

ORIGINAL ARTICLE

THE MALAY VERSION OF ANTENATAL AND POSTNATAL BREASTFEEDING SELF-EFFICACY SCALE-SHORT FORM: RELIABILITY AND VALIDITY ASSESSMENT

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ABSTRACT

Maternal self-efficacy in breastfeeding is one of the potential modifiable factors which is consistently linked with positive breastfeeding outcomes. This study aimed to develop a Malay translation of the original English BSES-SF and to conduct a validity and reliability assessment on both antenatal and postnatal questionnaires among 101 pregnant women in their third trimester and 104 women on their first week postpartum. The Malay translation of the English BSES-SF was conducted by using back-to-back translation processes, followed by validity and reliability evaluation. The validated Malay version of the questionnaire BSES-SF was then administered on the respondents. The questionnaire comprised of socio-demographic, antenatal, and breastfeeding information. Furthermore, data on infant feeding method were collected via telephone call made to the respondents at four weeks postpartum. The Cronbach's Alpha value for antenatal BSES-SF questionnaire was 0.94, while the value for postnatal BSES-SF questionnaire was 0.95. The factor analysis identified a one-dimensional structure which able to explain 59.02% of the variance for antenatal questionnaire and 60.43% of the variance for postnatal questionnaire. In addition, high antenatal and postnatal breastfeeding self-efficacy scores were significantly associated with the practice of exclusive breastfeeding at four weeks postpartum. As a conclusion, Both Malay versions of the antenatal and postnatal BSES-SF questionnaires are valid and reliable tools to assess breastfeeding self-efficacy among Malaysian mothers.

Keywords: Malay Version, breastfeeding, breastfeeding self-efficacy, questionnaires, validity, reliability.

INTRODUCTION

Breastfeeding plays a significant role in public health, and is known as the most effective intervention in preventing mortality of children under the age of five years¹. Past studies found that breastfeeding practices provide short and long-term solutions to increase health quality and prevent diseases among babies and mothers²⁻⁸. In this regard, globally, the practice of breastfeeding is considered as the most recommended and ideal approach for feeding infants⁹⁻¹⁰. Unfortunately, even with all the multidimensional approaches adopted to promote breastfeeding, its performances are still unsatisfactory. There were less than 50.0 % of infants globally and less than 20.0 % infants in Malaysia who received exclusive breastfeeding in their first six months of life and some infants have stopped receiving exclusive breastfeeding at the age of less than four months¹¹⁻¹². Maternal self-efficacy in breastfeeding is one of the potential modifiable factors which is consistently linked with positive breastfeeding outcomes. Past studies had shown that it is a significant predictor for aspects such as initiation of breastfeeding, exclusivity and the duration of breastfeeding¹³⁻¹⁶. In this regard, mothers with

high breastfeeding self-efficacy will be more motivated to breastfeed their infant exclusively and these mothers will endure the challenges to continue breastfeed their babies.

The Breastfeeding Self-Efficacy is a theory adopted from Albert Bandura's Social Cognitive Theory¹⁷. In this theory, breastfeeding self-efficacy refers to how mothers perceive their ability in breastfeeding their babies. Thus, this self-efficacy can predict the outcome of breastfeeding by determining a mother's inclination to start breastfeeding, the effort she will spend, her tendency to have either self-improve or self-defeat thought patterns and how she will emotionally cope with challenges in breastfeeding.

The first version of the breastfeeding self-efficacy questionnaire was named the 'Breastfeeding Self-Efficacy Scale (BSES)' which contained 33 items^{18,19}. It used a five-point Likert Scale measurement, which ranged from number 1 ('not at all confident') to number 5 ('always confident'). Consequently, psychometric analysis detected some errors in the assessment for internal consistency. Inherently, another measurement tool was

constructed which was called the 'Breast feeding Self-Efficacy Score-Short Form' or BSES-SF²⁰. The BSES was simplified into 14 questions using the similar 5 point-Likert scale measurements.

Along the years, BSES-SF has gone through various psychometric analyses worldwide. It was tested among postnatal mothers such as in Sweden²¹, Poland²², Canada²³, United Kingdom²⁴, Croatia²⁵, Brazil²⁶, Hong Kong²⁷ and Spain²⁸, as well as among antenatal mothers such study done in Turkey²⁹, in Canada³⁰ and in Spain³¹. All of the tests showed good Cronbach's Alpha, ranged from 0.89 to 0.94.

In this light, due to the compelling need for evidence based practice in investigating the influence of breastfeeding self-efficacy in Malaysia, this study aimed to provide a Malay translation of the original English version of BSES-SF, as well as to conduct a psychometric evaluation of the Malay version among both antenatal and postnatal mothers in Malaysia. In addition, the study also explored the association between breastfeeding self-efficacy and maternal factors, including breastfeeding practices at four weeks postpartum.

