JPSCR: *Journal of Pharmaceutical Science and Clinical Research*, **2022**, *02*, 122-131
DOI: 10.20961/jpscr.v7i2.52010

Empirical Test of Pharmacy Staff-Patient Relationship Quality Model in Public Health Center: Structural Equation Modeling-Partial Least Square Approach

Mia Annida Amalia, Prasojo Pribadi* and Widarika Santi Hapsari

Department of Pharmacy, Universitas Muhammadiyah Magelang, Mayjend Bambang Soegeng Road, Mertoyudan, Magelang, Central Java, Indonesia, 56172.

*email correspondence: prasojopribadi@ummgl.ac.id

Received 15 June 2021, Accepted 26 March 2022, Published 15 July 2022

Abstract: Patient Centered Care (PCC) is a new paradigm in health care service that places patients as centers of care. Patient Centered Care in the relationship quality model consists of three components, namely: (1) pharmacist participative behavior, (2) interpersonal communication and (3) patient participative behaviour. This study aims to empirical testing of pharmacy staff-patient relationship quality model among BPJS patients in the Public Health Centers (PHC) Magelang Region. This type of research is quantitative correlational with cross sectional approach. The sample used was 255 respondents. The sampling method in this study was non-probability sampling with purposive sampling technique. Hypothesis testing were used Structural Equation Modeling-Partial Least Square (SEM-PLS). The results of research are interpersonal communication have a positive effect on commitment relationships and the quality of communicative relationship. ($p < 0.05$). Patient participation behavior has a positive effect on the commitment relationships and the quality of communicative relationships ($p < 0.05$). Pharmacy staff participation behaviour has a positive effect on the commitment relationships the quality of communicative relationships ($p < 0.05$). PHC need to improve pharmacy staff clinical performance, therefore that pharmacy staff can provide services pharmaceuticals that meet the targets and standards set.

Keywords: commitment relationships; patient centered care; PHC; quality of communicative relationships; SEM-PLS

1. Introduction

In Indonesia, Universal Health Coverage (UHC) participants have increased every year. Based on BPJS data up to January 10, 2019 the number of participants registered in the UHC Program has reached 216,152,549 people or covers 82% of the total population of Indonesia. In addition, the presence of this program provides many benefits for the community. In 2018, the utilization of health services at all service levels reached 233.8 million, or an average of 640,765 per day (BPJS, 2019). The number of Outpatient First Level (RJTP) visits to 31 December 2016 reached 120,922,433 visits or an increase of 20.18% (BPJS Kesehatan, 2017). The Government through the Decree of the Indonesian Minister of Health No.279/MENKES/SK/IV/ 2006 concerning Guidelines for the Implementation of Public Healthcare has developed a public health center (PHC) to ensure the availability of health services for its citizens. Public Health Center (PHC) is one of First Level Health Facilities

(FKTP) in the National Health System as a gate keeper must provide a complete primary service with the quality of health services becoming priority (Mardiati *et al*., 2018). However, until now, complaints and strong criticisms of PHC service are still heard. Thus, improving the quality of PHC services with a different approach must be a priority agenda (Rakhmawati *et al*., 2013).

Patient Centered Care (PCC) is a new paradigm in health care service that places patients as centers of care (Frampton *et al*., 2008). Patient Centered Care in the relationship quality model consists of three components, namely: (1) pharmacist participative behavior and (2) interpersonal communication (3) patient participative behaviour (Wang *et al*., 2018). Several previous studies related to PCC have been conducted in several developed and developing countries. The results showed there was a relationship between PCC and decreased utilization of health services, its means that the involvement of patients and families in health care is needed to reduce the number of patients hospitalized. PCC proven improves of health status and care efficiency by reducing diagnostic tests and referrals (Bertakis & Azari, 2011). According to Pribadi *et al*., (2019) and Wang *et al*., (2018). showed that the PCC component namely the behavior of patient participation behavior, pharmacist participation and pharmacist interpersonal communication can improve the quality of the relationship between pharmacists and patients. This is supported by the research conducted by Oisina & Osidhi (2018) which states that in creating good interpersonal relationships is a prerequisite for medical treatment. However, most of the research was carried out in hospital settings, while the application to PHC was still very limited.

