

## ORIGINAL ARTICLE

# Evaluation of Undata Public Hospital Service Quality and Performance Using SERVQUAL Method: Post Multi Disaster (Earthquake, Tsunami, and Liquefaction) in Palu, Central Sulawesi, Indonesia

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## ABSTRACT

**Introduction:** Hospital as health care provider must be prepared to manage health services including disasters. The objective of this research was to investigate the quality of service and performance of Undata Public Hospital (UPH), as the center of referral hospital in Central Sulawesi especially after multiple disasters that simultaneously include the earthquake, tsunami and liquefaction on September 28th, 2018. **Method:** This research used an explanatory research design, to test the causal relationship between service quality variables and hospital performance values on patients' satisfaction using the SERVQUAL method in order to find out the gap between the service expected by the customer and the service during the visit. Total sample was 148 inpatients. The sampling was performed using non-probability sampling, accidentally sampling. **Result:** This study found that the results of the T-test in the multiple linear regression recapitulation table showed tcount value of 6.396 and 4.776 >  $t_{table}$  (1.97635). The significance level obtained was smaller than the significance level of 5% ( $p=0.000 < 0.05$ ). Next, t-test results in the recapitulation of multiple linear regression showed that the value of  $f_{count}$  was 97.914 >  $f_{table}$ , which was 3.06 with a significance level smaller than the significance level ( $p < 0.05$ ). **Conclusion:** The overall patients' satisfaction in Undata Public Hospital was still low since there was a negative value in each dimension. The quality of hospital service and performance simultaneously and partially affect the customers' satisfaction positively and significantly, thus the quality of hospital service and performance must be constantly improved.

**Keywords:** Hospital Performance, Multi Disaster, Patients' Satisfaction, Service Quality

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## INTRODUCTION

In the recent century, organization put their customers as their main strategy pillar in order to achieve successfulness. The essential concept of quality is not only for manufacturing organizations but also for service organizations (1). Now, it is quite known that the service quality is tightly and significantly related to the customers' satisfaction (2), customers' loyalty (3-4), budget (5-6), productivity (7), and economic presentation of the organization (8). Health sector is one of the service industries that grows fast and highly throughout the world. In the health industry, attention to patients is the

focal point of service quality. Hospital as the health care provider is also required to be alert in managing services during the disaster mitigation process, starting from pre-disaster, emergency response, and post-disaster. The main factor in making decision of choosing health care provider is through the patients' satisfaction. In order to achieve the patients' satisfaction, the perceived service must be in line with the customers' expectation during their visit (9). SERVQUAL is a scale designed by Parasuraman et al commonly used to determine the service quality, including the quality of hospital service (10). The community always expects that the services of hospital, owned both by government and private, can provide good and satisfying services for each user. Patients want good facilities of the hospital, hospitality of the hospital, as well as responsiveness, ability, and sincerity of the hospital's staff. Patient-centered health care refers to the therapeutic relationship between

health care providers and recipients of health services, with an emphasis on fulfilling individual patient needs to achieve patient satisfaction (11). There are many essential factors of patients' satisfaction, one of them is the quality of the perceived service. By realizing this, hospital administrators have begun to promote health service quality policies to improve the quality of health services of institutions, reduce the frequency of error due to uncareful action, and improve the efficiency of health services (12-13).

Identifying and evaluating health services are challenge for academics, practitioners, decision makers and policy makers (14). The quality of health care providers can be divided into two based on its dimension, those are technical quality and functional quality (15). The technical quality of the health care is particularly concerning what customers get from the service including the correctness of the analysis and medical technique they receive, while functional quality concerns the procedure of the service received by the customers. Technical quality in health care service is significantly related to the patients' satisfaction which is an important consideration in improving the service quality (14). However, despite its importance, most health care customers do not know how to assess the health service they received. Patients' argument is one of the forms of patients' satisfaction which is closely related to the marketing of the service. Through the perception given by the customers regarding the service they received, the hospital management can ensure the customers' satisfaction. Furthermore, their perception can also affect both the hospital and the customers themselves in which for the hospital, the customers' perception can affect the hospital's image and cost effectiveness, while for the customers, their own perception regarding the service they received can affect their loyalty and word of mouth behavior (16). The use of SERVQUAL as an instrument in determining the quality of health service facilities has been done numerously (5-6,9-10,14-15,17). To assess customer perceptions of service quality in service, the multi-item scale of SERVQUAL can be used (10). This instrument divides the definition of service quality into five categories. First, as Tangibles which are contains physical facilities, equipment, staff appearance. Second, as Reliability which means ability to perform service dependably and accurately. Third, as Responsiveness which signifies willingness to help and respond to customer need. Fourth, as Assurance which is related to the ability of staff to inspire confidence and trust. And the last as Empathy that means the extent to which caring individualized service is given. Previous studies have used SERVQUAL in the health care sector as have some experts (18-21).

