



Integration of importance-performance analysis into testing of the relationship between hospital service performance, satisfaction and loyalty with PLS-SEM approach

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ABSTRACT

Improvement of service performance, customer satisfaction, and loyalty give a significant contribution to business performance and profitability. This study aims first to identify the most critical factors related to hospital service performance in predicting the patient's satisfaction. Second, to examine the effect of patient satisfaction on patient loyalty. This research is a quantitative study with a cross-sectional approach, involving 280 outpatients conducted in two hospitals. Finally, the partial least square-structural equation modelling (PLS-SEM) approach was performed to analyze the data. The result showed the lowest index performance is the outcome quality (49.84), and the highest is the quality of personnel (72.49). The calculation of the patient satisfaction index (PSI) is 67.48. Patient satisfaction is significantly influenced by the quality of personnel, outcome quality, social responsibility, administrative procedure, and physical aspect. Patients satisfaction has a significant effect on patient loyalty. However, health insurance, quality of medical care, and quality of pharmaceutical care have no significant effect on patient satisfaction. The map of importance-performance analysis (IPA) suggest the hospital institution needs to improve the physical aspect, administrative procedure and outcome quality. The overall patient are satisfied with the performance of hospital services. Patients are objective controls of an organization. Therefore, the focus of hospital managers on strategies for building relationships with patients.

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INTRODUCTION

Today, hospitals encounters severe challenges in the free market system, including the era of trade-economic globalization, investment liberalization and free competition in health services (Adisamito, 2008). Since the implementation of Universal Health Coverage (UHC) policies by the Indonesian government, many public service organizations began to emerge offering health services. These conditions trigger tight competition (Dimiyati, 2014). Outpatient services has become promising market share and plays important role in hospital profitabil-

ity (Carlucci *et al.*, 2013; Pouragha and Zarei, 2016). Moreover, outpatient department (OPD) in several hospitals are growing faster (Carlucci *et al.*, 2013). Based on BPJS data in 2016, the number of outpatient reached 49,283,264 visits or an increase of 23.79%. The average number of outpatient visits in 2016 reached 4,106,939 be monthly (Kesehatan, 2016). Healthcare consumers are first put customer satisfaction as the main focus in service. In the globalization era, consumers can get information quickly related to health services and compare with other hospitals (Adisasmito, 2008). The provide high-quality services ability will be crucial for the long-term survival of the hospital (Pouragha and Zarei, 2016). Furthermore, healthcare providers must be prioritized maintenance of customer satisfaction to compete and gain market share (Dimiyati, 2014).

The customer satisfaction measurement provide interesting information for the company such as knowing their customer satisfaction and the importance of the attributes that have an impact on satisfaction. These information can be used to develop and prioritize customer satisfaction programs (Chu, 2002). Patient satisfaction is associated with the ability of hospitals to meet dynamic patient needs and recognize the characteristics of the services they have. Therefore, the marketing activities must begin with efforts to recognize customer needs and satisfaction to create loyalty (Dimiyati, 2014). Studies related to the evaluation and development of patient satisfaction questionnaires have been conducted in several developed and developing countries. However, most of them measure patient satisfaction using a specific satisfaction view (Sumaedi *et al.*, 2016). Thus, it is very important to assess not only the dimensions of service but also the extent of their influence on overall patient satisfaction.

Importance-performance analysis (IPA) approach has been used as a tool to identify areas that need improvement, evaluate service quality and marketing strategies in the health care system (Miranda, 2010). Several researchers have used IPA to study consumer satisfaction and strategic planning guidance (Wu and Shieh, 2010, 2009). In the previous literature, there are two approaches in obtaining the information of the important attributes namely stated-importance and derived-importance approach (Sumaedi *et al.*, 2016). The prediction power and explanation ability of derived-importance approach are superior (Chu, 2002). Research conducted by Sumaedi *et al.* (2016) has used derived-importance approach from the result of multiple regression to analyze of IPA. However, the present study attempts to use a different approach by utilizing the output of structural equation

modelling analysis.

