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Development of Community Satisfaction Instrument Measurement in Public Health Center Based on Android

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Abstract

The quality of health services can be measured by measuring the indices of public satisfaction on services provided at a public health center. Measurements are certainly done by using instruments to facilitate the collection of data. The purpose of this research is to develop the measurement instrument of community satisfaction index at public health center based on android. The benefistsof the research that can be used as a standard guide in measuring public satisfaction. The instruments currently used do not measure the index of community satisfaction as expected based on indicators of community satisfaction. This research is a development research conducted on unit of outpatient service Ngemplak Simongan Public Health Center, Semarang City in April-May 2018. The sampling technique using accidental sampling Test method of content validity using expert judgment, construct validity using Exploratory Factor Analysis (EFA), while reliability testing using Cronbach Alpha. The develop instrument consists of five dimensions of measurement which includes tangible, responsivenees, reliability, assurance and emphaty. The result ofthe research shows that all statement items of 72 items from all service units are valid by content based on expert's judgment calculated using Aiken V formula and as many 72 item of valid statement construct from all service units, as well as instruments of all service units stated to have high and very high reliability coefficients so it is feasible to use.

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INTRODUCTION

Since the enactment of the public service law of 2009, every agency of public service providers is obliged to carry out an evaluation of the service performance in the organization environment periodically and continuously by using clear and measurable indicators. If perceived quality exceeds expectations, then the service is said to be qualified and satisfactory (Qudsiah and Indrawati, 2018). Therefore, to know the performance of service of government apparatus, it is necessary to compile an instrument of satisfaction index of society and society involved by giving opinion to service by measuring index of public satisfaction. Measurement of community satisfaction index in this case is the community or patients who visit the puskesmas as an institution of public service providers by using an evaluation tool that is a questionnaire .

The development of instruments is an activity to develop existing instruments to be better than ever valid and reliable. Development of this instrument becomes important in determining the quality or information of a public service, especially in puskesmas on the quality of services provided. Development of the instrument must be through the stages of good development in order to obtain a quality instrument (Rusilowati, 2013).

Instruments are tools used to collect data by measuring. Instrument is a tool used to measure the phenomenon, by measuring the data will be obtained objectively, then the results will be better. Instruments play an important role in determining the quality of information (Sumaryanto, 2016). Instrument is a very important tool in a study, because with the instrument a data and information will be obtained. Therefore, to obtain good quality data, then the instruments used must be qualified that meet the requirements of validity , reliability and reliability (Sugiyono, 2010).

Measuring the index of community satisfaction must be very important in providing information that will be used as an evaluation of service performance of a puskesmas. Therefore, the measurement should also be done as well as possible so that the information provided becomes accurate and clear. Measurement activities certainly can not be separated from the data collection instrument that will be used as a basis for collecting the necessary data. Data quality also depends on the quality of the instruments used to collect the data so that the validity and reliability requirements must be met (Widoyoko, 2016).

In Indonesia, various instruments have been developed to measure the level of patient satisfaction with the services provided by a puskesmas. However, the development of this instrument is purely using a customer satisfaction measurement approach in general. While the patient at the puskesmas has a particular specificity that is in terms of receiving services such as patients who do not receive laboratory services but the instruments are still given to patients.This has an impact on the clarity and accuracy of information provided by puskesmas. Accurate information about patient satisfaction is needed to improve the quality of health services (Sondari & Raharjo, 2017).

The measurement instrument of community satisfaction index used by Ngemplak Simongan Public Health Center is still based on paper and pencil (*paper and pencil*). This certainly takes a long time in doing penginputan data and have the wrong risk level in filling the existing data on the questionnaire at the time penginputan data to the computer. This measurement error will certainly have an impact on the result of the assessment that is less accurate information given by Ngemplak Simongan Public Health Center to the conclusion of the satisfaction of the society which is judged based on the quality of service given. In addittion, the instrument does not consist of tangible, reliability, reponsiveness, assurance, and emphaty. In addition, the instruments used are not yet standardized because they have not passed the validity and reliability stages of the instrument. As a result, the data generated by the instrument that has not been valid and reliable can be said that the data is not good so that the impact on the clarity and accuracy of information provided by Puskesmas Ngemplak Simongan and because the assessment has not been based on the commonly used valuation aspect, it can not be distinguished based on which aspect still needs improvement or needs to be improved.

