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RESEARCH ARTICLE

Validation of stress assessment instruments related to the COVID-19 pandemic in pregnant women

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Abstract

Background: The Pandemic Related Pregnancy Stress Scale (PREPS) is an instrument that assesses pandemic-related stress in pregnant women. **Objective:** This study aimed to validate the Indonesian version of the Pandemic Related Pregnancy Stress Scale (PREPS). **Methods:** Validation procedures include forward and backward translation, pretest and cognitive interview, construct validity test, and instrument reliability test. Pregnant women involved in this study agreed to participate with informed consent. **Results:** The results of the construct validity test showed that each item of the PREPS questionnaire statement had an $r_{\text{count}} > r_{\text{table}}$ ($\alpha=0.01$; $df=28$), starting from the lowest 0.562 to the largest 0.847, with an r_{table} value ($\alpha=0.01$; $df = 28$) equal to 0.3610. The Cronbach's alpha value of 0.841 indicates good reliability of the scale. **Conclusion:** The Indonesian version of the PREPS is valid and has good reliability.

Introduction

Pregnant women are prone to stress due to their pregnancy. From several studies, the prevalence of stress in pregnant women ranges from 6-78% (Woods *et al.*, 2010; Wahyuni *et al.*, 2018; Engidaw, Mekonnen & Amogne, 2019). Stress conditions in pregnant women are predicted to increase the risk of giving birth prematurely and having children with low body weight (Dunkel Schetter & Tanner, 2012).

The COVID-19 pandemic has an impact that can be a source of stress, such as loss of work and income, poverty, death, and illness (Yan, Ding & Guo, 2020). The passing of a family member makes pregnant women at 1.4-1.8 more risk of giving birth early. Unemployment and population density are predicted to increase by 2-3.8 times the risk of giving birth to children with low weight (Dunkel Schetter & Tanner, 2012). Moreover, the results of a systematic review and meta-analysis of 23 studies related to the prevalence of depression, anxiety, insomnia, post-traumatic stress disorder (PTSD), and other mental health disorders among pregnant and postpartum women during the COVID-19

pandemic show high rates of anxiety, depression, psychological distress, and insomnia in this population (Yan, Ding & Guo, 2020).

So far, several instruments have been developed to assess stress in pregnant women, including the Perceived Stress Scale (PSS) validated in multiracial, ethnic, and gender populations and in pregnant women (Cohen, Kamarck & Mermelstein, 1983), and the Perceived Stress section of the Prenatal Psychosocial Profile (PPP) validated in a study comparing it to PSS among pregnant women from the New Orleans and Baton Rouge areas who were exposed to Hurricane Katrina (Solivan *et al.*, 2015). Recently, a new instrument has been developed for assessing stress due to the COVID-19 pandemic in pregnant women, i.e., the Pandemic Related Pregnancy Stress Scale (PREPS). This scale is in English and has been demonstrated for validity and reliability (Preis, Mahaffey & Lobel, 2020). This scale is not yet available in the Indonesian language. Therefore, this study aimed to validate the Indonesian version of the PREPS.

Methods

The PREPS includes 15 statement items compiled based on news, articles, and media interviews regarding the experiences of pregnant women during the COVID-19 pandemic. The 15 items are rated on a 5-point Likert scale from 1 (very little) to 5 (very much) and assess three factors. The first factor, PREPS-Preparedness, consists of seven items describing the stress related to readiness for labour and the early stages after delivery during the COVID-19 pandemic. The second factor, PREPS-Infection, consists of five items that describe the stress related to the effect of COVID-19 infection on pregnancy. The third factor, PREPS-Positive Appraisal, describes the aspects pregnant women liked during the COVID-19 pandemic (Preis, Mahaffey & Lobel, 2020). Figure 1 shows the steps taken to produce a valid and reliable Indonesian version of the PREPS questionnaire:

