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Translation of the *UK-Birth-Satisfaction-Scale-Revised* (BSS-R) into Brazilian (Portuguese) and description of initial measurement properties

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Introduction

In Brazil before the 1800's, childbirth was home-based and assisted by midwives and family members (1). In the years that followed, care was transferred to hospital-based obstetricians (2), which instigated profound medicalization of what in most instances would be a normal physiological process. In response, what should ordinarily be natural and physiological became controlled by doctors who largely deal with human pathophysiology (1,2). Simultaneously, medicalization of childbirth was accompanied by accentuated feelings of fear and powerlessness by both midwives and women, as unnecessary interventions began to prevail. For example, induction of labour, rupture of membranes, acceleration of contractions using oxytocin, and routine unnecessary caesarian section became commonplace. These interventions were often unwarranted, yet tolerated, by women and midwives who were powerless to alter the newly set status hierarchy and protocols. Lack of education, respect for doctors, and lower socioeconomic status inhibited midwives and women from challenging doctors who control their public services (3). Of interest to this study, is women's birth satisfaction, simply because a negative birth experience can diminish bonds between mother and baby, inhibit breastfeeding, promote postpartum depression, prevent desire for future pregnancy and incite request for sterilization

and/or future abortion (4,5,6). Medical interventions are often not evidence-based and can be the cause of lowered birth satisfaction (8,9,10). Additionally, medical procedures are often performed without women's consent (11).

Questionnaires are a useful way of investigating what women think of their birth experience, and in response maternity services can adapt methods to improve care provision. Several tools have been developed to measure women's satisfaction with childbirth, with a review by Nilvér et al. (12) highlighting qualities and limitations of different methods. The *Birth Satisfaction Scale- Revised (BSS-R)* by Hollins Martin and Martin (13) evaluated well and has been recommended as the tool of choice for measuring birth satisfaction by the *International Consortium for Health Outcome Measures (ICHOM)* (www.ichom.org/medical-conditions/pregnancy-and-childbirth/).

To date the 10-item *UK-BSS-R* (13) has been translated and validated in for example, Greece (14), United States (15), Turkey (16), Australia (17), Spain (18), Israel (19) and Iran (20). The consistency of psychometric analytic results from these countries is a main reason for why the *UK-BSS-R* (13) has been recommended by the *ICHOM* as the global tool of choice for measuring birth satisfaction (21). In Brazil, two other questionnaires have been validated to measure women's experiences of childbearing (22,23). The first was developed by Costa et al. (22) and is designed to evaluate women's satisfaction with care received during hospital delivery, and the second by Lopes et al. (23) assesses satisfaction with relationships with professionals during childbirth and postpartum and presents with good reliability using an undersized sample (n=53). In comparison to these two instruments, the *UK-BSS-R* (13) asks questions about women's autonomy to make decisions, stress experienced, and personal attributes. Also, given that the *UK-BSS-R* consists of only 10-items, it is a quick and easy tool for women to complete.

Using the *UK-BSS-R* (13) will be of particular use in Brazil, because it has one of the highest caesarean section rates in the world, with aftermath of such surgery complicating the childbirth experience (24,25,3). As such, using the *UK-BSS-R* (13) will allow comparison with other types of delivery in an international context. In other countries, the *UK-BSS-R* (13) has been shown to have good content validity and internal consistency (13). For this reason and others, our aim was to translate and culturally adapt the *UK-BSS-R* (13) into Brazilian Portuguese, with a view to collecting data and describing initial measurement properties on data collected from a Brazilian population of postnatal women.

Method

The *UK-BSS-R* (13) was translated and culturally adapted using steps proposed by Beaton et al. (26). Initially the scale was translated from UK English into Brazilian spoken Portuguese by two independent researchers. Post-translation, a cross-sectional repeated-measures survey was carried out to evaluate the questionnaire reproducibility (intra and inter-observer) and examine initial measurement characteristics of the *Brazilian (Portuguese)-BSS-R*. The project was funded by the São Paulo Research Foundation (FAPESP grant 2018/16230-9), and ethical approval by the Research Ethics Committee (CEP) (Number CAAE 96412318.8.0000.5505).

