

Measuring women's experiences of childbirth using the Birth Satisfaction Scale-Revised (BSS-R)

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Abstract

Birth satisfaction relates to women's perceptions of their childbirth experience, which consists of personality factors, and evaluations of the quality of care provided and stress experienced. The importance of measuring 'birth satisfaction' lies in desire to improve standards of intranatal care provided, through measuring impacts of interventions (i.e., home birth versus hospital birth) and exploring relationships with other important dimensions (i.e., postnatal depression, wellbeing & attachment). With evaluating intranatal care in mind, this paper aims to educate midwives about one particular method of measuring women's experiences of labour, which involves using the valid and reliable *Birth Satisfaction Scale-Revised (BSS-R)*. The *BSS-R* is a 10-item self-report valid and reliable measure, which is recommended by the *International Consortium for Health Outcomes Measurement (ICHOM)* as the 'method of choice' for evaluating women's 'birth experience'. Since the *ICHOM* began recommending the *BSS-R* as part of its Pregnancy and Childbirth Standard set, the scale (to date) has been used in 39 countries and 134 sites world-wide. If you would like to use the *BSS-R*, it can be accessed free of charge for clinical, research or educational purposes through contacting (c.hollinsmartin@napier.ac.uk).

Key words:

Childbirth, Birth experience; Birth satisfaction; Birth Satisfaction Scale-Revised; Midwives, validation



Key points

- (1) 'Birth satisfaction' is a retrospective evaluation of women's labour and birth experiences.
- (2) The *Birth Satisfaction Scale-Revised (BSS-R)* is a valid and reliable tool for measuring women's levels of 'birth satisfaction'.
- (3) The BSS-R is recommended by the *International Consortium for Health Outcomes Measurement (ICHOM)* as the 'method of choice' for evaluating women's 'birth experience'.
(www.ichom.org/medical-conditions/pregnancy-and-childbirth/)
- (4) Midwives can use the *BSS-R* to improve standards of intrapartum care in a wide range of contexts (i.e., clinical, research & education).
- (5) The *BSS-R* has to date been used in projects based in 134 world-wide sites based in 39 countries.
- (6) The *BSS-R* can be accessed free of charge through contacting Caroline J. Hollins Martin at (Email: c.hollinsmartin@napier.ac.uk).

Declaration of interest

The authors report no conflict of interests, with no financial support provided or accrued in relation to promoting the *BSS-R*.



Measuring women's experiences of childbirth using the Birth Satisfaction Scale-Revised (BSS-R)

Introduction

The 10-item *Birth Satisfaction Scale-Revised (BSS-R)* is a multi-factorial psychometrically robust tool developed for the purpose of measuring women's experiences of labour and childbirth (Hollins Martin and Martin 2014). The *BSS-R* is currently recommended by the *International Consortium for Health Outcomes Measurement (ICHOM)* as the lead international clinical tool for measuring women's experiences of labour and childbirth (Nijagal *et al.* 2018) (www.ichom.org/medical-conditions/pregnancy-and-childbirth/). Since the *ICHOM* began recommending the *BSS-R*, it has been used to measure women's 'birth satisfaction' in 39 countries and 134 sites world-wide.

TABLE 1 HERE

The *BSS-R* is co-owned by Caroline J Hollins Martin (CJHM)

and Colin R Martin (CRM), who are both available to provide advice regarding its use. Country specific *BSS-R* scales are held in an electronic site based at Edinburgh Napier University (ENU), with the *ICHOM* directing potential users to CJHM who monitors and maintains the site. If you would like to use the *BSS-R* free of charge for clinical or research purpose(s), please email: c.hollinsmartin@napier.ac.uk.

What is birth satisfaction?

Birth satisfaction is defined as a retrospective maternal evaluation of labour experience (Hollins Martin *et al.* 2012), with reflective appraisal important because of potential impacts for mother, infant, and family wellbeing (Sawyer *et al.* 2013). An experience of poor 'birth satisfaction' has aptitude to effect level of mother and infant interaction (Staneva 2013) and subsequent experiences of breastfeeding (Hinic 2016). In addition, experience of a traumatic labour can increase levels of anxiety and fear surrounding planning of future pregnancies (Baxter 2020).

It is important to appreciate that every woman constructs expectations of how her childbirth experience will unfold (Staneva 2013), with individual perceptions subjective and often complex (Dannenbring *et al.* 1997).