The customer's attitude towards a product depends on the customer's assessment of the product performance. A high level of service performance can improve customer satisfaction (Huang and Liu, 2010). High satisfaction will have an impact on positive consumer behaviour, produce emotional relationships and rational preferences so that the result is high consumer loyalty (Pedersen and Nysveen, 2004). Improvement of service quality, customer satisfaction, and loyalty will be the key to success in a competitive advantage. Moreover, give a significant contribution to business performance and profitability (Sumaedi, 2014). The model that links between developed service quality and satisfaction provides unique research opportunities to enhance managerial understanding (Miranda, 2010). This study aims to identify the most critical factors related to hospital service quality in predicting the patient's satisfaction and to examine the effect of patient satisfaction on patient loyalty.

METHODS

Research design

This research is a cross-sectional study with a quantitative approach. Sampling uses non-probability sampling with the purposive sampling method. The inclusion criteria are patients adults (>17 years old), patients are willing to be respondent, patients able to communicate, patients registered as UHC participants and already perceived of hospital service experience at least twice. The study was conducted at the outpatient department (OPD) in two hospitals, Bantul Regency, Special Region of Yogyakarta in January-March 2018. The questionnaire was distributed to 300 respondents.

Questionnaire

The questionnaire consist of 47 items and 10 constructs were obtained and adopted from previous literatures: 6 items quality of personnel, 2 items outcome quality, 3 items social responsibility, 5 items administrative procedure, 9 items physical aspect, 2 items health insurance, 6 items quality of medical care, 8 items quality of pharmaceutical care (Pribadi *et al.*, 2020). Patient satisfaction (3 items) and patient loyalty (3 items) (Sumaedi, 2014). A pretest conducted on 30 patients outside the respondent to ensure that the contents of the questions, sentences, and instructions are easy to understand. The pretest feedback was used to correct the questionnaire before being used in the final field test. Finally, the measurement scale used is a 4-point Likert scale with the following details: Very

Agree (4), Agree (3), Disagree (2), Very Disagree.

Data analysis

Data analysis were used Smart-PLS 3.0 software. There is several stages in the partial least square-structural equation modelling (PLS-SEM) analysis: First, testing the outer model (convergent validity, discriminant validity, composite reliability), secondly testing the inner model (R-square, Q-square, Goodness of fit). Meanwhile, the bootstrap function is used to test hypotheses (Ghozali and Latan, 2015). The PLS-SEM analysis also provides importance-performance map estimates. More precisely, the total effect (original sample) represents the index of importance (i.e. the total effect of exogenous latent variables in predicting endogenous latent variables) and performance (i.e. average performance scores). The purpose of importance-performance analysis (IPA) is to identify exogenous latent variables that have relatively low performance but are very important for endogenous latent variables (Farooq, 2018).

RESULTS AND DISCUSSION

Respondents profile

See Table 1. A total of 300 questionnaires were distributed among outpatients in the two hospitals in Bantul, Special Region of Yogyakarta. The number of valid questionnaires of 280 was analyzed. The largest percentage in gender group was women (60.7%). The majority of respondents in this study were the productive age group (25-44 years) with a percentage of 50% and the least was the elderly group that was >64 years old with a percentage of 3%. Based on the education level of respondents, it can be seen that the majority of respondents were diploma and bachelor level with a percentage of 58.8%, then followed by senior high school level with a percentage of 7.1%, the lowest percentage are low education levels (elementary and junior high school) of 4.9%. Most of the respondents are the other employee of 53%, then followed by private and government institution employees of 36%.

Measurement model evaluation (outer model)

Table 2 present the result of convergent validity and reliability. Convergent validity is measured based on the outer loading value of each indicator and average variant extracted (AVE) in each construct. All items in each construct have a value of a standardized outer loading greater than 0.6 and the AVE value greater than 0.5. The reliability measurement using composite reliability (CR), results shows that all constructs have CR value greater than 0.7 (Ghozali and Latan, 2015). Thus, convergent validity and reliability are adequate.

