Title page

Translation and validation of the Hindi-Indian version of the Birth Satisfaction Scale-Revised (BSS-R)

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Short running title:

Validation of the Indian BSS-R scale

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Abstract

Aim: Critical to maternal outcome and development of a healthy and relationship between mother and baby, is the woman's perception of her birth experience. The Birth Satisfaction Scale-Revised (BSS-R) has been demonstrated to be psychometrically robust, easily administered, and scored self-report measure of birth experience. Aim of the study was to translate the *UK-BSS-R* into Hindi, collect data, and psychometrically validate an *Indian (Hindi)-BSS-R*.

Methods: Psychometric assessment of the *Indian (Hindi)-BSS-R* was undertaken following translation using a cross-sectional design. Evaluation of known-groups validity was undertaken using an embedded between-subjects component. Data was collected from (n=312) postnatal Hindi speaking women in India. Measurement characteristics were assessed using Confirmatory Factor Analysis, Divergent Validity and Internal Consistency Analysis.

Results: The measurement properties of the *Indian (Hindi)-BSS-R* were observed to be equivocal, with the established tri-dimensional measurement model not achieving best fit to data. Instead, an alternative two-factor model offered an excellent fit to data. Significant differences were observed between *Indian (Hindi)-BSS-R* scores and family type and gestation term status, which highlights the relevance of these contextual aspects to the Indian birth experience. Internal consistency was observed to be low on some sub-scales, indicating the potential need for future revision.

Conclusions: The *Indian (Hindi)-BSS-R* is a measure of birth experience, which accepting some measurement caveats, is acceptable for use with Hindi speaking women in India. Further research is required to determine if modification of some of the items is required to improve internal consistency.

Keywords: Birth satisfaction, birth experience, scales, psychometrics

Translation and validation of the Hindi-Indian version of the Birth Satisfaction Scale-Revised (BSS-R)

Introduction

Giving birth is one of the most important events in a woman's life, with recent advances in maternity care systems worldwide now recognizing the importance of evaluating women's childbirth experiences. Every person's perceptions of childbirth are qualitatively different, with quantitative measurements providing a more global picture (1). Meaningful quantitative measurement of birth experience can only be achieved using rigorous validated psychometric tools. For this purpose, Hollins Martin and Martin (1) developed the founder *United Kingdom-Birth Satisfaction Scale-Revised* (UK-BSS-R). Underpinning this undertaking, was belief that every woman has the right to have a respectful and humane birth-experience, with mistreatment fundamentally violating human rights.

The BSS-R is now the lead international clinical measure for assessing 'birth satisfaction', and is the recommended 'method of choice' by the *International-Consortium-for-Health-Outcome-Measurement (ICHOM) (*www.ichom.org/medical-conditions/pregnancy-and-childbirth/). The *10-item-BSS-R* has and is being used by clinicians in over 243-international sites, which are based within 57-countries (see https://www.bss-r.co.uk/). Since the ICHOM commenced recommending the *BSS-R* as the measure of choice for evaluating quality of intranatal care world-wide in 2015, the scale has been validated for use in Greece (*Greek-BSS-R)* (2), Australia (*Australian-BSS-R)* (3), Turkey (*Turkish-BSS-R)* (4), Spain (*Spanish-BSS-R)* (5), Israel (*Hebrew-BSS-R)*, Italy (*Italian-BSS-R)* (6), Slovak (*Slovak-BSS-R*) (7), Croatia (*Croatian-BSS-R),* and Pakistan (*Pakistan (Urdu)-BSS-R*) (8) etc., with many more versions available and in process of development.

