Jurnal Kesehatan Prima

Validity and Reliability of Community Satisfaction Measurement Instrument in Health Care Institution

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Abstract

The Community Satisfaction Survey is mandatory based on Ministry of Administrative and Bureaucratic Reform Regulation number 14 in the year of 2017. An alternative measurement tool has been developed by expanding the measurement items. The research objective was to explore the validity and reliability of public satisfaction instruments in health institutions. The design was non-experimental, with a quantitative and cross sectional approach. The research was carried out in two entities, namely primary health care and hospital. Data collection using the IKM-29 questionnaire. Data processing with Rasch modeling and winsteps application. The results showed that the item reliability at PHC and hospital was 0.95 and 0.97 with Cronbach's alpha 0.95. The separation is more than 3 and the raw variance is more than 40%. In the two entities there are several different misfit items. Item 8 related to the perception of waiting time has a high degree of difficulty and is paradoxical. The results of the analysis show that the instrument is valid and reliable enough to be used as an alternative measurement of community satisfaction in PHC and Hospitals.

Keywords: Community Satisfaction;Validity,Reliability;Rasch Model

INTRODUCTION

The quality of health services is one of the intermediate outcomes in the health system. Service quality can be measured based on predetermined standards, or based on customer perceptions. According to Donabedian and Padma et al., The quality of health services must be measured using the perspective of stakeholders such as customers, health care providers, service payers, health managers who reflect the values of their needs (Donabedian, 1980; Padma et al, 2009). Service quality based on customer perceptions is dynamic and subjective. This perception measurement is very important considering that customers or the public are users who have their own values and have an interest in services.

Indonesia since 2017 has created a framework for measuring the quality of public services through Ministry of Administrative and Bureaucratic Reform (MABR) no 14, year of 2017 which requires all public organizations including health services to conduct customer / community satisfaction measurements or surveys (Permenpan, 2017). The survey is conducted at least once a year.

The MABR customer satisfaction instrument has 9 measurement items called "elements" using a Likert scale. The method of analysis is done by dividing, multiplying, adding and weighting. The final result of the measurement is in the form of community satisfaction index.

The problem with this instrument is the direct processing and analysis of ordinal data, even though the numbers in the ordinal data are not actual numbers. Perceptions of customer satisfaction with services are represented in the form of a number symbol, so that it is not a number like the results of measurements in general. This phenomenon looks common for measuring instruments in social science. Meanwhile, statistical analysis for ordinal data is only possible with medians and percentiles (Bond and Fox, 2015).

An alternative of ordinal data analysis is by first transforming it into numerical, so that various possible analyzes can be carried out as needed. Rasch modeling can be a solution. However, if "element" as mention in the guidance or later on called as dimension still want to be kept, then new items must be developed.

We have developed instruments based on these policy guidelines, namely IKM29. IKM is an abbreviation of the *Indeks Kepuasan Masyarakat* (Community Satisfaction Index). While 29 describes the number of items in the instrument.

The nine elements in the guideline were retained, then added items and increased their status as dimensions. Thus, one dimension has each item, where one of the items that is retained or remains there are 9 elements based on these guidelines.

Thus, institutions or an individual that measure people's satisfaction can meet MABR standards. However, it can improve the measurement results in accordance with the rules of using ordinal data. The question that arises is how the validity and reliability of the instrument if it is applied in Primary or Secondary Health Care Facilities.

The research objective is to explore the validity and reliability of public satisfaction instruments in health institutions using the Community Satisfaction Instrument (IKM -29) which is the development of an instrument based on the guidelines for MABR regulation No.14 year of 2017.

METHOD

The research design was non-experimental, with a quantitative and cross sectional approach. The research was carried out in *Puskesmas*, private clinics (primary health care-PHC) and hospitals to represent primary and secondary service entities.

The study population was outpatients at the PHC and hospitals. This study was not intended to generalize the results, so that the sampling was carried out on a non-probability basis.

The IKM-29 instrument was built through the first qualitative research stages. Based on 9 "elements" of measuring the community satisfaction index (MABR regulation no 14, year of 2017), measurement items are developed.