This study uses the SERVQUAL model because this model has been applied in several countries to measure service quality in hospitals and health services in (for example) Romania research by (22), Turkey research

by (23), Saudi Arabia research by (24), Bangladesh research by (25). In addition, the SERVQUAL model is widely used to evaluate perceptions of service quality by medical students (7) and by patients in hospitals, primary health care centers and other health centers (26-27). The same method is also used to measure service quality in Undata Public Hospital (UPH), the after the multiple natural disasters that simultaneously include the biggest earthquake, tsunami and liquefaction on September 28th, 2018.

UPH is the largest hospital owned by the Central Sulawesi Provincial Government which also becomes a referral hospital of district/city hospital. At the same time, it also has a role to serve referrals from various hospitals and health centers in the vicinity. Other than that, UPH has a disaster management team. As a government hospital that portrays government services to the general public, UPH should be the focus of attention of patients. Surely, UPH must better prepare reliable performance and services. Competition with private hospitals and complaints is often found from patients due to the lack of optimal health services requires the UPH to carry out continuous service improvements. This research aims to investigate the quality and performance of UPH service as the highest referral hospital in Central Sulawesi province after the multiple disasters.

## MATERIALS AND METHODS

This study used an explanatory research design which was to examine the causal relationship between service quality variable and hospital performance values on customer satisfaction. The study was conducted in UPH in Palu with a research period started from April to July 2019. The inclusion criteria of patient respondents were all patients using inpatient services, adult patients with full awareness that respondents who answered the questionnaire were not under pressure or intervention in answering the research questionnaire questions, inpatients and a good way to pay independently (personally) or use insurance. The sample used was 148 inpatients obtained through non-probability sampling, particularly accidental sampling technique in which the samples chosen are those who accidentally met the researcher during the research. Therefore, the taken samples were patients who accidentally met the researchers and had the willingness to take the time to fill out the questionnaire. The questionnaire was self-managed random sampling method that in developing our research questionnaire questions we still take the basic questions from the SERVQUAL model, it's just that for sampling (respondents) we use the random sampling method. Assessment of each SERVQUAL dimension using a likert scale (5 scales). Each dimension was calculated by the mean score of the perception and expectation statements chosen by the patients. The SERVQUAL Score (Gap) was calculated by: Perception score - expectation score, then the ranking of the servqual

dimensions gap was based on SERVQUAL score values. The data were then analyzed using IBM SPSS version 20 software. This study was approved by ethical review board from Universitas Taduluko Palu, Number: 1505/UN.28.1.30/KL/2019.

## RESULTS

The hospital already has a disaster management team that has not been revised since 2017 followed by replacement of the Undata Hospital Director in 2018. There are some reasons behind this revision. Firstly, some members of the team have been relocated to a different area. Next, some members are moved to a different hospital. Moreover, some members have resigned. Finally, some team members who don't know if they're part of the hospital's disaster response team. Undata Hospital already has document forms of emergency response plan and special hazard plan. These plans, however, have not been adopted or revised in at least a year. The main reason is that the communication system hospital has not functioned due to a power cut after the natural disaster on 28th September 2018. It also caused by lacking fuel in the first week after the natural disaster that made the hospital have no written cooperation with local suppliers for delivering of medicines, emergency equipment and ambulances. In the first days after this natural disaster, the shortage of fuel which originating from outside Palu caused the hospital's operating vehicles were not working. The hospital's evacuation plan has never been simulated and it is not carried out routinely at least 1 year after being implemented (28).

