

Validity and reliability of the world health organisation-five well being index (WHO-5) questionnaire in early detection of depression during Covid-19 pandemic in Yogyakarta

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ABSTRACT

The Covid-19 pandemic in Indonesia, including Yogyakarta, has created a psychological impact on the community. One of the psychological impacts is depression. This issue can be overcome by early detecting depression using an instrument called the World Health Organization-Five Well-Being Index (WHO-5). Unfortunately, this instrument is currently unavailable in the Indonesian version. Therefore, this study aims to obtain a valid and reliable Indonesian version of the WHO-5, which can later be used by pharmacists as an instrument to early detect depression in Indonesia, especially in Yogyakarta. This research employed a cross-sectional design. The research subjects were people who visited Apotek UAD 1 and 2, who met the inclusion and were not included in the exclusion criteria. The WHO-5 questionnaire proceeded through a translation process from the English version to the Indonesian version. The original version of the WHO-5 questionnaire, which was the final translated version, was tested on 40 respondents to gain its validity and reliability. The analysis of the validity test using the Pearson Correlation of five questions on the WHO-5 questionnaire has revealed an average value of $r = 1$, indicating that the questionnaire is valid. The result of the reliability test with Cronbach Alpha is 0.853. In conclusion, the Indonesian version of the WHO-5 questionnaire meets the validity and reliability criteria so that the questionnaire can apply to the community.

Keywords: Covid-19, depression, WHO-5, validity, reliability

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INTRODUCTION

Depression is a mental health disorder that causes sadness and or loss of interest in daily activities. This can cause a variety of emotional and physical problems and reduce the ability to perform activities at work and home ([American Psychiatric Association, 2013](#)). The emergence of Covid-19 raises many questions regarding its effects on mental health through its immediate psychological effects as well as its long-term economic and social consequences. The Covid-19 pandemic has excessively generated psychological impacts on the people of Yogyakarta in the form of multiple stressors ranging from fear of being infected, fear of losing family members and relatives, worry about the inability to meet the needs of life in the absence of jobs, and other potential problems due to the Covid-19 pandemic ([Mohammadi, 2020](#)).

The problem of depression can be solved by early detection. The World Health Organization-Five Well-Being Index (WHO-5) is one of the instruments with sufficient validity to measure the early detect depression. In several countries, the use of the WHO-5 questionnaire as an instrument for the early detection of depression has been carried out by many psychologists and other health workers, however, the number of research conducted by pharmacists is still minimal ([Eser et al., 2019](#); [Wu, 2014](#)).

Research conducted in Japan and Romania has proven that pharmacists can perform screening and risk assessment services for depression and make referrals to appropriate healthcare professionals ([Awata et al., 2007](#); [Preoteasa & Preoteasa, 2015](#)). Preventive health services for mental health are still rarely investigated by pharmacists in Indonesia. Pharmacists who contribute as educators, counselors, and providers of medicines are in a proportional position to improve health services from promotive, preventive, and curative aspects. Moreover, as professional health workers, they are responsible for providing pharmaceutical services, support, and efforts to prevent depression by providing information and education about drug use and recognizing depression problems through observation and screening. Mental health conditions in Indonesia, especially the Yogyakarta region, during the Covid-19 pandemic.

The WHO-5 questionnaire has been translated into 30 languages; however, to date, the Indonesian language version is still not available ([Topp et al., 2015](#)). Based on this gap, this research focuses on obtaining a valid and reliable Indonesian version of the WHO-5 questionnaire and investigating how pharmacists prevent an increase in depression cases of by early detecting depression.

MATERIALS AND METHOD

Research subjects

This research employed a cross-sectional design. The subjects of this research were people who visited Apotek (pharmacy) Ahmad Dahlan 1 and 2 at Universitas Ahmad Dahlan, Yogyakarta from July to September 2021. These subjects met the inclusion criteria: people who were 18-65 years old, domiciled in Yogyakarta, could communicate well, had a confirmed history of Covid-19 or a family history of Covid-19, and willingly participated in the research by signing the informed consent. Meanwhile, the exclusion criteria were people who were pregnant and lactating, had comorbidities or a history of diabetes mellitus, hypertension, or cardiovascular disease, had no history of mental disorders, were not deaf, and did not suffer from speech impaired.