Literature has shown that multiple factors influence maternal experience of labour and childbirth (Hollins Martin and Fleming, 2011), with three main themes identified: (1) *Quality of care provision*, (2) *Personal attributes*, and (3) *Stress experienced during labour*. These three themes are now addressed.

(1) *Quality of care provision*

What midwives instinctively know and the literature shows, is that quality of intrapartum care provided impacts upon women's reported experiences of labour and childbirth (Hollins Martin *et al.* 2012). Birth satisfaction is influenced by several factors. For example, women place value upon being listened to and being placed at the centre of decision-making processes (Heatley *et al.* 2015; Mei *et al.* 2015; Miron-Shatz and Konheim-Kalkstein 2020). Quality and amount of support provided by midwives and allied health care professionals plays a vital role in level of 'birth satisfaction' reported (Luegmair *et al.* 2018; Dev *et al.* 2019; Miron-Shatz and Konheim-Kalkstein 2020), with women testifying that they feel more positive about their birth experience when their needs and comforts are considered (Luegmair *et al.* 2018; Hall *et al.* 2020).

(2) Personal attributes (i.e., personality & coping skills)

Personality and coping skills play a significant role in shaping level of 'birth satisfaction' women report (Johnston *et al.* 2013; Conrad and Stricker 2018). Literature shows that women who take a proactive role to educate and prepare themselves for labour, report more positive birth experiences (Howarth *et al.* 2011; Hinic 2017; Miron-Shatz and Konheim-Kalkstein 2020), cope better during labour (Howarth *et al.* 2011), experience reduced levels of stress (Hinic 2017), and suffer less pain (McCrea and Wright 1999; Howarth *et al.* 2011). 'Birth satisfaction' is reported to be higher when women have choice and control in relation to methods of pain relief and style of delivery (Çalik *et al.* 2018; Deliktas Demirci *et al.* 2019). More recent research reports

that unplanned Caesarean Section (CS) is associated with reduced 'birth satisfaction', with having an advocate for support improving experience (Konheim-Kalkstein and Miron-Shatz 2019). What is clear, is that women with high levels of 'birth satisfaction' report having felt empowered with choice and control over aspects surrounding their labour and birth (Cook and Loomis, 2012).

(3) Stress experienced during labour

Stress experienced during labour profoundly influences women's reported levels of 'birth satisfaction', with literature linking medical interventions and associated injury as one influence on reports (Çalik *et al.* 2018; Johansson and Finnbogadóttir 2019; Fumagalli *et al.* 2020; Kempe and Vikström-Bolin 2020). For example, women with intact perineum's report more positive experiences (Fumagalli *et al.* 2020). In relation to midwives efforts to improve 'birth satisfaction', reducing stress and its 'fight/flight' response is important. To view factors that have potential to increase level of reported 'birth satisfaction' (see *Figure 1*).

FIGURE 1 HERE

Psychometric validation of the BSS-R

The 10-item *BSS-R* is a reliable and valid tool (Hollins Martin and Martin, 2014), in response to applying robust psychometric principles. To assess factor structure, validity, and reliability of a proto *30-item BSS* (Hollins Martin and Fleming 2011) and to develop a short-form version of the tool, survey

data was collected in Scotland (UK) from (n=228) postnatal women (Hollins Martin and Martin 2015). Qualitative validation of survey data was undertaken from primary free-text data gathered from (n=207) childbearing women. This data was concurrently analysed with first-hand narratives of birth satisfaction accounted for in 19 qualitative papers. From these findings, it was concluded that the initial 30-item *BSS* accounted for all of the underpinning qualitative data (Hollins Martin *et al.* 2012).

To validate a shorter version of the 30-item *BSS*, factor structure and reliability was statistically assessed. Key psychometric properties of the proto 30-item *BSS* was evaluated using Exploratory Factor Analysis (EFA) and Structural Equation Modelling techniques (SEM) (Hollins Martin and Martin 2014). Post psychometric analysis, the 30-item *BSS* was reconfigured into the 10-item *BSS-R*, with data confirming the three prior clustered sub-scales of *quality of care provision*, *women's personal attributes*, and *stress experienced during labour* (Hollins Martin and Martin 2014). Post statistical validation, the 10-item *BSS-R* was considered a robust tool for measuring women's 'birth satisfaction' (Hollins Martin and Martin 2014).

What is the 10-item BSS-R?

