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Adaptation into Pidgin English and Validation of the Birth Satisfaction Scale-Revised in Selected Hospitals in Owerri, Imo State, Nigeria

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Abstract

Birth satisfaction is an important indicator of the quality of perinatal care and maternal well-being, yet culturally appropriate tools for assessing it among diverse language groups remain limited. In multilingual settings such as Nigeria, where Nigerian Pidgin is widely spoken across educational levels, adapting the Birth Satisfaction Scale-Revised (BSS-R) into Pidgin English is necessary to improve accessibility and accuracy in measuring women's birth experiences. This study adapted and validated the Birth Satisfaction Scale-Revised for perinatal care in Nigerian Pidgin English version among postnatal women in selected hospitals in Owerri, Imo State, Nigeria. A sequential multiphasic design comprising adaptation and validation phases was adopted. Five experts validated the adapted version. Stratified random sampling was used to recruit 706 postnatal mothers from two public and two private hospitals in Owerri Municipal. Data were collected using a four-item demographic questionnaire, the Original English version of the BSS-R, and the adapted Pidgin English. Data collection involved administering the Pidgin English BSS-R first, followed by the criterion tool at 5-minute intervals, after obtaining informed consent and ethical approval. Data were analysed using descriptive statistics, expert agreement analysis was used for content validity, Pearson correlation analysis was used for concurrent validity (as a measure of reliability) of the adapted Pidgin English BSS-R. The translation and adaptation process involved forward translation, expert panel review, and back-translation, yielding strong expert agreement on the semantic equivalence of the Pidgin English version and Original English version with a content validity index of 0.940. The concurrent validity between the adapted Pidgin English version and the Original English BSS-R was 0.986. In conclusion, the adapted Nigerian Pidgin English BSS-R demonstrated excellent content validity and strong concurrent validity. The Pidgin English BSS-R should be adopted for clinical practice and research in multilingual Nigerian settings to improve culturally appropriate assessment of maternal birth experiences.

Keywords: Adaptation, Birth satisfaction, Nigeria, Perinatal care, Pidgin English, Validation

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Introduction

Birth is a profound and transformative experience marking the beginning of life. It involves the process by which a baby is born, typically following pregnancy and labour (Rania, 2019). This event brings significant physiological changes for both the mother and the newborn, accompanied by strong emotions such as joy, excitement, anxiety, and fear (Gómez-Carvajal *et al*., 2020). The birth process can occur naturally through vaginal delivery or be assisted via medical interventions like caesarean section (C-section). Vaginal delivery involves the baby passing through the birth canal, while a C-section entails a surgical incision in the mother's abdomen and uterus (Robertson & White, 2020). The choice of delivery method depends on factors such as the health of the mother and foetus, the foetal position, and complications during labour. Birth is both a physical and cultural event, with practices varying across societies. It signifies a new chapter in the lives of the parents and community, making the evaluation of birth satisfaction vital for positive outcomes (Olza *et al*., 2020).

Birth satisfaction refers to the overall contentment of a mother experiences regarding her childbirth process. It is a multifaceted concept that significantly affects maternal well-being and can influence postpartum recovery and long-term health (Akbaş *et al*., 2022). It involves dimensions such as: the mother's physical comfort, emotional well-being, the quality of perinatal care received, and the extent to which her expectations and preferences were met during labour and delivery (Yakupova & Liutsko, 2021). For instance, a key factor influencing birth satisfaction is the type of delivery. Mothers who undergo natural vaginal deliveries often report

higher satisfaction levels compared to those who have caesarean sections, particularly when the latter is unplanned or emergent (Fenaroli *et al*., 2019). The presence and support of healthcare professionals, as well as the mother's involvement in decision-making, play significant roles in enhancing satisfaction. Additionally, effective pain management and emotional support during labour contribute to a positive birth experience. This includes timely medical interventions and continuous support from midwives and nurses (Mendoza *et al*., 2021). The environment in which birth takes place such as the privacy, comfort, and safety can further impact satisfaction levels. Postpartum care and the immediate post-birth period are also crucial, as positive interactions with healthcare providers and adequate support with newborn care can reinforce a mother's overall satisfaction (Power *et al*., 2019).

