Construct Validity and Reliability of Indonesian Version of RAND SF-36 Quality of Life Questionnaire in Breast Cancer Patients

Zhafirah Ramadhanty¹, Kristanto Yuli Yarsa², Ari Probandari³

¹ Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

² Department of Surgery, Oncology Division, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

³ Department of Public Health, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

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ABSTRACT

Background: The number of breast cancer patients in Indonesia is increasing but there are still only a few researches that assess their quality of life. RAND SF-36 is a quality of life instrument that is widely used. In Indonesia, the validity and reliability of the instrument is still under development, especially in breast cancer patients. Various health status questionnaires have been used in physical rehabilitation studies involving patient with pacemaker, but for women with breast cancer, the usefulness of these questionnaires as measures of physical, mental, and social well-being has not been firmly established.

Methods: A previously validated RAND SF-36 questionnaire in patients with pacemaker was given to 252 breast cancer survivor community members. We assessed the construct validity and the reliability by referring to its Pearson's r table value and Cronbach's α coefficient.

Results: One hundred and fourteen breast cancer survivor community members participated and completed all 36 questions of the instrument between September-November 2018. Questions number 2, 28, and 35 showed lower Pearson's r value ($r < 0,300$) than other questions but still showed r value of > 0.1548 indicating that these questions were valid. Cronbach's α coefficient > 0.90 indicated good internal consistency.

Conclusions: The Indonesian version of the SF-36 quality of life questionnaire is a suitable instrument and can be used for research in Indonesian breast cancer patients.

*Corresponding author:

Zhafirah Ramadhanty

Faculty of Medicine, Universitas

Sebelas Maret, Surakarta, Indonesia

Email: zhafirah@live.com

INTRODUCTION

The number of breast cancer patients in Indonesia is increasing and the prevalence of the case is one of the highest among all type of cancers but there are still only a few researches regarding their quality of life in Indonesia [1-3]. Quality of life measurement should reflect the domains including the physical, social, and cultural environments, and it is common but also able to show the uniqueness of all subjects [4]. There are types of health-related quality of life measurements, such as general health profile, preference-based generic measures, and specific disease measures. RAND SF-36 is a health-related quality of life instrument that is widely used. The questionnaire is a generic measure that could be applied in any adult population. A good

questionnaire is ideally valid and reliable, which means that the measurement reflects the concept and is consistent [5].

In Indonesia, the validity and reliability of the instrument is still on development, especially in breast cancer patients. A few validity and reliability test of the Indonesian version of the RAND SF-36 questionnaire has been done in a few groups of cancer patients, patients with permanent pacemaker, and rheumatoid arthritis patients [6-8]. Yet, none of the research has been done specifically in breast cancer patients. Perwitasari [8] validated the questionnaire in patients with cancer but the development of the questionnaire is still unsatisfying so that a future study with new construction of questions is needed to validate the Indonesian version of RAND SF-36 quality of life questionnaire.

METHODS

Patients

The research was performed in breast cancer survivor community Lovely Pink Solo by filling an online form or interview by phone, chat, or meeting. A total of 252 community members were contacted between September to November 2018 and selected by the following inclusion criteria: (1) be at least 20 years of age, (2) able to complete the questionnaire by their own self, and (3) had no communication problem. The exclusion criteria are having a degenerative disease and/or mental illness so that it could affect the results of this research. Among 252 community members, only 114 agreed to participate in this study and completed the questionnaire.

Instruments

The RAND SF-36 measures physical and mental health which is divided into eight scales. Physical health aggregates from physical functioning (PF), role limitations due to physical problems (RP), bodily pain (BP), and general health perception (GH). Mental health aggregates from role limitations due to role emotional (RE), vitality (VT), mental health (MH), and social functioning (SF). The questionnaire also includes one question about health changes [9]. We used a previously translated SF-36 questionnaire by Salim [7]. His study translated the original version into the Indonesian language with forward-backward translation and also did some changes due to cultural adaptation. The changes included adding an explanation for the word "blocks" and "mile" in question number 9 and 10 because Indonesians are more familiar with the metric scale. Another adaptation was also made to make the questions more familiar to Indonesian breast cancer patients [7]. Validity and Reliability test was also conducted and in conclusion, the questionnaire can be used in patients with permanent pacemakers and it needs to be validated in other groups, such as breast cancer patients.

Statistical Analysis

This cross-sectional study was ethically approved by The Health Research Ethics Committee of Faculty of Medicine Universitas Sebelas Maret on June 27, 2018 no.118/UN27.6/KEPK/2018. A minimum of 30 samples is needed to conduct validity and reliability test. Construct validity was measured by referring to Pearson's r table correlation value and reliability was measured by referring to Cronbach's alpha coefficient. The value of Pearson's r table must be >0.1548 and Cronbach's alpha coefficient must be more than 0.70.

Demographical data were also asked to the respondents including age, occupancy, education, marital status, stadium, duration of illness, therapy, and whether the respondents had a comorbid illness or not. The data were collected and then analyzed by using IBM SPSS Statistics 21 for Windows.