Table 3 present the result of discriminant validity. The Fornell-Larcker criterion states that the square root of AVE value for each latent variable must be higher than the correlation value with all other latent variables, which indicates that there is no discriminant validity problem (Ghozali and Latan, 2015). Therefore, these findings meet the evaluation criteria of convergent validity and reliability. Moreover, it provides satisfying evidence for the discriminant validity of the measurement model.

Structural model evaluation (inner model)

Table 4 present the results of the inner model analysis. The coefficient of determination (R^2) is 0.422, this value indicates that the administrative procedures, health insurance, quality of medical care, outcome quality, quality of personnel, quality of pharmaceutical care, physical aspects and social responsibility are able to explain patient satisfaction by 42.2% and the rest is explained by other variables not examined in this study. Meanwhile, loyalty with a coefficient of determination (R^2) of 0.54 indicates that this variable can be explained by the patient satisfaction variable of 54%. The standard path coefficient value should more than 0.30, it indicates PLS model has good predictive power (Chin, 1998). The Q^2 value of 0.734 (73.4%), the e indicate the model has a very high predictive relevance, while the remaining 26.6% is contributed by other variables not examined in this research model. Previous literature divides the GoF value into three levels: small (GoF value 0.1), moderate (GoF value 0.25) and large (GoF value greater than 0.36) (Ghozali and Latan, 2015). Henceforth, the present study has GoF value is 0.567 thus the structural model can be categorized fit model.

Hypothesis testing

Table 5 present the path coefficient after running the bootstrapping procedure. A total of nine hypotheses are shown based on a predetermined structural model. In studentized t-test were used significant level of 95% (t-test=1.96; p-value=0.05). The result of this study establishes statistical evidence that patient satisfaction is significantly influenced by the quality of personnel, outcome quality, social responsibility, administrative procedure, and physical aspect. Patients satisfaction has a significant effect on patient loyalty. However, health insurance, quality of medical care and quality of pharmaceutical care have no significant effect on patient satisfaction. The final model after the bootstrapping procedures is presented in Figure 1.

The study highlights that the quality of medical care, quality of pharmaceutical and health insurance have no significant effect on patient satisfac-