The BSS-R measures three dimensions of birth satisfaction, which include (a) Stress Experienced during labour (SE sub-scale) (4-items), (b) Women's personal Attributes (WA sub-scale) (2-items), and (c) Quality of Care (QC sub-scale) (4-items) (1). However, to date a validated Hindi version of this self-report measure has not been made available for use within an Indian population. This is fundamentally important because in India maternity practice is circumscribed by a medical focus and inequities in care. In India, individualized women centered care is lacking due to obstetrical physician centered model and insufficient number of doctors (9, 10). There is lack of appropriate counselling and awareness about antenatal exercises with socioeconomically disadvantaged section have substandard maternal health (11) Abuse, mistreatment and lack of privacy have been documented in Maternity care facilities in India (12, 13). Women's choice and independent decision making abilities should be considered and respected. There is a need to focus on the woman's individual needs, aspirations and expectations. Given the inequities and challenges within the Indian maternity system and the unique cultural extended family context of India, birth experience contextualized within the dynamic of family structure and term status is also important to explore since these domains and their relationship to birth experience are under-researched. Parity is also an important factor that has been found to be related to satisfaction with the birth experience (14), however, this relationship has seldom been explored within the Indian birthing context.

For this purpose, the current study aimed to translate the BSS-R into Hindi, collect over 200 fully completed scales, undertake statistical validation to describe measurement characteristics, publish a validation paper, and make the *Indian (Hindi)-BSS-R* available for use for researchers and clinicians to assess childbirth

experience in a Hindi speaking Indian population. With this in mind, our study objectives were to:

(1) evaluate the established tri-dimensional measurement model of the *BSS-R* within the *Hindi-BSS-R*;

(2) determine the internal consistency of *Hindi-BSS-R* Quality of Care (QC), Women's Attributes (WA), and Stress Experienced during Childbearing (SE) sub-scales and the total *Hindi-BSS-R* scale, evaluate the known-groups discriminant validity of the *Hindi-BSS-R* and determine the divergent validity of the *Hindi-BSS-R*;

(3) evaluate differences between *Hindi-BSS-R* scores in relation to family type;

(4) evaluate differences between *Hindi-BSS-R* scores in relation to term status

Materials and Methods

A descriptive cross-sectional study was conducted to evaluate key psychometric properties of the *Indian (Hindi)-BSS-R*. Ethical approval was obtained from the Institutional Ethics Committee of All India Institute of Medical Sciences, New Delhi (IEC-691/01.10.2021).

Participants

Participants were postnatal women (N=312) who attended a well baby clinic at the selected facility between October to December 2021. Participants were recruited using convenience sampling. Inclusion criteria included, postnatal mothers aged 18-45 years who had experienced childbirth within the past 1-year and could read and write in Hindi language. Exclusion criteria excluded mothers who had been diagnosed with a chronic physical or mental health problem. Participants were provided with informed consent through prior issue of an information sheet, which explained objectives of the study and processes involved. Participants were also advised that they could withdraw from the study at any time without their care being effected. Post having questions answered, a written informed consent form was signed.

Data-collection

Sociodemographic and clinical profile data of postnatal mothers was collected, in addition to BSS-R data. All tools were administered by the authors within the clinic space of the maternity unit immediately before a consultation. Each scale took approximately 15 minutes to complete. Data protection was applied through anonymization of responses and safe storage in a protected facility.

Translation processes of the measuring instrument

Initial permission to translate and validate an *Indian (Hindi)-BSS-R* was obtained from the copyright authors of the tool. A standard backward–forward method was used, which included: translation, reverse translation, expert review, and pilot study (15, 16). The founder *UK-BSS-R* was initially translated into Hindi by the corresponding author and another expert in the field of obstetrics. The *Indian (Hindi)-BSS-R* tool was licensed by the Hindi department of the procuring institute. Post-completion, the scale was again back translated by a Hindi and English-speaking expert. The final version of the tool was approved by members of the research team. Further, no item was modified to culturally validate the instrument. Face validity of the *Indian (Hindi) BSS-R* was determined by (n=10) postpartum women who agreed understanding of information provided and the 10 composite items.

Data-analysis

The established tri-dimensional measurement model of the *BSS-R* was examined using Confirmatory Factor Analysis (CFA), which is a parametric approach that assumes a distributional normal dataset (17). Data was thus screened to identify and remove multivariate outliers prior to analysis (18). The *BSS-R* assumed three correlated factors from which sub-scales of *Stress Experienced* during labour (SE sub-scale), *Women's personal Attributes* (WA sub-scale), and *Quality of Care* (QC sub-scale) were derived (1). A bifactor model has also been found to fit data well and has been used to support the application of the BSS-R in both sub-scaled and total score applications (19). A single-factor model anticipated to offer a poor-fit to data was also evaluated, since this is consistent with many previous validations of the tool. Given the established data normality of the BSS-R observed in previous studies and consistent with these, the maximum-likelihood method was used to estimate

model parameters (17, 20), with model fit assessed using the comparative fit index (CFI) (21), the root mean squared error of approximation (RMSEA)(22), and the square root mean residual (SRMR) (23). Values of >0.90 (CFI), <0.08 (RMSEA) and <0.06 (SRMR) were used to indicate acceptable model fit.