Based on the description above, the objective of this study is to examine the influence of patient participation behavior, pharmacy staff participation behavior and interpersonal communication on the quality of communicative relationships and commitment relationships among outpatients in the Public Health Centers (PHC).

2. Material and Methods

2.1. Research design

This research is a quantitative research and survey design that uses a cross sectional approach. Sampling is used non-probability sampling method with purposive sampling technique. The inclusion criteria of respondents are as follows: BPJS patients who have used PHC services at least three times, willing to be the subject of research. This study was conducted in five PHC in Magelang Region during November-December 2019. The number of samples used in this study was 380 respondents. Kline (2005) stated the amount the sample used for

SEM estimation was found to be >200. However, only 255 respondents were eligible to analyzed.

2.2. Research instruments

This questionnaire contains five constructs and 41 items adapted from Worley-Louis *et al*, (2003) patient participation behavior behavior (13 items), pharmacy staff participation behavior (12 items), interpersonal communication (5 items), quality of communicative relationships (8 items) and commitment relationships (3 items). Data collection in this study was carried out using a Likert scale questionnaire, which was adapted from the study (Worley, 2006). The first process involves linguists being asked to translate the questionnaire into Indonesian to avoid translation errors. Next, 2 academic experts were involved to evaluate words and clarity. Before being used, a trial was conducted on 30 respondents to ensure the validity and reliability of the questionnaire. Test the validity of the questionnaire using the Corrected Item-Total Correlation method with valid criteria when calculating r-value >0.361 and the reliability test using the Cronbach's Alpha method with reliable criteria if the Cronbach's Alpha value 0.6. The results of testing the validity of four items declared invalid, so removed from the questionnaire. The results of reliability testing, all variables are declared reliable. A total of 37 items were finally selected and measured on a 4-point Likert scale.

2.3. Data analysis

The results of the study will be analyzed using the PLS-SEM (Partial Least Square - Structural Equation Modeling) method with the help of a Smart-PLS Version 3.0 software. The parameters measured in PLS-SEM are outer model and inner model. There are three outer model criteria, namely convergent validity, discriminant validity and construct reliability. Inner model is used to see the relationship between variables, through the bootstrapping process.

3. Results and Discussion

3.1. Characteristics of respondents

Characteristics of respondents (Table 1) in this study the majority aged 25-44 years as much as 57.6%. The most of respondents were women as much as 77.6%. Most respondents in this study had a senior high school education with percentage of 51.8%. The other jobs (pensionary etc) dominating in respondents occupation with percentage of 49.8%. Average monthly income for most respondents is <1,500,000 (IDR) with percentage of 49.8%. The majority of respondents received pharmaceutical services >3 times by 72.2%. Membership status of BPJS Non-PBI is 50.6% while BPJS PBI are 126 respondents (49.4%).

3.2. Outer model analysis

3.2.1. Convergent validity

The results of the analysis of convergent validity and composite reliability have shown in Table 2. The total statements used in the final field study were 37 items. However, one items (PABI1) declared invalid because has loading factor value less than 0.5, so that it was omitted in the model. Each variable has a AVE value more than 0.5 this indicating sufficient convergent validity. The AVE value is ability of latent variables to explain more than half of the average indicator variance (Oliver *et al*., 2010). The consistency internal test results showed that the construct was declared reliable because it had a composite reliability value more than 0.70 (Henseler *et al*., 2009).

Table 1. The Characteristics of respondents with demographic profile of BPJS patients who have used PHC services.

