Translation and Validation Study of the Malaysian Version of the Childbirth Experience Questionnaire - CEQ

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Abstract

Establishing maternity services in a medical institution needs to be monitored to target client satisfaction which can be implemented by using a validated questionnaire such as the Childbirth Experience Questionnaire (CEQ).

The objective of this study is to translate the English version of CEQ into Malay language; Bahasa Malaysia (BM) and to validate this Malaysian version.

Two forward and backward translations were done in BM in accordance to guideline, and its validation was determined by using confirmatory factor analysis. A total of 400 pregnant women presented for labour at the Hospital Tengku Ampuan Afzan, Pahang state, Malaysia were approached to represent Malaysian population for reliability and validity purposes.

Reliability of Malaysian Childbirth Experience Questionnaire revealed good Cronbach's alpha value of 0.70. Construct validity, evaluated using exploratory factor analysis, had good factor loadings most of its items except 2 out of 22 items.

The Malaysian Childbirth Experience Questionnaire had good psychometric properties among the tested population. Further studies are needed to verify these preliminary outcomes especially for higher analysis such Confirmatory factor analysis to affirm the validity among Malaysian population.

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Introduction

Establishing maternity services in a medical institution needs to be monitored to target client satisfaction. Monitoring is done through different tools that can measure the performance quality of the medical staff[1]. One of these tools is patient satisfaction questionnaire which is considered as a significant quality improvement tool. Patient satisfaction survey is an important quality outcome indicator to measure success of the services delivery system[2].

Implementation of such measures helps understanding of patient views and perceptions, and the extent of their involvement and adequacy of staff-patient communications. It will help in effective changes in old practices and introducing new ones for better healthcare.[3]

The childbirth experience questionnaire is a multi-dimensional instrument developed in Sweden in 2010. The questionnaire was proved to be useful in evaluating maternal satisfaction after childbirth.[4] It was also translated and validated in the United Kingdom. The questionnaire can be used as valid and reliable tool to measure childbirth experience in the UK population.[5]

Implementation of questionnaires to a new society needs translation and validation to accommodate the difference between societies.[6] Translation depends on the good clinical practice in translation is adopted in this study.[7] It is not enough to translate a questionnaire literally; the translation may be revised until the cultural acceptance is achieved. Translated questionnaire needs to be validated to ascertain it beneficial value in the new society.

As a new establishing medical institute, we need effective tools to evaluate our maternity

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services. These tools will help in continuous data collection and analysis to diagnose point of weakness in the patient management flow system. Future protocols and strategies will be adopted to overcome the factors affecting patient's satisfaction.

This study aimed to translate and validate the Childbirth Experience Questionnaire (CEQ) and to produce a well-accepted adapted Bahasa Malaysia (BM) version of CEQ for Malaysian population.

Materials and methods

Permission for translation obtained from the copyright bodies to translate the English version of the questionnaire to the Malaysian language (Bahasa Malaysia) and to make the necessary changed for cultural adaptation. The study protocol was approved by the Research Management Centre of the International Islamic University Malaysia.

Prior conducting the study, Institutional Approval from director of Hospital Tengku Ampuan Afzan, and from National Medical Research Register (NMRR) were obtained. Ethical approval was obtained from both the Ministry of Health Medical Research Ethics Committee (MREC) and Research Ethics Committee of IIUM.

The translation followed the good practice for the translation and Cultural Adaptation.8 The method is performed to ensure that the translated version is grammatically sound and that the terms used are correct. At the same time, the meaning and contents of the original CEQ are well preserved. The version was translated to the Bahasa Malaysia by two separate certified professional translators and a common version produced by a third body. The back translation was obtained from the common Malaysian version and compared with the original English version for near similarity by the copyright holders. The translated version was discussed among the administrative staff and medical students in the Obstetrics and Gynaecology department International Islamic University Malaysia (n=13) to give an input about the level of language used in the version. Changes were made depending on suggested opinions.