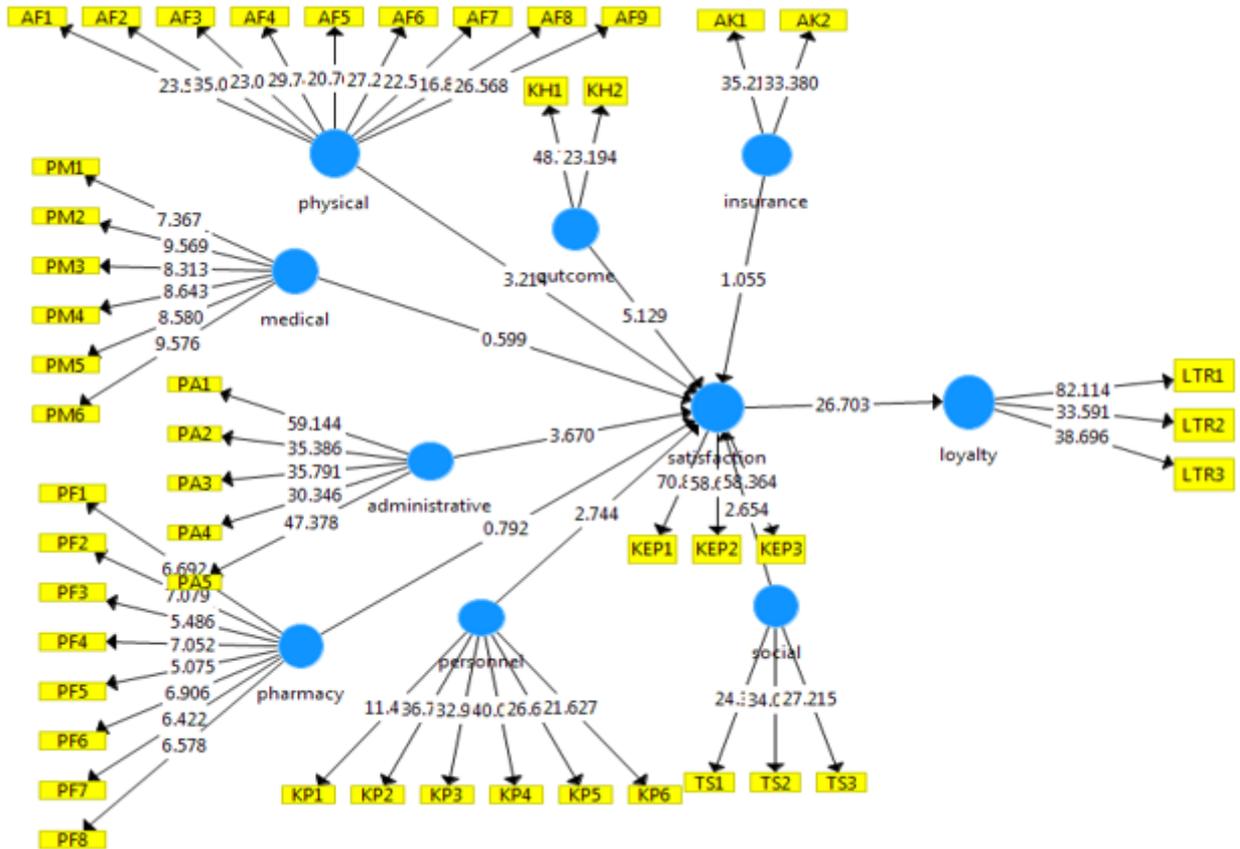


Figure 1: Output of the Structural Model

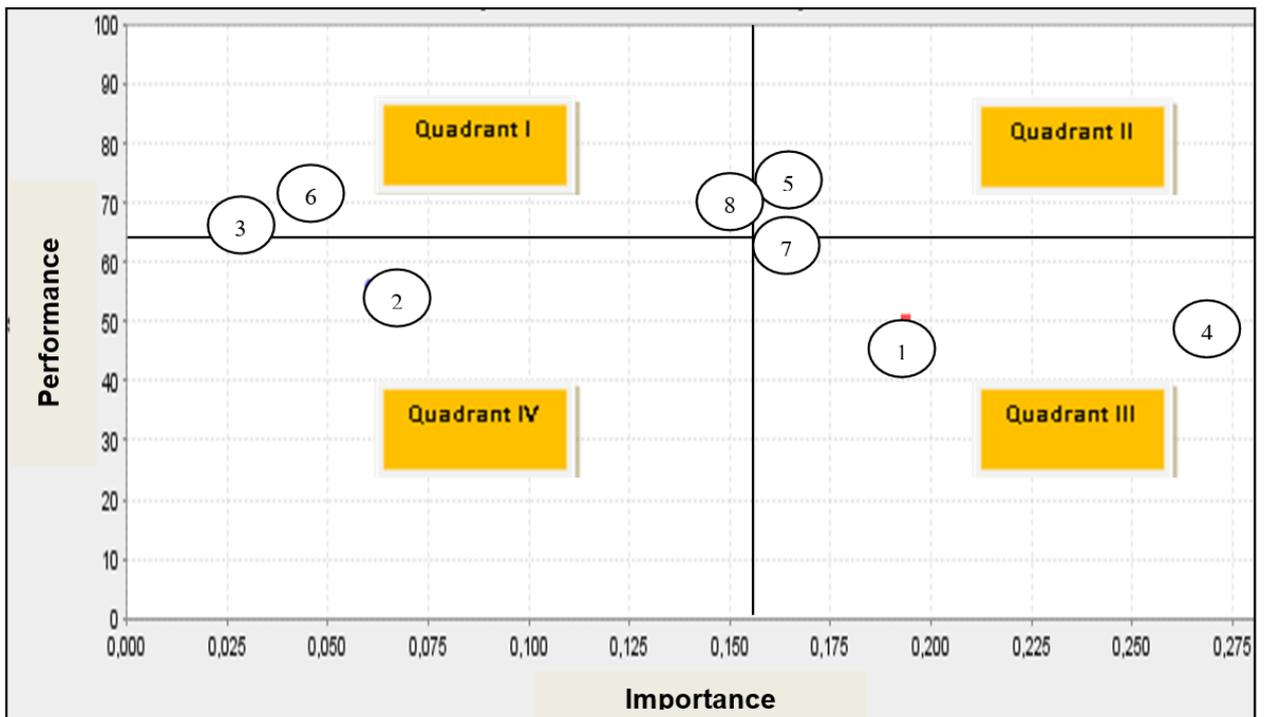


Figure 2: The Importance-Performance Map Analysis

Table 1: The Respondents' Demographic Profile

Characteristic	Number	%
Gender	170	60.7
Female	110	39.3
Male		
Marital status	216	77
Married	64	23
Single		
Age group	67	24
18-24	139	50
25-44	66	23
45-64	8	3
>64		
Education	1	0.3
Elementary School	13	4.6
Junior High School	20	7.1
Senior High School	139	49.6
Diploma	26	9.2
Bachelor	72	25.7
Master	9	3.2
PhD		
Monthly income (IDR)	118	42
<1.500.000	90	32
1.500.000-2.500.000	34	12
2.500.000-3.500.000	38	14
>3.500.000		
Occupation	23	8.2
Students	22	7.8
Government employee	79	28.2
Private employee	8	2.8
Entrepreneur	148	53
Other		

tion. This surprising result is thought to be due to the many paternalistic relationships found in the Indonesian doctor's practice. This situation will create a gap in communication between doctors-patients which will affect the limited information received by patients regarding the disease. Many patients feel inferior when dealing with doctors, these feelings make patients hesitant and reluctant to ask questions (Handayani, 2015). Pharmaceutical services in Indonesia are still drug oriented. Therefore, the important role of pharmaceutical services has not been felt and needed by the community. According to Handayani *et al.* (2009) drug information and counselling is not yet a reason for consumers to choose pharmacies. The presence of the UHC program can ease medical expenses. However, in its implementation there are still several issues, including the poor rating of the quality of services provided by the hospital, this has an impact on the negative attitude of the community towards

the UHC program (Nadiyah *et al.*, 2017). Moreover, insurance participant's knowledge of health insurance schemes and coverage is an important determinant of perceived health care service and satisfaction (Mzee, 2013).

The quality of personnel, social responsibility, administrative procedures, physical aspects and outcomes quality have a significant effect on patient satisfaction. The previous studies found that the service quality provided by hospital personnel further accelerates their recovery. The competencies not only seen from their expertise and knowledge, but also through their emotional affection (Ratnami-asih *et al.*, 2012). Social responsibility refers to fair aspect of service. These variable helps improve the image of hospital institution and influences the overall of customer perception towards the quality of services (Padma *et al.*, 2010). Administrative procedures are defined as patient's experience with procedure and the speed of service (admis-