Participants

Women who were admitted at the maternity with a diagnosis of labor and had delivered a term infant within the preceding 48 hours in Baixada Santista maternity unit between Jan-Sep 2019 were invited to participate in the study. Inclusion criteria included being literate, aged 19-50 years old and having had an uncomplicated vaginal delivery. Informed consent was provided. Permission to conduct the study was provided by the

hospital ethics committee. There were 3 interviews in total with the same participant at 3 observation points. *Observation Point 1*: up to 48 hours post-delivery (Conducted by author 1); *Observation Point 2*: around 7 days post-delivery over the telephone (Conducted by author 1); and *Observation Point 3*: a few hours after *Observation Point 2* (conducted by author 3).

Data-collection

On the *Observation Point 1*, the puerperal women were approached in their beds by the researcher, where the survey and the consent form were presented. With the consent and signature of the puerperal women, the two questionnaires (sociodemographic and translated BSS-R) were handed in to complete. The researcher remained available in the room for doubts regarding the questions. While *Observation Point 2 and 3* the questionnaire were applied on the phone.

The 10-item *Brazilian Portuguese-BSS-R* scores from 0 to 40, with a total score of 0 representing lowest birth satisfaction and 40 highest. Each item scores between 0-4, with satisfaction graded on a 5-point Likert scale ranging across Strongly Agree, Agree, Neither Agree nor Disagree, Disagree and Strongly Disagree. Items 1, 3, 5, 6, 9 and 10 score zero for 'Strongly Agree', and items 2, 4, 7 and 8 are inversely scored. The total scale is sub-divided into 3 subscales, with items 1, 2, 7 and 9 representing 'stress experienced during labor', items 4 and 8 'women's personal attributes', and items 3, 5, 6 and 10 'quality of care provision'.

Data-analysis

An Intraclass Correlation Coefficient (ICC) was tested, with low reliability equaling (ICC <0.4), good reliability (ICC ≤0.75) and excellent reliability. (ICC > 0.75) (27). A minimum sample size was calculated based on a minimum acceptable ICC (0.4), the anticipated

reliability (0.75), $p = 0.05$ (two-tailed), power = 0.80 and the number of repetitions per participant (N=3) and was observed to be N=18. A Standard Error of Measurement (SEM) was calculated, with a result of equal to or less than 5% considered excellent, 5.1-10% good, 10.1-20% questionable, and above 20.1% poor. Also, the Minimal Detectable Change (MDC) test was determined, which indicates amount of acceptable measurement error (28).

Together, these three techniques calculated reliability of the *Brazilian Portuguese-BSS-R* (29,30).

Results (translation)

During translation from English to Portuguese, some expressions were modified. For example, the term ‘virtually unscathed’ was translated by *Translator 1* to ‘completely safe and sound’ and by *Translator 2* to ‘virtually unscathed’. Post meeting with an expert panel, it was unanimously agreed that these statements should be changed to ‘completely unharmed’. In addition, the word ‘staff’ was translated by *Translator 1* to ‘team’ and by *Translator 2* to ‘professionals’. Again, the expert panel accepted the word ‘team’. There was also the need to change the term ‘delivery room’ to ‘pre-delivery and delivery room’, because in Brazil women labour in two separate areas (one for first stage & the other for second and third stage of delivery). There was also discussion over use of the word ‘strongly’, with the panel agreeing that this should remain so. Post these decisions, the new amended English version was translated into the *Brazilian Portuguese-BSS-R* (Version 1). Next, a team of two (1 Australian & 1 American) back translated the *Brazilian Portuguese-BSS-R* (Version 1) into English, with no difference in grammatical semantics found. This English version was then translated back into Brazilian Portuguese. Post further scrutiny and minor alterations

by the expert panel, the *Brazilian Portuguese-BSS-R (Version 2)* was agreed (see *Figure 1*).

