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

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Abstract

Birth satisfaction is connected to the woman's perception of the quality of their labour (Hollins Martin and Martin 2015). Maternal birth satisfaction is an important aspect of quality of care as evidence shows that perceived birth experience has an impact on maternal and infant health and wellbeing (Nijagal *et al.* 2018). This paper aims to help midwives to understand the concept of birth satisfaction better and learn how to measure it.

In this context, the Birth Satisfaction Scale-Revised (BSS-R) is a 10-item tool for self-report measurement of birth experience (Martin and Fleming 2011). It is a robust psychometric measure developed by Professor Hollins Martin based on the previous 30-item Birth Satisfaction Scale (BSS) (Hollins Martin and Martin 2014). The BSS-R approach has already been translated and adopted in over 30 countries. So far, it has been used by clinicians and researchers in over 100 international sites. The Consortium for Health Outcome Measures (ICHOM) recommends the BSS-R as the 'method of choice' for assessing birth experience (Nijagal *et al.* 2018).

The Birth Satisfaction Scale-Revised (BSS-R) can be accessed for research or educational purposes by contacting Professor Hollins Martin at: c.hollinsmartin@napier.ac.uk.

Key words:

Childbirth; birth experience; birth satisfaction; birth satisfaction scale; midwives; validation

Introduction

The 10-item-Birth-Satisfaction-Scale-Revised (BSS-R) is a multi-factorial psychometrically robust tool developed by Professor Hollins Martin (Hollins Martin and Martin 2014). The BSS-R is now the lead international clinical measure of satisfaction regarding assessing care provided during childbirth (Nijagal *et al.* 2018). Recommended as the 'method of choice' for assessing birth experience by the International Consortium for Health Outcome Measures (ICHOM): www.ichom.org/medical-conditions/pregnancy-and-childbirth/, the approach has already been used in more than 100 international sites (Hollins Martin 2020). Utilised by clinicians and researchers, to date, it has been cited with positive impacts according to 18 major clinical reports (Vardavaki *et al.* 2015; Fleming *et al.* 2016; Hinic 2016; Martin *et al.* 2016; Alfaro Blazquez *et al.* 2017; Burduli *et al.* 2017; Jefford *et al.* 2018; Nespoli *et al.* 2018; Rahimi-Kian *et al.* 2018; Breman *et al.* 2019; Romero-Gonzalez *et al.* 2019; Škodová *et al.* 2019; Skvirsky *et al.* 2019; Omani-Samani *et al.* 2019). In total, the BSS-R has been translated and adopted in more than 30 countries across Europe, North and South America, Asia, and the Middle East (Hollins Martin 2020).

What is birth satisfaction?

Birth satisfaction can be defined as a retrospective maternal evaluation of the labour and birth's events (Hollins Martin *et al.* 2012). Birth experience is important because it has an impact on maternal and infant health and wellbeing (Sawyer *et al.* 2013). Birth satisfaction affects the bonding between the mother and the newborn (Staneva 2013). It seems connected also with the breastfeeding experience (Hinic 2016). Moreover, labours experienced as

traumatic may increase maternal anxiety and fear and impact future pregnancies (Baxter 2020).

Every woman constructs expectations of childbirth (Staneva 2013). Labour and birth are complex and subjective experiences (Dannenbring *et al.* 1997). Literature shows that there are multiple factors that influence the maternal experience of labour.

On one hand, the quality of the intrapartum care provided has an impact on maternal experience (Hollins Martin *et al.* 2012). The birth environment is also relevant to birth satisfaction. Women valued feeling listened and part of the decision-making process (Heatley *et al.* 2015; Mei *et al.* 2015; Miron-Shatz and Konheim-Kalkstein 2020). The support provided by health professionals has a role in birth satisfaction (Luegmair *et al.* 2018; Dev *et al.* 2019; Miron-Shatz and Konheim-Kalkstein 2020). Women feel more positive about their birth experiences when their needs and comfort are taken into account (Luegmair *et al.* 2018; Hall *et al.* 2020). Overall, women seem to value feeling seen and cared for and having their needs and expectations considered.

Furthermore, it seems that maternal personality and coping skills have an role on labour expectations and influence birth satisfaction (Johnston *et al.* 2013; Conrad and Stricker 2018). Literature shows that women who take a proactive role in their pregnancy and who feel well prepared for labour tend to achieve more positive birth experiences (Howarth *et al.* 2011; Hinic 2017; Miron-Shatz and Konheim-Kalkstein 2020). Moreover, women value coping well in labour (Howarth *et al.* 2011). Stress during labour (Hinic 2017) and the intensity of the pain affect birth satisfaction (McCrea and Wright 1999; Howarth *et al.* 2011).

With regards to pain management, feeling in control of the choice of pain relief seems to have a positive impact on maternal birth experience (Çalik *et al.* 2018; Deliktas Demirci *et al.* 2019). Same with achieving the desired method of delivery, a recent research suggests that unplanned caesareans may be connected with lower birth satisfaction and recommends the presence of an advocate to improve experience (Konheim-Kalkstein and Miron-Shatz 2019). As a whole, feeling in control of the birth experience seems to have an essential role on overall birth satisfaction.