Table 2: Convergent Validity and Reliability Testing

Variable	Items Code	Outer Loading	AVE	CR
physical aspect	AF1	0.753	0.555	0.918
	AF2	0.789		
	AF3	0.703		
	AF4	0.798		
	AF5	0.742		
	AF6	0.777		
	AF7	0.720		
	AF8	0.660		
	AF9	0.750		
health insurance	AK1	0.876	0.771	0.871
	AK2	0.880		
patient satisfaction	KEP1	0.901	0.788	0.918
	KEP2	0.886		
	KEP3	0.875		
outcome quality	KH1	0.918	0.744	0.853
	KH2	0.804		
quality of personnel	KP1	0.619	0.584	0.893
	KP2	0.814		
	KP3	0.818		
	KP4	0.828		
	KP5	0.749		
	KP6	0.739		
loyalty	LTR1	0.890	0.708	0.879
	LTR2	0.814		
	LTR3	0.817		
administrative procedure	PA1	0.862	0.677	0.913
	PA2	0.807		
	PA3	0.825		
	PA4	0.777		
	PA5	0.842		
quality of pharmaceutical care	PF1	0.776	0.574	0.915
	PF2	0.809		
	PF3	0.684		
	PF4	0.758		
	PF5	0.670		
	PF6	0.789		
	PF7	0.796		
	PF8	0.769		
quality of medical care	PM1	0.756	0.616	0.906
	PM2	0.824		
	PM3	0.735		
	PM4	0.795		
	PM5	0.847		
	PM6	0.747		
social responsibility	TS1	0.808	0.671	0.859
	TS2	0.843		
	TS3	0.805		

Table 3: Discriminant Validity

	1	2	3	4	5	6	7	8	9	10
1. Administrative procedure	0.823									
2. Health insurance	0.395	0.878								
3. Loyalty	0.389	0.377	0.841							
4. Quality of medical care	0.138	0.172	0.088	0.785						
5. Outcome quality	0.400	0.427	0.483	0.123	0.863					
6. Quality of personnel	0.239	0.287	0.329	-	0.090	0.764				
				0.004						
7. Quality of pharmaceutical care	0.087	0.057	0.098	0.047	-	0.274	0.758			
					0.004					
8. Physical aspect	0.318	0.226	0.261	0.344	0.240	0.144	0.043	0.745		
9. Patient satisfaction	0.453	0.393	0.735	0.153	0.454	0.360	0.151	0.367	0.888	
10. Social responsibility	0.192	0.321	0.397	-	0.172	0.457	0.220	0.201	0.377	0.819
				0.018						

Table 4: Inner Model Evaluation

Endogenous Variable	R ²	Q ²	GoF
Patient satisfaction	0.422	$Q^2 = 1 - \{(1 - R1^2) \times (1 - R2^2)\}$	$GoF = \sqrt{AVE \times R^2}$
Loyalty	0.540	$Q^2 = 1 - \{(1 - 0.422) \times (1 - 0.540)\}$ $Q^2 = 0.734$	$GoF = \sqrt{0.670 \times 0.481}$ $GoF = 0.567$

Table 5: Hypothesis Testing

	Relationship	t-value	p-value	Conclusion
Physical aspects	→ Patient satisfaction	3,214	0,001*	Supported
Quality of medical care	→ Patient satisfaction	0,599	0,549	Rejected
Quality of pharmaceutical care	→ Patient satisfaction	0,792	0,429	Rejected
Administrative procedure	→ Patient satisfaction	3,670	0,000*	Supported
Quality of personnel	→ Patient satisfaction	2,744	0,006*	Supported
Social responsibility	→ Patient satisfaction	2,654	0,008*	Supported
Health insurance	→ Patient satisfaction	1,055	0,292	Rejected
Outcome quality	→ Patient satisfaction	5,129	0,000*	Supported
Patient satisfaction	→ Patient loyalty	26,703	0,000*	Supported

sion, clinic, and pharmacy) in the hospital. However, the processes and procedures of hospital service in UHC era are still long, convoluted, and delayed from the service schedule. Thus, hospitals must be able to provide fast services to attract more patients to reuse services in the same hospital (Handayani, 2015). Most of patients first assess service quality based on physical aspects (Padma et al., 2010). Therefore, the hospital needs to evaluate to what extent the physical aspect serve consumers, how

patients interact with the physical environment and know which servicescape attributes have an impact on customer satisfaction (Lee, 2011). The outcome quality of this study reflects patients perceptions of their improving health conditions after receiving health services. Patients with good healing experience will not pay attention to the environment and services provided, especially in the lower middle socioeconomic group. These study suggests that the outcome quality must be considered an essen-