Instruments

The research was conducted by submitting an ethical review (ethical clearance) to the Health Research Ethics Committee, Faculty of Health, Universitas Jenderal Ahmad Yani, Yogyakarta, and obtained approval with number SKep/0156/KEPK/VII/2021. The questionnaire was then translated into the Indonesian version. The World Health Organization-Five Well-Being Index (WHO-5) questionnaire is sufficiently valid to measure the early detection of depression and the results of clinical trials. This questionnaire is available in various languages because it has been translated into 30 languages ([Topp et al., 2015](#)).

The WHO-5 questionnaire (original version) was translated (forward translation) to the Indonesian version by two experts from the UAD English Language Education Study Program and the UAD

Language Development Center (PPB). The difference between the two translation results (forward translation) was then discussed into 1 Indonesian version (V.0.0 Indonesia) and was referred to as the final forward translation.

The final forward translation was then retranslated into English by a native English speaker to obtain two English versions of the WHO-5 questionnaire (version a and version b). Such a process is called backward translation to ensure no difference between the two translation results. The results of the backward translation versions a and b were then compared with the original version. When the two versions showed no differences, the Indonesian version of the WHO-5 questionnaire was considered as the final translation. The questionnaire was translated into the Indonesian version through a series of processes, as presented in Figure 1.

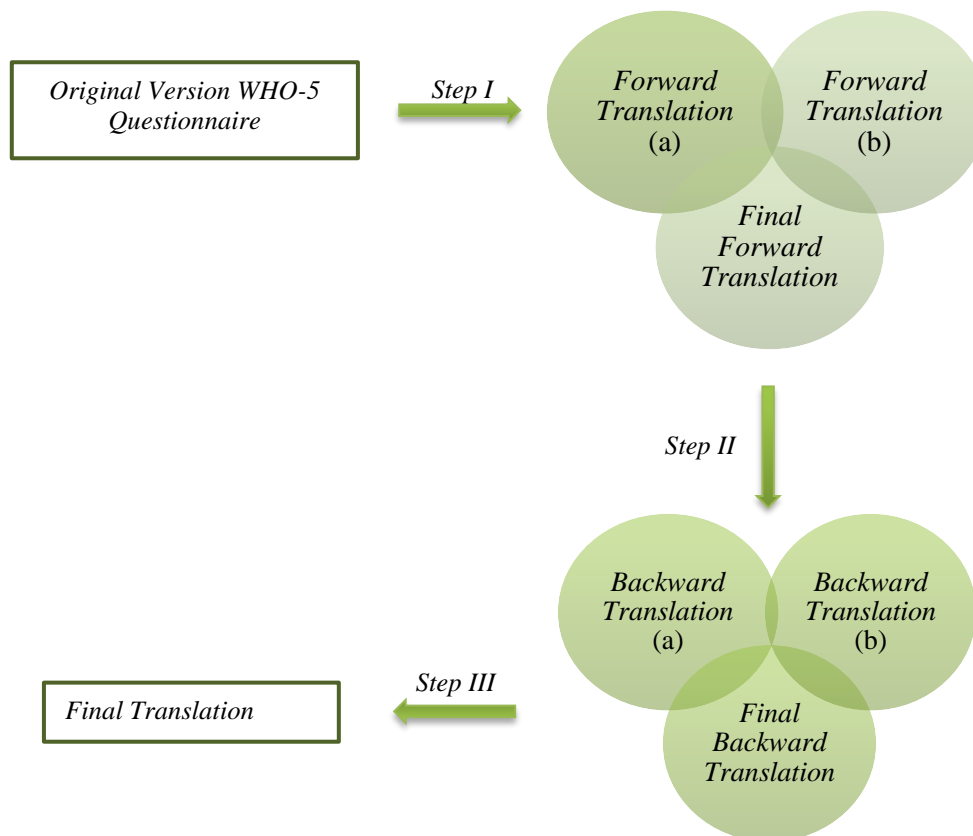


Figure 1. Questionnaire translation flow chart

Data Analysis

The descriptive analysis was used to determine the frequency. The data were tested using Pearson correlation to gain validity and using Cronbach Alpha with SPSS IBM version 2.3 to gain reliability.

