Improving Service Quality towards Patients Satisfaction at Stroke Hospitals in West Sumatera

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Abstract. The failure of PMK/05/2013 in evaluating service quality causes hospitals to create assessment. The assessment used to see the gap between perception and expectation and also dimensions. A research by distributing 135 questionnaires to Bukittinggi Stroke Hospital in Inpatient room level I, II, III and in Outpatient of neuro clinic and internal medicine clinic was carried out. Servqual and Customer Relationship Management (CRM) were applied for seeing the influence among the dimensions and Structural Equation Modeling (SEM) for deciding the improvement priorities. The research shows that the gap between perception and expectation are -0,701 in Inpatient and -0,638 in Outpatient which means the service hasn't fullfilled the customers' desire. The dimension of assurance toward patients' desire is 4,283 and the dimension of emphaty toward patient desire is 3,518. So, from SEM dimensions, it is identified that the most influential dimensions are empathy and assurance toward patients' desire. These caused hospitals must develop their staff skill, hospitality, and politeness. The credibility of patients, understandable information, and easy communication access are also needed to be upgraded.

Introduction

Hospitals must equip their health service with high technology, specialist doctors and health staff because of the role in the society and the effect of globalization. [1], [16]. Sevice quality is the key of customers' expectation which is prioritized to patients and patients'family in any aspects. Bukittinggi National Stroke Hospital, which provides outpatient and inpatient services has served patients of stroke, nerve desease, and patients of eye, tooth, pediactrics, and internal medicine problems. From six polyclinics there, the highest numbers of patient are 11.312 in internist polyclinic and 13.312 in neurology polyclinic which directly became the research subjects. In this hospital, BOR (Bed Occupancy Rate) is used to know the number of inpatient visitors and impatient service class I, II, and III were chosen in this research. The hospital head, Ns, Lidia S.kep, said that the guidance of hospital service quality is PMK 05/2013 which consists of finance and service indicators BOR, Emnergency Respont Time, Operation Post Death, and others. Therefore, PMK 05/2013 cannot be the indicator for improving hospital service quality. From pre -survey of Service Quality indicator, there are 60% respondents not agree with the statements and there is still less hospital service. For identifying the current service condition, reaching patients' satisfaction and motivating patients to get hospital service periodically, a research on service quality assessments in Bukittinggi National Stroke Hospital was carried out. Furthermore, this research can show dimension that most influence the CRM and can give recommendation for the hospital in improving service quality.

Review of Related Literature

Methodology of customers' satisfaction measurement. Customers' satisfaction and measurement issues have important roles in providing and maintaining a competitive advantage [2]. Kotler mentions 4 methods for measuring customers'satisfaction [7], they are as followed; (1) Complaint and Suggestion System (2) Ghost Shopping (3) Lost Customer Analysis (4) Complaint and Suggestion System.

Servqual methodology. Servqual Method is comparison of perceived service and expected service.Methodology used in marketing research is Service Quality model by Parasuraman [10, 17]. He classifies 5 characteristics that consumers used in evaluating service quality. They are tangibles, reliability, responsiveness, assurance, emphaty. These characteristics become the variables for service quality in research. Serqual score for every statement by every customer is counted by reducing perception with expectation.

Customer Relationship Management (CRM). According to Pyne and Frow [11], CRM is creating a higher value for the consumers by implementing business process which is oriented to consumers and a good relationship. While other definition says that CRM is a business strategy to improves transaction volume with a purpose to increase profit, income, and customer's expectation [14]. CRM usually is related to the improvement of customers' satisfaction which in a long term will increase customers'loyalty. There are five dimensions of customers' CRM such as strategy, segmentation, technology, process, and organization [3]. Dimensions of CRM management to be more specific are classified as relation level, customers satisfaction and loyalty [18].

