

Edinburgh Postpartum Depression Scale: Psychometric Evaluation of the Indonesian Version

Anindya Dewi Paramita¹, Andi Tenri Faradiba² and Puti Febrayosi²

¹Faculty of Psychology, University of Pancasila, Srengseng Sawah, Jakarta, Indonesia

²Faculty of Psychology, Center of Psychological Measurement, University of Pancasila, Srengseng Sawah, Jakarta, Indonesia

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Abstract: Childbirth is a life-changing event. If the mothers are not able to adapt, major problems will arise and can lead to depression. The Edinburgh Postpartum Depression Scale (EPDS) was the most popular screening tools for detect the main symptom of depression in postpartum period. Developed by Cox, Holden & Sagovsky (1987), now the EPDS has been translated into several languages such as France, Hebrew, Swedish, Bangla, Chinese, including Indonesian. However, no one has published a comprehensive psychometric evaluation of the Indonesian version of EPDS. The aim of this study was to investigate the validity and reliability of the Indonesian version of the EPDS. A two-stage design was used in this study. Stage I consisted of a process of translation and back-translation by language experts and compare it with the original version. Stage II established the psychometric properties of the EPDS by examining the validity and reliability of the scale using content validity index suggested by Lynn (1986) and internal consistency using Cronbach's alpha coefficient. Stage III examine the confirmatory factor analysis (CFA) to explore the best model of postpartum depression measurement. The result shows that EPDS is a good tool to measure postpartum depression in Indonesia.

1 INTRODUCTION

Childbirth is a huge milestone for every mother and changes almost every aspect of their lives. Those processes, starting from pregnancy, childbirth until postpartum period cause physical, psychological and social changes that may lead to stress (O'Hara, 1995). During postpartum period, the reproductive organs was trying to return to their non-pregnant state, which takes time about six weeks (Gjerdigen, Froberg, Chaloner, & McGovern, 1993). For many women, recovery from childbirth may experienced discomfort for weeks, some face more serious problem that may limit their daily function for some time. They also need to adjust their way of life, including disrupted sleep and daily routines which can be challenging for mothers especially first timer (Choudhury, Counts & Horvitz, 2013). When they fail to manage those changes, new problem will arise and they may end up depressed. According to Venis & McCloskey (2008), some symptoms that depressed mothers experience after childbirth are mood swings, easily gets angry, fatigue, lost interest to do daily and even sexual activities, trouble

sleeping and eating, and sometimes having thoughts of harming themselves or their baby, that can occur during the first two weeks after birth. This disorder is called Post Partum Depression (PPD). In some cases, mothers who had PPD had suicidal thoughts or tendencies (O'Hara, 1995). This symptoms can occurred since pregnancy until more than one year after childbirth (Clark, Tluczek, & Wenzel, 2003; Blum, 2007).

To prevent those mothers suffering from postpartum depression, some professionals develop a tool to detect depressive symptoms from mothers after birth. One of most popular and widely used tools to screen PPD is the Edinburgh Postpartum Depression Scale (EPDS). The EPDS is a 10-item self-rating scale designed to identify postpartum depression (Cox, Holden, & Sagovsky, 1987). Since then, several studies was conducted to validate and translate this tool into several languages, such as Frenchs, Hebrew, Bangla, Chinese, including Indonesian (O'Hara, 1995). Eventhough the EPDS is still commonly used as a research tool or for professional purposes, its validity and reliability

have been poorly studied until now. The aims of the present study are to assess the validity and reliability of the Indonesian version of EPDS and to find practical recommendations of the EPDS tool development.

2 MATERIALS AND METHODS

In this section we will explain the process, materials, and plans of our research from the very beginning until we examine the data.

2.1 Translation

A translation of the original EPDS into Indonesian was followed by back-translation into English. Two psychologists translated the questionnaire into Indonesian and two professional translators backward translated these into English. Then the provisional version of the Indonesian questionnaire was developed and pilot tested. The final version of the questionnaire was developed after considering few suggestions from pilot data.

2.2 Sample and Data Collection

The Indonesian version of the EPDS was administered to mothers who had a baby under age 12 months. The samples were recruited from several health care centres in Jakarta, Bogor and Depok during they postnatal routine check-up or their babies' monthly visit to the health care. 252 mothers were included in this study. The entire participant in this study agreed to participate with signing the informed consent and brief explanation of the study given to them before we delivered the questionnaire.