The validity of a questionnaire was determined by analyzing whether the questionnaire could measure the target. A validity test is a test that functions to see whether a measuring instrument is valid or invalid with results; the closer to the original score, the higher the validity (Azwar, 2019). If the Pearson test result is $-1 < r < +1$ or the value of r is closer to number 1, the independent variable and the dependent variable have a positive relationship (Sugiyono, 2015).

A variable is considered reliable if the Cronbach Alpha value is > 0.60 ; in contrast, a variable is considered not reliable if the Cronbach Alpha is < 0.60 (Nugroho, 2005; Nunnally, 1994). The high or low reliability of the test is reflected by the score on the parallel test, which is applied to the same sample

group of individuals. It is postulated that the higher the measurement results, the better and more reliable the results (Azwar, 2019).

RESULT AND DISCUSSION

Demography of respondents

Result Respondents who were subjects in the validity and reliability test totaled 40 people; this exceeded the The subjects in the validity and reliability tests were 40 respondents. This number exceeds the minimum standard of respondents in fact and reliability tests, namely 30 respondents (Sugiyono, 2015). This study involved 40 research subjects who met the inclusion and exclusion criteria. The data on the demographic characteristics of the respondents include gender, age, domicile, education levels, occupation, and income.

The demographic characteristics that the respondents' age are not evenly distributed. The majority of the respondents (57.5%) are 19-30 years old. The data on gender show that the majority of the respondents are female (55%). Meanwhile, the data on occupation show that many of the respondents are students (32.5%) and private employees (35%). The data on education show various levels of education and are dominated by Diploma 3 or Bachelor degree (47.5%). The respondents' income is closely related to their work occupied by each research subject. The data on income show that the majority of the respondents (47.5%) earn 1-3 million of rupiah. The demographic data are summarized in Table 1.

Table 1. Respondents' demographic characteristics

| Characteristics of Respondents | Amount | Percentage |
|---------------------------------|--------|------------|
| Age | | |
| 19-30 years | 23 | 57.5 % |
| 31-40 years | 7 | 17.5 % |
| 41-60 years | 10 | 25 % |
| Gender | | |
| Male | 18 | 45 % |
| Female | 22 | 55 % |
| Occupation | | |
| Students | 13 | 32.5 % |
| Private Employees | 14 | 35 % |
| Retirees | 2 | 5 % |
| Civil Servants | 1 | 2.5 % |
| Merchants | 1 | 2.5 % |
| Businessmen | 5 | 12.5 % |
| Housewives | 4 | 10 % |
| Highest education levels | | |
| Senior High School | 18 | 45 % |
| D3/Bachelor (S1) | 19 | 47.5 % |
| Master/Doctoral (S2/S3) | 3 | 7.5 % |
| Income (In rupiah) | | |
| 0 | 8 | 20 % |
| 500.000 – 1.000.000 | 9 | 22.5 % |
| 1.000.000 – 3.000.000 | 19 | 47.5 % |
| > 3.000.000 | 4 | 10 % |

Validity of WHO-5 questionnaire

The analysis has discovered a correlation coefficient of 0.844 for the first question point, 0.742 for the second question point, 0.812 for the third question point, 0.825 for the fourth question point, and

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0.766 for the fifth question point. Meanwhile, the average correlation coefficient of the five question points on the questionnaire WHO-5 is 1. This study has proven a correlation between the scale specified in the use of the WHO-5 questionnaire for early detection of depression and the research. Therefore, the Indonesian version of the WHO-5 questionnaire is declared valid. These results are summarized in [Table 2](#).