A group of lay women pre-tested the *Brazilian Portuguese-BSS-R (Version 2)*. Item 1 was the only statements that raised doubts, with 65% questioning the meaning of 'unharméd'. When asked what phrases would be better understood; 42% suggested 'no physical or emotional consequences', 38% 'no trauma', 15% 'integrate', and 4% 'intact'. Post consultation, the term 'unharméd' was changed to 'without physical or emotional consequences', and the final agreed *Brazilian Portuguese-BSS-R (Version 3)* was produced (see *Table 1*).

TABLE 1

Results survey

Data was collected from (n=101) postnatal women at three timepoints: (1) First interview in person (n=101); (2) Second interview, over the telephone (n=38), and (3) third interview, over the telephone (n=35).

Socio-demographic characteristics and obstetric history of postnatal women who completed the *Brazilian Portuguese-BSS-R* is shown in *Table 2*.

TABLE 2

Mean and standard deviations of *Brazilian Portuguese-BSS-R* total and sub-scale scores are shown in *Table 3*.

TABLE 3

Total scores of the *Brazilian Portuguese-BSS-R* presented with excellent inter and intra observer reliability (ICC = 0.91 and 0.77, respectively). The result of the inter observer SEM was also excellent, corresponding to less than 5% of total score. In

addition, the intra observer SEM resulted in 5.9% of the total score, which is considered good. The MDC calculated at over 90% confidence interval, having values of 3.35 for inter observer and 5.51 for intra observer analysis. Results from each of the *Brazilian Portuguese-BSS-R* sub-scales can be viewed in *Table 4*.

TABLE 4

Discussion

This study has described processes involved in translating and cross-culturally validating the *UK-BSS-R* for use in Brazil. From this study, the *Brazilian (Portuguese)-BSS-R* has been developed for use within this country specific population of postnatal women. In summary, Brazilian maternity care staff and researchers now have a valid and reliable instrument to evaluate women's satisfaction with their childbirth experience, and from the results progress intranatal care provision.

Valid assessment of Brazilian women's birth satisfaction can now be carried out using a reliable and easily understood tool (13). During process of this study we evaluated participants' understanding of each item on the scale, with translation related to context and meaning within the chosen population (31). During process, it was critical to include women from the full spectrum of socioeconomic groups, with our purposive sample representing these characteristics. That is, women with a wide age range and different levels of education were included in this study. Although we included women from diverse educational levels, the minority presented a university degree, which is a reality in Brazil's population, where only 17.4% of the whole population complete a university degree (32). Even the low educational level patients didn't present difficulty in understanding and answering the questionnaire which led us to assume that this last version is an easy to use tool for measuring women's birth experiences in a Brazilian Portuguese speaking population.

Our new valid and reliable *Brazilian (Portuguese)-BSS-R* can now be added to the BSS-R library held by the developers Prof Caroline Hollins Martin and Prof Colin Martin. At present, various adaptations of the *UK-BSS-R* (13) have been developed and are being used worldwide, which facilitates comparison of different maternity care systems across countries.

Preceding authors have described strong consistency in *UK-BSS-R* (13) translation processes. For example, Greece (14), Turkey (16), Spain (18), Israel (19), Iran (20), United States (15) and Australia (17). An Italian translation and cultural adaptation paper have been published (33), which may be of use to role model the processes for future studies. Examples of consistencies in *UK-BSS-R* translation processes are provided by Nespoli et al. (33) and Barbosa-Leiker et al. (15) who describe difficulties with adapting the word 'unscathed' (Item 1), with this situation also found in the present study. The original *UK-BSS-R* (13) was developed in Scotland (UK), where the word 'unscathed' is commonly used dialect and literally is the same as the word unharmed in English. In the Brazilian Portuguese language, the word unharmed also is not used, which justifies the difficulty the translation participants in the present study had with understanding Item 1. In Italy, the term which replaced 'unscathed' (Item 1), was 'without physical or psychological consequences', and in the US 'unharmed'.