Characteristic		Number (N=255)	%
Age group	18-24 th	32	12.5
	25-44 th	147	57.6
	45-64 th	65	25.5
	>64 th	11	4.3
Gender	Female	198	77.6
	Male	57	22.4
Education	Other	2	0.8
	Elementary School	19	7.5
	Junior High School	43	16.9
	Senior High School	132	51.8
	Diploma	21	8.2
	Bachelor	36	14.1
	Master/Ph.D	2	0.8
Occupation	Other	127	49.8
	Private Employee	42	16.5
	Student	11	4.3
	Farmer	1	0.4
	Government Employee	16	6.3
	Entrepreneur	58	22.7
Monthly income (IDR)	<1.500.000	127	49.8
	1.500.000-2.500.000	76	29.8
	>2.500.000-3.500.000	36	14.1
	>3.500.000	16	6.3
Average PHC visit	>three times	184	72.2
	Three times	71	27.8
Health insurance membership	BPJS Non-PBI	126	49.4
	BPJS PBI	129	50.6

3.2.2. Discriminant validity

Based on the data presentation in Table 3, Discriminant validity is obtained by comparing discriminant validity and square root of average extracted (AVE). The AVE square root value

of each construct is greater than the correlation value between constructs and other constructs in the model, it can be concluded good discriminant validity (Hussein, 2015).

Table 2. Convergent validity of questionnaire from respondents.

Variable	Item code	Factor Loading	AVE	Composite Reliability
Quality of communicative relationships	KH1	0,763	0,626	0,910
	KH2	0,741		
	KH3	0,852		
	KH4	0,748		
	KH5	0,823		
	KH6	0,824		
	KH7	0,779		
Commitment Relationships	KHU1	0,767	0,621	0,919
	KHU2	0,773		
	KHU3	0,822		
Interpersonal Communication	KI1	0,813	0,635	0,921
	KI2	0,819		
	KI3	0,727		
	KI4	0,813		
	KI5	0,809		
Pharmacy Staff Participation Behavior	PABI2	0,646	0,510	0,831
	PABI3	0,516		
	PAHB1	0,757		
	PAHB2	0,706		
	PAHB3	0,675		
	PAHB4	0,773		
	PAHB5	0,790		
	PAPT1	0,703		
	PAPT2	0,781		
	PAPT3	0,642		
	PAPT4	0,813		
Patient Participation Behavior	PPBI1	0,693	0,505	0,897
	PPBI2	0,617		
	PPBI3	0,688		
	PPBI4	0,731		
	PPBI5	0,722		
	PPKP1	0,715		
	PPPT1	0,759		
	PPPT2	0,678		
	PPPT3	0,735		
	PPPT4	0,756		

3.3. Inner model analysis

The value of R-Square is used to measure the level of variation in the changes of the independent variable to the dependent variable. The higher the value R-Square the better the prediction from the proposed research model. Falk and Miller (1992) suggest a limit on the R-Square value that is greater than 0.10 or (10 percent). In Table 4 shows the R-Square value for

the commitment relationships variable is 0.363. The value explains that the percentage of the commitment relationships can be explained by interpersonal communication, patient participation behavior, and pharmacy staff participation behavior of 36.3% and 63.3% explained by other variables are not measured in this study. The R-Square value for quality of communicative relationships variable of 0.350. This value explains that the quality of communicative relationships can be explained by interpersonal communication, patient participation behavior, and pharmacy staff participation behavior of 35.0% and 65% explained by other variables (patient safety, knowledge, accepting the tenets and practices of patient-centred care) are not measured in this study

Table 3. Discriminant validity of questionnaire from respondents.

Classification	Commitment Relationships	Interpersonal Communication	Quality of communicative relationships	Patient Participation Behavior	Pharmacy Staff Participation Behavior
Commitment Relationships	*0,788*				
Interpersonal Communication	0,398	*0,797*			
Quality of communicative relationships	0,612	0,432	*0,791*		
Patient Participation Behavior	0,529	0,313	0,468	*0,710*	
Pharmacy Staff Participation Behavior	0,406	0,556	0,454	0,309	*0,714*

Interpersonal communication has a positive effect on the commitment relationships in pharmacy services at the PHC ($p < 0.05$). This is supported by previous research which states that pharmacist-patient interpersonal communication has an influence on commitment relationships. Commitment relationships has trigger patients to look for future interactions with the pharmacist (Worley, 2006). Treatment of disease has not only require the availability of drugs and health workers, but also three factors namely compliance, adherence, and concordance. These three factors are very important in efforts to manage the disease, including pulmonary tuberculosis, hypertension, and asthma. Effective communication will increase understanding and motivation in patients to follow the advice of health workers (Patriani & Ayuningtyas, 2013).