METHODS

Design and sample

This study enrolled 110 antenatal women in their third trimester and 110 women on their first week postpartum by convenient sampling. The sample size was determined based on MacCallum et al. (2001)³² who stated that factor analysis accuracy can be achieved by providing at least four respondents for each item, with the ratio of 4:1. Therefore, the eligibility criteria for the antenatal group were Malaysian citizen, age 20 years old and above, carried a single child at the time, were at least at 32 weeks of pregnancy, and had no medical problem that may disrupt her breastfeeding practices. Meanwhile, for the postnatal group, the eligibility criteria were Malaysian citizen, age 20 years old and above, delivered full term baby, had a single delivery, were within one week of postnatal period, practices breastfeeding, and had no medical problem that may disrupt breast feeding practices.

The antenatal mothers were selected from patients attending a government maternal and child health clinic in Seremban, Negeri Sembilan, Malaysia while the postnatal mothers were selected from women who received routine postnatal home follow-up visit in their first week postpartum. Informed consents were collected from the respondents and the set of self-administered questionnaires were distributed among them. The questionnaire comprised of questions on the respondents' socio-demographic information, antenatal experiences, previous breastfeeding experiences and their BSES-SF. In

order to identify the mothers' infant feeding practices, all of the respondents were contacted again through telephone calls at four weeks postpartum. Ethics Permission to conduct the study was obtained from the Research and Ethical Committee of Universiti Kebangsaan Malaysia Medical Centre (FF-043-2013) and ethical committee from the Ministry of Health Malaysia (NMRR - 13-13-14591).

Outcome measures

Breastfeeding Self-Efficacy

The scale contained 14 questions and used the 5-point Likert scale. Hence, the data is inferred as continuous, with the minimum score of 14 and the maximum score of 70. All items for the postnatal BSES-SF started with the statement "I can always". Meanwhile, for antenatal BSES-SF, each question started with the statement "I think I can" as the mothers had not deliver their baby at the time.

Breastfeeding Practices

The mothers' breastfeeding status was categorized as exclusive breastfeeding (infants are fed only breast milk), predominantly feeding (infants are fed breast milk and water or water-based drinks), complementary breastfeeding (infant receives breast milk and any other fluid or food including non-human breast milk) and stopped breastfeeding¹¹.

Translation Procedure

The original BSES-SF scale was translated into the Malay language using the back-to-back translation method by two individuals who are proficient in both English and Malay. Then, a group of expert panels consisted of a lactation consultant, a lactation counsellor, a nutrition science officer and a certified translator, reviewed the two instruments before choosing the best instrument. Subsequently, the chosen instrument was translated again into English language by another individual who is also proficient in both English and Malay, without seeing the original BSES-SF. This retranslated version was then reviewed and discussed again by the same expert panel. The panel agreed that there are similarities between both the original and translated version, hence, the translated instrument was accepted for use. Later, a face validity evaluation of the translated versions was conducted among a group of antenatal and postnatal mothers. After a series of discussions, the final translated versions of both antenatal and postnatal BSES-SF were ready for further psychometric assessment.

Data Analysis

To ensure the comparability of findings, validity and reliability analysis were performed based on the previous BSES-SF psychometric assessment^{33,21,22,24,29,34}. Then, SPSS (Statistical Package for the Social Sciences) version 20.0 was

used to analyse the data. In this regard, the data were analyzed to identify the association between the variables including the socio-demographic backgrounds, breastfeeding information, maternal breastfeeding self-efficacy and infant feeding method. These data were analysed accordingly using chi-squared and student-t tests, with a significant p-value of < 0.05.

RESULTS

In all, 110 mothers who fulfilled the inclusion criteria were chosen for each group of antenatal mothers and postnatal mothers and were approached for the consent to be part of the study. However, only 101 antenatal mothers (91.8%) and 104 postnatal mothers (94.5%) participated throughout the whole duration of the study.

Respondents' Characteristics

The mean age for the antenatal group of mothers was 29.9 (\pm 4.1) years old and 98.0% (99) of

these mothers were married. In term of their racial background, most respondents were Malays (68.3%) and 32.7% were housewives. A total of 49.5% of the respondents received education up to secondary school level and 65.3% came from households with monthly income more than RM 2500. Sixty-nine respondents (68.3%) had given birth to more than one child (multiparous) and 77.2% (78) of them have had vaginal delivery, as shown in Table 1.

For the respondents in the postnatal group, the mean age was 30.1 (\pm 4.7) years old. A majority of them were married (n = 102, 98.1%) and comprised of the Malay ethnic group (85.6%), 36.5% were housewives and 61.5% of them had achieved up to secondary school level of education. In term of household income, 59.6% of them came from households with monthly income of more than RM 2500. A total of 67.3% (70) of the respondents have had more than one child (multiparous) and 76.9% experienced vaginal delivery, as shown in Table 1.