Table 2. Validity test results

| Correlations | | |
|--------------|---------------------|---------|
| WHO5_1 | Pearson Correlation | 0,844** |
| WHO5_2 | Pearson Correlation | 0,742** |
| WHO5_3 | Pearson Correlation | 0,812** |
| WHO5_4 | Pearson Correlation | 0,825** |
| WHO5_5 | Pearson Correlation | 0,766** |
| WHO5_Total | Pearson Correlation | 1 |

Reliability of WHO-5 questionnaire

The statistical analysis of the reliability test has discovered the Cronbach's Alpha value is 0-1. Cronbach's Alpha of 0 indicates no internal consistency (i.e., no items are perfectly correlated with each other). Meanwhile, Cronbach's Alpha of 1 indicates perfect internal character (i.e., all items are perfectly combined). The result of the data analysis has obtained 0.853. This result indicates that the WHO-5 questionnaire is reliable for 40 respondents. The results of the reliability test are presented in [Table 3](#).

Table 3. Reliability test results

| Reliability Statistics | | |
|------------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| 0,853 | 0,858 | 5 |

This research aims to obtain a valid and reliable Indonesian version of the WHO-5 questionnaire. After conducting stages of forward, backward, and final translation processes, this questionnaire met the criteria to test its validity and reliability. Finally, the Indonesian version of the questionnaire is obtained. The collected data were then analyzed. The validity test with Pearson Correlation has revealed that the five question items in the WHO-5 questionnaire have an average value of $r = 1$, indicating that the questionnaire is valid. Meanwhile, the reliability test with Cronbach's Alpha has obtained a value of 0.853, indicating that the questionnaire is reliable.

Previous studies have widely employed the WHO-5 questionnaire as an instrument for the early detection of depression. A study by [Seb-Akahomen \(2021\)](#) discusses the early detection of depression using the WHO-5 questionnaire during the Covid-19 pandemic in a population of doctors and nurses in Nigeria. The study has discovered that WHO-5 has the outstanding performance to early detect depression because the scales obtained have adequate sensitivity and specificity. However, the WHO-5 questionnaire is not designed to definitely diagnose depressive disorders, thus, further investigation should be considered. Besides, several other studies have proven the validity and reliability of the WHO-5 questionnaire ([Seb-Akahomen et al., 2021](#)).

Another study by ([Lucas-Carrasco, 2012](#)) has proven that the use of WHO-5 can increase the capacity of doctors, nurses, and social workers to detect depression in primary care centers. In addition, other studies conducted in Thailand, Iran, and Denmark show that WHO-5 is a valid and useful instrument in depression screening ([Dadfar et al., 2018](#); [Saipanish et al., 2009](#); [Topp et al., 2015](#)). A study has revealed that the Swahili version of the WHO-5 questionnaire used in people with HIV and epilepsy in a rural coastal area in Kenya has good psychometric properties, such as internal consistency, construct validity, discrimination, and divergent ([Chongwo et al., 2018](#)).

This study has several weaknesses. First, this research involved the limited number of respondents because, during the data collection, several pharmacy visitors did not willingly become respondents. Therefore, this research only involved 40 respondents. Second, although the analysis results of this study are valid and reliable, the researchers cannot ensure the accuracy of the respondents' answers. Moreover, the researchers could not determine if the respondents provided answers based on their experience. Based on this problem, further research should be conducted, either by comparing the WHO-5 questionnaire with other questionnaires or by collecting data in several places.

CONCLUSION

The validity test was conducted using Pearson Correlation. The result shows that all question items have an average correlation of $r = 1$, meaning that the Indonesian version of the World Health Organization-Five Well-Being Index (WHO-5) questionnaire is valid. Meanwhile, the reliability test has discovered a Cronbach's Alpha value of 0.853. The deal is > 0.60 , which means that the Indonesian version of the WHO-5 Well-Being Index questionnaire is reliable. Based on the research results, the researchers expect that the Indonesian version of the WHO-5 questionnaire can apply to early detect depression in Indonesia and pharmacists can deal with one of the mental health problems in Indonesia.

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