The inner model is evaluated through the path coefficients. According to Table 4 and Figure 1, Pharmacy staff participation behavior has a positive effect on the commitment relationships in pharmacy services at the the PHC ($p < 0.05$). This is consistent with previous studies which mentions pharmacist participation has an influence on the commitment relationships. Pharmacist participative behavior/patient-centeredness of relationship are

important for the development of commitment relationships (Worley, 2006).. Another study found provision of information on antihypertensive drugs has a significant effect on the compliance of hypertensive patients at the PHC (Kurniapuri & Supadmi, 2015). Adherence to treatment is a vital component of therapy, and pharmacists are in an ideal position to deal with patients (Lanik, 2012). Compliance with treatment will decrease in complications (Donovan *et al*., 2011).

Table 4. The result of research hypothesis, after a bootstrap test was performed.

Hypothesis	Relationship	Original Sample	T *Statistic*	P *Values*	*R-Square*
1	Interpersonal Communication → Commitment Relationships	0,164	3,169	0,002	
2	Pharmacy Staff Participation Behavior → Commitment Relationships	0,184	3,014	0,003	0,363
3	Patient Participation Behavior → Commitment Relationships	0,421	5,476	0,000	
4	Patient Participation Behavior → Quality of communicative relationships	0,333	5,289	0,000	
5	Interpersonal Communication → Quality of communicative relationships	0,193	3,449	0,001	0,350
6	Pharmacy Staff Participation Behavior → Quality of communicative relationships	0,244	4,289	0,000	

Interpersonal communication has a positive effect on the quality of communicative relationships in the pharmacy services at the PHC ($p < 0.05$). This is consistent with previous studies which states that interpersonal communication has an influence on the quality of communicative relationships (Pribadi *et al*., 2019). Other studies found that interpersonal communication influences the quality of communicative relationships as measured by pharmacist's trust and satisfaction with the pharmacist. Social conversations between pharmacists and patients build trusting and satisfying relationships (Worley-Louis *et al*., 2003).

Patient participation behavior has a positive effect on the commitment relationships in pharmacy services in PHC context ($p < 0.05$). This finding contrary from the results of Worley (2006) and Pribadi *et al*., (2019) which found patient participation behavior has not effect the commitment relationships. Differences in research results can be explained due to differences in sample. The Worley study used diabetic patients while this study used outpatients. When a

"new" illness is suffered, the patient will more actively participate with the pharmacist because he is in the process of learning about and managing the condition of his illness (Worley, 2006).

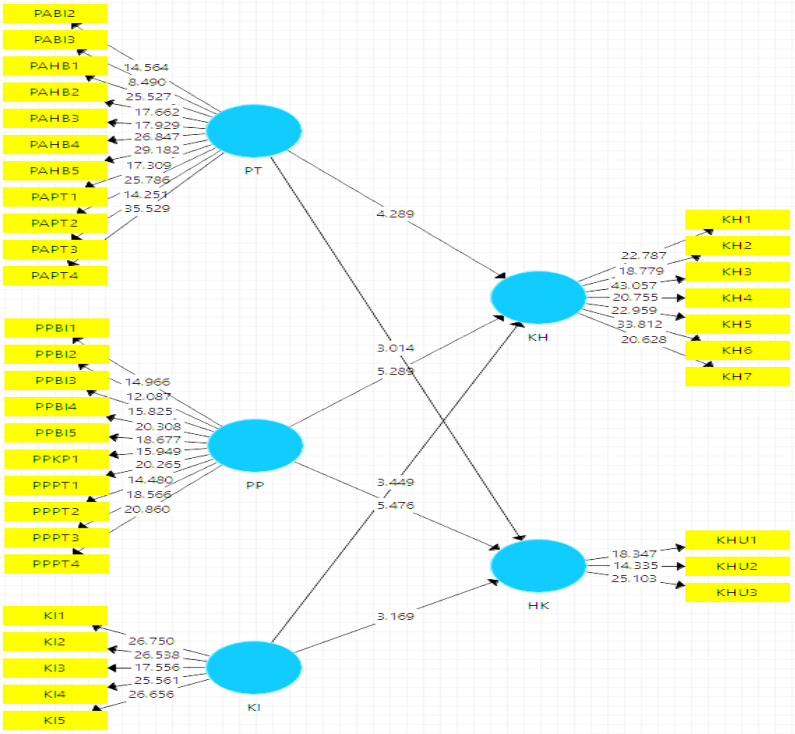

Figure 1. Partial least square structural equation modelling of pharmacy staff-patient relationship quality model.