Internal consistency

The SE and QC sub-scales and total score internal consistency was assessed using Cronbach's Alpha (24), with conventional values of 0.70 or greater indicating acceptable internal consistency (18). The inter-item correlation (Pearson's *r*) was also examined for the two-item WA sub-scale, with acceptable threshold values of 0.15-0.50 (25). Using the method of Diedenhofen and Musch (26), study Cronbach alpha values were compared to those of the original BSS-R development study (1).

Known-groups discriminant validity

Comparisons between groups differentiated by delivery type have been a feature of many BSS-R translation and validation papers (e.g., Zafar, Tayyab (8). Consistent with prior investigations, known-groups discriminant validity (KGDV) of the *BSS-R* was assessed by comparing scores on the basis of delivery type, i.e., (i) vaginal delivery versus (ii) lower segment Caesarean section.

Family type

Comparisons between groups on the basis of family type were undertaken, with groups differentiated as (i) nuclear family versus (ii) joint family.

Parity

Group comparisons on the *Indian (Hindi)-BSS-R* scores were undertaken on the basis of parity (nulliparous versus multiparous).

Gestational term

Comparison between groups on the basis of pre-term (<37 weeks) and term gestation was also undertaken.

Divergent validity

Pearson's *r* correlation coefficient between *Indian (Hindi)-BSS-R* total and sub-scale scores and participant age were calculated to evaluate divergent validity. No statistically significant correlations were predicted between *Indian (Hindi)-BSS-R* scores and participant age.

Results

Participants

Participants (N=312) fully completed questionnaire data. Two multivariate outliers were detected by calculation of Mahalanobis distances and were removed prior to data-analysis. Mean age of sample was 24.69 years (SD = 3.28, N=310, minimum=18, maximum=35), and mean gestation duration was 35.59 weeks (SD=3.15). All participants were married and the majority (N=184, 59%) were multiparous who had vaginal delivery (N=233, 75%). The descriptive and distributional characteristics of *Indian (Hindi)-BSS-R* items and scale scores are summarized in *Table 1*. Individual item and scale scores revealed an absence of excess skewness or kurtosis.

TABLE 1. ABOUT HERE

Confirmatory Factor Analysis

The CFA findings are summarized in Table 2, and found the single factor model fit to data poor. The three-factor measurement model also failed to fit the data. Exploration of the item-factor loading parameters suggested that the WA sub-scale

items were problematic for model fit. Hence, an alternative three-factor model was run with the two WA items set to be equal (Model 2.), with this model offering a mediocre fit to data. Examination of modification indices suggested a re-specification of the three-factor model with items 2 and 7 loading on the WA factor rather than the SE factor, with this model revealing a good fit to data (Model 3.). A two-factor model which excluded WA items, but included the established BSS-R measurement model SE and QC factors was found to offer an excellent fit to the data (Model 4.). Finally, a bifactor model based on the previous two-factor model tested, was also found to offer an excellent fit to data (Model 5.). A general factor of combined SE and QC items was clearly identified, although several SE and QC items could still be differentiated from the global factor with respect to loading on their specified factor.

TABLE 2. ABOUT HERE

Indian (Hindi)-BSS-R sub-scale and total score correlations

Correlations between *Indian (Hindi)-BSS-R* sub-scales and the total score (Table 3.) were all observed to be statistically significant ($p<0.01$), with the exception of WA-QC ($p=0.22$). Applying the method of Diedenhofen and Musch (27), for purpose of comparing with the original *UK-BSS-R* development study, revealed significantly lower degree of correlation ($p<0.05$) with the exception of SE-QC ($p=0.55$) and total score-QC ($p=0.43$).