Another important aspect within the literature seems to be the presence of external stressors that difficulty the labour. The Literature links medical interventions with higher risk of obstetric injuries with lower birth satisfaction (Çalik *et al.* 2018; Johansson and Finnbogadóttir 2019; Fumagalli *et al.* 2020; Kempe and Vikström-Bolin 2020). For example, women with an intact perineum report more positive birth experiences (Fumagalli *et al.* 2020). It could be said therefore, that ensuring labour feels like a safe experience, birth satisfaction has to do with women feeling that their needs are heard and that they receive the care they want during labour.

Based on the existing literature, three main themes can be identified with regards to birth satisfaction: (1) Quality of care provision, (2) Personal attributes, and (3) Stress experienced during labour.

Psychometric validation of the BSS-R

To assess factor structure, validity, and reliability of a proto *30-item-BSS* (Martin and Fleming 2011) and to develop a short-form version of the tool, survey data was collected in Scotland from (n=228) postnatal women (Hollins Martin and Martin 2015). Qualitative validation of the survey 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. It was concluded that the initial *30-item-BSS* accounted for all the data (Hollins Martin and Martin, 2015).

To psychometrically validate the *30-item-BSS,* factor structure and reliability was statistically assessed. Key psychometric properties of the proto *30-item-BSS-LF* were evaluated using Exploratory Factor Analysis (EFA) and Structural Equation Modelling techniques (SEM) (Hollins Martin and Martin 2014). Post-analysis the *30-item-BSS* was reconfigured into the *10-item-BSS-R*, with data confirming the three prior clustered sub-scales (Hollins Martin and Martin 2014). Post-validation, the *10-item-BSS-R* was considered a robust tool for measuring women's satisfaction with their birth experience (Hollins Martin and Martin 2014).

What is the BSS-R?

The Post psychometric analysis of the items on the *30-item-BSS-LF*, the scale was reconfigured into the *10-item-BSS-R* (Hollins Martin and Martin 2014), which comprises 3 sub-scales that 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).

Valid and reliable *10-item-Birth-Satisfaction-Scale-Revised (10-item-BSS-R)* post psychometric statistical testing.

Quality of care provision (4-items)
Women's personal attributes (2-items)
Stress experienced during labour (4-items)

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(1) I came through childbirth virtually unscathed.
(2) I thought my labour was excessively long.
(3) The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.
(4) I felt very anxious during my labour and birth.
(5) I felt well supported by staff during my labour and birth.
(6) The staff communicated well with me during labour.
(7) I found giving birth a distressing experience.
(8) I felt out of control during my birth experience.
(9) I was not distressed at all during labour.
(10) The delivery room was clean and hygienic.

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.

Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

To obtain a copy of the *10-item-BBS-R* and marking grid contact Prof Caroline J Hollins Martin.
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How to score

Postnatal women respond to the 10 items on the BSS-R items on a 5-point Likert scale based on level of agreement or disagreement with each of the statements. A high score represents most 'birth satisfaction'. An example question is shown in *Figure 1*.

(3) *The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.*

Strongly Agree	*Agree*	*Neither Agree or Disagree*	*Disagree*	*Strongly Disagree*
4	*3*	*2*	*1*	*0*

There are no cut-off scores. The higher the score the higher the birth satisfaction the women is experiencing. A score of 40 is top and 0 the lowest score. In general we look at means and significant differences between groups. Using the BSS-R scale, we can observe, for example, the differences in birth experience between primigravidas versus multiparous or cesarean section versus vaginal delivery. This tool can help us to compare birth satisfaction among age groups, methods of pain relief, or chosen delivery place. It is also possible to undertake a thematic analysis of the comments made under each question, which can also be used to explain cause and effect.

How can the BSS-R be used?

Through utilisation of the *10-item-BSS-R* and associated survey data gathered, critical areas for improvement are identified in clinical settings which provide care to women during labour and childbirth. The BBS-R is a reliable tool for measuring quality of care and it can help assess

The ICHOM recommendation

Once the *10-item-UK-BSS-R* was validated, it was requested by the **worldwide clinical** *ICHOM Standard Set for Pregnancy and Childbirth,* who from 2016 recommends it as the measure of choice to assess women's experiences of labour and birth: www.ichom.org/medical-conditions/pregnancy-and-childbirth/