Initially the instrument consisted of 20 items, then it was further developed into 29 items. In the end, the instrument has 9 dimensions, each consisting of 3-4 items. The scale used is a Likert-type scale (ordinal) with 4 levels, a polytomous data (Bond and Fox, 2015). In the first item, each dimension is in line with the elements in MABR guidelines, so these items can still be analyzed using the method according to the guidelines. IKM-29 instrument users can compare the results of the two.

Data collection was carried out on patients who had finished receiving outpatient services at PHC or hospitals using a questionnaire by trained enumerators. 193 and 232 clients / respondents were successfully recruited for PHC and RS. Data processing uses Rasch modeling with the Winsteps version 3.73 application (Van Zilen-Timen, 2017).

PHC and hospital data are separated to explore similarities or differences between the two.

The analysis was carried out for the validity, reliability and fit statistics of the items in the instrument. The analysis is performed to meet the criteria for unidimensionality, monotonicity, local independence and no difference item functioning. (Christensen et al, 2013; Bond and Fox, 2015; Andrich and Marais, 2019).

This research has received ethical approval from the Research Ethic Committee no 1359 / UN6.KEP / EC / 2019.

RESULT AND DISCUSSION

Table 1 shows the excellent item reliability in both entities, that are PHC (0.95) and Hospital (0.97), with a number close to one. Likewise, Cronbach's alpha in both of them was 0.95. The reliability of the instrument is also supported by a good separation coefficient which are more than three. The validity of the construct is shown by a unidimensionality test where the raw variance is more than 40%, as the standard for polytomous data. Unexplained variance eigenvalue for both entities are more than three, which are not ideal, but the percentage is less than 15%.

Table 1. Reliability and Model Fit

Attribute	Entity	
	PHC	Hospital
n	193	232
Number of item	29	29
Outfit Mean Square		
Mean	1.04	0.97
Standard Deviation	0.44	0.75
Separation	4.22	5.59
Reliability	0.95	0.97
Cronbach's alpha	0.95	0.95
Unidimensionality		
Raw variance	44.8%	46.2%
Unexplained variance 1st contrast	6.2% (3.25)	7.7% (4.12)

Table 2. Rating Scale Model Category Statistics

Entitas	Category	Frequency	Percentage	Average measure	Outfit MnSq	Step
PHC	1 ( )	145	3	0.15	2.33	None
	2 ( )	959	17	0.43	1.27	-1.96
	3 ( )	1768	32	1.24	0.56	0.32
	4 ( )	2725	49	2.84	0.98	1.64
Hospital	1 ( )	76	1	-0.64	5.67	None
	2 ( )	359	5	-0.14	0.85	-3.13
	3 ( )	4721	70	2.12	0.82	-1.31
	4 ( )	1630	24	4.97	0.80	4.43

Table 3. Item Fit Statistics

Attribute	Entity	
	PHC	Hospital
Item Measure		
Mean	0.00	0.00
Standard Deviation	0.54	1.02
Range of item measure	0.06 – 2.24	-1.30 – 4.34
Extreme measure	None	None
Point measure correlation <0.4	Item:8	Item: 8
Outfit MnSq > 1.5	Item: 8,27	Item: 3,5,8,27
Outfit MnSq < 0.5	Item: 18	Item:14,15,16,18
Item DIF based on demographic		
Gender, item no:	Item 4, 8	Item: 27

In table 2, the rating scale analysis indicates the need to break down the rating scale on the hospital entity, which is between 3 (good) and 4 (very good). However, because it only distinguishes a positive assessment perception, this is acceptable. In the PHC entity, the four rating scales are quite understandable by respondents.