TABLE 3. ABOUT HERE

Internal consistency

Internal consistency of the *Indian (Hindi)-BSS-R* sub-scales and the total score was observed to be low (SE sub-scale 0.35, WA sub-scale 0.34, total score 0.56) with exception of the QC sub-scale which was acceptable (0.70). Comparison with the original UK study revealed significantly lower internal consistency (SE sub-scale χ^2 =

23.80, $p<0.001$, WA sub-scale $\chi^2 = 7.58$, $p = 0.006$, total score $\chi^2 = 27.52$, $p<0.001$) with the exception of the QC sub-scale ($\chi^2 = 0.80$, $p=0.37$). Inter-item correlation of the *Indian (Hindi)-BSS-R* sub-scale WA items revealed a statistically significant association ($p<0.01$), but a modest level of correlation ($r = 0.21$).

Known-groups discriminant validity

The Caesarean delivery group reported significantly greater WA sub-scale scores compared to the vaginal delivery group (Table 4.). No other *Indian (Hindi)-BSS-R* sub-scale or total score statistical significant differences were observed between groups.

TABLE 4. ABOUT HERE

No statistically signficant differences were observed on *Indian (Hindi)-BSS-R* sub-scale or total scale scores as a function of parity (Table 5.). Participants in the joint family group were observed to have signficantly higher *indian (Hindi)-BSS-R* QC sub-scale and total scale scores (Table 5.). Those who delivered at term had signficantly higher QC sub-scale and BSS-R total scale scores (Table 5.). Further, it was observed that term delivery was associated with highly statistically signficant differences in SE sub-scale scores with comparatively higher scores.

TABLE 5. ABOUT HERE

Divergent validity

No significant correlations were observed between SE, WA, and QC sub-scales, and the *Indian (Hindi)-BSS-R* total score and participant age (SE r=0.01, p=0.89, WA r=0.04, p=0.48, QC r=0.02, p=0.71, and total scale, r=0.03, p=0.58).

Discussion

The findings from the current investigation present interesting, albeit equivocal findings in the development and description of the initial psychometric properties of the *Indian (Hindi)-BSS-R*. To offer a comprehensive insight into the measurement issues raised, each pertinent aspect will be explored on a point-by-point basis, beginning with the measurement model. First, the three-factor measurement model did not fit the data, which was a very surprising finding and inconsistent with previous translation and validation studies (5, 28, 29), in which a good fit to data of the three-factor measurement model is the norm. An alternative three-factor model with SE items 2. and 7. specified to load on the WA factor revealed a model that offered an excellent fit to data, which raises a fundamental question in terms of BSS-R miss-specification or re-specification. It is unlikely that the BSS-R measurement model is miss-specified, since it is not only theoretically-driven, but invariably supported by evidence from numerous studies that address validity (1, 3, 5, 6). Therefore, a potential consideration maybe the social and clinical milieu in which the *Indian (Hindi)-BSS-R* is used. For example, the Indian public maternity care system is characteristically different to Western service delivery models (30), and consequently childbearing women will perceive their childbirth experience informed by this lens. In particular, the relationship between stress, feeling in control, and labour experience. It is generally accepted that within government led maternity care systems in India, women's expectations of their childbirth experiences are not particularly high (30). Perhaps controversially, the priorities of service delivery are to be pragmatic, efficient, and safe, with women's perceptions and experiences a secondary concern (30). However, a caveat to the notion of re-specification of the measurement model for the Indian Hindi-speaking population, is the performance of the WA items.

Specifically, the low level of inter-item correlation and the excellent fit of a two-factor model applied to the *Indian (Hindi)-BSS-R*, which excludes the WA items/factor. This observation suggests an alternative possibility, which considers that the measurement model was specifically related to these two items, and that fundamentally the three-factor measurement model is the correct specification. In other words, it is simply the WA sub-scale that is represented by two poorly performing items. An indication that this possibility is plausible, is that when the two WA items were set to be equal, the three-factor model would run, albeit producing a poor fit to data. Certainly, additional future work is required to consider whether a revision of the WA items is required, or the lesser likely possibility that a re-specification of the measurement model is required for the Indian birthing context. The bifactor model which essentially evaluates a two-factor model of the BSS-R and offers an excellent fit to the data, provides support for a general factor and some item-loading on specific factors, which is a finding consistent with the general factor observations of Martin, Hollins Martin (19). In addition, the finding that data was also distributionally normal with few multivariate outliers, would also indicate the veracity of the structural equation modelling in terms of model fit, rather than an extraneous impact of item, sub-scale or scale level data irregularity impacting deleteriously upon the estimation method.

