



# Translation and Validation of Childbirth Self-Efficacy Inventory into Indonesia

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## Abstract

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**BACKGROUND:** Childbirth self-efficacy is an essential component of mothers in dealing with childbirth. Various studies have supported evidence that mothers who believe in their ability to go through labor are commonly associated with levels of anxiety and affect labor outcomes. However, in Indonesia, research on mothers' efficacy in facing childbirth or what is known as childbirth self-efficacy has not been well documented due to the absence of instruments available to measure the concept.

**AIM:** This study aimed to produce a Childbirth Self-Efficacy Inventory instrument in the Indonesian version using guidelines from Brislin in the form of translation and back-translation techniques.

**METHODS:** Face validity to test the validity of the surface by determining inclusion criteria including mothers with gestational age in the third trimester, maternal age range between 20 and 35 years, and primiparous mothers.

**RESULTS:** A total of 12 mothers met the predetermined criteria and were willing to be respondents. A-62 Indonesian versions of the Childbirth Self-Efficacy Inventory were produced through a translation process based on the theoretical framework.

**CONCLUSION:** There are several sentence revisions to the items described but do not add and remove items – the resulting alpha coefficient of 0.98 for all subscales. The results of the study have several limitations and recommendations for further research.

## Introduction

Childbirth self-efficacy is the ability to cope with childbirth and is an essential factor that can affect the motivation of pregnant women to undergo a normal delivery process and affect their perception of the outcome of childbirth [1], [2]. Bandura, the first scientist to introduce the theory of self-efficacy, underlined that everyone will act on their belief in what they can do and on the belief in the possible outcome they previously believed [3]. Furthermore, according to Bandura, a woman's confidence in facing childbirth develops negatively or positively through previous childbirth experiences, discussions with midwives, nurses, doctors, or other health workers, and discussions with family or friends [4]. Fear of childbirth places women in a vulnerable position to experience anxiety, and research indicates a significant relationship between anxiety in pregnant women and confidence in facing childbirth [5], [6]. Pain during childbirth is one of the causes of fear that can reduce the level of mother's confidence in facing the birth process [1] other than the place of delivery, namely, in hospitals, clinics, health centers, or independent practice midwives [7].

Maternal mortality rate (MMR) in Indonesia has decreased since 2012 (359/100,000 births)(8) to 2017 (177/100,000 births) [8], [9]; however, the number has not met the SDGs target to reduce MMR by 102/100,000 births in 2015 [8]. As one of the efforts to reduce MMR in Indonesia, the government launched a strategic plan for 2015–2019 by emphasizing the importance of giving birth to health workers and the nearest health facility [10]. Based on the Ministry of Health (2014) data, about 38.0% of mothers gave birth at maternity clinic centers and 29% gave birth at home. On the other hand, 2.4% of women gave birth in the hospitals, 7.3% gave birth at the community health-care centers, and only 3.7% gave birth to midwives' village clinics. The situation of birth setting might affect a mother's psychological distress during the labor process. For instance, mothers who have a home birth will get full access to social support from family or relatives, while they have restricted access when delivering a baby at the hospital or clinic [11]. In general, delivery rooms in the hospitals, clinics, or health centers have several partitions equipment to share the room with other maternity mothers and make it possible to know or hearing each other's delivery process. Nevertheless, unfortunately, the setting impacts

decreasing the mother's self-confidence and increasing fear and worry to the birth process itself [1], [7]. To help promote the concept of maternal efficacy to preparing childbirth and as a guide for midwives in providing effective midwifery care, Lowe (1993) developed an instrument called the Childbirth Self-efficacy Inventory (CBSEI). The instrument measures the mother's coping ability during the delivery process. By understanding the mother's perspective on self-efficacy and its impact on pregnancy outcomes, this knowledge is significant for midwives to develop effective care strategies to provide educational interventions to pregnant women. Unfortunately, research on childbirth self-efficacy in Indonesia has scars. The absence of an instrument to measure maternal childbirth self-efficacy before delivery in Indonesia is one of the factors causing the lack of research on this topic. This study aims to provide an overview of the translation and validation process of the Indonesian version of CBSEI.