Table 3 shows a slightly different picture of the misfit items in the two entities. However, the same problem was found regarding item 8. This item is consistently seen as the most difficult statement as seen in wright maps in figures 1 and 2.
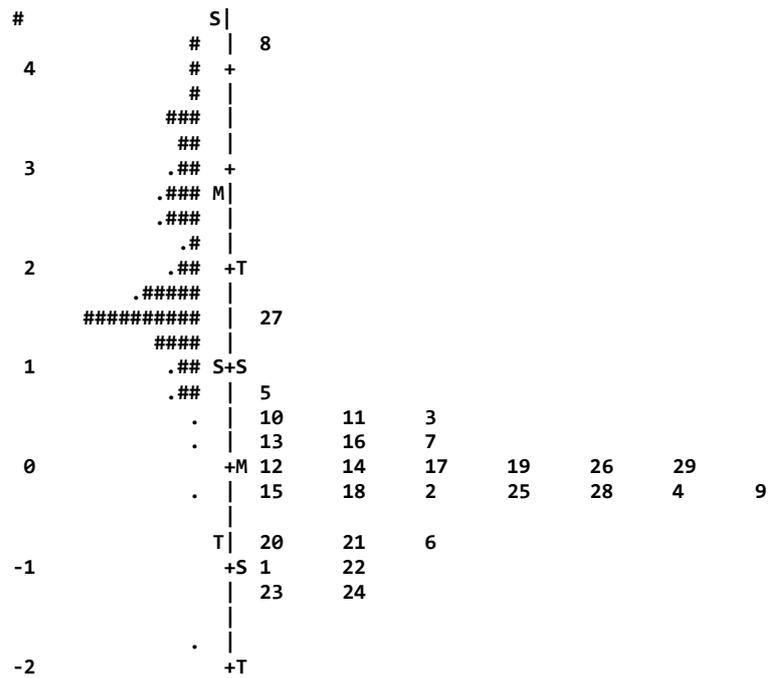
```
#                       S|
           #   |   8
 4         #   +
           #   |
          ###  |
          ##   |
 3       .##   +
        .### M|
        .###   |
         .#    |
 2       .##   +T
       .#####  |
    ########## |   27
       ####    |
 1       .##  S+S
       .##     |   5
        .    |   10    11    3
        .    |   13    16    7
 0         +M 12    14    17    19    26    29
        .    |   15    18    2     25    28    4      9
               |
           T|  20    21    6
-1         +S 1     22
               |   23    24
               |
        .    |
-2         +T
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Figure 2. Variable map of Community satisfaction in hospital

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                                        12  |  8
 2                           06 09 11 14 16  +
                             05 07 08 13 14 M|
                       00 05 06 07 08 15 15  |
                       02 10 11 15 15 17 18  |
           00 03 03 03 04 06 06 09 12 14 14 15 18  |
                    00 02 02 03 10 13 13 13 16  |
 1 05 05 05 07 10 12 13 13 13 14 14 14 14 15 16 17  +T
             00 02 02 05 05 06 12 14 15 16 17  |   27
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                02 03 06 09 11 11 16 S|S
                00 00 01 08 08 08 10  |   12 25 26 7
                   01 04 04 08 08 19  |   29 3  5
 0                      01 01 04 09  +M 1  2  28 4  9
                                      |   14 19 23 24 6
                             03 17  |   10 11 13 16 17 18
                             00 08  |S 15 20
                             04 05  |   21 22
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-1                                04 T+T
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-2                                09  +
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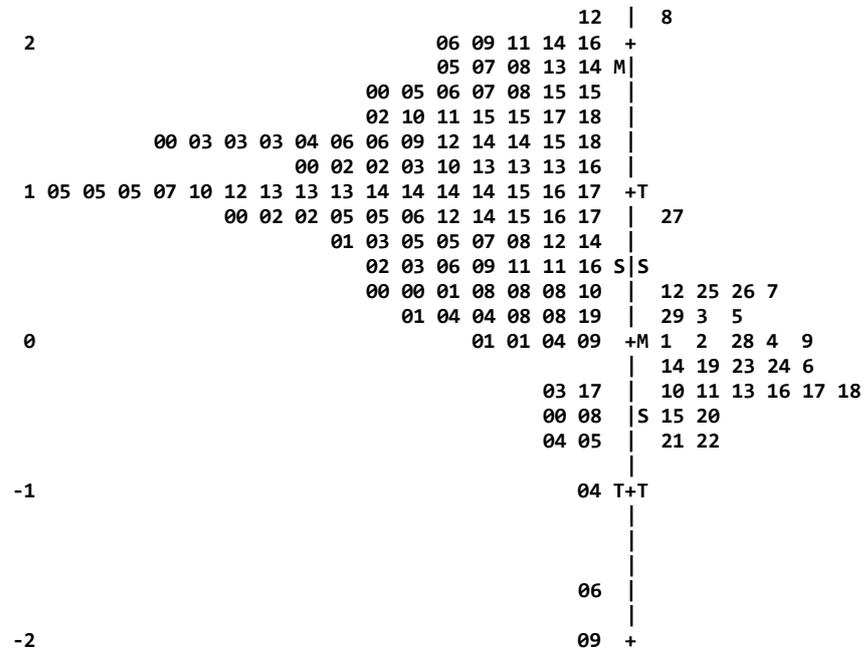
Figure 1. variable map of Community satisfaction in PHC.

In general, the IKM-29 is quite valid and reliable as an alternative instrument to support the measurement of community satisfaction. In terms of quality, there are differences and similarities in items that are misfit in the two entities. In one entity it is sufficiently fit, it may be that in another place it is a misfit. This situation shows that IKM-29, although not yet "stable" in the context of quality, can be used to measure community satisfaction, by always delivering the results of item analysis.

Table 3, figures 1 and 2 show that the statement item number 8, which is about the waiting time for services, indicate a common problem in both entities, resulting in a decision to be eliminated in the instrument. Before this is decided, then another observation is made of the item. Some patients choose that waiting is unpleasant. However, some patients are willing and accepting "waiting" as a risk in getting the best care.

Should item 8 be crossed out and discard? The item is still kept in the instrument. The researcher can assess the perception of satisfaction or dissatisfaction with respect to the waiting time with a paradoxical nuance or situation. Discarding of a misfit item is not always necessary, theoretical construct considerations are required. Other researchers who will use this instrument can modify or add new questions, so that they can anticipate the paradox, for example with questions or statements about whether the respondent can accept the long waiting time or not. (Andrich and Marais, 2019).

