

Use of the Edinburgh Postnatal Depression Scale to Detect Postpartum Depression Risk

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Abstract - The risk of postpartum depression can be experienced by women who get less treatment when experiencing baby blues syndrome. Women who are at risk of experiencing postpartum depression need precautionary measures so that they do not develop into more severe disorders. This can be done by providing a valid postnatal depression detection tool, which is the Edinburgh Postnatal Depression Scale (EPDS). EPDS has been translated into various languages and has had reliability and validity test results in accordance with that language. The purpose of this study is to test the reliability and validity of the Indonesian version of EPDS so that it can be widely used in Indonesia and provide results that can detect the risk of postpartum depression. The test was conducted on 119 women in Batam city using the construct validity and reliability of Cronbach's alpha. Results: The construct validity using confirmatory factor analysis (CFA) showed satisfactory results, the whole item has a loading factor of more than 0.5 and the value of goodness of fit model using CFI = 0.963 and NFI = 0.942. Reliability showed very satisfying results, coefficient $\alpha = 0.872$. These results indicate that the Indonesian version of EPDS has been able to detect and is valid for use as a PPD risk detection tool.

Keywords - Postpartum Depression, Edinburgh Postnatal Depression Scale, Confirmatory Factor Analysis.

I. INTRODUCTION

Postpartum depression (PPD) is a mental health problem that is not getting enough attention in Indonesia because of social and cultural factors that pay less attention to the symptoms of PPD and still regard it as something natural experienced by women after childbirth. It is also difficult for women to express the symptoms of PPD they experience due to fear of being seen as bad mothers by the environment. Mothers rather keep their problems related to their role as mothers than share their problems with others. This makes the number of PPD cases in Indonesia higher by 15-20% compared to the global incidence rate of 10-15% (Dira and Wahyuni, 2016).

The high level of PPD risk in Indonesia indicates the need for preventive measures and tools to detect the risk of PPD. One way to prevent and detect PPD is screening using proven measuring instruments such as the *Edinburgh Postnatal Depression Scale* (EPDS) (Soep, 2011). EPDS is

a questionnaire developed at a health center in Edinburgh in 1987 to measure the risk of PPD. The development of EPDS was carried out by Cox, Holden, and Sagovsky (1987) based on pre-existing measurement scales, namely *Irritability, Depression and Anxiety Scale* (IDA), *Hospital Anxiety and Depression Scale* (HAD), and *Anxiety and Depression Scale* (Cox, *et al*, 1987). Those scales are considered less capable of detecting postpartum depression and hard to be administered by mothers who have just given birth. Cox, *et al* (1987) analyzing and selecting 21 items, including items that are self-made, which are considered capable of detecting depression and distinguishing symptoms from anxiety felt by postpartum patients. Then the item is tested by conducting interviews with postpartum patients and health workers. 13 items were successfully selected after seeing the compatibility of words and the ability to detect PPD. 13 items consisting of seven self-made items and six items selected from the existing scale were given to 63

women and 10 items were obtained which gave better detection results.

Aspects of the EPDS derived from a major depressive disorder according to DSM-IV-TR, i.e. anhedonia, anxiety, and depression (Martin and Redshaw, 2018). The validity and reliability of this tool has been examined to 60 postnatal women and obtained *sensitivity* = 86%, *specificity* = 78%, *positive predictive value* = 73% as validity measure and reliability using alpha coefficient was 0.87.

EPDS consists of 10 statements which have four answer choices, each statement is given a score 0-3, and the maximum score of the test is 30. Statements relate to the mother's feelings over the past seven days and refers to depressive mood, anhedonia, feelings of guilt, anxiety, and desire to commit suicide. Subjects who score nine or 10 can be said to have experienced symptoms of PPD and are at risk for experiencing more severe PPD (Cox, *et al*, 1987).

EPDS has been translated and used in various countries, and shows satisfactory validity and reliability results according to the translation (Cox and Holden, 2003). The EPDS was also first translated into Indonesian by Kusumadewi (1998) and tested on 102 postpartum mothers in three hospitals in Jakarta. The study compared the results of EPDS with the symptoms of depression in DSM IV-TR. The results obtained validation results are specificity of 87.5% and alpha coefficient of 0.67. Other results are shown by research conducted by Hutaurok (2011) of 359 women showing construct validity of 0.51 and getting a reliability result of 0.65.

Although validity and reliability testing has been done on the Indonesian version of EPDS, its use in Indonesia is still not widely done because it is still considered to be invalid and has not been able to detect the risk of postpartum depression properly. This can be seen from the alpha coefficient value smaller than 0.80 in previous studies. The purpose of this research is to obtain better validity and reliability test results from the Indonesian version of EPDS so that it can be used as a risk screening tool for postnatal depression and become reference tool by health practitioners to help reduce the risk of depression in postnatal women.

II. METHOD

This research was held at the Rumah Sakit Badan Pengusahaan (RSBP) in Kota Batam. This research was conducted for three months. The study population was all mothers who gave birth in RSBP in the span of October to December 2019. The sample is 119 postpartum mothers and the selection was done using purposive sampling. The

sampling criteria in the study were women who gave birth for more than 2 weeks, aged 20 to 35 years, and did not have a history of depression during pregnancy.

The research instrument was the Edinburgh Postnatal Depression Scale (EPDS) which was translated into Indonesian. EPDS consists of 10 statements about mother's feelings over the past seven days and has four answer choices. Scores on each statement range from 0-3 with a total score of 30. Based on recommendations from Cox, Holden, and Sagovsky (1987), subjects who score more than 9 or have a score of 1 on item 10 are said to be at risk of developing PPD and are advised to get further treatment.