RESULTS

Table 1. Subject characteristics

Characteristics	Frequency (n=114)	(%)
Age		
<40	21	18,42
41-50	51	44,74
51-60	37	32,46
>60	5	4,39
Education		
Elementary School	2	1,75
Junior High School	10	8,77
Senior High School	40	35,09
Diploma	15	13,16
Bachelor Degree	41	35,96
Master Degree	6	5,26
Occupancy		
Occupied	62	54,39
Not occupied	52	45,61
Marital Status		
Single	5	4,39
Married	94	82,46
Widow	15	13,16
Stadium		
1	15	13,16
2	62	54,39
3	37	32,46
Duration of illness		
0-6 months	7	6,14
7-12 months	10	8,77
13-24 months	34	29,82
25-60 months	46	40,35
>60 months	15	13,16
Therapy		
None	42	36,84
Chemotherapy/radiotherapy	9	7,89
Other	63	55,26
Comorbid illness		
Yes	23	20,18
No	91	79,82

Table 2. Pearson's *r* value and Cronbach's alpha coefficient for all RAND SF-36 questions

Subscale and its items	Pearson's <i>r</i> value	Cronbach's Alpha
Physical Functioning (PF)		
3. Vigorous activities	0,563	0,923
4. Moderate activities	0,511	0,923
5. Lift and carry groceries	0,624	0,922
6. Climb several flights of stairs	0,593	0,922
7. Climb one flight of stairs	0,524	0,923
8. Bend, kneel or stoop	0,455	0,924
9. Walk more than a kilometer	0,536	0,923
10. Walk several hundred meters	0,455	0,924
11. Walk a hundred meter	0,411	0,924
12. Bath or dress	0,398	0,925
Role Physical (RP)		
13. Cut down amount of time	0,681	0,921
14. Accomplished less	0,705	0,921
15. Limited work	0,723	0,920
16. Difficulty in performing work	0,704	0,921
Role Emotional (RE)		
17. Cut down amount of time	0,719	0,920
18. Accomplished less	0,706	0,921
19. Inability to do work as carefully as usual	0,573	0,923
Vitality (VT)		
23. Feel full up pep	0,379	0,925
27. Have a lot of energy	0,580	0,923
29. Feel worn out	0,365	0,925
31. Feel tired	0,498	0,924
Mental Health (MH)		
24. Being a very nervous person	0,194	0,926
25. Felt so down in the dumps	0,446	0,924
26. Felt calm or peaceful	0,478	0,924
28. Felt downhearted and blue	0,317	0,925
30. Being a happy person	0,533	0,924
Social Function (SF)		
20. Extent of problems interfered with social activities	0,493	0,924
32. Time-limited health to society	0,327	0,925
Bodily Pain (BP)		
21. Had bodily pain	0,471	0,924
22. Interfere pain with normal work	0,498	0,924
General Health (GH)		
1. Health in general	0,441	0,924
33. Getting sick easier	0,356	0,925
34. As healthy as anybody	0,342	0,925
35. Health expectation	0,285	0,925
36. Excellent health	0,538	0,924
Health Changes		
2. Health difference to one year ago	0,287	0,924

Table 1 shows the characteristic of the respondents of this study. All of the respondents were female with mean age of 48 years old. Based on the educational status, most of the respondents graduated from senior high school (35.09%) and bachelor degree (35.96%). Most of the respondents were married (82.46%) and had stage 2 of breast cancer (54.39%). Only a few of the subjects were having chemotherapy or radiotherapy (7.89%) when the research was conducted.

Table 2 shows Pearson's *r* value and Cronbach's alpha coefficient for all RAND SF-36 questions. Pearson's value of all items of the questionnaire shows $r > 0.1548$ with the lowest value of $r = 0.194$ in item number 24, followed by $r = 0.285$ in item number 35, and $r = 0.287$ in item number 2. Other than that, all items showed the value of $r > 0.300$. Cronbach's alpha coefficient in all items shows value > 0.900 , between the range of 0,920 and 0,926, supporting the internal consistency of the subscales.

DISCUSSION

The mean age of participants was 48 years with 24-year-old as the youngest and 69-year-old as the oldest participant. The mean age was similar to studies in Korea and India with a mean age of 47.7 and 47.6 years old, respectively [10, 11]. Most of the participants were on stage II (54.8%) and almost all of the participants (84.2%) already completed the treatment series (surgery, chemotherapy and/or radiotherapy).

The validity of Indonesian RAND SF-36 was done by evaluating the construct validity and reliability, referring to Pearson's $r > 0.1548$ and Cronbach's alpha > 0.70 . All items showed $r > 0.1548$ so that all items of RAND SF-36 are valid and reflected the concepts. Cronbach's alpha showed value > 0.90 ranging around 0,920-0,926. It means that all items had satisfying internal consistency.

Despite all questions showed the value of $r > 0.1548$, some questions had a lower value than the others. Question number 24 (Mental Health) had the lowest value, showing $r = 0.194$. Research by Perwitasari [8] that was conducted in patients with cancer disease also had questions that did not meet the criteria of convergency nor discriminant validity, mainly from the mental health domain. Other questions that have a quiet low value than the others ($r < 0.300$) are question number 2 (Health Changes) with Pearson's *r* value of 0,287 and question number 35 (General Health) with Pearson's *r* value of 0,285. Research held by Novitasari et al. [6], and Perwitasari [8] also showed almost the same thing that question number 35 did not meet discriminant validity in rheumatoid arthritis patients and question number 2 also did not meet discriminant validity in patients with cancer disease [6, 8]. All those three questions are associated with Mental Health domain and the explanation related to this low value might be because

the respondents had hard times to translate what they exactly feel into words. Overall, based on the Pearson's r and Cronbach's alpha value, all questions were valid and reliable and could be used as an instrument to assess the quality of life especially in patients with breast cancer disease.

This study also has some limitations. Validity and reliability tests for other quality of life instrument did not just only analyze the validity by referring to its Pearson's r value, but also did other validity tests such as convergent and discriminant validity, known-groups validity, and also factor analysis [6-8, 12-14]. Further validity and reliability test in other groups is also needed.

CONCLUSION

The Indonesian version of the SF-36 quality of life questionnaire is valid and reliable. It is a suitable instrument and can be used for research in Indonesian breast cancer patients.

DECLARATIONS

Competing of Interest

The authors declare no competing interests.

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