The 10-item *BSS-R* is comprised of 3 sub-scales which measure distinct but correlated domains of: (1) *quality of care provision* (4-items), (2) *women's personal attributes* (2-items), and (3) *stress experienced during labour* (4-items). To view *BSS-R* items (see *Table 2*).

TABLE 2 HERE

How to score the 10-item BSS-R

Postnatal women respond to the 10-items on the *BSS-R* on a 5-point Likert scale, which is based upon level of agreement or disagreement with each of the statements placed. A score of 40 represents highest possible 'birth satisfaction' and 0 the lowest, with no cut-off scores. An example of how to complete *Item 3* follows:

<i>(Q3) The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.</i>				
<i>Strongly Agree</i>	<i>Agree or Disagree</i>	<i>Neither Agree or Disagree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
4	3	2	1	0

When clinicians and researchers gather data using scales, ordinarily they calculate means and significant differences between groups. For example, and in the case of the *BSS-R*, significant differences in mean scores between groups of primigravidas and women of multiparity, or those who have experienced CS compared with Spontaneous Vertex Delivery (SVD). In addition, the *BSS-R* can be used to compare group mean 'birth satisfaction' scores between women of various ages, who have received different methods of pain relief and/or have delivered at home, in a midwifery led unit, or a

hospital. It is recommended that clinicians and researchers triangulate findings through conducting a qualitative thematic analysis of comments written by participants' under each *BSS-R* item, with data used to elaborate and explain cause and effect. Through analysing *BSS-R* survey data, areas of achievement can be acknowledged and rewarded, and conversely areas of improvement identified and where possible rectified. In response, commendations can be awarded and/or plans put in place to improve and re-measure implemented improvements or interventions.

Translations and validations of the 10-item BSS-R

Since the *ICHOM* started recommending the 10-item *BSS-R* as the measure of choice for evaluating 'birth experience' world-wide (Nijagal *et al.* 2018), several translations and validations of the scale have been produced for use in specified populations. In sequential order, the 10-item *BSS-R* has been translated and validated for use in the United States (*US-BSS-R*) (Fleming *et al.* 2016; Martin *et al.* 2017a), Greece (*Greek-BSS-R*) (Vardavaki *et al.* 2015), Australia (*Australian-BSS-R*) (Jefford *et al.* 2018), Turkey (*Turkish-BSS-R*) (Göncü Serhatlıoğlu *et al.* 2018), Spain (*Spanish-BSS-R*) (Romero-Gonzalez *et al.* 2019), Israel (*Hebrew-BSS-R*) (Skvirsky *et al.* 2019), Italy (*Italian-BSS-R* translation) (Nespoli *et al.* 2018), Iran (*Persian-BSS-R*) (Omani-Samani *et al.* 2019) and Slovak (*Slovak-BSS-R*) (Škodová *et al.* 2019), with many more versions still in production. All adaptations of the 10-item *BSS-R* are held in an electronic site based at ENU, and are available free of charge from (c.hollinsmartin@napier.ac.uk).

Examples of 10-item BSS-R use

A systematic review reports that the 10-item *BSS-R* is an easy to administer instrument for measuring women's 'birth satisfaction' (Alfaro Blazquez *et al.* 2017). Also and in addition to the *ICHOM*, the *WWU Munster for medical data models* recommends the 10-item *BSS-R* as the measure of choice in Germany (Dugas 2019). So far and to date, the 10-item *BSS-R* has been used in a diverse range of clinical settings. What follows are examples of some studies that have reported use of the 10-item *BSS-R*.

Currently the 10-item *BSS-R* is being used in a multi-site trial in Sweden to assess women's intranatal satisfaction at 2 months post lateral episiotomy or no episiotomy (Bergendahl *et al.* 2019). The 10-item *BSS-R* has been used to evidence that women who deliver in birth centres report higher levels of 'birth satisfaction', which has had impact upon restructuring of maternity services (Breman *et al.* 2019). The 10-item *BSS-R* has been used to assess women's perceptions of quality of intrapartum care received and its effects upon anxiety, control, and stress in relation to breastfeeding (Hinic 2016). Konheim-Kalkstein and Miron-Shatz (2019) used the 6-item *BSS-R* Indicator (*BSS-RI*), which is a shortened version of the *BSS-R* (Martin *et al.* 2017b), in a study that explored impact of unplanned CS upon women's levels of reported 'birth satisfaction'. Rahimi-Kian *et al.* (2018) used the 10-item *BSS-R* to test effects of ice pack application on pain and 'birth satisfaction'. Škodová *et al.* (2019) are currently using the 10-item *BSS-R* in Slovakia to explore relationships between 'birth satisfaction' and mode of delivery, socioeconomic factors, and psychological variables. Lee *et al.* (2018) used