## Materials and Methods

### *Study design and participants*

This study aims to produce a translation of the 62-Childbirth Self-Efficacy Inventory (CBSEI) from English into Indonesian to produce Indo-CBSEI through translation and back-translation processes [12]. According to guidelines, the steps to carry out the process of adapting the instrument from the original language into the target language can be concluded as follows:

### *Data collection and analysis*

#### *Forward translation*

A bilingual translator translated the translation of the instrument from the original version into the target version. In this case, the original English version of CBSEI will be translated into the target language, namely, Indonesian. This process produces the Indonesian version of the CBSEI instrument.

#### *Back-translation*

Then, another translator with the same qualifications and procedures will perform a reverse translation from Indonesian back to the original language version, namely, the English version. This step produces an English version of the CBSEI instrument based on the translation results from the second translator.

#### *Committee review*

In this step, the researcher and the two translators reviewed the two instruments, the

Indonesian version, and the English version. Then, the committees proceed with differences in sentence selection for each item in this procedure. In addition, the words or sentences used must refer to the concepts and culture commonly used in the society that will be the target of translation. The step is repeated until the agreement regarding accuracy and appropriateness of sentences among the committee is achieved.

### *Face and content validity*

After the Indonesian version of CBSEI was produced through a review process by the researcher and the two translators, the instrument was then tested for content validity to the target population. Respondents in the pilot study provided feedback on sentences that were considered ambiguous and unclear. In this study, the population are the mother who come to visit their antenatal care at Community Health Care Center (Puskesmas), Sleman. The sampling technique in this study used non-probability sampling with the purposive sampling method. The inclusion criteria in this study include: (1) primigravida with any age range, (2) gestational age weeks <28, (3) have no pregnancy complication, and (4) willing to be a respondent. In the present study, the respondents required to perform a face validity test based on the literature ranged from 11 to 19 primigravida pregnant women. After obtaining a research permit from the Research Ethics Commission at an educational institution, the researcher then approaches the area that has been determined. At the time of data collection, researchers will be assisted by midwives on duty at the Puskesmas to identify pregnant women who have the potential to become respondents based on predetermined inclusion criteria. The midwife also plays a role as a communicator to prospective respondents if the researcher has determined the potential respondents through the handbook submitted by pregnant women before entering the antenatal care examination room. The researcher explain the aim, procedure, and time contract to the propose participant. There is no possibility of risk or disability that will arise from this research, and the guarantee of confidentiality provided by the mother is a permanent procedure in explaining to the mother. After the mother understands, the researcher invites the mother to fill out the informed consent and ensures that the mother can refuse anytime during the study. Based on input from the target population, the instrument was revised, produced the final version of Indonesia version of Childbirth Self-efficacy Inventory. The data collection process is shown in Figure 1.

### *Data analysis*

The analysis was carried out descriptively on the variables determined in the study. The univariate analysis calculates the frequency and proportion of a