Filling in the scale is done by putting a check mark (√) on the answers that are considered to describe the subject's feelings during the last seven days. Then the results will be calculated to see the validity and reliability. Validity testing uses confirmatory factor analysis (CFA) using Lisrel 9.1 Student Version. This test is able to see the suitability of all statement items in the questionnaire to measure the construct of PPD. CFA will look at the loading factor value or contribution score in each item as well as the goodness of fit model. A loading factor value > 0.5 is considered very well and has been able to explain the relationship of each item with the latent variable to be measured. Then goodness of fit score can be seen from several indicators, namely CFI and NFI. Scores greater than 0.90 are considered to be in accordance with the theory used in the calculation model (Field, 2005).

Furthermore, reliability testing uses alpha coefficients, which is to see the degree of trust of a measuring instrument to express what you want to be measured. A measuring instrument is considered reliable if the device is able to measure and provide stable results even though given at different times. Alpha coefficient values move from 0 to 1, and the higher alpha coefficient values indicate the ability of the measuring instrument to be used at different times (Field, 2005). The reliability test was calculated using the SPSS program version 26.0.

III. RESULTS

Data collection has been carried out for 119 mothers giving birth in RSBP, with birth times ranging from 2 weeks to 2 months. All subjects had filled out the EPDS questionnaire properly and had no difficulty in answering the statement given. Furthermore, the results of all questionnaires were processed by a computer program to see the construct validity using CFA and reliability with alpha coefficients. The results of the analysis of all tests can be seen in the following figure:

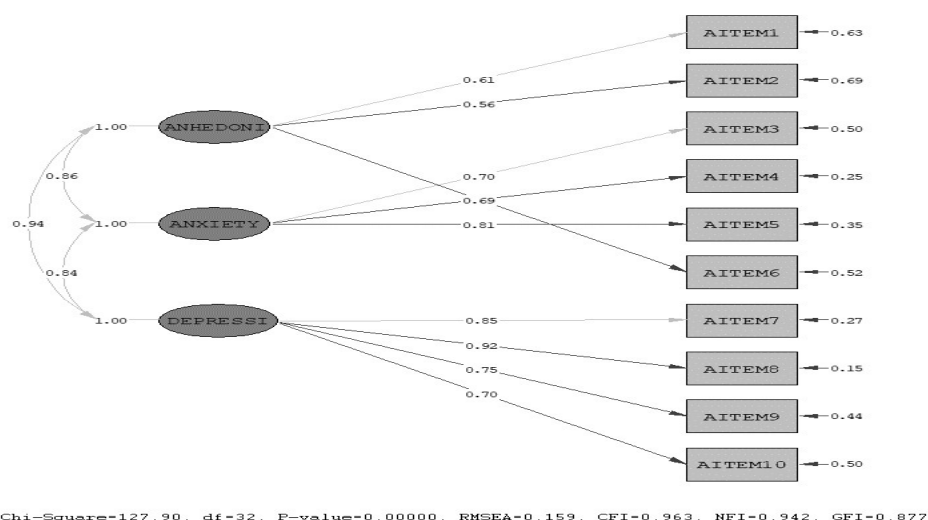


Figure 1 EPDS Test Results with CFA

In Figure 1, the loading factor value of the EPDS model is above 0.50 and moves from 0.56 to 0.92, according to the minimum limit of each item's contribution to the latent variable. Furthermore, it appears that every aspect of EPDS, namely anhedonia, anxiety, and depression are positively correlated with values moving from 0.84 to 0.94.

Goodness of fit value which is a determinant of the suitability of the model with the theory show different figures. CFI and NFI show scores greater than 0.90, namely 0.963 and 0.942, respectively. Then chi-square has 127.90, and the significance of $p = 0.00$. RMSEA shows a score of 0.159 while GFI which is the overall value of the entire model index shows the number 0.877.

Furthermore, the researchers conducted a reliability test using the SPSS computer program version 26.0 and the results obtained showed an alpha coefficient value of 0.872.

IV. DISCUSSION

The measurement results in Figure 1 show that all the items in the EPDS have met the construct of the EPDS that is seen from the loading factor of each item that has a value of more than 0.50. This value is considered very good to see the contribution of each item to the latent variable, postpartum depression. Then we can see the correlation value of the three factors of EPDS has a value above 0.60 even close to number 1 which shows that all factors measure the same construct in EPDS. Furthermore, based on the model's goodness of fit, it is seen that the CFI and NFI

values are above 0.90 so that it can be said that the EPDS is suitable for measuring postpartum depression. Even so, RMSEA has not shown a good number because it is still greater than 0.08 so that it is necessary to adjust each item by entering an error value (Field, 2005).

The validity results obtained in this study are better than previous studies conducted by Kusumadewi (1998) and Hutauruk (2011). The results of this validity are considered to have been able to describe the model of EPDS and all items have measured the same latent variable, namely PPD risk.

Furthermore, the reliability test results obtained an alpha coefficient of 0.872 which indicates a high reliability number so the results can be trusted to measure the risk of PPD. This figure is far better than previous research which is smaller than 0.80 so it is still less reliable regarding its ability to measure PPD risk.

V. CONCLUSION

The results of the measurement of validity and reliability obtained in this study indicate that the Indonesian version of EPDS has been able to detect the risk of PPD in mothers after giving birth. This shows that the use of EPDS can be done widely to prevent the occurrence of PPD in mothers. Scores obtained from EPDS are considered capable of describing the level of risk for PPD, i.e. subjects who have a score of more than 9 are considered vulnerable to PPD if they do not get further treatment from health practitioners

such as doctors, midwives, or nurses. It is hoped that the use of the Indonesian version of EPDS can be widely used so that PPD levels in Indonesia can decrease and improve the quality of the relationship between mother and child and family after giving birth.

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