The setting of the study is the Obstetrics and Gynaecology department in hospital Tengku Ampuan Afzan. It is the main governmental hospital in Kuantan/Pahang state/ Malaysia. The department runs about 35-40 deliveries per day. For face validity and cultural adaptation; the questionnaire was distributed after the consent of the patients for participation in the study. Medical staff research assistants distributed the questionnaire to 50 postnatal women with different levels of education along with another set of questions to comment about the clarity of the questions and feasibility to answer.[8]

All women agreed that the questions were clear, reasonable and feasible to answer, but changes needed to be made in the scale vocabulary. The face validation was consolidated by the redistribution of the questionnaire with the new vocabularies of the scale to 13 administrative and medical students for the clarity and feasibility of the new scale. All participants agreed with the latest version. The translated questionnaire was regarded as ready for application to the community for testing validity and reliability.

Two research assistants are appointed to interview patients at postnatal ward, 24 hours after delivery. The inclusion criteria are women admitted after term delivery of a live single baby regardless of the mode of delivery, speaking Bahasa Malaysia, and at least more than 18 years old. The exclusion criteria are women with still birth delivery. Socioeconomic data was collected from the patients together with data regarding their delivery events such as the duration of labour, oxytocin augmentation, mode of delivery. After a pilot study done with a sample size of 150 participants which showed encouraging results as the total Cronbach`s alpha was 0.67 and the test retest reliability was excellent (Intra-class correlation coefficient Kappa value for test-retest is 0.96), a total sample size of 400 women was targeted.

The collected data was analyzed using SPSS software version 23. The adequacy of sample size is measured by Kaiser-Meyer-Olkin value. The Internal consistency for reliability is measured using Cronbach`s alpha for the total scale and for each domain. The CEQ consists of four domains, so the test done for the four domains and for the questionnaire overall. Construct validity was evaluated using exploratory factor analysis, and the Good factor analysis of all 22 items in the questionnaire (Factor loadings of 0.4 or more were considered good). Test retest reliability was measured during

the pilot study using Intra-class correlation coefficient Kappa value.

Results

A total of 400 pregnant women who participated and completed the questionnaires were included in the analysis. Participants' socioeconomic information is summarized in table I.

Factor	No.	(%)	Total
Age (years)	Mean 29.9 years (SD ± 5.65)		400
Household Income			
≤ RM 5000	325	80.3	400
> RM 5000	75	19.7	
Level of education			
Primary school	24	6	400
Secondary school	230	57.5	
Higher education	146	36.5	
Duration of labour	Mean 7.0 hours (SD ± 4.87)		400
Mode of delivery			
Normal vaginal delivery	202	50.5	400
Instrumentation	26	6.5	
Emergency Caesarean Section	93	23.3	
Elective Caesarean Section	79	19.3	
Parity			
0	18	4.5	400
1-2	215	53.7	
3-5	146	36.5	
>5	21	5.3	

Table 1. Socio-demographic data.

Reliability of Bahasa Malaysia version CEQ:

The reliability (internal consistency) of BM CEQ was determined by looking at Cronbach's alpha value which was good 0.70 (CI 95%). Deletion of any of the items did not increase the internal consistency of the total score 0.70 except two items namely item 5 and 22 (table II).

Validity test:

The construct validity was evaluated by using confirmatory factor analysis. Factor loadings of 0.4 or more were considered good. Kaiser-Meyer-Olkin value obtained was 0.85 which is statistically significant (p=0.001). Similarly Hotelling's T-squared value measured was 2544.3 with p=0.001. Therefore, these measurements indicate the adequacy of sample size in this study.

The analysis without force based on the Varimax rotation revealed there are six components. However based on the manual there are actually four domains. With forced analysis, we obtained these results; Based on the table III, two items namely item 7 and 18 were having low factor loadings (< 0.2) to their respective domain. The factor loading of item 7 was 0.11 in its respective domain (Perceived safety). This item "Saya mempunyai banyak kenangan positif daripada bersalin / I have many positive memories from childbirth" was not cross culturally sensitive to assess perceived safety domain but rather had high factor loading for the Own capacity (0.38).

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item1	63.36	39.620	0.396	0.67
Item 2	63.32	38.538	0.518	0.66
Item 3	64.33	42.707	0.087	0.70
Item 4	63.39	38.615	0.513	0.66
Item 5	64.68	48.192	0.356	0.74
Item 6	62.78	41.924	0.336	0.68
Item 7	63.26	40.684	0.390	0.68
Item 8	63.47	41.353	0.254	0.69
Item 9	63.13	42.471	0.151	0.70
Item 10	63.53	43.197	0.069	0.70
Item 11	63.99	42.727	0.086	0.70
Item 12	63.44	42.653	00.155	0.69
Item 13	63.21	38.988	0.600	0.66
Item 14	63.89	39.485	0.331	0.68
Item 15	63.18	39.403	0.559	0.66
Item 16	63.19	39.247	0.610	0.66
Item 17	63.14	39.242	0.652	0.66
Item 18	62.98	40.138	0.587	0.67
Item 19	63.08	39.605	0.611	0.66
Item 20	64.68	43.340	-0.001	0.72
Item 21	63.36	39.535	0.298	0.68
Item 22	63.43	44.115	-0.066	0.73

Table 2. Corrected item–Total correlations and Cronbach's alpha if item was deleted for the CEQ.