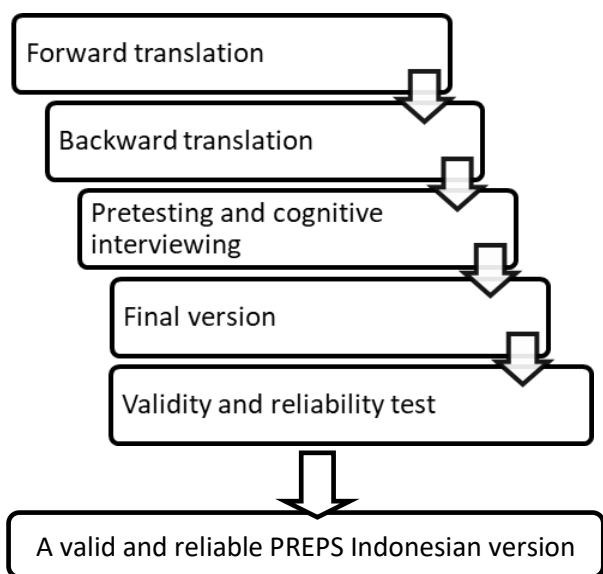


Figure 1: Indonesian version of PREPS adoption stage

The forward translation was carried out by health professionals who are familiar with the instrument and master the English language and culture (with two years of experience living in the United Kingdom). The backward translation was carried out by translators not from the health sector, fluent in English and Indonesian, and aware of the Indonesian culture. Pretesting and cognitive interviewing were conducted on the Indonesian version of the PREPS questionnaire among ten pregnant women.

Visual and construct validity tests were conducted on 30 pregnant women. The construct validity was assessed using the Pearson's Product Moment correlation. The PREPS questionnaire is considered valid if the Pearson correlation r_{count} is greater than r_{table} ($r_{count} > r_{table}$). Cronbach's alpha was used to measure

the reliability of the scale. An instrument is said to be reliable if the Cronbach's value is higher than 0.70 (Bolarinwa, 2015).

Results

The pretest results indicate that respondents found all PREPS items easy to understand and use. The results of the face validity test show that the 30 pregnant women found acceptable the display of the questionnaire both font size, layout, questions, and answer choices on the PREPS questionnaire.

Table I shows the results of the construct validity test and the Pearson's Product Moment correlation with a value of $r_{count} > r_{table}$ ($\alpha=0.01$; $df=28$), starting from the lowest (0.562) to the largest (0.847) with a r_{table} value ($\alpha=0.01$; $df=28$) which is 0.3610. The Cronbach's alpha value was 0.841, indicating that the scale is reliable, with good internal consistency.

Table I: Construct validity test

| Factors | No. Item | Significance | r _{count} | Results |
|---------------------|----------|--------------|--------------------|---------|
| Stress Preparedness | 1 | 0.0001 | 0.661 | Valid |
| | 2 | 0.0001 | 0.659 | Valid |
| | 3 | 0.0001 | 0.641 | Valid |
| | 4 | 0.001 | 0.562 | Valid |
| | 5 | 0.0001 | 0.639 | Valid |
| | 6 | 0.0001 | 0.652 | Valid |
| | 7 | 0.0001 | 0.614 | Valid |
| Stress Infection | 1 | 0.0001 | 0.795 | Valid |
| | 2 | 0.0001 | 0.841 | Valid |
| | 3 | 0.0001 | 0.819 | Valid |
| | 4 | 0.0001 | 0.716 | Valid |
| | 5 | 0.0001 | 0.776 | Valid |
| Positive appraisal | 1 | 0.0001 | 0.819 | Valid |
| | 2 | 0.0001 | 0.847 | Valid |
| | 3 | 0.0001 | 0.833 | Valid |

Note: Item: indicate questions on each factor; Significance: compared to the significance level at 0.01; r_{count} : Pearson correlation coefficient.

Discussion

The Pearson correlation coefficients of the Indonesian version of the PREPS items ranged from 0.562-0.847, indicating a strong positive correlation between variables (Chee, 2015). In the original version of the PREPS, values ranged from 0.45-0.92, indicating a moderate to strong positive correlation (Preis, Mahaffey & Lobel, 2020). Internal consistency relates to the extent to which items in a test or instrument measure the same thing, estimated with the split-half reliability index and Chronbach's alpha coefficient index (Bolarinwa, 2015). The Chronbach's alpha value

of the Indonesian version of the PREPS is 0.841, demonstrating good reliability, as is the case with the original version (Preis, Mahaffey & Lobel, 2020).

Conclusion

The Indonesian version of the PREPS is valid and has good reliability.

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