In comparison to the two prior instruments validated to measure women's experiences of childbirth in Brazil (22, 23), the *BSS-R* is the recommended international tool advocated by the *ICHOM* (34). The *ICHOM* has recommended the *BSS-R* because it evaluates experience of childbirth from the woman's perspective, with this making development of a valid and reliable population specific *Brazilian (Portuguese)-BSS-R* important (34).

Some limitations were encountered during the study. For example, retention across the 3 observational timepoints resulted in a significant percentage loss of data (65.3%) between the first face-to-face interview and second telephone call. Hence, it became necessary to recruit a high number of participants in phase one (n=101) to reach the desired final value (n=35) for proving reliability between timepoints, which for reproducibility of an instrument is 30-40 people (26). Despite being a short and simple questionnaire to complete, this large dropout rate may have been due to the exacting physical and emotional demands of becoming a new mother (35), compounded by lack of networked care in Brazil creating barriers to maintaining contact with women post-delivery (36).

In relation to evaluation of initial measurement characteristics, the *Brazilian Portuguese-BSS-R* has shown itself to be a reliable instrument with excellent inter-observer and intra-observer reproducibility. Subscale 1 (stress experienced) and 2 (personal attributes) showed excellent inter-observer reliability (ICC > 0.75), and in relation to Subscale 3 (quality of care) there was good reliability between inter-observer and intra observer subscales (ICC > 0.4). The slightly lower, but still adequate results of intra-observer evaluation between hospital and home environment, may require further investigation. One reason for the change in scores across observational timepoints may have been due to the women having time to reflect upon her birth experience and care she had received. A further limitation was the delay in reaching the required sample (Jan-Sept 2019), and the need to involve three maternity hospitals in the Baixada Santista region. This difficulty was magnified by the inclusion criteria of recruiting women who had experienced a vaginal delivery in a country where the caesarian section rate is very high. Addressing a further limitation of the present study, was the investigation being restricted by the predominating goal of successfully

translating the *UK-BSS-R* into the Brazilian Portuguese language. Consequently, the next stage of our research will be to produce a full psychometric evaluation of the *Brazilian Portuguese-BSS-R* to examine aspects of factor structure, internal consistency, known-groups discriminant validity and test-retest reliability in a larger sample of the population.

Conclusion

The results of this translation study have shown that the *Brazilian Portuguese-BSS-R* is a reliable, reproducible and easy to use tool for measuring women's birth experiences in a Brazilian Portuguese speaking population. The BSS-R is available free for use by researchers and clinicians (Email: c.hollinsmartin@napier.ac.uk).

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Figure 1: Flowchart of steps involved in the BSS-R translation to Portuguese and cultural adaptation process

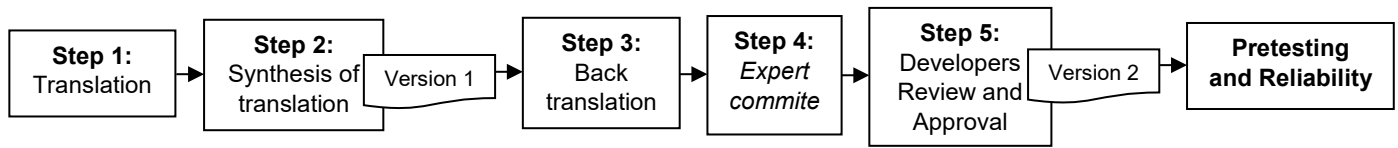


Table 1: Original version of UK-BSS-R and final translated version of Brazilian Portuguese-BSS-R