Patient participation behavior has a positive effect on the quality of communicative relationships in pharmacy services at the PHC ($p < 0.05$). This research is supported by Muchlis & Dewanto (2013) which stated the hospitals need to build relationships to meet customer expectations by involving customers in decision making. Thus, the quality of customer trust and satisfaction can be achieve. The sixth hypothesis was proven accepted ($p < 0.05$), therefore it can be concluded that the pharmacy staff participation behavior has a positive effect on the quality of communicative relationships in pharmacy services at the PHC. This is consistent with previous research which mentions the participation behavior of pharmaceutical workers has an influence on the commitment relationships. Pharmacist participation is proven to be an important antecedent of relationship quality (Wang *et al*., 2018). The community has good perceptions, expectations and experiences of the role of pharmacist, in pharmaceutical services (Pratiwi, 2020). Interprofessional collaboration is expected to be able to provide an increase in the competencies, attitudes, and skills needed to work together effectively (Kusuma, 2020).

This study has several limitations including: samples taken only in outpatients. Future studies need to consider different patient settings, such as those with non-communicable diseases or chronic diseases. Moreover, the research model needs to be developed to measure

other variables that affect the quality of communicative relationships and commitment relationships beyond the variables measured in this study.

4. Conclusion

Patient participation behavior, pharmacy staff participation behavior and interpersonal communication influence the quality of communicative relationships. and the commitment relationships. PHC need to improve pharmacy staff clinical performance, therefore that pharmacy staff can provide services pharmaceuticals that meet the targets and standards set.

Acknowledgement

The authors are grateful to the authorities of Department of Pharmacy, Faculty of Health Science, Universitas Muhammadiyah Magelang for the facilities.

Conflict of Interest

All authors declared that there was no conflict of interest.

References

Bertakis, K. D., and Azari, R. (2011). Patient-centered care is associated with decreased health care utilization. *Journal of the American Board of Family Medicine*, *24*(3), 229–239.

BPJS. (2019). KIS Jadi Program Pemerintah Paling Dirasakan Manfaatnya Versi Alvara Research. BPJS Kesehatan.

BPJS Kesehatan. (2017). Pengelolaan Program dan Laporan Keuangan Jaminan Sosial Kesehatan. BPJS Kesehatan.

Donovan, S., Byrne, L., and Sahm. (2011). The role of pharmacists in the management of type 2 Diabetes Mellitus: A review of the literature. *Journal of Diabetology*, *2*(1), 6.

Falk, R., and Miller, N. B. (1992). *A Primer for Soft Modeling. In Akron* (Vol. 2, Issue April). Ohio: University of Akron Press.

Frampton, S., Guastello, S., Brady, C., Hale, M., Horowitz, S., Smit, S. B., and Stone, S. (2008). *Patient Centered Care Improvement Guide* (Issue March). England: Inc. and Picker Institute.

Henseler, J., Ringle, C. M., and Sinkovics, R. R. (2009). The Use of Partial Least Squares Path Modeling In International Marketing. *Advances in International Marketing*, *20*(2009), 277–319. https://doi.org/10.1108/S1474-7979(2009)0000020014.

Hussein, A. (2015). *Penelitian Bisnis dan Manajemen Menggunakan PLS (smart-PLS 3.0)*. Malang: Universitas Brawijaya.

Kline, R. B. (2005). *Principles and Practice of Structural Equation Modeling*, (edition). New York: Guilford Press.

Kurniapuri, A., and Supadmi, W. (2015). The Influence of Providing Antihypertensive Drug Information on Hypertensive Patients' Compliance in Umbulharjo I Public Health Center Yogyakarta In Period of November 2014. *Majalah Farmaseutik, 11*(1), 268–274. https://doi.org/10.22146/Farmaseutik.V11I1.24115.