A further surprising finding was the low level of internal consistency found, with only the QC sub-scale found acceptable by established criteria. The SE and WA sub-scales were very low on this index, being the lowest observed in BSS-R studies so far. As such, this raises important issues about functionality and applicability of these specific sub-scales. Although, it should be noted that the WA sub-scale was acceptable using the inter-item correlation criteria of Clark and Watson (25).

Excepting SE-QC and QC-Total score combinations, correlations between sub-scales and total score were significantly lower than those observed by Hollins Martin and Martin (1). Since the correlational relationships are directly related to the underlying measurement model, these lower than anticipated levels of association, may also have contributed to the difficulties observed in model fit of the established measurement model of the BSS-R.

The findings from the KGDV evaluation revealed no significant differences between those who delivered vaginally and those who had a Caesarean section on SE and QC sub-scales and total *Hindi-BSS-R* score. Indeed, women who had a Caesarean section had significantly higher WA sub-scale scores compared to those who experienced vaginal delivery. These findings are surprising and inconsistent with many other BSS-R validation studies, e.g., Jefford, Hollins Martin (3), Romero-Gonzalez, Peralta-Ramirez (5), Nespoli, Colciago (6), Emmens, Hollins Martin (28), Skvirsky, Taubman-Ben-Ari (31), which invariably show that women who had an intervention delivery (i.e., Caesarean section) have significantly lower BSS-R scores compared with vaginal delivery. Since the dominant agenda within maternity care is to reduce the Caesarean section rate (32), findings from the current investigation are at odds with established evidence regarding BSS-R scores in study and policy itself. It is possible that these findings may again relate to the dynamics of the public healthcare system in India, which primarily focus upon medical aspects of care and safe, efficient, and clinical removal of the fetus. Under such circumstances, which provide limited agency and engagement in decision-making during birth-planning and delivery, perhaps these observations are more explainable in terms of expectations of the women themselves. The finding that no significant differences were observed in *Indian (Hindi)-BSS-R* scores as a function of parity, may also

indicate that prior birthing experience has no perceptible impact upon present birthing satisfaction. This perspective is consistent with the notion that birth is contextualised as a medical intervention, which stands in stark contrast to the view that birth is a major positive physiological life event.

There is the possibility that the above group comparison and lack of significant difference is due to insensitivity of this particular version of the BSS-R. However, evidence to support sensitivity of the *Indian (Hindi)-BSS-R* is forthcoming from comparisons of family group type, with women in the joint family group reporting significantly greater QC sub-scale and total scores. Given the unique family structures within India and potential shortcomings of public maternity care systems in terms of providing woman-centred care, it is entirely plausible that extended family networks serve as a supportive proxy that enhances birth experience. For some however, such continuity of family care may be absent due to lack of availability of known family members. Additional evidence to support the veracity of the *Indian (Hindi)-BSS-R* in terms of discriminability, is also found in comparisons made between women who have had pre-term or term delivery, with the latter group reporting significantly higher SE and QC sub-scale and total scale scores.

The psychometric properties of the *Indian (Hindi)-BSS-R* were found to be equivocal in the current translation and validation study. Irregularities in factor structure were observed, which may be related to the specific items comprising the WA sub-scale, or the measurement model respecification, or the contextual aspects of birthing within the Indian public health system, or a combination of these factors. Clearly, further research is required to understand the issues raised, with possibility of future revision of the *Indian (Hindi)-BSS-R* not precluded. For example, the low Cronbach's alpha's observed for some sub-scale and total scale scores, indicate need for a

replication study. Upon repetition, should the same observations be found, item revision to improve alpha's to an acceptable threshold may be considered. Also, the group differences observed in relation to family type and gestational age, highlight relevance of understanding more about birth experience within the specified cultural context where data was gathered.