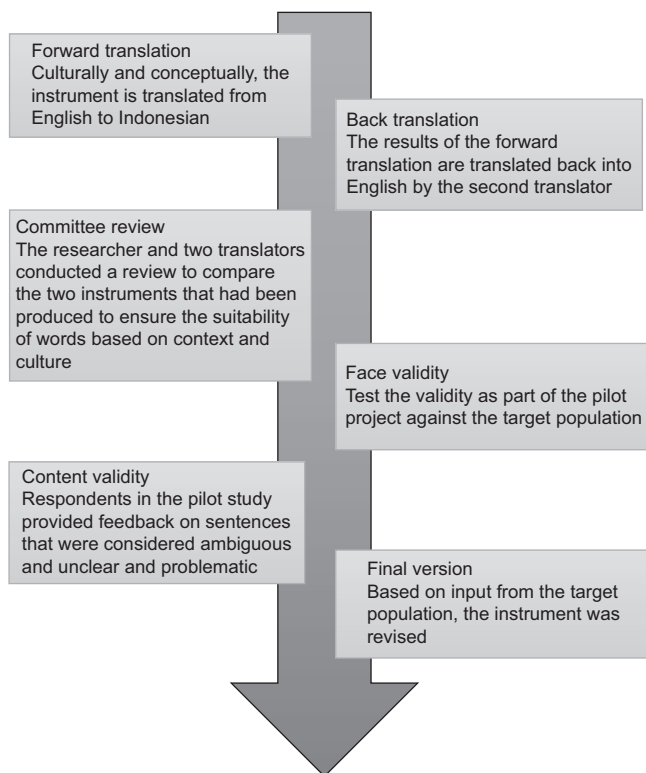


Figure 1: Process of translation and data collection

group of variables using a frequency distribution table. In this study, researchers used descriptive statistics to describe the demographics of respondents and inferential statistics with the help of SPSS software for Windows, version 18.0. internal consistency to test the reliability of the Indonesian version of the CBSEI questionnaire by determining the alpha coefficient and the correlation of the total items.

### Measurement

In this study, researchers used two types of instruments: A demographic questionnaire, an instrument that compiles demographic information, and the Indo-CBSEI instrument.

#### Demographic questionnaire

The researcher designed a demographic questionnaire based on the critical information needs, such as age, parity, education, obstetric history, and current obstetric health. This instrument serves as the basis for information between multiparous and nulliparous mothers. The demographics source is based on filling out the questionnaire by the respondents.

#### Indo-CBSEI

The original version of the CBSEI in English was first developed by Lowe (1993) to measure the mother's confidence in facing childbirth. This instrument

translated through a translation and back-translation process by following the instructions from the previously available guidelines [12]. This instrument is in the form of a questionnaire with a Likert scale and consists of two parallel subscales, namely, self-efficacy expectancy (16 items) and outcome expectancy (16 items). Each subscale measures how the mother's coping for labor, such as breathing exercises, distraction, and relaxation, were adopted for the mother's perception of coping. This measuring tool is based on Bandura's self-efficacy theory [13]. At the beginning of its development, the CBSEI was used for multiparous and nulliparous mothers, but then Lowe (1993) found the fact that the instrument supported the construct validity of the self-esteem and internal health locus of control and has a negative relationship with external health locus of control [2].

## Results

This study aimed to translate to produce an Indonesian version of the Childbirth Self-Efficacy Inventory. Several steps have been taken to achieve this goal, as described below:

#### Forward translation

Translators with Master's Education qualifications in Midwifery overseas graduates have been selected to be the first translators to translate instruments from English to Indonesian. The first translator is bilingual in Indonesian and English, has at least 2 years of experience in the clinic, and has experience conducting similar research with researchers in terms of instruments. The translator followed the researcher's instructions to emphasize choosing words based on literal meanings and cultural and conceptual meanings in this process. In this process, the Indonesian version of CBSEI was produced.

#### Back-translation

A second translator translated the Indonesian version of CBSEI into English. Translators have expertise in instrument research but do not have access to and knowledge of previous CBSEI instruments (blinded back-translation). Therefore, the second translator also gave the exact instructions to produce an English CBSEI.

#### Committee review

The process of comparing the results of the Indonesian CBSEI translation and the reverse

translation of the English CBSEI was carried out at this stage, guided by the researcher, and followed by two translators. This procedure aims to find inconsistency in the choice of words based on concepts, culture, and meanings. Committee members should agree on the appropriate choice of words to avoid ambiguity and confusion for potential respondents. There are some differences of opinion regarding the choice of words based on the meaning and concept of several items.