Structural Equation Modelling (SEM). SEM is a multivariate statistic which combines factors analysis and correlation regression analysis. The purpose is to test the relation between the indicator and its construction, and the relation among the constructions themselves on a model. Data analysis technic is done to all related variables in the research. The model in this research was analyzed by using Partial Least Square (PLS) software which the basis is the analysis of SEM by using variant approach [8].

Research Methodology

Research methodology is a frame work that describes the working steps and problem solving systematically.
1. Pre Survey
   Presurvey is carried out by doing observation, interview and distributing first questionnaire to Bukittinggi National Stroke Hospital. This is done in order to get general picture of the hospital, to identify the problems, and to get all information that are needed in the research. Then, the questionnaire which is designed based on the result of previous researches is organized. Servqual dimension refers to the research of Ismelinda [5], Reni [15], and Rahmadani [13], while CRM refers to Hendrik research [4], and Putri [12]. Futhermore, items for questionnaire of every indicator are gotten. Validating the questionnaire by using expert validation is done in order to know the indicator of designing questionnaire based on the condition of the hospital and also for checking the statements in the questionnaire wheather they are understandable or not. Validation was applied to three managers of Bukittinggi National Stroke Hospital. They validated the first questionnaire since it match with their job, which is maintaining and improving the hospital service quality.

   In this research, method of SEM was used. There are several guidances for the size of SEM sample [6]. One of the quidances is that the amount of sample is equal to 5 until 10 times the amount of manifest indicator of the all latent variables. This research had 27 indicators, so the sample 5x27 or 135 samples were needed. The sampling taken was Proportional Random Sampling and the samples were taken in proportion by taking the subject in every strata. There were 135 samples for SEM. Respondent public data was found in questionnaire part I which consists of data about sex, age, education background, occupation, and monthly income. Questionnaire distribution in inpatient instalation was given to patients in class I, II, and III. The total of patients was 69 respondents. The questionnaire distribution in outpatient instalation was given to neuro polyclinic and internal medicine polyclinic with 66 respondents.
2. Data Analysis
   The steps for data analysis are first is analyzing data of questionnaire, second is scoring the level of quality service and the last is implementing SEM. The Steps for implementing SEM by using Smart PLS software are as followed: (1) Conducting research hypothesis; A hypothesis is a logically conjectured relationship between two or more variables expressed in a form of a testable

statement [13]; (2) Determining latent variable and manifest variable for the servqual dimension shown in Table 1 and for CRM dimension in Table 2; (3) Creating lane diagram model for knowing the influential of servqual variable toward CRM variable; (4) Instrument testing; validity can be tested through Convergent Validity score, Discriminant Validity and AVE score. Meanwhile reliability model can be seen through Composite Reliability and Cronbachs Alpha score; and (5) Structural Model Testing where the results can be seen based on Path Coefficients score.

Table 1 Latent variable and manifest variable for servqual

Latent Variable	Manifest Variable	Variable Manifest Code
Tangible	The parking lot that is wide and safe	M1
	The recovery room for inpatient and checkup room for outpatient that is comfortable and clean	M2
	The medical tools that are clean	M3
	The treatment tools are clean	M4
	The hospital officer are clean and neat	M5
Reliability	The procedure inpatient and outpatient are easy and not complicated	M6
	The doctors and nurses came on time and on schedule	M7
	Inspection was conducted in accordance with a specific schedule	M8
Responsiveness	The hospital officer have a quick respond on patients complain and desire	M9
	Medical checkup, treatment and medications for patient is quick and precise	M10
	The hospital officer will give direct help for patient needed	M11
Assurance	The hospital officer have skill in using the medical tools	M12
	The hospital officer have skill in using the treatment tools	M13
	The doctors have nice, polite attitude to the patient	M14
	The nurses have nice, polite attitude to the patient	M15
	Patients trust the doctors ability in diagnose a disease	M16
	Patients trust the nurses ability in overcome the patients complaints	M17
	Result of the check-up is given clear by the doctor to the patient	M18
Emphaty	It's easy to contact the hospital officer in hospital area	M19
	Information that is given by the hospital officer is clear and understandable	M20