Availability of the BSS-R

The *BSS-R* is free to use for clinical and research purposes, but requires permission. Please contact Professor Caroline J Hollins Martin at c.hollinsmartin@napier.ac.uk for consent to use. Also, for more information about the BSS-R, see the dedicated *BSS-R* website at: www.bss-r.co.uk

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Table 1. Mean, standard deviation and distributional characteristics of individual Hindi BSS-R items, sub-scale totals and the total Hindi BSS-R score. Se = standard error of kurtosis.

Item	Item content	Domain*	Mean	SD	Min	Max	Skew	Kurtosis	se
BSS-R 1	I came through childbirth virtually unscathed	SE	2.20	1.29	0	4	-0.14	-1.33	0.07
BSS-R 2	I thought my labour was excessively long	SE	1.44	1.03	0	4	0.56	-0.70	0.06
BSS-R 3	The delivery room staff encouraged me to make decisions about how I wanted my birth to progress	QC	2.79	0.96	0	4	-0.99	0.82	0.05
BSS-R 4	I felt very anxious during my labour and birth	WA	1.16	0.92	0	4	0.95	0.43	0.05
BSS-R 5	I felt well supported by staff during my labour and birth	QC	2.94	0.88	0	4	-1.26	1.94	0.05
BSS-R 6	The staff communicated well with me during labour	QC	2.85	0.92	0	4	-1.18	1.27	0.05
BSS-R 7	I found giving birth a distressing experience	SE	1.40	1.02	0	4	0.70	-0.38	0.06
BSS-R 8	I felt out of control during my birth experience	WA	1.77	1.07	0	4	0.08	-1.19	0.06
BSS-R 9	I was not distressed at all during labour	SE	1.98	1.12	0	4	0.09	-1.30	0.06

BSS-R 10	The delivery room was clean and hygienic	QC	3.03	0.85	0	4	-1.22	1.88	0.05
Stress	Sub-scale total		7.02	2.60	1	14	0.01	-0.56	0.15
Attributes	Sub-scale total		2.94	1.55	0	7	0.37	-0.52	0.09
Quality	Sub-scale total		11.62	2.62	2	16	-0.98	1.68	0.15
Total	Total score		21.57	4.56	8	32	-0.37	-0.10	0.26

*Domain of the Hindi BSS-R. SE = Stress experienced during childbearing, WA = Women's attributes, QC = Quality of Care

Legend to Table 1. Summary statistics and distributional characteristics of Hindi BSS-R items, sub-scales and the total score.

Mean, standard deviation, minimum, maximum, skew and kurtosis are reported as is the standard error of kurtosis.

Table 2. Confirmatory factor analysis of the Indian Hindi BSS-R.

Model	χ^2 (df)	*P*	RMSEA	SRMR	CFI
1. Single factor	170.286 (35)	<0.001	0.112	0.095	0.688
2. Three-factor (with WA items set to equal)	111.959 (33)	<0.001	0.088	0.082	0.818
3. Three-factor modified items 2 & 7 load on WA factor	50.54 (32)	0.020	0.043	0.051	0.957
4. Two-factor excluding WA items	24.81 (19)	0.167	0.031	0.049	0.983
5. Bifactor excluding WA factor	19.17 (12)	0.332	0.055	0.038	0.978

Legend to Table 2. Confirmatory factor analysis (CFA) and comparison of CFA models of Hindi BSS-R. Model 2. is the established tri-dimensional measurement model of the BSS-R described in the original BSS-R development paper.

Table 3. Correlations of Hindi BSS-R sub-scales and total score and comparison with original UK BSS-R validation study (Hollins Martin and Martin, 2014).