This study aims to develop a measurement instrument of public satisfaction index with service indicators assessed in the measurement of

a valid and reliable public satisfaction index. The instrument developed is an instrument based on Android by using mobile phone which is expected to facilitate for its users who are data collectors at Ngemplak Simongan Health Center. The developed instrument consists of 5 dimensions of measurement which includes physical evidence, responsiveness, reliability, assurance and awareness.

METHODS

This research was conducted on outpatient unit in Ngemplak Simongan Health Center, Semarang City during April-May 2018. The people who visit or seek treatment at Ngemplak Simongan Health Center and meet the research criteria as the research sample. The sampling technique uses *accidental sampling* .

This research is a development research using Borg and Gall modification which consist of 10 steps then 8 which include (1) *Research and information collecting* , (2) *Planning* , (3) *Develop preliminary form of product* , (4) *Preliminary field testing* , (5) *Main product revision* , (6) *Main field testing* , (7) *Operational product revision* , (8) *Operational field testing* . The instruments developed include five (5) measurement dimensions including tangible, reliability, reponsiveness, assurance, and emphaty dimensions consisting of 72 items of statements prior to testing of validity and reliability.

Test method of content validity using expert judgment method and construct validity using Exploratory Factor Analysis (EFA). Testing instrument reliability using Cronbach Alpha method. In addition to testing validity and reliability, developed instruments will also be tested for practicality in their use.

RESULTS AND DISCUSSION

The results of this study consist of the results of content validity test, construct validity and reliability of the measurement index of community satisfaction index in android-based health centers.

Content Validity, Construct Validity and Instrument Reliability

1. Content Validity

Prior to field testing, the instrument was first tested for content validity based on expert judgment in order to assess the contents of the developed instrument. Assesment involves 3 experts who are competent in the field of instrument development and measurement of community satisfaction index to asses the feasibilty of the developed instrument. Assessment is done by the expert by giving a score on the validation sheet that has been provided. The scores obtained were then analyzed using the Aiken V formula. The results of Aiken V analysis for the polyclinic service instrument can be seen in Table 1

Table 1. Results of Validity Analysis of Content of Aiken V of Polyclinic Service Unit

No Item	Aiken V	Criteria
1	0,83	Valid
2	0,50	Valid
3	1,00	Valid
4	0,50	Valid
5	1,00	Valid
6	0,50	Valid
7	0,83	Valid
8	1,00	Valid
9	0,50	Valid
10	1,00	Valid
11	1,00	Valid
12	1,00	Valid
13	1,00	Valid
14	1,00	Valid
15	0,50	Valid
16	1,00	Valid
17	0,50	Valid
18	1,00	Valid
19	1,00	Valid
20	1,00	Valid

In Table 1 shows that the result of validity assessment on the item of polyclinic service instrument stated that all items of statement are valid by content because the value of Aiken V> 0.3.

Next is the validity of the content of registration service instruments can be seen in Table 2.

Table 2 . Results of Content Validity Analysis Aiken V Registration Services Unit

No Item	Aiken V	Criteria
1	0.83	Valid
2	0.50	Valid
3	1.00	Valid
4	0.67	Valid
5	1.00	Valid
6	0.50	Valid
7	0.83	Valid
8	1.00	Valid
9	0.67	Valid

10	1.00	Valid
11	1.00	Valid
12	0.50	Valid
13	1.00	Valid
14	1.00	Valid
15	1.00	Valid
16	1.00	Valid

In Table 2 shows that the result of validity assessment on the item of registration service instrument stated that all items of statement are valid by content because the value of Aiken V> 0.3.

Next is the validity of the content of pharmacy service instruments can be seen in Table 3.

Table 3 . Results of Content Validity Analysis of Aiken V Pharmacy Service Unit

No. Item	Aiken V	Criteria
1	0.83	Valid
2	1.00	Valid
3	1.00	Valid
4	0.67	Valid
5	1.00	Valid
6	0.50	Valid
7	0.83	Valid
8	1.00	Valid
9	0.67	Valid
10	1.00	Valid
11	1.00	Valid
12	1.00	Valid
13	1.00	Valid
14	1.00	Valid
15	1.00	Valid
16	1.00	Valid
17	0.50	Valid
18	0.50	Valid

In Table 3 shows that the result of the validity assessment on the pharmacy service instrument clause is stated that all items are valid statements by content because the value of Aiken V> 0.3.

