not contribute much to the model when all predictor variables are zero. Each hypothesis is evaluated to determine the effect of different quality dimensions and user interactions on various outcomes.

For H1, the coefficient B is -.221 with a Beta of -.280, and the t-value is -1.03 with a significance level of .313. This suggests that information quality (IQ) has a negative but not statistically significant impact on system use (SU), implying that improvements in information quality do not significantly affect how users utilize the system. Similarly, H2 with a coefficient B of .132, Beta of .153, t-value of .716, and a significance of .482 shows that information quality (IQ) has a positive but not statistically significant impact on user satisfaction (US). H3 and H4 also show non-significant results with positive impacts from system quality (SQ) on system use (SU) and user satisfaction (US), respectively, indicating that these relationships are not strong enough to be considered statistically significant.

However, significant results are seen in H5 and H10. For H5, the coefficient B is .836 with a Beta of .928, a t-value of 3.54, and a significance level of .002, indicating a strong positive and statistically significant impact of service quality (ServQ) on system use (SU). This suggests that improvements in service quality greatly enhance how users interact with the system. Similarly, H10 shows a significant positive impact of system use (SU) on net benefits (NB), with a coefficient B of .858, Beta of .337, t-value of 2.677, and a significance level of .014. This indicates that increased system use leads to greater perceived benefits, emphasizing the importance of system engagement for achieving net benefits. Other hypotheses, such as H7, H8, and H9, do not show significant results, suggesting these relationships require further investigation or may be influenced by other factors not captured in the model.

Finally, the overall model's fit statistics are presented in Table 9.

Table 9. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	D-W
.892	.796	.713	.802	1.975

The table presents the overall model fit statistics for the multiple regression analysis. The value of R is .892, which indicates a very high correlation between the observed and predicted values of the dependent variable. This high R value suggests that the model explains a large portion of the variability in the dependent variable, demonstrating that the predictors collectively have a strong relationship with the outcome being measured.

R Square (R^2) is .796, which means that approximately 79.6% of the variance in the dependent variable can be explained by the independent variables included in the model. This high R^2 value indicates that the model is very effective in capturing the variation in the outcome variable, suggesting that the predictors are good at explaining the differences in the dependent variable.

The Adjusted R Square value is .713, slightly lower than the R^2 value. Adjusted R^2 adjusts the R^2 value based on the number of predictors in the model and the sample size, providing a more accurate measure of model fit by penalizing for the inclusion of non-significant predictors. An Adjusted R^2 of .713 still indicates that a substantial proportion (71.3%) of the variance in the dependent variable is explained by the model, confirming the model's robustness and the relevance of the included predictors.

The standard error of the estimate is .802, which reflects the average distance that the observed values fall from the regression line. A lower standard error

indicates that the observed values are closer to the predicted values, suggesting that the model's predictions are fairly accurate. In this case, a standard error of .802 suggests that while the predictions are generally accurate, there is still some variability in the data that is not captured by the model.

Finally, the Durbin-Watson (D-W) statistic is 1.975, which is close to the ideal value of 2. The D-W statistic tests for the presence of autocorrelation in the residuals of the regression model. A value around 2 indicates that there is no significant autocorrelation, meaning the residuals are independent of each other. This suggests that the model assumptions are met and that the regression results are reliable without the residuals showing a pattern over time or across observations.

The high R and R^2 values indicate that the model explains a significant portion of the variance in the dependent variable. The Adjusted R^2 confirms the model's effectiveness even after adjusting for the number of predictors. The standard error indicates reasonable accuracy in the model's predictions, and the D-W statistic supports the reliability of the results by confirming the absence of autocorrelation in the residuals. Overall, these statistics suggest that the regression model is well-fitted and provides a reliable explanation of the relationships between the independent and dependent variables.

In comparing the four studies, all focus on evaluating user satisfaction with health information systems, but differ in their approaches and contexts. Rumana et al. (2021) analyzed the ePuskesmas system using the End User Computing Satisfaction (EUCS) model and the DeLone & McLean model, focusing on features like accuracy and ease of use [22]. Despite system issues like synchronization problems and slow responses, they found moderate user satisfaction, with three hypotheses accepted [22]. Muhammad and Arief (2020) applied the DeLone & McLean model to assess the hospital information system at RS XYZ, discovering that factors such as information quality and system use significantly affect user satisfaction [23]. Organizational factors also played a crucial role in perceived benefits, offering actionable insights for system improvement [23]. Abrori, Darmawan and Muhsi (2023) compared EUCS and MS-Qual methods in evaluating a system, revealing that content and ease of use significantly impact user satisfaction under EUCS, while efficiency and system availability were prominent under MS-Qual. The research highlighted differences in satisfaction drivers across methodologies [24]. Lastly, your study on BPJS Kesehatan focused on service quality, showing a strong positive relationship between service quality, system use, and net benefits. With a high R^2 value, the findings emphasized the importance of service quality and user engagement for optimal system outcomes. Together, these papers illustrate varied applications of user satisfaction models across health information systems, each contributing unique insights on factors like system usability, information quality, and service effectiveness.

The factors influencing certain hypotheses did not show significant results, possibly due to variations in individual user experiences and external factors like familiarity with the BPJS Kesehatan website or differing expectations. Additionally, unmeasured variables, such as demographic differences or prior satisfaction levels, may have affected the outcomes, indicating a need for further research.

4. Conclusion

Based on the analysis conducted, several key conclusions can be drawn from the findings of this study. The significance values for all questionnaire items were below 0.05, indicating valid data. The Cronbach's Alpha value of 0.940 demonstrates high reliability and internal consistency among the survey items. These rigorous validation and reliability tests enhance the credibility of the research findings.

Regression analysis revealed significant relationships between certain predictor variables and the dependent variable. Specifically, Service Quality (H5) significantly impacted System Use, and System Use (H10) significantly impacted Net Benefits. These findings indicate that improvements in service quality can greatly enhance user interaction with the system, and increased system use leads to greater perceived benefits. Other hypotheses, such as the impact of Information Quality and System Quality on User Satisfaction and System Use, showed non-significant results, suggesting the need for further investigation.

The ANOVA test confirmed the overall significance of the regression model, with a p-value of less than 0.001, indicating that the combined effect of the predictors significantly explains the variability in the dependent variable. The model summary statistics further support the robustness of the regression model, with an R^2 value of 0.796, indicating that 79.6% of the variance in the dependent variable is explained by the model. The adjusted R^2 of 0.713 and the Durbin-Watson statistic of 1.975 suggest that the model is well-fitted and reliable.

Based on the findings of this study, BPJS Kesehatan website developers should prioritize enhancing service quality (ServQ) as it significantly impacts system use (SU) and user satisfaction (US). Specific steps include improving the responsiveness and accessibility of online services, such as optimizing page load times, ensuring the site is mobile-friendly, and offering real time customer support. Developers should also focus on enhancing the user interface to be more intuitive and user-centered, making it easier for users to navigate and access key services. Additionally, regular updates based on user feedback can address potential pain points, ensuring that improvements align with user

expectations and drive better system engagement, leading to greater perceived benefits.

In conclusion, this study provides valuable insights into the factors affecting user satisfaction with the BPJS Kesehatan website. The significant impact of Service Quality on System Use and the importance of System Use in achieving Net Benefits highlight key areas for improvement. These findings can inform recommendations for enhancing the effectiveness of the BPJS Kesehatan website and contribute to the broader literature on evaluating health information systems in Indonesia.

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