Respondents in this study were classified through gender, age, occupation, education level, status, income, ethnicity, and type of insurance as shown in Table 1. Age is one of the factors that affect customer satisfaction where customers' satisfaction is a customer evaluation (29). From the table, the characteristic of respondents based on age was known to be at most above 26-45 years old by 54%, while respondents under the age of 25 years old were 19.6%. Respondents who were over the age of 25 were expected to respond based on careful consideration because of their maturity. Meanwhile, based on Leggat et al., occupation is one of the factors that affect customers' perceptions regarding the quality of health services (30). Characteristics of respondents in the study at Undata hospital based on gender were almost the same in terms of number. Gender can affect the perception of patient satisfaction with a quality of service, because it should be clear that there are differences in perspectives and responses shown by men and women in seeing a service. The characteristics of respondents in those data were dominated by the age of above 25 whose majority occupation background are traders in the traditional market and farmers with income ranging from IDR 1,000,000 to IDR 3,000,000. Most of them are *kailinese*. Kaili is a tribe who uniquely occupies Central Sulawesi Province. The majority of

**Table 1: The characteristics of respondents**

Characteristics	Classification	Total	Percentage (%)
Age (years)	≤ 25	29	19,6
	26-45	80	54,0
	≥ 46	39	26,4
Genders	Male	76	51,0
	Female	72	49,0
Education level	Elementary	31	20,9
	High School	82	55,4
	Undergraduate	33	22,3
	Postgraduate	2	1,4
Marital status	married	138	93,2
	single	10	6,8
Ethnics	Kailinese	52	35,2
	Buginese	48	32,4
	Jawanese	17	11,4
	Balinese	10	6,8
	others	21	14,2
Income (in million Rupiahs)	≤ 1	18	12,2
	1 – 3	103	69,6
	3 – 5	23	15,5
	≥ 6	4	2,7
Health insurance	SSAH (BPJS Kes)	138	93,2
	others	10	6,8

respondents were married with a high school education level and using Social Security Administrator (SSA) of Health for about 93% in total.

This shows that the community has become increasingly aware of government regulations to use SSA of health programs. The results of the calculation of SERVQUAL Value (Gap) as a whole from the difference in the level of perception and expectation showed how far the Undata Public Hospital (UPH) has provided services in accordance with its patients' expectation. The overall gap role provided information on how big the importance was and how far the role of these criteria was in providing improved service quality. The results can be seen in the Table II.

Based on the results of calculation of the gap as a whole, it shows that the negative gap value means that the patient expectation was not in accordance with those perceived by the patient of UPH. Based on the results of the overall gap calculation, it shows that the value of the gap is negative, meaning that the patient's expectations are not in accordance with the perceptions of UPH patients.

**Table II: The SERVQUAL (Gap) value between customer perceptions and expectations**

Dimension	Perceptions (Mean)	Expectations (Mean)	Gap	Rank
Tangible	3.61	4.22	-0.61	1
Responsiveness	3.68	4.18	-0.50	2
Assurance	3.80	4.25	-0.45	3
Empathy	3.79	4.24	-0.45	3
Reliability	3.86	4.23	-0.37	4

The research questionnaire questions consisted of three variables, namely Quality of service (29 questions), patient satisfaction (8 questions), and Hospital performance (8 questions). Quality of Service is assessed from 5 aspects, namely Tangible, Reliability, Responsiveness, Assurance, Emphaty. The t-test results (Table III) in the multiple linear regression recapitulation table showed the value of  $t_{count}$  of 6.396 and 4.776  $> t_{table}$ , that was 1.97635 the significance level obtained by p-value (0.000 < 0.05). So, it can be stated that the variable quality of service and performance of hospital had a significant effect on patient satisfaction at the UPH. Furthermore, based on Table III as well, the F test results in the recapitulation of multiple linear regression showed the value of  $f_{count}$  of 97.914  $> f_{table}$  was 3.06 with a significance level obtained p-value (0.000 < 0.05). Thus, it can be stated that together (simultaneously) the independent variable had a significant influence on the dependent variable.