Table 2. Latent variabel dan variabel manifest for CRM

Latent Variable	Manifest Variable	Variable Manifest Code
Level of Relation	Box advice is available to serve patients complaints and advice.	M21
	Transportation to reach the hospital were easily obtained	M22
Customer Satisfaction	Supporting facilities according to needs of patients (example toilet, waiting room)	M23
	Patients feels comfortable during the hospital officer do the check-up	M24
	The hospital cost is reasonable and appropriate	M25
Loyality	Will recommended the hospital to others	M26
	Will use the hospital services continuously in long term	M27

Result and Discussion

Questionnaire data analysis. Questionnaire validity testing used SPSS software version 17. Validity testing was done toward 60 first respondents at inpatient' installation and 40 first respondents at outpatient' installation. Beside that, validity testing was carried out toward perception questionnaire and expectation questionnaire. The r_{table} for data n =60 and 5% standard of

error is 0,254%, while, the r_{table} for data n=40 and 5% standard of error is 0,312. Based on the validity test, the data gotten from perception's and expectation's questionnaires is valid since all the data is above 0,254 for inpatient installation and above 0,312 for outpatient installation. Questionnaire reliability testing used SPSS software version 17 with n=60 for inpatient installation, n=40 outpatient installation. The question will be reliable if the conbrach's alpha score is not above 0, 60. Based on the the realibility test, the perception's and expectation's questionnaire inpatient and outpatient installation is reliable since the conbrach's alpha is above 0, 60.

Scoring the level of Quality Service. The pupose of measuring the service quality is to know the customers' satisfaction comparing their expectation and the gotten service. This measuring was carried out by assessing the gap score between perception and expectation for each question. The steps for assessing were as followed: (1) Assessing the average of patients' perception for each question, (2) Assessing the average of patients'expectation for each question. (3). Assesing the gap score for each question. The gap average between the perception and expectation for inpatient and outpatient is shown in Table 3.

Table 3 Gap Average between Perception and Expectation AVE, Composite Reliability and Cronbachs Alpha Score

Dimension	Gap Average		AVE	Composite Reliabillity	Cronbachs Alpha
	Inpatient	Outpatient			
Assurance	-0.66	-0.51	0.591	0.908	0.881
Empathy	-0.64	-0.80	0.781	0.876	0.718
Patient Satisfaction	-0.83	-0.71	0.716	0.883	0.802
Loyality	-0.77	-0.54	0.795	0.885	0.742
Reliability	-0.74	-0.58	0.693	0.871	0.779
Responsive	-0.77	-0.57	0.795	0.921	0.872
Tangible	-0.60	-0.71	0.573	0.867	0.806
Level of Relation	-0.60	-0.68	0.769	0.869	0.702

Implementing Structural Equation Modelling (SEM). Steps for implementing SEM by using Smart PLS software are as followed:

1. Instrument Testing

The results of the testing instruments are as followed: (a). Convergent validity could be seen from the outer loading score that was the output of the PLS software. The indicator is good if the correlation is above 0, 50. Based on outer loading score for research model, it is known that all coefisien scores for each question is > 0, 50 and it can be concluded that all indicator is valid and significant. So, the next step can be continued. (b). Discriminant validity could be seen from cross loading score which was the output of the software. Cross loading score is good when matrix manifest variable with latent variable and got the highest score. For example, when M1 is manifest variable from Tangible, so the score of cross loading M1 in Tangible colom must be higher than the score of cross loading in the the next colom. This shows that latent variable predicts the indicator or manifest variable on their dimension is better than indicator or manifest variable on other dimensiom. (c) AVE (Average Varinace Extracted) score could be seen from the output of PLS software.Model is good when the AVE score is above 0, 50. AVE score can be seen in Table 3. From the estimation of PLS software, it is identified that all variable has AVE>0, 50 and it can be said that the model is good. (d) Testing reliability based on two aspects, they were composite reliability and cronbachs alpha. The score for each of the research model can be seen in Table 3. Indicator is said reliable if the score of composite reliability and cronbach alpha is above 0, 70. From the output of PLS software, it is known that all indicator has good reliability score. After instrument testing, the relation among the variables can be tested like in the Figure 1.
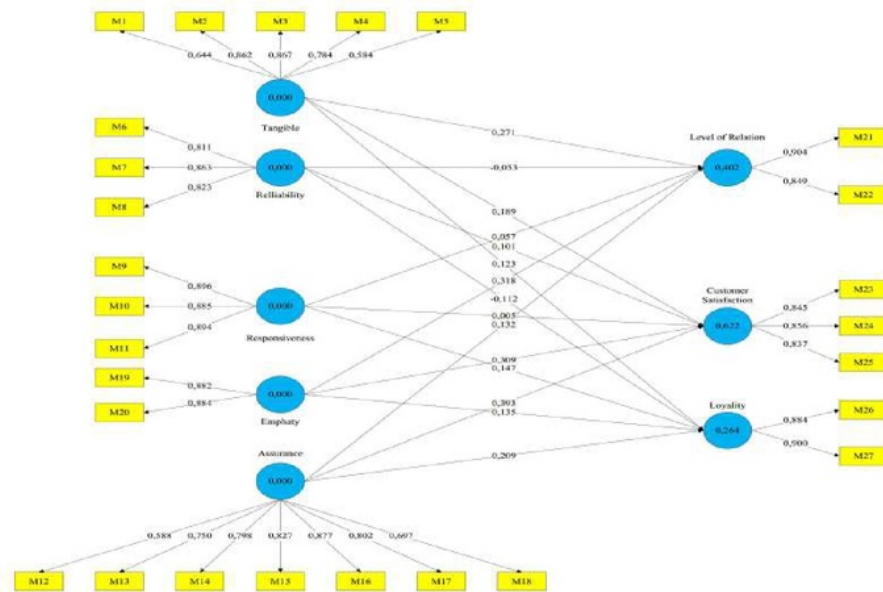
Fig. 1. Final model

2. Measuring the relation level between servqual dimension and CRM dimension

Relation level between servqual dimension and CRM dimension can be seen by doing structural testing. Structural testing can show the relation and the influence of every variable based on research hypothesis. This result was gotten from Path Coefficients score. Result of structural testing could be seen by looking at the score of original sample (O). Negative score (-) means negative relation and positive score (+) means positive relation. A variable is said having an effect on other variable when the T-Statistic score > 1, 96. When T-Statistic score <1, 96, it can be said that the variables does not affect other variables. From the result of structural testing toward research model, assurance and empathy influenced patients' satisfaction.

Testing result of research hyphothesis. From data analysis by using PLS, the researcher can score the statistical significance of research model by testing the hypothesis in every relation of lane.

Conclusion

From the research that has been done, it can be summarized that: (1) The average gap between patients' perception and expectation toward hospital's service in inpatient room is -0,701 and the gap in outpatient room is -0,638. It means that hospital's services do not fulfill patients' expectation since the gap score is negative; (2) Servqual Dimension which gives big influence toward CRM dimension is assurance dimension toward patients' satisfaction which has T-statistic >1, 96 or score 4,283 and emphaty dimension toward patients' satisfaction which has T-statistic 3,518. From there, it can be seen that assurance dimension and emphaty dimension influence the satisfaction; (3) Recommendations for service quality improvement in Bukittinggi National Stroke Hospital are: (a) Increasing Assurance Dimension by sharpening the skills of tools users, increasing hospitality and politeness of hospital staff, increasing patients' trust toward hospital staff and the checkup result; (b) Increasing Emphaty Dimension by giving clear and understandable information to the patients, creating access for the patients to contact the hospital staff easily and smoothly.

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