Birth satisfaction assessment is the process of evaluating a mother's contentment and overall experience during childbirth. This assessment is crucial for improving maternal care and ensuring positive outcomes for both mother and baby (Konieczka *et al*., 2024). It typically involves measuring various aspects of the childbirth experience through structured tools and surveys. Assessment results can guide healthcare policies and practices, helping to enhance the birth experience for future mothers. Regularly evaluating birth satisfaction allows for continuous improvement in maternity care, ensuring that mothers receive the support and care they need (Altman *et al*., 2020). Several tools and questionnaires have been specifically designed to measure and assess birth satisfaction, capturing various dimensions of the childbirth experience (Gregory *et al*., 2019). The Birth Satisfaction Scale revised version (BSS-R) is a prominent instrument that evaluates satisfaction across three dimensions: quality of care, personal attributes, and stress experienced during labour (Nespoli *et al*., 2021).

The BSS-R is a valuable tool developed by Martin and Martin (2014) for assessing maternal satisfaction with childbirth care. Moreira *et al*. (2024) noted that the Birth Satisfaction Scale Revised version is one of the widely used instruments for assessing birth satisfaction. It consists of 10 items that estimates the quality of care received, personal attributes of the mother, and stress experienced during labour and delivery. Each item is rated using a five-point Likert scale, where respondents indicate their level of agreement or disagreement with each statement (0 = Strongly disagree and 4 = Strongly agree). The scores for each item are summed to provide an overall score for each subscale, as well as a total birth satisfaction score. Higher scores indicate greater satisfaction with the childbirth experience.

Previous studies show that the BSS-R has been adapted into several languages including Persian (Mortazavi *et al*., 2021), Spanish (Romero-Gonzalez *et al*., 2019), Italian (Nespoli *et al*., 2021), and Igbo (a south-eastern Nigerian language; Anikwe *et al*., 2022) in a bid to capture the cultural realities around the childbirth experience. Adapting BSS-R into more languages is expected to enhance the relevance and applicability of the BSS-R scale (Ratislavová *et al*., 2024). This justifies the need for a study of this nature. This study, therefore, adapted and validated the Birth Satisfaction Scale-Revised (BSS-R) into Nigerian Pidgin English.

Methods

A sequential multiphase design was employed for this study. The adaptation phase involved the translation of the BSS-R into Pidgin English through the 5-step process recommended by the World Health Organization (2016) for questionnaire translation: (1) Forward translation, (2) Back-translation, (3) Expert panel, (4) Pre-testing, and (5) Final version. In order to ensure accuracy and suitability in the translation process a group of five experts who are proficient in Pidgin English and versed in maternal health were engaged in the translation validation process. The validation phase of the study focused on validating the Pidgin English Adapted BSS-R. This involved administering the adapted scale to a sample of randomly selected postnatal mothers in selected private and public hospitals in Imo State. The data collected was used to assess the *Concurrent* validity of the Pidgin English version by comparing it with the original English.

Five reproductive health experts were purposively selected for the adaptation and content validation. The concurrent validity was tested in four randomly selected facilities: Federal Medical Centre (FMC) in Owerri, Imo State Specialist Hospital (IMSSH) in Umuguma Owerri, International Christian Hospital (ICH), and Chinyere Clinic/Maternity Hospital (CC/MH) Owerri. Based on 2023 annual records, the population for this study comprised an estimated 3,234 postnatal mothers at the four selected hospitals in Imo State, Nigeria (FMC = 1,838; IMSSH = 1,103; ICH = 184; CC/MH = 109). *For the concurrent Validation Phase*, a sample size of 706 postnatal mothers was determined using Cochrane's formula mathematically expressed in Bolarinwa (2020). The 706 respondents were selected proportionately using stratified sampling method. The study included: (1) Women who have recently given birth within the last six weeks, (2) Mothers aged 18 to 49 years, (3) Mothers who have received perinatal care at any of the selected hospitals. The study excluded: (1) Mothers who have experienced severe complications during childbirth (such as: emergency C-section, severe preeclampsia, or postpartum haemorrhage), and (2) Mothers diagnosed with psychiatric or cognitive disorders that could impair their ability to provide reliable responses or fully comprehend the study's requirements.

