

# Antecedents and consequence of patients' satisfaction with pharmaceutical service in hospitals: A multidimensional approach

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## Abstract

Measuring patient satisfaction and trust across various dimensions poses a challenge in the economic dynamics and service business development. Therefore, this study aims to analyze determinant factors of patient satisfaction and their impact on pharmacy trust. The investigation was carried out using a cross-sectional survey method with purposive sampling, and the questionnaire was designed based on a scientific literature review. The valid data obtained from 301 respondents were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results showed that the greatest antecedent to patient satisfaction was drug efficacy, followed by drug education, personnel quality, and financial-health coverage (all significant at  $p < 0.05$ ). Patient satisfaction positively influenced trust in the pharmacy ( $p < 0.05$ ). However, the physical aspect, procedures-service promptness, medication supply, and social responsibility did not affect patient satisfaction. These results suggest that the process and outcome elements of pharmacy service are critical factors in relationships between patients and pharmacies.

## Keywords

pharmacy service, satisfaction, trust, structural equation modeling, hospital

## Introduction

In early 2014, the Indonesian Government established a National Health Insurance (NHI) to provide comprehensive health assurance for citizens (Kristina et al. 2018). The implementation of NHI has made it imperative for healthcare providers to prioritize patient care, with patient satisfaction and safety being the two primary concerns of the program. The provision of pharmaceutical services is an integral part of the healthcare system (Decree of the Minister of Health of the Republic of Indonesia No. 58 of

2014). To improve the professionalism of pharmacy services in hospitals, the Minister of Health of Indonesia issued a Standard of Pharmaceutical Services at the Hospital through a Decree of the Minister of Health No. 58 of 2014. However, most hospitals have not met the expected pharmaceutical service standards. This condition is because pharmaceutical services in the country are predominantly focused on the preparation and distribution of medicines.

The evaluation of patient satisfaction and perceived service quality is an important issue for healthcare providers (Decree of Minister of Health of the Republic of

Indonesia 2014). Patient satisfaction has become an essential requirement to provide quality health care because it improves health behavior and leads to better healthcare outcomes (Lee et al. 2015). Several studies have developed instruments to measure patient satisfaction with pharmaceutical services (Larson et al. 2002; Horvat and Kos 2010). However, most of the measurements focused on specific aspects of pharmaceutical services. Therefore, measuring overall patient satisfaction with multidimensional service is a challenging task, especially amid the rapidly evolving economic dynamics and development of service businesses (Clerfeuille et al. 2008).

Several studies argued that assessing satisfaction is inadequate to fully explain the relationship between healthcare providers and patients. This is because satisfaction refers to experience, while trust is the expectations for future behavior. Previous investigations have also showed a correlation between patient satisfaction and trust. Thom et al. (1999) reported that satisfaction is a consequence of trust, while Castaldo et al. (2016) found that satisfaction is an antecedent of trust. These different results provide an opportunity to review the relationship between patient satisfaction and trust. Therefore, this study aims to identify and analyze the most significant antecedents of patient satisfaction and their impact on pharmacy trust. The results are expected to provide a complex model and a broader concept of pharmaceutical services.

## Method

### Research design and sample

This quantitative study was carried out using a cross-sectional approach with a sample of 301 respondents, who were selected using purposive sampling. The sample consisted of hospital pharmacy users (outpatient) who met the inclusion criteria, such as having used the service at least twice, being BPJS (Social Insurance Administration Organization) patients, and being capable of answering questions and communicating. The survey was conducted in June 2018 and the primary data employed were collected using self-administered questionnaires distributed at one public and one private hospital, located in the Sleman, Yogyakarta, Indonesia.

### Survey instrument

The initial questionnaire consisted of 10 constructs and 39 items, which were obtained from needs assessment and scientific literature review. The physical aspect was modified from Horvat and Kos (2010), Eddin et al. (2016) and Khudair and Raza (2013), drug education was modified from Khudair and Raza (2013) and Tinelli et al. (2011), procedures and service promptness was modified from the study of Khudair and Raza (2013) and Padma et al. (2010), personnel quality was modified from Khudair and Raza (2013) and Mackeigan and Larson (1989), medication supply was adapted from Khudair and Raza (2013).

Meanwhile, efficacy, which was defined as subjective perceptions of drug potential was adapted from Mackeigan and Larson (1989), financial and health coverage was modified from needs assessment and Larson and MacKeigan (1994), social responsibility was modified from Duggirala et al. (2008). Patient satisfaction was modified from Sumaedi et al. (2014), while trust in pharmacy was modified from Lien et al. (2014).