Waiting time is an indicator of service quality. Long waiting times can be categorized as poor quality. Waiting time is crucial and greatly influences patient satisfaction (Druica et al., 2020). One uniqueness of patients is that they have a favorite doctor/ service place, so they are willing to wait a long time as long as they can be examined by their favorite doctor. This paradoxical state makes

the item's difficulty level high and also reads as a misfit. Choosing skilled health services and doctors is very important to meet patient satisfaction (Shabbir et al, 2016).

The measurement of community or patient satisfaction is absolutely necessary, because it is used to improve the quality of health services. Patient satisfaction is a predictor of service quality (Cosma et al., 2020). Measurement must not only pay attention to the substance being measured, but also how to analyze the measured results by always doing in-depth analysis, for example using Rasch modeling (Ismail et al., 2020; Che Lah et al., 2018).

So far there are five models to measure customer satisfaction, namely Donabedian, Servqual, Healthqual, Pubhosqual and hospitalqual (Endeshaw, 2021). Factors that affect patient satisfaction include doctor-patient relationships and communication, service facilities, continuity and collaboration of medical care, access to relevant information and support, health care and related services (Meng et al, 2018). Attributes of patient satisfaction in the context of health care are provider attitude, technical competence, accessibility, and efficacy (Ng et al., 2019).

The service attitude of medical staff is an important factor that affects patient satisfaction, in addition to medical staff service technology and the comfort of home health services (Fang et al., 2019). Patient satisfaction can increase adherence to treatment and improve the patient's quality of life and also reduce costs (Aljaberi et al., 2018; Chen et al., 2019). Patient satisfaction is an important factor in determining the success of health service facilities (Manzoor et al., 2019).

The framework for measuring the quality of public services between developed and developing countries is very different. Therefore, every country, even a health service organization, must have its

own framework for measuring the quality of health services (Endeshow, 2021).

Several satisfaction instrument developments were also carried out, including by Imaninda and Azwar regarding the Patient Satisfaction Questionnaire (KKP) -2017. This instrument is a modification of the patient satisfaction questionnaire (PSQ) and has a good reliability coefficient to measure patient satisfaction in the hospital (Imaninda and Azwar, 2016).

The limitation of this study is that the instrument can only be used to measure the satisfaction of outpatients in PHC and hospitals. However, to measure the satisfaction of inpatients, an instrument trial is still needed.

CONCLUSION

The IKM-29 instrument as an alternative tool for measuring community satisfaction is valid and reliable for use in Puskesmas and Hospitals. Users can use it for community satisfaction surveys with 2 advantages: meeting the laws and regulations and getting measurement results in accordance with the measurement rules for ordinal data.

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