The instrument for data collection involved a four item demographic survey, the 10-item Original English and an adapted Pidgin English. The Birth Satisfaction Scale-Revised (BSS-R) is a 10-item questionnaire designed to measure birth satisfaction, with total scores ranging from 0 to 40. A score of 0 indicated the lowest level of birth satisfaction, while a score of 40 reflected the highest. Each item on the questionnaire is rated on a 5-point Likert scale (strongly agree to strongly disagree) Items were scored from 0 to 4, depending on the response, with "Strongly Agree" typically scoring a 0 for items 1, 3, 5, 6, 9, and 10. For items 2, 4, 7, and 8, the scoring was reversed (Nespoli *et al*., 2021). The BSS-R is further divided into three subscales to assess different aspects of the birth experience: (1) Stress experienced during labour, which includes items 1, 2, 7, and 9, with a subscale score range of 0

to 16. (2) Women's personal attributes, consisting of items 4 and 8, with a subscale score range of 0 to 8. (3) Quality of care provision, covering items 3, 5, 6, and 10, with a subscale score range of 0 to 16. The Original BSS-R is worded in English.

The adaptation phase began with forward translation, where the original English version of the BSS-R is translated into Pidgin English by one bilingual translator (a Professor of languages) fluent in both languages. Next, the first version underwent back-translation of the Pidgin English version back into English by another Professor of Languages who was not involved in the initial translation. This step is essential to check for discrepancies and to ensure that the Pidgin English version accurately reflects the content and intent of the original scale. Any identified discrepancies was discussed and resolved by the expert panel through consensus during expert review.

Following the back-translation, an expert panel comprising Five (5) professors in the following areas: Midwifery (n = 1), Maternal and Child Health (n = 1), Obstetrics (n = 2), Public Health (n = 1) who are proficient in Pidgin English were selected to review the translated version for face and content validity. The panel evaluated the translations for cultural relevance, clarity, and appropriateness. An orientation session was conducted to brief the panel members on the objectives of the study, the purpose of the BSS-R, and the importance of cultural adaptation in assessing birth satisfaction. The panel aimed to ensure that the translated items are comprehensible to the target population and maintain the intended meaning of the original scale. Each panel member independently reviewed the translated items of the Pidgin English BSS-R. They assessed each item for clarity, relevance, comprehensibility, and cultural appropriateness. The panel used a structured evaluation form, rating each item on a 2-point scale ranging from Not relevant (Score = 0) to Relevant (Score = 1). After the independent review, the panel discussed their evaluations. Items that receive low relevance ratings were deemed unclear or culturally inappropriate and were revised based on group consensus. This iterative process continued until all panel members agreed that the scale items were valid in terms of face and content. The semantic equivalence (Content Validity Index) of the final version was computed using expert agreement index statistics.

The adapted version was then subjected to pre-testing with a pilot sample of 70 postnatal women from a neighbouring Federal medical centre in Abia State (10% of calculated sample involving persons not included in the main study). This stage involved administering the Pidgin English BSS-R and conducting interviews to understand how participants interpret the items. The feedback gathered helped identify confusing or culturally inappropriate items, which were again discussed and revised by the expert panel to produce the final version of the Pidgin English BSS-R. The feedback and decisions from the panel were documented. The finalized version was prepared for further concurrent validation.

In the validation phase, the adapted Pidgin English BSS-R was administered to a sample of 706 postnatal women in the selected hospitals after obtaining ethical approval. The procedure for data collection was explained to the participants. Written informed consent for participation in the study was sought and obtained. The Pidgin English BSS-R was administered to the participants before the criterion tools (Original English BSS-R and the adapted Igbo BSS-R) at intervals of 5 minutes resting time. The participants were encouraged to return the filled out questionnaire into an anonymous collection box that was centrally placed as soon as they are filled. Concurrent validity was evaluated by comparing the Pidgin English version's scores with those from the original English version.