**Table III.: The results of multiple linear regression tests of research hypothesis**

Research hypothesis	$t_{table}$	$t_{Count}$	$P_{value}$
Quality of service significantly affects patient satisfaction	1,97635	6,396	0,000
Hospital performance has significant effect on patient satisfaction		4,776	0,000
	$F_{table}$	$F_{Count}$	
The quality of service and hospital performance simultaneously has significant effect on patient satisfaction	3,06	97,914	0,000

**DISCUSSION**

The results show that overall patient satisfaction in the Undata Public Hospital (UPH) was considered as low indicated by negative values. The more negative the SERVQUAL score, the more serious the gap in the perspective of the patient. Overall customer satisfaction assessment can be seen in Table II, which compared the gap between expected services and received services/perceived by customers (service gap). The low satisfaction of customer was found in the tangible dimension: the lack of hospital cleaning, the lack number of the waiting room, and the insufficient complete and modern of health equipment. This is based on the fact that many patients were referred to outside the province, for example to Java Island because of the incomplete

medical devices owned by UPH. Moreover, UPH still did not have adequate waiting room to accommodate visitors and patients who visit the hospital. It can be proven by realizing that there are still many patients and visitors who stand, sit on the stairs, and sit in the chair alternately while waiting for their turn to be examined by doctor. This is very reasonable because UPH is the only highest hospital and final reference in the province of Central Sulawesi. The patient’s examination room is inadequate and lack of privacy, and in line with this condition, inpatient rooms are also not tranquil. This situation is triggered by many families of patients who come to look after the patients and bring their belongings to the hospital. They have to bring many things from their home because they come from outside the city and need to stay in the hospital in order to stay close with the patients. This condition is worsened by poor behavior of some of them who hang clothes around the hospital since they also stay at the hospital. In addition, pharmacy service of the UPH takes too much time for drug service queue. The responsiveness dimension is also still low as seen from the existing Gap value which is equal to -0.50. This indicates that UPH’s employees are less responsive to patient complaints, provide long administrative processes, and are not maximal in conveying information to patients. The real fact of UPH’s patients shows that it takes very long time for patients who want to seek treatment in the service section. Furthermore, in order to get the health insurance services, it also needs a long time and go through many procedures. On the other side, the UPH’s officer often cannot provide a clear information about when the doctor will come in such a way that the patient wait in uncertainty. Both empathy and assurance dimension have the same gap value, which was -0.45.

The service quality highly affected the customers’ satisfaction, as stated by Aliman Quality has a very close relationship with customers’ satisfaction, in other words quality provides an incentive for customers to undergo a strong relationship (31). Islam et al also said that the quality of service is a service that shows the level of perfection, which in one party can lead to satisfaction in each patient according to the average level of satisfaction (32). In this study, the quality of service and hospital performance had a significant effect on patient satisfaction at UPH, which means that the higher the quality of service in UPH, the higher the patient’s satisfaction with the hospital services. The result obtained by this research is in line with the similar to the research conducted by Du. By the results of the study, it was found that hospital performance had a significant effect on patient satisfaction where the employee’s performance should be improved so that patient satisfaction can be increased (33). The findings of this study are also in line with the result of the research performed by Abyaneh on the relationship between nurses’ performance and patients’ satisfaction (34). Indicators of organizational performance play a big role

in patients' satisfaction and quality of care (35). These findings are supported by the research performed by Jha and Kone resulted in the statement that the performance of the hospital affects the patients' satisfaction (36-37).

## CONCLUSION

Overall, patients' satisfaction of Undata Public Hospital (UPH), which was measured by the SERVQUAL method, gave results that customer satisfaction was still low indicated by negative values. This needs more attention from the management to improve customers' satisfaction starting from improving hospital facilities, maintaining the hospital hygiene, conditioning tranquil inpatient rooms and completing medical equipment. This is because UPH is the highest hospital and the final reference for patients in Central Sulawesi Province. Especially when there is a disaster, UPH has to be prepared for the many victims of natural disasters since Central Sulawesi Province has many natural disasters. Service quality and hospital performance simultaneously and partially have a positive and significant effect on customers' satisfaction. Therefore, the quality of service and hospital performance must be continuously improved in order to increase patients' satisfaction at UPH.

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