Scale combination	Current study *r*	UK study *r*	Z	95% CI	*p*
Stress-Attributes	0.30	0.57	3.85	(0.40 – 0.13)	<0.001
Stress-Quality	0.21	0.26	0.60	(-0.21 – 0.11)	0.55
Attributes-Quality	0.07	0.35	3.37	(0.12 – 0.44)	<0.001
Total score-Stress	0.79	0.86	2.53	(0.02 – 0.13)	<0.01
Total score-Attributes	0.47	0.80	6.71	(0.23 – 0.43)	<0.001
Totals score-Quality	0.67	0.63	0.79	(-0.06 – 0.14)	0.43

Legend to Table 3. Correlation between Hindi BSS-R sub-scales and the total score and comparison with the findings from the original UK study. The correlation comparison method is rarely used in studies of this kind though the statistical underpinnings of the approach are established in the statistical literature.

Table 4. Comparison of Hindi BSS-R total and sub-scale scores differentiated by birth delivery type. Standard deviations are in parentheses, degrees of freedom = 308, CI = confidence interval.

BSS-R Scale	Vaginal delivery (N=233)	Caesarean section (N=77)	95% CI	*t*	*p*	Hedges g	Hedges g 95% CI	Effect size
Stress	7.02 (2.55)	7.01 (2.77)	-0.67 – 0.68	0.01	0.99	0.002	-0.26 – 0.26	Negligible
Attributes	2.83 (1.52)	3.25 (1.63)	0.01 – 0.81	2.04	0.04	0.27	0.01 – 0.53	Small
Quality	11.63 (2.60)	11.58 (2.72)	-0.63 – 0.72	0.12	0.90	0.02	-0.24 – 0.27	Negligible
Total score	21.48 (4.36)	21.84 (5.14)	-0.81 – 1.55	0.61	0.54	0.08	-0.18 – 0.34	Negligible

Legend to Table 4. Comparison of Hindi BSS-R sub-scale and total scores between groups categorised by delivery type. Comparisons between groups are undertaken using the between-subjects *t* test.

Table 5. Comparison of Hindi BSS-R total and sub-scale scores differentiated by parity status, family type and term status. Standard deviations are in parentheses, degrees of freedom = 308, CI = confidence interval.

BSS-R Scale	Nulliparous (N=126)	Multiparous (N=184)	95% CI	*t*	*p*	Hedges g	Hedges g 95% CI	Effect size
Stress	7.11 (2.57)	6.95 (2.63)	-0.43 – 0.75	0.53	0.60	0.06	-0.17 – 0.29	Negligible
Attributes	2.98 (1.63)	2.91 (1.50)	-0.29 – 0.42	0.38	0.70	0.04	-0.18 – 0.27	Negligible
Quality	11.79 (2.59)	11.50 (2.64)	-0.31 – 0.88	0.94	0.35	0.11	-0.12 – 0.34	Negligible
Total score	21.87 (4.57)	21.36 (4.55)	-0.52 – 1.55	0.98	0.33	0.11	-0.11 – 0.34	Negligible
	Nuclear (N=170)	Joint (N=140)						
Stress	6.76 (2.52)	7.32 (2.68)	-0.03 – 1.14	1.88	0.06	0.21	-0.01 – 0.44	Small
Attributes	2.93 (1.50)	2.94 (1.62)	-0.34 – 0.36	0.08	0.94	0.01	-0.22 – 0.23	Negligible
Quality	11.34 (2.87)	11.95 (2.24)	0.02 – 1.19	2.05	0.04	0.23	0.01 – 0.46	Small
Total score	21.04 (4.68)	22.21 (4.33)	0.16 – 2.20	2.28	0.02	0.26	0.03 – 0.48	Small
	Pre-term (N=215)	Term (N=95)						
Stress	6.70 (2.61)	7.74 (2.46)	0.42 – 1.66	3.29	0.001	0.40	0.16 – 0.65	Small
Attributes	3.03 (1.60)	2.72 (1.42)	-0.06 – 0.69	1.66	0.10	0.20	-0.04 – 0.44	Small
Quality	11.42 (2.61)	12.05 (2.61)	0.00 – 1.26	1.96	0.05	0.24	-0.002 – 0.48	Small
Total score	21.15 (4.69)	22.52 (4.11)	0.26 – 2.45	2.43	0.02	0.30	0.06 – 0.54	Small

Legend to Table 5. Comparison of Hindi BSS-R sub-scales and total score based on groups categorised by parity, family type and term status. Comparisons between groups are undertaken using the between-subjects *t* test.