The face and content validity of the Pidgin English-adapted Birth Satisfaction Scale-Revised (BSS-R) was evaluated by a five-member panel of experts. This was reported in the results section. Descriptive statistics was used to summarize the demographic characteristics of the study participants, including age, educational level, parity, and type of healthcare facility (public or private). These statistics provided a clear overview of the sample population and help identify any patterns or biases in the data. Measures of central tendency (mean) and dispersion (standard deviation) were calculated for continuous variables, while frequencies and percentages were used for categorical variables. Concurrent (Criterion) validity was assessed by examining the similarity between the scale scores of the Pidgin English-adapted BSS-R and the scores from the original English using the Pearson correlation.

Results

The Birth Satisfaction Scale-Revised (BSS-R) was translated into Pidgin English and back-translated to assess semantic equivalence. Expert ratings across items showed high agreement between original, translated, and back-translated versions, with most items scoring 1.00 and a few at 0.80 (Table 1). Key domains included labour experience, emotional state, staff support, communication, and environment. The overall scale semantic equivalence coefficient was 0.94, indicating excellent content validity and confirming that the Pidgin version accurately preserved the original meaning.

Table 2 presents the socio-demographic characteristics of the respondents and revealed that a total of 706 respondents participated in the study. The mean age was 32.8 years (SD = 5.4) and mean parity was 3.4 (SD = 1.7). Regarding education, 34.0% had primary, 35.3% secondary, and 30.7% tertiary education. Slightly more than half (52.4%) were employed, while 47.6% were unemployed. Most respondents (90.9%) used private health facilities, compared to 9.1% in public facilities.

Table 1: Birth Satisfaction Scale-Revised (BSS-R) adapted into Pidgin English

English Version	Forward Translation (English to Pidgin English translation by Linguistic Professor 1)	Expert					Back Translation (Pidgin back to English by Linguistic Professor 2)	Semantic Equivalence
		A	B	C	D	E		
I came through childbirth virtually unscathed.	I born pikin without any serious problem or injury.	1	1	1	1	1	I gave birth without any serious problem or injury.	1.00
I thought my labor was excessively long.	I feel say the time wey I take dey labour too long.	1	1	1	1	1	I felt that the time I spent in labour was too long.	1.00
The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.	The nurses and other staff for delivery room encourage me make I decide how I want make my labour and delivery go.	1	1	1	1	1	The nurses and other staff in the delivery room encouraged me to decide how I wanted my labour and delivery to proceed.	1.00
I felt very anxious during my labor and birth.	I dey very worried and uneasy when labour start and when I dey born my pikin.	1	1	0	1	1	I felt very worried and uneasy during labour and while giving birth.	0.80
I felt well supported by staff during my labor and birth.	The hospital staff support me well when I dey labour and when I dey born my pikin.	1	1	1	1	1	The hospital staff supported me well during labour and while giving birth.	1.00
The staff communicated well with me during labor.	The staff talk and explain things well to me when I dey labour.	1	1	1	1	1	The staff spoke and explained things well to me during labour.	1.00
I found giving birth a distressing experience.	The experience to born pikin really stress and disturb me.	0	1	1	1	1	The experience of giving birth really stressed and disturbed me.	0.80
I felt out of control during my birth experience.	I feel like say I no get control of wetin dey happen when I dey born.	1	1	1	1	1	I felt like I had no control over what was happening during the birth.	1.00
I was not distressed at all during labor.	I no feel any serious stress or worry when I dey labour.	1	1	1	0	1	I did not feel any serious stress or worry during labour.	0.80
The delivery room was clean and hygienic.	The delivery room clean well and everything dey hygienic.	1	1	1	1	1	The delivery room was very clean and hygienic.	1.00
Scale semantic equivalence coefficient (Content validity)								**0.94**