the 10-item *BSS-R* in Australia to assess 'birth satisfaction' in relation to two differing styles of labour management. Turnbull et al. (2019) are currently conducting a trial to identify differences between using 'CTG and ECG' versus 'CTG alone' during labour, and the overall effects on 'birth satisfaction' post emergency CS. Hamm et al. (2019) led an obstetric cohort study in the UK, which showed that black race, CS, and increasing labour length are risk factors for women reporting lower levels of 'birth satisfaction' when labour has been induced. Above are just a few examples to illustrate how midwives' can use the 10-item *BSS-R* in clinical practice and research.

Conclusion

In summary, the 10-item *BSS-R* is a valid and reliable measure that can be used by clinicians and researchers to evaluate postnatal women's levels of 'birth satisfaction'. If you are considering its use, the 10-item *BSS-R* is available free of charge both nationally and internationally, and is recommended by the *ICHOM* (www.ichom.org/medical-conditions/pregnancy-and-childbirth/) as the measure of choice for assessing women's experiences of labour and childbirth. Data collected can be used to evaluate global quality of intranatal care provision, and also to identify individual successes and potential areas for improvement within clinical areas. Data collected can form baselines against which future care can be compared. Data gathered may also be correlated with findings from other validated scales (e.g., those that measure wellbeing, coping, depression etc.). CJHM and CRM continue to work with

teams world-wide to provide advice about translation and validation of population specific versions of the 10-item *BSS-R*, with its free availability enabling clinical and research teams to progress maternity care provision at an international level. If you would like to translate and validate a context specific 10-item *BSS-R*, or use it to improve quality of maternity care provision, please contact us at c.hollinsmartin@napier.ac.uk).

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BSS-R	Table 1: Number of sites that have used the 10-item BSS-R before end of March 2020	Number
1	Africa (Ghana)	2
2	Africa (Nigeria)	1
3	Australia	8
4	Belgium	3
5	Brazil	6
6	Canada	4
7	Croatia	1
8	Denmark	1
9	Finland	1
10	France	1
11	Germany	1
12	Greece	2
13	India	11
14	Iran	6
15	Ireland (Southern)	1
16	Ireland (Northern)	1
17	Israel	1
18	Italy	2
19	Kuwait	1
20	Lithuania	1
21	Malaysia	3
22	Mexico	1
23	Nepal	1
24	Netherlands	6
25	Pakistan	1
26	Palestine	3
27	Poland	2
28	Portugal	2
29	Saudi Arabia	2
30	Slovakia	4
31	Slovenia	1
32	Spain	3
33	South Korea	1
34	Sweden	2
35	Tanzania	1
36	Thailand	2
37	Turkey	10
38	UK	12

39	US	22
		TOTAL 134

*Green shading represents countries yet to produce validated scales

*Red represents countries with a population specific validated BSS-R

*Prof Caroline J Hollins Martin & Prof Colin R Martin hold BSS-R® copy write

Table 2: Valid and reliable 10-item Birth Satisfaction Scale-Revised (BSS-R) post psychometric statistical testing

<p>Quality of care provision (4-items)</p> <p>Women's personal attributes (2-items)</p> <p>Stress experienced during labour (4-items)</p>
<p>(1) I came through childbirth virtually unscathed.</p> <p>(2) I thought my labour was excessively long.</p> <p>(3) The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.</p> <p>(4) I felt very anxious during my labour and birth.</p> <p>(5) I felt well supported by staff during my labour and birth.</p> <p>(6) The staff communicated well with me during labour.</p> <p>(7) I found giving birth a distressing experience.</p> <p>(8) I felt out of control during my birth experience.</p> <p>(9) I was not distressed at all during labour.</p> <p>(10) The delivery room was clean and hygienic.</p>
<p>Participants respond on a 5-point Likert scale based on level of agreement/disagreement with each of the statements placed, with a possible range of scores between 0-40. A score of 0 on the BSS-R represents least 'birth satisfaction' and 40 most.</p> <p style="text-align: center;">Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree</p>
<p>To obtain a copy of the 10-item BSS-R and marking grid contact Prof Caroline J Hollins Martin. Email: c.hollinsmartin@napier.ac.uk</p>

Figure 1: Factors that have potential to increase birth satisfaction