Original version UK-BSS-R	Brazilian Portuguese-BSS-R
(1) I came through childbirth virtually unscathed.	(1) Eu passei pelo parto sem consequências físicas ou emocionais.
(2) I thought my labour was excessively long.	(2) Eu achei que meu parto foi excessivamente longo.
(3) The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.	(3) As equipes na sala de pré-parto e parto me encorajaram a tomar decisões sobre como eu gostaria que fosse o progresso do meu parto.
(4) I felt very anxious during my labour and birth.	(4) Eu me senti muito ansiosa durante meu trabalho de parto e parto.
(5) I felt well supported by staff during my labour and birth.	(5) Eu me senti bem apoiada pela equipe durante o trabalho de parto e parto.
(6) The staff communicated well with me during labour.	(6) A equipe se comunicou bem comigo durante o trabalho de parto.
(7) I found giving birth a distressing experience.	(7) Eu achei a experiência de dar à luz angustiante.
(8) I felt out of control during my birth experience.	(8) Eu me senti fora de controle durante minha experiência de parto.
(9) I was not distressed at all during labour.	(9) Eu não fiquei nenhum pouco angustiada durante meu trabalho de parto.
(10) The delivery room was clean and hygienic.	(10) A sala de parto estava limpa e higienizada.

Table 2: Participants' characteristics

	Interview 1 (n=101)	Interview 1 & 2 (n=38)	Interview 1, 2 & 3 (n=35)
Educational Level			
Incomplete PE	10,9%	10,5%	11,4%
Complete PE	16,9%	15,8%	17,1%
Incomplete SE	9,9%	10,5%	8,6%
Complete SE	56,4%	57,9%	57,2%
UE	5,9%	5,3%	5,7%
Health socioeconomic status			
Public health system	80%	78,9%	82,9%
Health insurance	20%	21,1%	17,1%
Marital Status			
Married	84,2%	79%	80%
Single	15,8%	21%	20%
Parity			
Nulliparous	39,6%	34,2%	28,6%
Multiparous	60,4%	65,8%	71,4%
Previous Deliveries			
Cesarean section	10,7%	9,6%	10%
Vaginal delivery	89,2%	90,4%	90%
Birth plan (took to hospital?)			
Yes	6%	7,9%	5,7%
No	94%	92,1%	94,3%
Delivered by			
Physicians	57,4%	55,3%	54,3%
Midwives	42,8%	44,6%	45,7%
Oxytocin used			
Yes	47,5%	50%	48,6%
No	52,5%	50%	51,4%
Perineal Suture			
Yes	61,4%	60,5%	62,9%
No	38,6%	39,5%	37,1%
Birth partner (present?)			
Yes	92,1%	89,5%	88,6%
No	7,9%	10,5%	11,4%
Use of non-pharmacological pain relief methods			
Yes	75,3%	68,4%	71,4%
No	24,7%	31,6%	28,6%

PE = Primary Education; SE = Secondary Education; UE = University Education.

Table 3: Participants' scores on each subscale of the Brazilian Portuguese-BSS-R

Sub-scale	In person (Interview 1) (n=101) mean (\pm SD)	Over the telephone (Interview 2) (n=38) mean (\pm SD)	Over the telephone (Interview 3) (n=35) mean (\pm SD)
Stress experienced during labour	8,5(\pm 2,9)	8,5(\pm 3,4)	8,5(\pm 2,9)
Women's personal attributes	3,6(\pm 1,5)	3,1(\pm 1,6)	3,3(\pm 1,7)
Quality of care provision	13,5(\pm 2,1)	13,6(\pm 1,8)	12,6(\pm 2,1)
TOTAL Score	25,7(\pm 4,3)	24,2(\pm 4,4)	24,5(\pm 4,5)

SD = standard deviation

Table 4 - Inter and intra observer analysis of reproducibility each *Brazilian Portuguese-BSS-R* sub-scale

	Inter observer			Intra observer		
	ICC	SEM	MDC	ICC	SEM	MDC
Sub-scale 1	0.91	1.04	2.42	0.72	1.71	3.99
Sub-scale 2	0.85	0.64	1.49	0.71	0.87	2.02
Sub-scale 3	0.64	1.09	2.53	0.52	1.50	3.49
TOTAL Score	0.91	1.44	3.35	0.77	2.36	5.51

ICC: Intraclass Correlation Coefficient; SEM: Standard Error of Measurement; MDC: Minimal Detectable Change ; Sub-scale 1: Stress experienced during labour; Sub-scale 2: Women's personal attributes; Sub-scale 3: Quality of care provision.