Scale Semantic Equivalence (Content Validity) > 0.7 is acceptable

Table 2: Socio-demographic information of the respondents, *n = 706*

Category	Mean (SD)	f	%
Age	32.8 (5.4)		
Educational level			
Primary		240	34.0
Secondary		249	35.3
Tertiary		217	30.7
Employment status			
No		336	47.6
Yes		370	52.4
Parity	3.4 (1.7)		
Type of health facility		64	9.1
Private owned		642	90.9
Public (Government) owned			

SD = standard deviation, f = frequency, % = percentage

The adapted Pidgin English Birth Satisfaction Scale demonstrated excellent concurrent validity with the original English version (r = 0.986) (Fig. 1). Both scales yielded nearly identical distributions: the original had a mean of 2.99 (SD=0.26) and median of 3.0, while the Pidgin version had a mean of 3.09 (SD=0.26) and median of 3.1. The minimal differences and very high correlation confirm that both versions measure birth satisfaction equivalently.

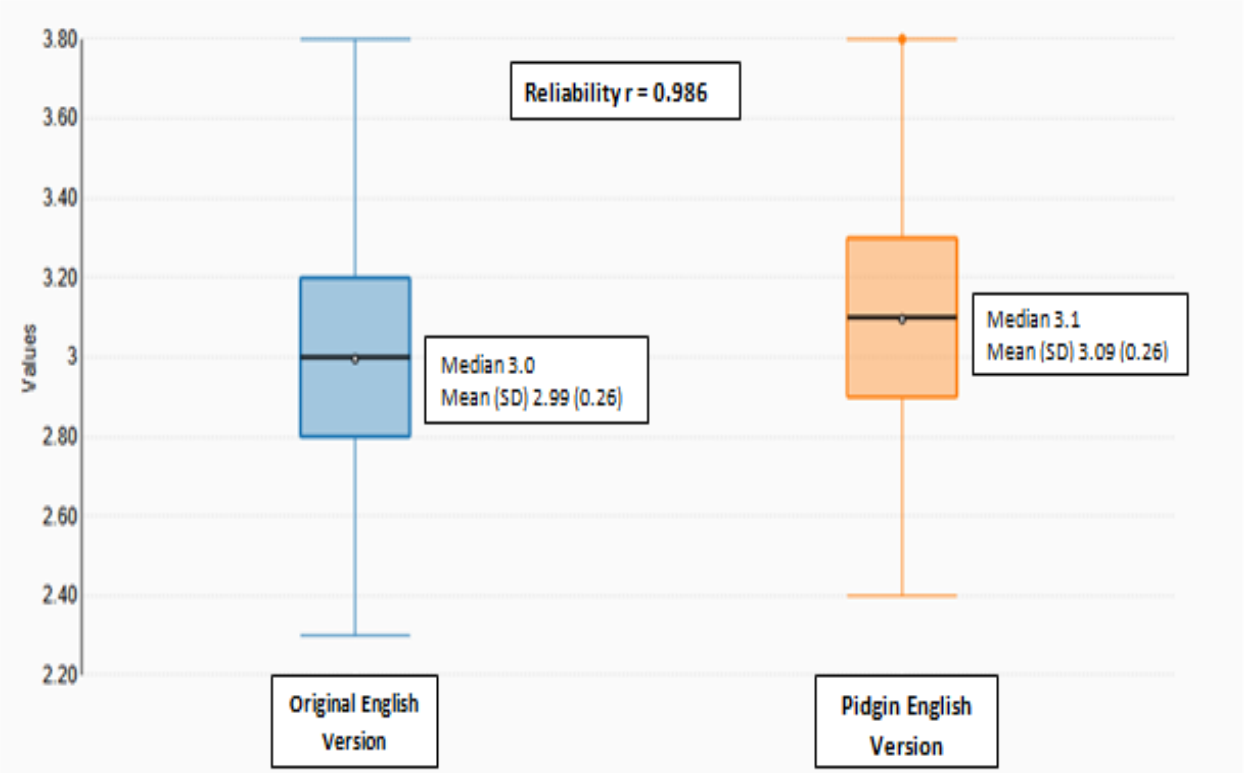

Figure 1: Concurrent scale validity of the Pidgin English Adapted Birth Satisfaction Scale compared to the original English version