The questionnaire was reviewed by three experts to detect ambiguous items, too scientific, errors in questionnaire design, and the relevance of each item to the construct. Before its application, a pilot test was conducted on 30 respondents and the questionnaire was tested for validity using the Corrected Item-Total Correlation method with requirement ( $r > 0.361$ ). Out of the 39 items, 7 were found to be invalid and were excluded ( $r < 0.361$ ). The reliability scale used Cronbach's alpha and all the constructs had a value exceeding 0.6. A total of 32 items was finally selected and measured using a 4-point Likert scale, ranging from strongly disagree to strongly agree.

### Data analysis

Data analysis was carried out by using partial least squares structural equation modelling (PLS-SEM) through Smart-PLS 3.0 program. The minimum number of samples used for SEM estimation was  $>200$ . The first stage involved the evaluation of the measurement (outer) model, while in the second stage, the structural model (inner model) was assessed through the bootstrapping method (Fornell and Larcker 1981; Anderson and Gerbing 1988).

## Results and discussions

This study collected data from 301 respondents in two hospitals in Sleman, namely one public and one private. Based on the results of the respondent characteristics in Table 1, 66.4% of the respondents were female and 38.5% were between 25–44 years. Furthermore, 71.6% were married, 78.2% earned a senior high school or higher, and 34.5% had a monthly income  $<1.500.000$ , – IDR. As shown in Table 1, 51.8% of respondents visit the hospital pharmacy, with an average of  $\geq$  four times, while 63.4% have BPJS-PBI.

The measurement model (outer model) aimed to test for convergent validity, discriminant validity, and construct reliability. Convergent validity can be accepted when the loading factor of items is greater than 0.5. Meanwhile, the average variance extracted (AVE) value greater than 0.5 indicated that the variance item extracted for loading items in the construct (Fornell and Larcker 1981). When the Cronbach's alpha and composite reliability (CR) value is also more than 0.7, it indicated good consistency of the instrument in measuring the construct (Chin 1998). The values obtained in Table 2 showed that the convergent validity and construct reliability were eligible. The model also ascertained discriminant validity, as presented in

**Table 1.** The respondents' demographic profile.

Characteristic	N (%)
<b>Gender</b>	
Female	200 (66.4)
Male	101 (33.6)
<b>Marital status</b>	
Married	215 (71.6)
Single	86 (28.4)
<b>Age group</b>	
18–24	59 (19.6)
25–44	116 (38.5)
45–64	112 (37.2)
>64	14 (4.6)
<b>Higher Education</b>	
Elementary School	17 (5.6)
Junior High School	48 (15.9)
Senior High School	141 (46.8)
Diploma	24 (7.9)
Bachelor	63 (20.9)
Master	7 (2.3)
Ph.D	1 (0.3)
<b>Monthly income (IDR)</b>	
<1.500.000 (low-income group)	104 (34.5)
1.500.000–2.500.000 (medium income group)	94 (31.2)
2.500.000–3.500.000 (high-income group)	56 (18.6)
>3.500.000 (very high-income group)	47 (15.6)
<b>Occupation</b>	
Students	35 (11.6)
Government employee	24 (7.9)
Private employee	48 (15.9)
Entrepreneur	57 (18.9)
Other (construction laborers, farmers, housewives, pensionaries, odd jobs)	137 (45.5)
<b>Average hospital visits last year</b>	
Two times	105 (34.8)
Three times	40 (13.2)
≥ four times	156 (51.8)
<b>Health coverage membership</b>	
BPJS PBI	191 (63.4)
BPJS non-PBI	110 (36.5)

**Note.** BPJS = Social Insurance Administration Organization, PBI = subsidize, non-PBI = non subsidized, IDR = Indonesian rupiah.

Table 3, where the square root of the AVE for each construct was greater than the correlation between other constructs in the model. Therefore, it can be concluded that the measurement model is eligible.

The structural model (inner model) is used to predict causality relationships between latent variables. The percentage of variance is explained by the R square ( $R^2$ ) value for the dependent or endogen variable. Based on the results of the  $R^2$  test in Table 4, the inner model has a value of  $R^2$  0.631 on patient satisfaction. This indicated that the proposed pharmaceutical service components can explain 63.1% of the patient satisfaction variance. The  $R^2$  value of 0.374 for trust in pharmacy revealed that the construct of patient satisfaction can explain a 37.4% variance of the trust in pharmacy. Moreover, Fig. 1 provided a graphical of the SEM analysis.

Hypothesis testing was conducted by examining the result of the bootstrapping analysis with a 95% level of confidence, as presented in Table 5. Based on the path analysis coefficients obtained through PLS, it can be concluded that there were 5 supported hypotheses ( $P < 0.05$ ).