Table 1. The demographic characteristics of respondents

Variables	Antenatal mothers $n = 101$ ($n / \%$)	Postnatal mothers $n = 104$ ($n / \%$)
Age (mean \pm sd) (year)	29.9 (\pm 4.1)	30.1 (\pm 4.7).
Marital Status		
Married	99 (98.0)	102 (98.1)
Not married/divorced	2 (2.0)	2 (1.9)
Race		
Malay	69 (68.3)	89 (85.6)
Non Malay	32 (31.7)	15 (14.4)
Educational Status		
Up to secondary school	50 (49.5)	64 (61.5)
After secondary school	52 (51.5)	40 (38.5)
Occupational status		
Working	68 (67.2)	66 (63.5)
Housewife	33 (32.8)	38 (36.5)
Monthly income		
\leq RM2500	35 (34.7)	42 (40.4)
> RM 2500	66 (65.3)	62 (59.6)
Parity		
Primiparous	32 (31.7)	34 (32.7)
Multiparous	69 (68.3)	70 (67.3)
Delivery method		
Vaginal	78 (77.2)	80 (76.9)
Caeserean	23 (22.8)	24 (23.1)
BSES-SF (mean \pm sd)	56.20 (\pm 8.75)	58.97 (\pm 8.68).
Breastfeeding status (four weeks postpartum)		
Exclusive	61 (60.4)	74 (71.2)
Predominant	4 (4.0)	5 (4.8)
Complementary	32 (31.7)	24 (23.0)
Stopped	4 (4.0)	1 (1.0)

Breastfeeding self-efficacy and maternal factors

This study had identified the association between maternal factors and breastfeeding self-efficacy. In this circumstance, racial background of mothers had shown a significant relationship with breastfeeding self-efficacy in both antenatal and postnatal groups. In the

antenatal group, mothers from the Malay ethnic group scored significantly higher (57.57 ± 8.24) for breastfeeding self-efficacy as compared to non-Malay mothers (53.25 ± 9.21) ($p=0.020$). Similarly, in the postnatal group, the Malay mothers scored significantly higher (59.84 ± 8.50) for breastfeeding self-efficacy than the non-Malay mothers (53.80 ± 8.14) ($p=0.012$).

Table 2: Antenatal BSES-SF with factor loading and reliability analysis

Item	Factor Loading	Corrected Item-Total Alpha Correlation	Cronbach's Alpha if Items Deleted	Mean (sd)
I think I can...				
Determine that my baby is getting enough milk	0.695	0.65	0.941	4.22 (0.70)
Successfully cope with breastfeeding like I have with other challenging tasks	0.747	0.70	0.940	4.07 (0.85)
Breastfeed my baby without formula as a supplement	0.778	0.73	0.939	3.87 (0.90)
Ensure that my baby is properly latched on for the whole feed	0.824	0.78	0.940	4.17 (0.78)
Manage the breastfeeding situation to my satisfaction	0.852	0.81	0.939	4.11 (0.82)
Manage to breastfeed even if my baby is crying	0.769	0.73	0.938	3.77 (0.97)
Keep wanting to breastfeed	0.773	0.73	0.937	4.25 (0.73)
Comfortably breastfeed with my family members present	0.603	0.56	0.940	3.77 (0.99)
Be satisfied with my breastfeeding experience	0.736	0.69	0.940	4.02 (0.84)
Deal with the fact that breastfeeding can be time-consuming	0.740	0.70	0.945	4.03 (0.79)
Finish feeding my baby on one breast before switching to the other breast	0.780	0.74	0.940	3.76 (0.78)
Continue to breastfeed my baby for every feed	0.818	0.78	0.940	3.97 (0.78)
Manage to keep up with my baby's breastfeeding demands	0.844	0.81	0.939	4.11 (0.81)
Tell when my baby has finished breastfeeding	0.762	0.72	0.938	4.08 (0.70)

DISCUSSION

This study measured the validity and reliability of a Malay translated version of antenatal and postnatal BSES-SF among Malaysian mothers. The Cronbach's Alpha coefficient for this study was 0.94 for the antenatal and 0.95 for the postnatal BSES-SF instruments. This is coherent with the coefficient of the original BSES-SF value which was 0.94³³. The finding was also consistent with the psychometric analysis of the Swedish version of the BSES-SF²¹.