### Content validity

The three experts were invited in this study to judge the Indonesian version of CBSEI using the Content Validity Index (CVI). The member of experts was midwives and maternity nurses. This study applied item-level CVIs (I-CVIs) universal agreement among experts to calculate the content validity through item content validity (I-CVIs/UA). An I-CVI of 0.78 has been determined based on the recommendation [10]. The expert giving rates the contents of the Indonesian version of CBSEI and measures the instrument based on four criteria: (1) Relevance, (2) ambiguity, (3) simplicity, and (3) clarity. Since this study followed I-CVIs/UA concept, the member of experts suggested having the universal agreement among them for each item to achieve validity (ranged 0.78–1). The expert judgment procedure was two rounds. In the first round, the researcher focused on analyzing the results in a rating scale for each item given by the experts. Then, in the second round, the researcher asked the same experts to reevaluate the set's revised items. The I-CVI can be computed while the second-round panel gains a reviewed set of items. Finally, all the experts approved each item without adding new items or deleting the original one from the instrument, and the emergent Bahasa version of CBSEI was obtained. The final translated version consists of 62 CBSEI and the expert judgment example described in Table 1.

### Face validity

Before performing face validity on respondents, researchers have obtained ethical approval from the Ethics Commission of Aisiyiah University. Furthermore, the Yogyakarta City Licensing Service obtained permission to collect data. In this study, pregnant

women were 12 willing to fill out questionnaires and conduct interviews with researchers according to the criteria. Furthermore, after being given information, including the purpose and objectives of this research and the procedures for carrying out the research along with a time contract, the mother was asked to fill out a consent form to become a respondent. The researcher also said that the mother might refuse to proceed to the next stage if the respondent objected and there were no sanctions. Confidentiality of information and respondent's identity is also guaranteed and conveyed to respondents. Researchers have provided a particular room to conduct interviews on the spot, but when this is not possible, interviews can be conducted through WA or telephone according to the agreement between the researcher and the respondent. Respondents were asked to read the Indonesian version of the CBSEI questionnaire slowly and pay close attention to each item. Then, the respondent was asked to interpret each item and convey if some sentences or words were not understood. In addition, respondents were also asked to convey confusing expressions or expressions while completing the Indonesian version of the CBSEI questionnaire. The time needed to look at all 62 questionnaires is 15–20 min.

Respondents in this study had an average age of 26.08 years (SD = 3,502) with a minimum age of 21 and 34. The average gestational age of the mother was 31.17 weeks (SD = 5.078), with the youngest gestational age being 18 weeks and the oldest being 38 weeks. The majority of respondents were high school graduates, as much as 75% (n = 9), the rest were graduates from universities (n = 3). Meanwhile, 83.3% of respondents were housewives (n = 10), and the rest were working mothers in the private sector. All respondents said that the observation time was longer than the required time contract so that the remaining items that had not been completed to be understood would be delivered through telephone or the WhatsApp application. The Indonesian version of CBSEI consists of 62 items, namely, the first 15 items are the repetition of the subscale on the following 15 questions up to the 62<sup>nd</sup> item. Apart from the repetition of sentences, the confusion of respondents also lies in unclear instructions. They have to read the questionnaire instructions repeatedly so that it is deemed less effective on the efficiency of filling out the subsequent

**Table 1: Rated by expert for item level-content validity index in the first round**

Item	Subscale	Rating 4****	Rating 3***	Rating 2**	Rating 1*	I-CVIs	Interpretation
1	Expectancy outcome	3	0	0	0	1	Valid
2	Expectancy outcome	3	0	0	0	1	Valid
3	Expectancy outcome	2	0	1	0	0.66	Invalid
4	Expectancy outcome	2	1	1	0	0.66	Invalid
5	Expectancy outcome	3	0	0	0	1	Valid
6	Efficacy expectancy	3	0	0	0	1	Valid
7	Efficacy expectancy	2	1	0	0	0.66	Invalid
8	Efficacy expectancy	2	1	0	0	0.66	Invalid
9	Efficacy expectancy	3	0	0	0	1	Valid
10	Efficacy expectancy	3	0	0	0	1	Valid
11	Efficacy expectancy	3	0	0	0	1	Valid