Next is the validity of the contents of laboratory service instruments can be seen in Table 4.

Table 4. Results of Validity Analysis of Content of Aiken V Unit Laboratory Services

No. Item	Aiken V	Criteria
1	1.00	Valid
2	1.00	Valid
3	1.00	Valid
4	0.67	Valid
5	1.00	Valid
6	0.50	Valid
7	0.83	Valid
8	1.00	Valid
9	0.67	Valid
10	1.00	Valid
11	1.00	Valid
12	0.50	Valid
13	1.00	Valid
14	0.83	Valid
15	0.83	Valid
16	1.00	Valid
17	0.50	Valid
18	0.50	Valid

Table 4 shows that the results of the validity assessment on the item of laboratory service instrument stated that all items of the statement are valid in content because the value of Aiken V> 0.3.

If the item has a correlation index <0.3 then it is declared invalid, in accordance with the theory expressed by Widoyoko (2016 : 170) stating that the valid item is having correlation index> 0.3, while the invalid has correlation index <0.3.

2. Construct Validity and Instrument Reliability

Furthermore, instruments that have been validated by experts, then tested in the field. Field trials aims to determine the validity of the constructs of each instrument item by factor analysis . Factor analysis used is exploratory factor analysis. Before proceeding to test the validity of the construct , the main requirement using factor analysis is the fulfillment of KMO value as revealed by Ghozali (2016: 378), if the value of KMO> 0.50 then factor analysis can proceed, but if the value of KMO <0.50 then factor analysis can not proceed. KMO scores on all four instruments covering polyclinic services, registrations, pharmacies and laboratories have a KMO value> 0.50 so that factor analysis can proceed.The trial was conducted at Ngemplak Simongan Public Health Center, Semarang City with 150 samples. Implementation of field

trials involves administrative data collectors consisting of 4 people to help collect data. After the data collection is done, the results of the testers are tested for their validity by using exploratory factor analysis with the help of IBM SPSS 24.0 program. The result of construct validity test can be seen in Table 5.

Table 5. Test Result of Construct Validity and Reliability of Polyclinic Service Instrument

No	Aspects and Items	*Loading Factor*	*Alpha Cronbach*
A	**Tangible**		
1	Policlinic officer appearance	0.990	
2	Treatment room arrangement / inspection	0.981	0.984
3	Completeness of medical equipment used	0.984	
B	**Responsiveness**		
4	Services provided by polyclinic officers when needed	0.778	
5	Clarity of information provided by policlinic officers about the problems faced by the patient	0.876	0.688
6	Clarity of information provided by the policlinic officer about the medical action to be planned	0.708	
C	**Reliability**		
7	The alertness of the policlinic officer is always there in the examination room during service hours	0.499	
8	Service of polyclinic officers in accordance with the time / not slow	0.672	
9	Timeliness to open polyclinic according to schedule	0.926	0.824
10	The arrival of policlinic officers on schedule	0.797	
11	Speed of treatment (not for hours)	0.906	
D	**Assurance**		
12	Compatibility of competence of doctor / nurse serving	0.915	
13	The ability of policlinic officers to grow the spirit and confidence of patients	0.408	
14	Skills of polyclinic officers in providing appropriate action to patients	0.185	0.742
15	Patient safety receives polyclinic service (free of danger, risk or doubt)	0.905	
16	Hospitality polyclinic officers in answering patient questions	0.862	
E	**Emphaty**		
17	Policlinic officer's awareness of complaints / problems faced by patients	0.941	
18	The patience of the polyclinic officer in examining the patient	-0.052	0.712
19	The interests of the patient are always preferred by the polyclinic officer	0.851	
20	Communication that exists between the policlinic officer and the patient	0.937	