2.3 Measure

The EPDS consists of 10 items and each item is rated on a four-point scale (0 to 3), giving maximum scores of 30. This scale covers common symptoms of depression. It excludes somatic dimensions such as fatigue and appetite variations which are normal during the ante- and postnatal periods (Adouard, Glangeaud-Freudenthal, & Golse, 2005). In short, the 10 items measured depressive symptoms ("I have been so unhappy that I have been crying"), anxiety ("I have been anxious or worried for no good reason"), and anhedonia ("I have looked forward with enjoyment to things"). The original EPDS has a 12.5 cut-off point that showed that score 13 and up indicates major postpartum depression, but along the way research showed that the cut-off

point varies from one research to another, range from 9 to 12.5. According to Cox, Holden & Sagovsky (1987), a score from 0 to 9 indicated 'not depressed', while scores of 10 to 12 represent 'borderline' and a score 13 or more is considered postnatal depression.

2.4 Procedure

All subjects were recruited when coming for a postnatal check-up or monthly visit for their baby's vaccination at the health care services. Each woman was then asked by researcher to participate in this study. After hearing the explanation about the purpose of this study, reading the agreement and signing a written informed consent, women who agree to participate were asked to complete the demographic data questionnaire and the EPDS.

2.5 Psychometric Properties

We examined content validity of the EPDS's items with Content Validity Index (CVI). According to Lynn (1986), there are two types of CVIs. The first type is content validity of individual items (I-CVI) and the second is content validity of overall scale (S-CVI). In order to examine CVI, three experts were recruited to evaluate the relevance of the items and the overall scale of Indonesian EPDS. We asked all of the experts to rate each item's relevance to postpartum depression in a 4-point scale questionnaire. Then, for each item, the I-CVI is computed as the number of experts giving a rating of either 3 or 4, divided by the total number of experts. To examine the S-CVI, we are looking for the proportion of items given a rating of quite/very relevant by raters involved. We also measure item validity using inter-item correlation. Reliability was estimated by measuring internal consistency with Cronbach's alpha coefficient from the EPDS score. We also performed a factor analysis of the EPDS to investigate its internal structure.

2.6 Statistical Methods

Item validity was computed using Pearson correlation. Internal consistency was performed using Cronbach's α with Statistical Package for Social Sciences (SPSS) version 25.0 for Windows. Confirmatory factor analysis (CFA) was conducted using Lisrel 8.7.

Table 1: The Edinburgh Postpartum Depression Scale

Original Version	Translated Version
1. I have been able to laugh and see the funny side of things.	1. Saya bisa tertawa dan melihat sisi lucu dari segala sesuatu
2. I have blamed myself unnecessarily when things went wrong	2. Saya bisa tertawa dan melihat sisi lucu dari segala sesuatu
3. I have felt scared or panicky for not very good reason	3. Saya menjadi lebih mudah panik atau merasa takut tanpa alasan yang jelas
4. I have been so unhappy that I have had difficulty sleeping	4. Saya merasa tidak bahagia sehingga kesulitan tidur
5. I have been so unhappy that I have been crying	5. Saya merasa tidak bahagia sehingga seringkali menangis
6. I have looked forward with enjoyment to things	6. Saya lebih optimis dan gembira dalam melihat hal-hal yang saya alami
7. I have been anxious or worried for no good reason	7. Saya merasa cemas dan khawatir tanpa ada alasan yang jelas
8. Things have been getting on top of me	8. Segala sesuatu terasa sulit untuk saya kerjakan
9. I have felt sad or miserable	9. Saya merasa sedih atau sengsara
10. The thought of harming myself has occurred to me	10. Pikiran untuk menyakiti diri saya atau bunuh diri pernah terlintas dalam benak saya

3 RESULTS

Content Validity Study

Before finalizing the questionnaire, we pilot tested it to some mothers who had experienced childbirth in order to find out the readability of the items for them. For face validity, the mothers found that the EPDS is acceptable and easy to complete. They also said that they able to understand what were the meaning of each items. Then we asked three experts to rate our item and overall scale’s relevance to postpartum depression to examine the Content Validity Index (CVI). There is a clinical psychologist who had experienced at handling depressed mothers, an obstetrician/gynaecologist, and a nurse. According to Lynn (1986), each expert is asked to rate the items on a 4-point ordinal scale (1= *not relevant*, 2 =*quite relevant*, 3 =*relevant*, 4 =*highly relevant*). Then, for each item, the I-CVI is computed as the number of experts giving a rating of either 3 or 4. An item is categorized as relevant if all of the experts are agree to rate the item 3 or 4. To know the S-CVI, we computed the proportion of items that rated 3 or 4 by the experts.