Number of item relatives relevant by all the judges = 58 number of item = 62

I-CVI/UA = 62/62 = 0.90

\*The number of expert who gave rate 1, \*\*The number of expert who gave rate 2, \*\*\*The number of expert who gave rate 3, \*\*\*\*The number of expert who gave rate 4. I-CVI: Item level-content validity index.



questionnaire. Almost all respondents asked the researchers about the importance of repeating items in the 62 statement items, and they needed a careful and thorough explanation of the four different subscales. At the end of the short interview, all respondents were able to receive sentences on the Indonesian version of the CBSEI instrument and according to the context and culture of the target population itself.

### ***The Indonesian version of the CBSEI reliability test***

The pilot data consist of four sub-scales containing 62 statement items. In the reliability test, the alpha coefficient of the Indonesian version of CBSEI is for the total outcome expectancy subscale of .89 for the total self-efficacy subscale.

## **Discussion**

This research aims to carry out the process of translating the original version of CBSEI (English) into the Indonesian version. To achieve this goal, the researchers followed the guidelines for translating instruments in the health sector, commonly used based on guidelines [12], [14]. After the translation process is carried out transparently and thoroughly, the second purpose of this research is to test the validity and reliability. The validity test was carried out using the content validity, face validity method, and the alpha coefficient's reliability test. This study adopted recommendation from previous scholar to consider applied I-CVI method approach due to its advantages in terms of feasibility to compute, understandability, focus on agreement of, focus on consensus rather than consistency, and provision of both item and scale information [15]. Moreover, the method of approach is commonly used among nurse researcher [16], [17], [18], [19].

To provide readers with interpretable content validity information, this study also described clear information of the procedure approach on the content validity step. In regarding with the face validity, results of this study are in line with previous research [20]. They used the target population to perform face validity and found the identical problem. The respondents felt that there were too many question items and there was the repetition of items in the next subscale. In this study, therefore, the researchers anticipated providing an explanation related to instrument instructions on each different subscale even with the same question item. Nevertheless, the reliability test results conducted by previous research ranged from .86 to .90 for the total subscale, in which quite the same with the present study, .89.

Lowe, the inventor of the first CBSEI instrument, in 1993, conducted a psychometric test with an alpha

coefficient of .88-.95, and the total correlation on the items was more significant than .30 for all items on each scale. Meanwhile, the 2-week correlation test-retest scores ranged from 0.40 to .76 [1]. Lowe uses the factor analysis method, which recommends that CBSEI is a unidimensional instrument. In the same word, CBSEI is a tool to measure the mother's confidence in facing childbirth that measures various dimensions (there are four dimensions). In his pilot study, Lowe reported that the mean score for outcome expectancy during active labor was 128, and self-efficacy during active labor was 103, then 130 scores for the outcome expectancy dimension during delivery, and 107 scores for the self-efficacy dimension during childbirth. All self-efficacy on the four dimensions is 210 [21].

Furthermore, in 1997, other researchers examined the psychometric characteristics developed by Lowe and conducted trials on 100 samples of pregnant women in Australia. The results of his research are in line with the results previously stated by Lowe that CBSEI has a high internal consistency of more than .90 for all subscales [22]. This finding is also congruent with the self-efficacy theory that having good experience and knowledge before giving birth will significantly affect childbirth self-efficacy and support the validity test of the CBSEI itself. Meanwhile, on the other hand, other variables that can be considered as predictive factors based on self-efficacy theory are social factors number of children [22]. Other studies that are also in line with the results of this study are Sinclair and O'Boyle (1999). They invited 126 pregnant women in North Ireland to fill out the previously translated CBSEI questionnaire, and the reliability was 0.91–0.95 [23]. The result is also in line with the research results submitted by Lowe previously. However, the result that needs to be underlined is that when Lowe found that there was a fact of parity or the number of children on self-efficacy, the different results from Sinclair and O'Boyle and Drummond and Rickwood were that there was no significant relationship between parity and self-efficacy.