Kusuma, I. Y., and Anggadiredja, K. (2020). Evaluasi persepsi interprofessional education dan efektivitasnya pada tingkat pengetahuan tenaga kesehatan tentang kb oral dan suntik di Kota Bandung. *JPSCR: Journal of Pharmaceutical Science and Clinical Research*, *5*(1), 70-83.

Lanik, A. D. (2012). Preconception Counseling. *Primary Care - Clinics in Office Practice*, *39*(1), 1–16. https://doi.org/10.1016/j.pop.2011.11.001.

Mardiati, N., Wahyunita, S., and Widianti, R. D. A. (2018). Association Between Type of Health Facilities and Membership Status to JKN Participans' Satisfaction On

Pharmaceutical Services: Study In Primary Health Facilities In Banjarbaru. *Journal Pharmaceutical Science, 1*(2), 54–62.

Muchlis, M., and Dewanto, A. (2013). Pengaruh Kepercayaan, Kepuasan Pelanggan dan Komitmen Hubungan terhadap Citra Rumah Sakit di Kota Blitar. *Jurnal Aplikasi Manajemen, 11*(3), 469–480.

Oisina, I. V, and Osidhi, I. R. V. (2018). Korelasi Komunikasi Interpersonal Efektif & Kualitas Layanan Tim Medis terhadap Kepuasan Pasien. *Jurnal Komunikasi Islam*, *8*(1), 131–154.

Oliver, G., Liehr-gobbers, K., and Krafft, M. (2010). *Evaluation of Structural Equation Models Using the Partial Least Squares (PLS) Approach. In Handbook of Partial Least Squares, Springer Handbooks of Computational Statistics* (pp. 691–711). Jerman: University of Munster. https://doi.org/10.1007/978-3-540-32827-8.

Patriani, I., and Ayuningtyas, D. (2013). Concordance Attitude of Doctors Communication Toward the Patient of Lung Tuberculosis, Hipertention, and Asthma Ita. J*urnal Kesehatan Masyarakat Nasional, 8*(2), 51–55.

Pratiwi, H., Mustikaningtias, I., Widyartika, F. R., Setiawan, D., Nasrudin, K., and Julietta, L. (2020). Analisis Persepsi Masyarakat Terhadap Peran Apoteker Pada Layanan Kefarmasian Di Apotek Kecamatan Sokaraja, Baturraden, Sumbang, Dan Kedungbanteng. *JPSCR: Journal of Pharmaceutical Science and Clinical Research*, *5*(1), 33-48.

Pribadi, P., Kristina, S. A., Syahlani, S. P., and Satibi. (2019). The empirical test of pharmacist-patient relationship model in hospital pharmacy practice: indonesia context. Research *Journal of Pharmacy and Technology*, *12*(10), 4623–4627. https://doi.org/10.5958/0974-360X.2019.00795.9.

Rakhmawati, T., Sumaedi, S., Mahatma, I. G., Bakti, Y., Astrini, N. J., Yarmen, M., Widianti, T., Sekar, D. C., and Vebriyanti, D. I. (2013). Developing a Service Quality Measurement Model of Public Health Center in Indonesia. *Management Science and Engineering*, *7*(2), 1–15. https://doi.org/10.3968/j.mse.1913035X20130702.1718.

Wang, D., Liu, C., Zhang, Z., Ye, L., and Zhang, X. (2018). Testing a healthcare provider – patient communicative relationship quality model of pharmaceutical care in hospitals. *International Journal of Clinical Pharmacy, 13*.

Worley-Louis, M. M., Schommer, J. C., and Finnegan, J. R. (2003). Construct Identification and Measure Development for Investigating Pharmist-Patient Relationships. *Patient Education and Counseling*, *51*, 229–238.

Worley, M. M. (2006). Testing a pharmacist-patient relationship quality model among older persons with diabetes. *Research in Social and Administrative Pharmacy*, *2*(1), 1–21. https://doi.org/10.1016/j.sapharm.2005.12.006.