**Table 2.** Convergent validity and reliability of the model constructs.

Model construct	Measurement item	Loading factor	Cronbach alpha	CR	AVE
Financial-health coverage	AB_1	0.902	0.813	0.914	0.842
	AB_2	0.932			
Physical aspect	AF_1	0.728	0.825	0.877	0.589
	AF_2	0.764			
	AF_3	0.758			
	AF_4	0.790			
Drug education	AF_5	0.793	0.845	0.890	0.618
	EP_1	0.729			
	EP_2	0.841			
	EP_3	0.772			
	EP_4	0.800			
Efficacy	EP_5	0.784	0.795	0.907	0.830
	KE_1	0.919			
Medication supply	KE_2	0.902	0.820	0.893	0.735
	KO_1	0.869			
Personnel quality	KO_2	0.833	0.842	0.895	0.680
	KO_3	0.870			
	KP_1	0.864			
	KP_2	0.861			
Procedure-service promptness	KP_3	0.776	0.846	0.907	0.764
	KP_4	0.795			
	PKP_1	0.857			
	PKP_2	0.892			
Social responsibility	PKP_3	0.873	0.835	0.924	0.858
	TJS_1	0.918			
	TJS_2	0.935			
Patient satisfaction	KEP_1	0.890	0.842	0.905	0.762
	KEP_2	0.802			
	KEP_3	0.922			
Trust in pharmacy	TR_1	0.867	0.877	0.925	0.804
	TR_2	0.919			
	TR_3	0.903			

**Note.** CR = composite reliability, AVE = average variance extracted.

These included financial-health coverage, efficacy, drug education, and personnel quality, which affected patient satisfaction. Patient satisfaction has an impact on trust in the pharmacy, while 4 variables including physical aspect, procedure-service promptness, medication supply, and social responsibility had no significant influence.

Financial-health coverage is the patient's perception of the cost and drug coverage provided by medical insurance. In this study, financial and health coverage had a positive impact on patient satisfaction, as supported by (Mackeigan and Larson 1989). This variable is the second important factor that affected patient satisfaction in the proposed model. However, there is still a perceived disparity between healthcare providers and patients. Hospitals often assume that NHI participants still have to pay when medications prescribed by doctors are not covered by NHI. Meanwhile, patients usually interpret that all medications prescribed by the doctor are included in the NHI coverage, therefore, they should not have to pay again.

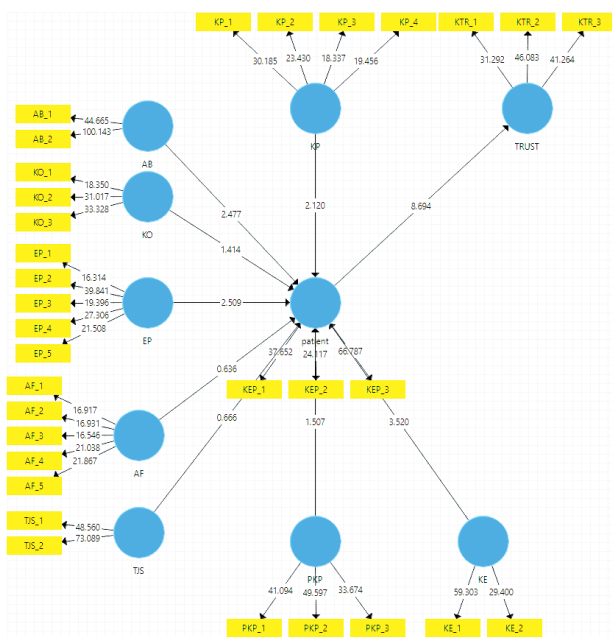
Efficacy refers to patients' subjective perceptions of drugs' potential to cure diseases or relieve symptoms (healing experience). It is the first important factor for patient satisfaction. The accuracy and effectiveness of treatment are the primary objectives for patients in

**Table 3.** Discriminant validity of the model constructs.

Construct	1	2	3	4	5	6	7	8	9	10
1. Financial-health coverage	0.917									
2. Physical aspect	0.530	0.767								
3. Drug education	0.551	0.578	0.786							
4. Efficacy	0.542	0.581	0.557	0.911						
5. Medication supply	0.644	0.680	0.545	0.558	0.857					
6. Personnel quality	0.587	0.679	0.589	0.629	0.636	0.825				
7. Procedures-service promptness	0.472	0.580	0.563	0.560	0.563	0.566	0.874			
8. Social responsibility	0.502	0.587	0.433	0.625	0.557	0.667	0.542	0.926		
9. Trust in pharmacy	0.539	0.638	0.598	0.632	0.636	0.634	0.571	0.607	0.926	
10. Patient satisfaction	0.628	0.620	0.621	0.658	0.646	0.663	0.589	0.573	0.610	0.873

**Table 4.** Test of R square.

Endogen Variable	R <sup>2</sup>
Patient satisfaction	0.631
Trust in pharmacy	0.374



**Figure 1.** Graphical structural model analysis.

the healthcare system. Moreover, the healing experience will affect satisfaction in accessing health services, thereby increasing motivation to reuse the hospital (Waber et al. 2008).