Another researcher from Hong Kong, Ip, in 2005 developed a concise version of CBSEI based on DR. Lowe. In his research, Ip discusses the process of translating CBSEI from English into Chinese and how the tool was tested for its reliability and validity among 148 samples of pregnant women in China [24]. In line with this research, the translation and back-translation processes are carried out by two experienced translators who have a background as a midwife. The criteria for translators are professionals for more than 5 years in the field of Midwifery. We then tested the validity of the surface (face validity) and content validity (content validity) by inviting the expertise of six people and 10 pregnant women.

In this study, the method used emphasizes the unidimensional domain in each subscale in line with the original version, namely, the English version of CBSEI. However, the self-efficacy scale and outcome

expectancy results are lower than some previous studies. This finding might be due to the possibility that the number of respondents to do face validity and the expertise involved in carrying out content validity are very limited compared to previous research. In addition, the study used the original instrument from Lowe, namely, the CBSEI with 62 items, which was very ineffective for respondents to fill in the time between waiting for their turn to enter the pregnancy examination room (ANC room). Our respondents also conveyed several inconsistencies in repeated sentences and complained about too many items. Ideally, the item we use is the Ip version of CBSEI [24] totaling 32 items. In parallel, other Indonesian researcher conducted the identical studies to result the Indonesian version of CBSEI following Ip's instrument [25]. The study applied Aiken's V value to judge the construct validity of the translated instrument. The instrument's ranges from 0.67 to 1 for the *outcome expectancy* and 0.75 to 1 for *efficacy expectancy*. A-16 items in *outcome expectancy* showed KMO value > 0.5 with MSA value between 0.648 and 0.957. Meanwhile, 16 questions in *efficacy expectancy* also had KMO value > 0.5 with a MSA range between 0.798 and 0.937, respectively [25]. Unfortunately, the researcher has not provided information on translation process that might imitate and convince to the other researcher.

Childbirth self-efficacy is crucial for pregnant women to perceive their capability in the upcoming childbirth process [26]. The valid and reliable instruments are promptly needed to assist midwives in providing the best care of coping strategies for childbirth, particularly for the 1<sup>st</sup> time pregnancy [27], [28]. This study has successfully translated and validated the instruments based on the guideline and provides clear information that may follow by another researcher. The validity test showed high results for both the subscale and the total subscale. The result of Cronbach's alpha also indicates that the internal consistency of the Indonesian version of CBSEI has a high level. However, there are some limitations to this study. First, even though we invited a sufficient number of expert judges, we invited a small number of pregnant women to test and analyze surface validity in this study. Therefore, in the future, the researchers suggested inviting many pregnant women to test and analyze face validity.

Second, this study adopted Lowe's original instrument, 62 items. During the expert judgment procedure, the experts have not provided suggestions to delete some items. Therefore, we resulted in A-62 Indonesia version of CBSEI. The researcher and the team must repeatedly explain the measurement to the respondents who asked the items. The limited time in conducting language checks is another obstacle encountered by the researchers in this study. As a result, some respondents do not feel optimal feedback on all items. Finally, in translation instrument, conceptual and cultural are two crucial things that should be considered in selecting sentences for each item. Hence, the

accuracy and thoroughness of the translator are needed in the selection of translator criteria.

## Conclusion

This paper provides evidence on the translation process of Child Birth Self-Efficacy in Indonesia. The steps describe a rigorous translation procedure, including forwarding translation, back-translation, committee review, content validity, and face validity. The experts have not provided suggestions to delete some items during the expert judgment procedure. Therefore the translation scale resulted from a-62 items as the original instrument. However, the limitation of the study has been acknowledged. The researcher needs to carefully explain the instrument due to the number of items being one of the limitations in this study. The conceptual and cultural issues are two primary considerations in this study. This study poses a promising result of validity and reliability. However, a short form of CBSEI created by another researcher can be considered in future studies.

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