Table 6: The Importance and Performance Index

Variable	Importance	Performance Index
Physical aspects	0.160	66.33
Quality of medical care	0.029	68.88
Quality of pharmaceutical care	0.044	71.82
Administrative procedure	0.194	49.84
Quality of personnel	0.165	72.49
Social responsibility	0.158	71.25
Health insurance	0.060	55.58
Outcome quality	0.267	50.20
Patient satisfaction	-	67.48

tial element in creating patient satisfaction. Patient satisfaction has a significant effect on patient loyalty. Hospitals that are concerned with customer needs will have a high impact on patient satisfaction, therefore they can improve their position in the community, ensuring survival and future success (Mortazavi, 2009).

Patient satisfaction index and IPA

The total effect value (original sample) has a range of 0 to 1, where the value close to one indicates the importance of a variable. In Table 6, shows that the eight service performance variables have an index ranging from 49.84 to 72.49, with the lowest index is the administrative procedure (49.84), and the highest index is quality of personnel (72.49).

Meanwhile, the calculation of the patient satisfaction index (PSI) is 67.48. Thus overall patient are satisfied with the performance of the services provided by the hospital.

Figure 2 shows the IPA map which the quality of medical care (3), quality of pharmaceutical care (6) and social responsibility (8) are in quadrant I (low importance – high performance). The quality of personnel (5) in quadrant II (high importance – high performance). The physical aspect (7), administrative procedure (1) and outcome quality (4) are in quadrant III (high importance – low performance). The health insurance (2) in quadrant IV (low importance – low performance) of the map. Therefore, the hospital institution needs to improve the performance of physical aspect, administrative procedure and outcome quality.

Ideal pharmaceutical care is services that have met the standards (providing drug information by pharmacists, counselling services, monitoring drug use, and evaluating medication, health promotion, and education for patients). The surprising finding that pharmaceutical care is included in quadrant I, this is due to the pharmacists who are responsible for

pharmaceutical care activities not using a personal approach in providing services to patients. Moreover, pharmaceutical care has not been fully implemented following the service standards and competencies set by the government. Pharmaceutical service standards with a personal approach need to be socialized and implemented to patients (Handayani et al., 2009). Future pharmaceutical care needs to use a different approach to patients. One approach that can be used is patient-centred care. This approach emphasizes the active involvement of the pharmacist and patient, interpersonal communication, creating a pharmacist-patient relationship (Pribadi, 2019). In addition, the provision of drug information needs to be combined with psychosocial conversations.

The present study comes up with several limitations include the number of samples that are less representative and only involve two hospitals in Bantul, Special Region of Yogyakarta. Thus, this study cannot be generalized to a different region. Therefore, it is very important to use a larger sample and involve more hospital institutions in various cities in Indonesia. Furthermore, it is necessary to consider the type of service payment method or use insurance because this seems to affect respondents' satisfaction and can provide significant points.

CONCLUSION

The present study establishes statistical evidence that patient satisfaction is significantly influenced by the quality of personnel, outcome quality, social responsibility, administrative procedure, and physical aspect. Patients satisfaction has a significant effect on patient loyalty. However, health insurance, quality of medical care, and quality of pharmaceutical care have no significant effect on patient satisfaction. The map of the importance-performance analysis found the hospital institution needs to improve the physical aspect, administrative procedure and

outcome quality. The overall patient are satisfied with the performance of hospital services. Patients are objective controls of an organization to give an image of service quality, satisfaction, and loyalty. The study suggests that hospitals must be concerned with the patient's needs—furthermore, the focus of hospital managers on strategies for building relationships with patients.

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Conflict of Interest

The authors declare there is no conflict of interest in the subject matter or materials discussed in this article.

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