Drug education encompasses activities related to providing counseling and medication information. This study found that drug education is the third important factor for patient satisfaction. This indicated that the provision

of clear and complete medication information and recommendations by the pharmacist can affect patient satisfaction (Satibi 2015). Patients are more appreciative of the health staff contribution to help understand their treatment (Khudair and Hanssens 2010). However, the NHI program has made an increase in patient visits, which affected the workload of health professionals and limited the interaction time with the patient. Most of the pharmacists' practice in the hospital is still focused on the preparation and dispensing of pharmaceuticals (Kristina et al. 2018). Moreover, the lack of motivation among health professionals can be a barrier to patient education (Leloirain et al. 2017).

Personnel quality refers to the quality of all staff involved in pharmaceutical services such as pharmacists and pharmacy technicians. It is the fourth important factor for patient satisfaction. This is because a friendly and polite attitude toward patients significantly determines the patient's perception of service. According to Padma et al., patients will adhere to the advice of the health workers when they feel valued and cared for. Therefore, personnel is expected to be more responsive, reliable, friendly, sincere, and competent (Padma et al. 2009).

The physical aspect, procedure-service promptness, medication supply, and social responsibility did not have an impact on patient satisfaction. The knowledge and intellectual abilities make it easier for patients to adapt to the situation and facilities of service providers (Azizan et al. 2013). Currently, patient preferences are shifting by searching for other important factors when visiting a hospital pharmacy (Khudair and Raza 2013). According to Sankar et al. (2003), patients generally do not have any expectations regarding how service providers should maintain data confidentiality because they are not concerned about the information. (Sankar et al. 2003).

**Table 5.** Hypothesis testing.

Construct and relationship	Propose effect	Path coefficient	P-value	t-value	Conclusion
Financial-health coverage → Patient satisfaction	+	0.165	0.014	2.477	Supported
Medication supply → Patient satisfaction	+	0.137	0.158	1.414	Not supported
Drug education → Patient satisfaction	+	0.155	0.012	2.509	Supported
Physical aspect → Patient satisfaction	+	0.055	0.525	0.636	Not supported
Social responsibility → Patient satisfaction	+	0.040	0.506	0.666	Not supported
Personnel quality → Patient satisfaction	+	0.139	0.035	2.120	Supported
Procedures-service promptness → Patient satisfaction	+	0.096	0.132	1.507	Not supported
Efficacy → Patient satisfaction	+	0.208	0.000	3.520	Supported
Patient satisfaction → Trust in pharmacy	+	0.611	0.000	8.694	Supported

This study highlighted that patient satisfaction has an impact on trust in pharmacy. Similarly, Castaldo et al. stated that transparent communication and a friendly environment enhance trust. Moreover, trust plays an important role in shaping patients' perceptions, with pharmacists acting as key drivers of trust and satisfaction directly and indirectly. To enhance trust in pharmacy, it is essential to focus on developing pharmacists' competencies, skills, behavior towards customers, kindness, effective communication, and building relationships (Castaldo et al. 2016).

The improvement of pharmaceutical services plays an essential function in hospital services. This study showed that the process and outcome elements of pharmacy service are critical factors in relational exchanges between patients and pharmacy service providers. The service sector is not static, therefore, the hospital pharmacy should continuously improve the quality of services based on the patient's needs to increase patient satisfaction. Patients' satisfaction and trust are basic elements to building relationships, increasing reuse intention, and improving adherence to medication advice and instructions. However, the limitations of this study include the involvement of only two hospitals in Sleman, Yogyakarta, which limited the generalization of the results to other regions in Indonesia. Therefore, future study is recommended to include

other relevant variables such as trust in pharmacists and patient loyalty.

## Conclusions

This study provides a multidimensional framework for understanding the antecedents of patient satisfaction and their relationship with trust in pharmacy. The results showed that patient satisfaction was positively influenced by drug education, personnel quality, and financial-health coverage, with efficacy being the most significant antecedent. Trust in pharmacy positively affected patient satisfaction, while physical aspect, procedures-service promptness, medication supply, and social responsibility had no significant influence. These results can assist hospitals, specifically pharmacy managers in evaluating pharmacy service performance.

## Author contribution

The authors confirm contribution to the paper as follows: study conception and design: PP, SAK, SPS, S; data collection: PP, R; analysis and interpretation of results: PP, S; draft manuscript preparation: PP, SAK, SPS, S. All authors reviewed the results and approved the final version of the manuscript.

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