Discussion

This study found a strong level of expert agreement on the semantic equivalence between the adapted Pidgin English version and the original English version of the Birth Satisfaction Scale-Revised (BSS-R), with a content validity index (CVI) of 0.94. This result indicates that the translated items were judged by experts to be highly representative of the original constructs, with minimal distortion in meaning, clarity, and contextual relevance. A CVI of 0.94 exceeds the recommended threshold of 0.70, suggesting that the adapted instrument achieved excellent content validity. This implies that the translation process, including forward translation, expert panel review, and back-translation, was rigorous and effective in preserving the conceptual integrity of the original scale within the Nigerian Pidgin English context.

This finding aligns with the methodological emphasis on expert-driven validation in cross-cultural adaptation studies. For instance, Nasiri *et al*. (2020) reported that content validity of the Persian version of the BSS-R was assessed through expert feedback, although the exact CVI was not specified. The similarity lies in the reliance on expert judgement to establish semantic equivalence. However, the present study provided a quantified CVI (0.94), which strengthens the transparency and reproducibility of the validation process. The absence of a reported CVI in Nasiri *et al*. (2020) may be attributed to differences in reporting standards or methodological priorities, particularly in earlier validation studies where qualitative expert agreement was often deemed sufficient.

Similarly, Gökmen *et al*. (2022) assessed content validity of the Turkish version through specialist feedback, indicating agreement among experts regarding item relevance and clarity. While their study did not report a numerical CVI, the approach is comparable to the current study. The divergence in reporting may be due to methodological variation, as some studies prioritise exploratory and confirmatory factor analyses over explicit content validity indices. Additionally, differences in expert panel composition and the linguistic complexity of Turkish compared to Nigerian Pidgin English may have influenced the validation approach.

In contrast, studies such as Göncü-Serhatlıoğlu *et al*. (2018), Mortazavi *et al*. (2021), and Tezuka *et al*. (2024) did not explicitly report content validity assessment. Instead, they focused primarily on construct validation using confirmatory factor analysis (CFA). The absence of content validity reporting in these studies may reflect a methodological assumption that previously validated instruments retain their content integrity across translations. However, this assumption can be problematic, particularly in linguistically diverse settings such as Nigeria, where idiomatic expressions and cultural nuances significantly influence meaning. The present study's explicit reporting of a high CVI therefore represents a methodological strength.

The high CVI observed in this study may be attributed to several methodological factors. Firstly, the use of an odd-numbered expert panel comprising multidisciplinary professionals (midwifery, obstetrics, public health, and maternal and child health) ensured balanced and unbiased judgement, consistent with recommendations by Polit and Beck (2020). Secondly, the inclusion of linguistic experts in both forward and back-translation enhanced semantic precision. Thirdly, the use of Nigerian Pidgin English (which

is a widely understood lingua franca) may have facilitated clearer conceptual alignment compared to more structurally rigid languages.

Two key implications arise from this finding. Firstly, the high semantic equivalence suggests that the adapted Pidgin English BSS-R is suitable for use among populations with limited proficiency in standard English. In the Nigerian context, where linguistic diversity and varying literacy levels are prevalent, this enhances inclusivity in maternal health research and practice. Secondly, the strong content validity provides a foundation for subsequent psychometric evaluations, ensuring that any observed measurement properties (such as reliability and construct validity) are based on a conceptually sound instrument.

In the Nigerian healthcare context, this finding is particularly significant. Many women accessing maternal health services, especially in semi-urban and rural settings, communicate more effectively in Pidgin English than in formal English. The availability of a semantically equivalent tool therefore improves the accuracy of data collection on birth satisfaction, which is critical for evaluating quality of care. Furthermore, it supports patient-centred care by enabling women to express their experiences in a familiar linguistic framework. This may ultimately contribute to improved maternal health outcomes by informing culturally responsive interventions and policies.