From the experts’ rating, we found out that all of the items get the agreement from all the raters. The S-CVI was 1.00, meaning that 100% of the total

items were judged content valid. Qualitatively, all three experts gave suggestions related to the item’s wording to item number six (“*I have looked forward with enjoyment to things*”) and number eight (“*Things have been getting on top of me*”). Based on the input from the experts, we need to adjust the linguistic structure and use of words to make the items’ readability better and avoid the participants get confused. Then we revised both items according all of the suggestion and then pilot tested the EPDS to the participants.

Table 2: Computation of I-CVI and S-CVI of the EPDS with three expert raters

Item	Number in Agreements	Item CVI
1	3	1
2	3	1
3	3	1
4	3	1
5	3	1
6	3	1
7	3	1
8	3	1
9	3	1
10	3	1
Mean I-CVI =		1,00
S-CVI =		1,00

Tabel 3: Factor Loading Postpartum Depression – second order unidimensional model

Dimension	Item	Factor Loading Coefficients	Std. Error	T-value	Notes
Depression	ITEM-4	0,657	0,050	13.128	√
	ITEM-5	0,698	0,047	14.878	√
	ITEM-9	0,708	0,053	13.467	√
	ITEM-10	0,684	0,078	8.820	√
Anxiety	ITEM-2	0,535	0,059	9.113	√
	ITEM-3	0,651	0,054	12.068	√
	ITEM-7	0,631	0,061	10.421	√
Anhedon	ITEM-1	0,434	0,109	3.993	√
	ITEM-8	0,471	0,102	4.625	√
Factor	Dimension	Factor Loading Coefficients	Std. Error	T-value	Notes
Postpartum Depression	Depression	0.963	0.068	14.098	√
	Anxiety	0.812	0.071	11.499	√
	Anhedon	1.184	0.228	5.190	√

Reliability Study

Reliability was estimated by the measure of the internal consistency using the Cronbach's alpha coefficient. The internal consistency assessed for the global EPDS scale was 0.706.

Factor Analysis Study

Our factor analysis suggests that a three factor model would be better fit than a unidimensional one. In Touhy and McVey's (2008) confirmatory analysis, three factors were found; which were identified as 'non-specific depressive symptoms' (items 4, 5, 9, 10), 'anhedonia' (items 1, 6, 8) and 'anxiety' (items 2, 3, 7). Based on the first order unidimensional model, item number six was found not valid since its inter-item correlation is zero, which means this item is not clearly measure the dimensions it wants to measure. Construct validity measurement shows that the P value > 0.05 and RMSEA < 0.050. This means that *postpartum depression model second order unidimensional* was fit with the data. The P value index and RMSEA will be presented in table below:

Tabel 4: Model fit criterion – EPDS second order unidimensional

Model Fit Criterion	Model Fit Index
Chi Square	31.049
P Value	0.1524
RMSEA	0.034
CFI	0.988

4 DISCUSSIONS

Our study confirms that this Indonesian version of EPDS is a good tool for screening depression after childbirth in mothers, in line with the conclusion of some previous studies on EPDS validations (Cox, Holden & Sagovsky, 1987; Adouard dkk., 2005). There are some limitations must be considered along the research process. Although it has pretty good face validity for the mothers, result shown that this Indonesian EPDS has one item classified as not valid, that is item number six. CVI, inter-item correlation and factor analysis proofed that item number six is not good enough to measure depression. Based on the suggestions the experts gave upon item number six, we need further research to retest the revised and reviewed version of item number six. We assumed that it might be related with the diction used to make translated version of item six that is not fit with the cultural values and way of living of Indonesian people.

For further research, there are some things that we have to explore more about EPDS in Indonesian language, such as the sensitivity of the cut-off score, broaden the number and diversity of the sample, and try to explore the concurrent or discriminant evidence to continue the validation study.

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