The antenatal BSES-SF showed a mean score of 56.20 ± 8.75 , while the postnatal BSES-EF showed a mean score of 58.97 ± 8.68 . A similar pattern of mean scores were observed in the psychometric analysis by Alus-Tokat et al. (2010)²⁹, where antenatal mean score of $58.52 \pm$

8.80 and postnatal mean score of 60.09 ± 8.2 were recorded. On the other hand, other studies^{25,33} showed lower mean scores. One legible reason for this higher mean score is that more than 60% of the respondents in both antenatal and postnatal groups were multiparous. As discussed by other studies, new primiparous mothers who had no breastfeeding experience tend to have lower level of self-efficacy to breastfeed their infants compared to multiparous mothers with multiple children^{33,22,35}. Besides that, past studies were conducted among different populations that have distinct socio-demographic, socio-economic and socio-cultural backgrounds which caused diverse results, hence, it can be concluded that breastfeeding self-efficacy differ among individuals in different populations^{36,37}.

Table 3: Postnatal BSES-SF with factor loading and reliability analysis

Item	Factor Loading	Corrected Item-Total Alpha Correlation	Cronbach's Alpha if Items Deleted	Mean (sd)
I can always...				
Determine that my baby is getting enough milk	0.829	0.79	0.941	4.26 (0.89)
Successfully cope with breastfeeding like I have with other challenging tasks	0.863	0.83	0.940	4.26 (0.79)
Breastfeed my baby without formula as a supplement	0.694	0.65	0.946	3.94 (1.00)
Ensure that my baby is properly latched on for the whole feed	0.857	0.82	0.940	4.29 (0.78)
Manage the breastfeeding situation to my satisfaction	0.837	0.79	0.941	4.26 (0.75)
Manage to breastfeed even if my baby is crying	0.705	0.66	0.945	4.08 (0.86)
Keep wanting to breastfeed	0.685	0.64	0.945	4.57 (0.60)
Comfortably breastfeed with my family members present	0.673	0.63	0.946	4.18 (0.85)
Be satisfied with my breastfeeding experience	0.820	0.78	0.941	4.21 (0.88)
Deal with the fact that breastfeeding can be time-consuming	0.702	0.66	0.945	4.34 (0.73)
Finish feeding my baby on one breast before switching to the other breast	0.752	0.71	0.943	4.05 (0.84)
Continue to breastfeed my baby for every feed	0.847	0.81	0.941	4.13 (0.74)
Manage to keep up with my baby's breastfeeding demands	0.839	0.81	0.941	4.26 (0.71)
Tell when my baby has finished breastfeeding	0.734	0.68	0.944	4.14 (0.79)

Furthermore, similar to the original (Dennis 2003)³³ and other versions of BSES-EF^{21,22,25,28}, the Malay BSES-SF has a one-dimensional structure measurement. DeVon et al. (2007)³⁸ conducted predictive validity analysis to demonstrate the correlation between the measured and expected outcomes. The study found that maternal breastfeeding self-efficacy is a strong modifiable factor influencing breastfeeding practices. This is in-line with the findings of previous studies which showed that mothers with high breastfeeding self-efficacy were more inclined to breastfeed their infants exclusively compared to mothers with lower breastfeeding self-efficacy^{21,22,39,40}. The study also discovered that mothers who breastfed exclusively had higher antenatal and postnatal breastfeeding self-efficacy scores, similar to Gregory et al. (2008)²⁴ who reported higher BSES-SF scores among mothers who breastfed exclusively at four weeks' post-partum compared to mothers who partially breastfed or bottle-fed their infants. Moreover, a study carried out by Dunn et al. (2006)⁴¹ among breastfeeding mothers in Ontario, Canada presented a conclusion that breastfeeding outcomes can be strongly predicted by breastfeeding self-efficacy among mothers in all age groups and education levels.

This study's finding is also consistent with the findings of previous studies^{33,35} where significant relationship was identified between antenatal and early postnatal breastfeeding self-efficacy scores with exclusive breastfeeding practices at four weeks postpartum. This provides a conclusive evidence that BSES-SF is a tool that can accurately identify women with high risk of early discontinuation of breastfeeding. On the other hand, there was an absence of association between other maternal demographic factors and both antenatal and postnatal breastfeeding self-efficacy and only maternal racial background was significant as the Malay women breastfed their baby exclusively for a longer period as compared to the non-Malays¹³⁻¹⁵.

CONCLUSION

This study showed that the Malay versions of antenatal and postnatal BSES-SF questionnaires are valid and reliable to measure breastfeeding self-efficacy among mothers in Malaysia. There is a need to carry out further studies to observe the implementation of these tool on breastfeeding practices of women in Malaysia.

ACKNOWLEDGEMENT

The authors would like to thank all antenatal and postnatal mothers who were directly involved in this study. This work was supported by the Universiti Kebangsaan Malaysia Fundamental Grant (FF-043-2013) without which the study would not have been possible.

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