This study demonstrated an exceptionally strong concurrent validity between the adapted Pidgin English version and the original English version of the Birth Satisfaction Scale-Revised (BSS-R), with a correlation coefficient of 0.98. This finding indicated an almost perfect positive relationship between the scores obtained from both versions, suggesting that the adapted Pidgin English instrument measured birth satisfaction in a manner that was nearly identical to the original English scale. In psychometric terms, this result provided robust evidence that the adapted version possesses high criterion-related validity, specifically concurrent validity, and can therefore be used interchangeably with the original instrument without compromising measurement accuracy.

This finding is consistent with the broader literature on BSS-R validation, which has demonstrated strong alignment between translated versions and the original instrument. For instance, Nasiri *et al*. (2020) reported a value of 0.77 for the Persian version. While this value was considered acceptable, it was notably lower than the 0.98 observed in the present study. The divergence may be attributed to methodological differences, particularly in the statistical indices used. Inter-class correlation assesses agreement over repeated measures, whereas Pearson correlation (as used in the present study) captures linear association, which may yield higher coefficients. Additionally, the smaller sample size (n = 212) in Nasiri *et al*. (2020) compared to 706 in the present study may have contributed to reduced concurrent validity estimates.

Similarly, Anikwe *et al*. (2022), who validated the Igbo version of the BSS-R in Nigeria, reported a Spearman's rho reliability coefficient of 0.65, which falls below the acceptable threshold of 0.70. Compared to this, the present study's concurrent validity coefficient of 0.98 represents a substantial improvement. This difference may be explained by methodological refinements in the current study, including the use of a more rigorous translation protocol, instrument administration at 5-minute intervals to minimise response bias, and a larger, more representative sample. Furthermore, the use of Pidgin English may have enhanced respondents' understanding of the items, thereby reducing measurement error.

In contrast, studies such as Göncü-Serhatlıoğlu *et al*. (2018) and Gökmen *et al*. (2022) reported values of 0.94 and 0.90, respectively. While these values are slightly lower than the present study's 0.98, they still indicate acceptable model fit and construct alignment. The divergence may be due to differences in validation strategies; Spearman rho in their studies and Pearson correlation in the present study. Additionally, linguistic and cultural differences between Turkish and Nigerian Pidgin English may have influenced how closely translated items aligned with the original constructs.

Similarly, Abrán *et al*. (2024) reported an exceptionally high validity index of 0.99 for the Hungarian version, which is comparable to the present study's finding. This similarity suggests that, under optimal methodological conditions, the BSS-R can achieve near-perfect concurrence across languages. However, the slightly higher value in Abrán *et al*. (2024) may be due to a more linguistically standardised translation environment, as Hungarian is a formally codified language, unlike Pidgin English, which is more flexible and context-dependent.

Two major implications arise from this finding. Firstly, the extremely high concurrent validity indicates that the adapted Pidgin English version can serve as a reliable substitute for the original English version in both clinical and research settings. This facilitates broader participation in maternal health studies, particularly among women with limited proficiency in standard English. Secondly, the finding enhances the credibility of the adapted instrument, supporting its use in comparative studies and programme evaluations where consistency across measurement tools is essential.

In the Nigerian context, this finding is particularly significant. Nigeria is characterised by substantial linguistic diversity and varying levels of educational attainment, which often limit the applicability of standardised English instruments. The high concurrent validity observed in this study suggests that the Pidgin English version effectively bridges this gap, enabling accurate assessment of birth satisfaction across diverse populations. This has important implications for maternal health policy and practice, as reliable data on women's childbirth experiences are critical for improving quality of care. Furthermore, the use of a highly valid Pidgin English instrument may enhance patient engagement and trust, as women are more likely to respond accurately when questions are presented in a familiar and accessible language.

Conclusion

The findings of this study demonstrate that the adapted Pidgin English version of the BSS-R is a valid, reliable, and culturally appropriate instrument for assessing birth satisfaction among postnatal women in Nigeria. The high levels of semantic equivalence (Content validity) and concurrent validity observed in this study provide strong evidence for the use of the instrument in both clinical and research settings. Adopting the Pidgin English BSS-R in Nigerian clinics is recommended for linguistic inclusivity and cultural sensitivity in the delivery and evaluation of maternal healthcare services.

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