From the result of factor analysis conducted on the aspect of community satisfaction in the policlinic service unit, there are some statement items that are on the valid criteria with the value of *Loading Factor* > 0.5. Aspects or dimensions with valid statements include aspects of Physical Evidence with 3 statements (points 1, 2 and 3) and *Cronbach Alpha* values obtained of 0.984, Responsiveness aspect with 3 statements (4, 5 and 6) and *Cronbach Alpha* valuesobtained by 0.688, Reliability aspect with 4 statements (items 8, 9, 10 and 11) and *Cronbach Alpha* values obtained by 0.824, Guarantee aspect with 3 statements (12, 15 and 16) and *Cronbach Alpha* values obtained by 0.742 , and the Concern aspect with 3 statements (points 17, 19 and 20) and and the *Cronbach Alpha* values obtained at 0.712. Therefore, with these results it can be said that the grains of the instrument forming aspect / dimension of satisfaction is a good point and can be used as a measure of public satisfaction on polyclinic services and the coefficient of reliability of the instrument is in the category of high and very high so that the instrument can be said as a consistent or reliable instrument . Next is the validity of the construct and reliability of the

registration service instrument can be seen in Table 6.

Table 6. Test Result of Construct Validity and Reliability of Registration Service Instrument

No	Aspects and Items	*Loading Factor*	*Alpha Cronbach*
A	**Tangible**		
1	Cleanliness of the place of registration	0.990	
2	Regularity of registration officer / medical record	0.981	0.984
3	File Maintenance (Map) Medical Record (not tangled / torn)	0.984	
B	**Responsiveness**		
4	The officer's response to the patient's problem (the officer knows what the patient needs)	0.883	0.713
5	Officer's directions to the Polyclinic immediately	0.883	
C	**Reliability**		
6	Ease of registration / administrative procedure	0.105	
7	Patient services according to the queue sequence number	0.936	0.764
8	Clarity of information about the opening / closing schedule of the registration counter	0.622	
9	Speed of waiting time at the registration counter	0.953	
10	Timeliness to open the registration counter	0.821	
D	**Assurance**		
11	Skills registration officer when serving patients	0.972	0.941
12	Hospitality registration officer when serving patients	0.972	
E	**Emphaty**		
13	Sincerity of the officer serves the patient	0.751	
14	Clarity of information by the officer when the patient asked	0.565	0.632
15	Readiness of officers at registration booth.	0.668	
16	The time of service provided by the officers is adjusted to the number of patients who come to visit (reduce the hours of rest and continue to serve patients)	0.768	

From the result of factor analysis conducted on the aspect of community satisfaction in the policlinic service unit, there are some statement items that are on the valid criteria with the value of *Loading Factor* > 0.5. Aspects or dimensions with valid statements include aspects of Physical Evidence with 3 statements (points 1, 2 and 3) and *Cronbach Alpha* values obtained of 0.984, aspect Power Response with 2 statements (points 4 and 5) and *Cronbach Alpha*values obtained 0.713, Reliability aspect with 4 statements (items 7, 8, 9 and 10) and *Cronbach Alpha* values obtained by 0.764, Warranty aspect with 2 statements (points 11 and 12) and *Cronbach Alpha* values obtained by 0.941, with 4 statements (13, 14, 15 and 16) and and *Cronbach's Alpha* values of 0.632. Therefore, with these results it can be said that the grains of the instrument forming aspect / dimension of satisfaction is a good point and can be used as a measure of public satisfaction on service registration and the coefficient of reliability of the instrument is in the category of high and very high so that the instrument can be said as a consistent or reliable instrument . Furthermore, construct validity and reliability of pharmacy service instruments can be seen in Table 7.

Table 7. Test Results of Construct Validity and Reliablity of Pharmacy Service Instruments

No	Aspects and Items	*Loading Factor*	*Alpha Cronbach*
A	**Tangible**		
1	Neatness appearance of pharmacist	0.847	0.606
2	Cleanliness of the pharmacy waiting room	0.847	
B	**Responsiveness**		
3	Clarity of instructions on the use and identity of the drug	0.838	