Item 18 "Tanggapan saya terhadap kemahiran pasukan perubatan membuatkan saya rasa selamat./ My impression of the team's medical skills made me feel secure" was found to have a low factor loading of 0.10 on its respective domain (perceived safety) while had higher factor loading for the Professional support domain (0.76).

	Component			
	Professional support	Own capacity	Participation	Perceived safety
Item 1		0.75	.	
Item 2	.	0.74		
Item 3				0.25
Item 4		0.72		
Item 5		0.51		
Item 6		0.27		
Item 7		0.38		0.11
Item 8				0.72
Item 9		.		0.82
Item 10			0.72	
Item 11			0.30	
Item 12			0.68	
Item 13	0.81		.	
Item 14	0.43			
Item 15	0.82			
Item 16	0.83			
Item 17	0.84			
Item 18	0.76			0.10
Item 19		0.45		.
Item 20		0.24		
Item 21		0.57		
Item 22				0.34

Table 3. Factor loading of each item in the questionnaire.
Extraction Method: Principal Component Analysis.(400).
Rotation Method: Varimax with Kaiser Normalization.

Discussion

In order to implement a questionnaire in foreign language to a certain population we need to adapt the translated version linguistically and culturally. Therefore the assessment of the reliability, validity and psychometric properties are crucial. In order to implement and improve maternity health services, mothers' views and expectations should be taken into account.[9-12]

In this study, the Cronbach's alpha coefficients for the total scale was 0.70 which is considered acceptable and consistent to the results of the original CEQ in Sweeden[4] and another study on the validation of the English version in England[5] and also the Spanish version of CEQ.[13]

Our results showed that item 5 "Saya berasa letih semasa bersalin dan melahirkan anak/ I was tired during labour and birth" and item 22 "Secara keseluruhan, sejauh manakah anda telah rasa selamat ketika melahirkan anak? / As a whole, how secure did you feel during childbirth?" if deleted would improve the overall Cronbach's alpha value. Both items need to be analyzed to know the reason why their deletion will improve the value. The possibilities; if both items show good values in other study(s), the translation was done incorrectly or in reality both items are problematic in way of scoring as item 3 has reversed score while item 22 is scored through visual analogue scale (VAS).

Generally most of items in our BM version of CIAS were having good confirmatory factor analysis values except 2 items (7 and 18). Items 7 "Saya mempunyai banyak kenangan positif daripada bersalin / I have many positive memories from childbirth", we found that the factor loading was low for its respective domain (Perceived safety) but it was higher for the own capacity domain. When we assessed this item thoroughly, we think that there was a difficulty in perceiving this question, although it designated to be under perceived safety but it is also can be fall under own capacity.

Regarding item 18, it is supposedly in domain perceived safety but contributing higher loading in Professional Support domain. This item "Tanggapan saya terhadap kemahiran pasukan perubatan membuatkan saya rasa selamat./ My impression of the team's medical skills made me feel secure" is perceived as professional support rather than perceived safety by our subjects. In reality the nature of the question has some element on the competency of the medical team.

The present study is providing a preliminary milestone to the future development of BM CEQ version where some changes may be needed to achieve better results. This BM version of CEQ has been translated with good quality and it is validated for this group of 400 pregnant women. However to generalize it to Malaysian population, it needs more extensive studies in which we need to include bigger sample size.

Conclusions

The CEQ has been cross culturally adapted into Bahasa Malaysia for the first time. The psychometric properties of the Malaysian Childbirth Experience Questionnaire are also reported to be acceptable on various aspect; reliability (internal consistency and test-retest values) and validity. The scale is considered as validated and reliable to our population. Further improvement can be done by rephrasing some items.

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Declaration of Interest

The authors report no conflict of interest.

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