4	Speed of pharmacist servicing patients	0.895	0.787
5	Speed of delivery of medicines at each prescription redemption	0.777	
C	**Reliability**		
6	Readiness of the officer at thepharmacy	0.303	
7	Compliance with fees paid at a set fee when paying for drugs	0.506	
8	Ease of service at the pharmacy	0.639	
9	Clarity of open / closed pharmacy schedule information	0.774	0.741
10	Fairness of cost when paying medicine	0.833	
11	Speed of waiting time while waiting for medication	0.669	
12	The accuracy of drug delivery	0.576	
D	**Assurance**		
13	Skills of pharmacists when serving patients	0.811	
14	Hospitality of pharmacists when serving patients	0.913	0.771
15	Drug guarantees provided by pharmacists (not yet expired)	0.759	
E	**Emphaty**		
16	The sincerity of the pharmacist serves the patient	0.768	
17	Clarity of information by the officer when the patient asked about the drug	0.874	0.746
18	Courtesy pharmacist when serving patients	0.800	

From the result of factor analysis conducted on the aspect of community satisfaction in the pharmacy service unit, there are some statement items that are on valid criteria with the value of Loading Factor > 0.5. Aspects or dimensions with valid statements include aspects of Physical Evidence with 2 statements (points 1 and 2) and Cronbach Alpha values obtained for 0.606, aspect Power Response with 3 statements (3, 4 and 5) and *Cronbach Alpha* valuesobtained equal to 0.787, Reliability aspect with 6 statements (items 7, 8, 9, 10. 11 and 12) and *Cronbach Alpha* values obtained by 0.741, Guarantee aspect with 3 statements (13, 14 and 15) and *Cronbach Alpha* values obtained of 0.771, and the Concern aspect with 3 statements (points 16, 17 and 18) and and *Cronbach Alpha* values obtained by 0.746. Therefore, with these results it can be said that the grains of the instrument forming aspect / dimension of satisfaction is a good point and can serve as a measure of public satisfaction on the pharmacy service and the coefficient of reliability of the instrument is in the high category so that the instrument can be regarded as an instrument consistent or reliable .This is in line with that revealed by the dragon that the reliability coefficient of 0.50 is sufficient enough to be accepted as a good reliability (Khumaedi, 2012).

Likewise with the results of research Kartikasari (2014) which indicates that the statement items on aspects of physical evidence, responsiveness, reliability, assurance and care expressed valid. Unlike the results of Hadiyati's research (2017), it shows that the statement items related to waiting times and service schedules on administrative services are not valid. But unlike the results of research Hadiyati (2017) which shows items on the indicator waiting timeand service schedule declared invalid.

In addition to validity, the reliability coefficient generated on the developed instrument is in the high and very high category. This is in line with Susanti's research (2015) and which finds that the reliability coefficient is in the high category (> 0.6) so that the instrument is declared reliable. Likewise with the results of research Chang (2013) who obtained the coefficient of reliability in the category very high on aspects of responsiveness, reliability and assurance.Likewise with the results of research Almasdy (2015) which shows that the instruments developed in pharmaceutical services have a value of coefficient of reliability is very high. Likewise with the research Aletras (2006) which indicates that the instrument of laboratory services declared invalid constructively.

CONCLUSION

Based on the results and discussion of research that has been described, can be drawn conclusion as follows:

Instrument Characteristics

The instrument was developed has several characteristics that me m confused with measurement instruments satisfaction index of other communities that were (1) the use of instruments developed more specifically used per unit of service not be generalized, making it easier to provide clear information related to the services on each (2) the developed instruments not only assess the satisfaction of the community but also assess the service performance of each service unit in the puskesmas (3) instruments developed based on the android application so that it is expected to facilitate the data collecting officer in collecting data of community satisfaction.

Validity and Reliability

The validity of the contents of the developed instrument is based on expert judgment and analyzed using Aiken's V formula. The analysis results show that all items of statement of each service unit are valid because they have validity value> 0.3. While the construct validity is based on field trial results and analyzed using confirmatory factor analysis. The results of the analysis indicate that the instruments in the polyclinic service unit are 14 pointed statements valid from 20 statements, the instruments in the registration service unit there are 12 valid statements of 16 statements, the instruments in the pharmacy service unit there are 14 valid statements of 18 statements and instruments in the laboratory service unit there are 13 valid statements of 18 available statements. The reliability of the developed instrument is based on the results of field trials and analyzed using Cronbach Alpha . The result shows that from the four instruments, there are 3 instruments that are the service of polyclinic, registration and laboratory which have very high reliability coefficient while the instrument at pharmacy service has high reliability coefficient .

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