Translations and validations

Since the ICHOM started recommending the *10-item-BSS-R* as the measure of choice for evaluating the quality of intranatal care world-wide (Nijagal *et al.* 2018), Professor Hollins Martin has been based at ENU. During this time and in sequential order, the *10-item-BSS-R* has been translated and validated for use in the United States (*10-item-US-BSS-R*) (Fleming *et al.* 2016; Martin *et al.* 2017a), Greece (*10-item-Greek-BSS-R)* (Vardavaki *et al.* 2015), Australia (*10-item-Australian-BSS-R)* (Jefford *et al.* 2018), Turkey (*10-item-Turkish-BSS-R)* (Göncü Serhatlıoğlu *et al.* 2018), Spain (*10-item-Spanish-BSS-R)* (Romero-Gonzalez *et al.* 2019), Israel (*10-item-Hebrew-BSS-R)* (Skvirsky *et al.* 2019), Italy (*10-item-Italian-BSS-R)* (Nespoli *et al.* 2018), Iran (*10-item-Persian-BSS-R)* (Omani-Samani *et al.* 2019), Slovak (*10-item-Slovak-BSS-R*) (Škodová *et al.* 2019), with many more still in production. The peer-reviewed published validation papers are available for review in the ENU repository. These country specific *10-item-BSS-R scales* are held in an electronic site based at ENU, with the ICHOM (www.ichom.org/medical-conditions/pregnancy-and-childbirth/) directing all potential users to Professor Hollins Martin, who monitors and maintains the site and provides advice. A summary of the 30 countries (100 sites) that have or are currently using the *10-item BSS-R* is available for review and can be obtained by contacting Professor Caroline J Hollins Martin at c.hollinsmartin@napier.ac.uk.

Examples of use

So far, the BSS-R scale has been used as a tool to assess maternal birth satisfaction and to contribute to research in a diverse range of clinical settings. For instance, a systematic review reports that the *10-item-BSS-R* is an easy to administer instrument for measuring birth satisfaction (Alfaro Blazquez *et al.* 2017). Since the ICHOM began recommending the 10-item-BSS-R, both clinicians and researchers in over 30 countries, have utilised this methodology in 100+ sites to evaluate and ultimately improve intrapartum care in their country. In addition, the WWU Munster for medical data models also recommends the BSS-R as the measure of choice in Germany (Dugas 2019).

To illustrate the impact and potential uses of the 10-items-BSS-R, currently, the *10-item-BSS-R* is being used in a multi-site trial in Sweden. The aim is to assess women's intranatal satisfaction at 2-months post lateral episiotomy or no episiotomy (Bergendahl *et al.* 2019). So far, the BSS-R has verified that women birthing in birth centers had higher birth satisfaction, effecting restructuring of services (Breman *et al.* 2019).

The BSS-R has also been used to assess women's perceptions of quality of intrapartum care received concerning anxiety, control, stress experienced during labour and effects upon breastfeeding (Hinic 2016). Moreover, Konheim-Kalkstein and Miron-Shatz (2019) used the Birth Satisfaction Scale-Revised Indicator (BSS-RI), a shorter 6-item version of the BSS-R scale (Martin *et al.* 2017b), in a study exploring the impact of unplanned caesarean in birth satisfaction.

The BSS-R is used at present to assess maternal birth satisfaction in a diverse range of international settings. For example, Haifaa Almalki (Ministry of Health) (2019) has requested that the BSS-R be used in all delivery suites in Saudi Arabia to improve standards of care. In Slovakia, Škodová et al. (2019) are applying *the BSS-R* to explain associations between birth satisfaction and mode of delivery, socioeconomic factors, and psychological variables. Rahimi-Kian et al. (2018) used the BSS-R to test the effects of ice pack application on pain and birth satisfaction, with ice now recommended as a useful intervention in Iran. In Australia, Lee et al. (2018) used the BSS-R to assess birth satisfaction between two styles of managing labour and Turnbull et al. (2019) are conducting a trial to identify differences between using CTG and ECG versus CTG alone during labour, and overall effects on emergency section and birth satisfaction.

In the UK, Hamm et al. (2019) led an obstetric cohort study that showed that black race, caesarean birth, and increasing labour length were risk factors for low birth satisfaction for those induced. Based on this work, there are now further studies exploring interventions to target women at risk for low birth satisfaction.

These are just a few examples of the application of the BSS-R scale in clinical research and practice. Overall, it seems necessary to highlight the potential impact that the tool may have on how we assess maternal satisfaction and quality of intrapartum care.

Conclusion

The validated *10-item-BSS-R* is a robust questionnaire that can be used to measure birth satisfaction post-birth. The BSS-R can be used to collect data both nationally and internationally, with results potentially correlated with other validated measures. Professor Caroline Hollins Martin, who initiated the concept and development of the BSS-R©, and Professor Colin Martin continue to work with international teams to translate, advise and validate population specific versions of the *10-item-BSS-R*. Their work allows clinical teams world-wide to produce a context specific robust tool for specific projects. The purpose of developing country and language specific versions of the *10-item-BSS-R* is ultimately to create a tool that can be used within contextualised populations to assess and improve their quality of intra-natal care provision. If you would like to use the BSS-R scale please contact: c.hollinsmartin@napier.ac.uk.

Key points

(1) Women's experiences of childbirth are important because they are an indicator of the quality of the care provided

(2) The BSS-R is the endorsed method of measuring birth satisfaction by the Consortium for Health Outcome Measures (ICHOM)

(3) Midwives can use the BSS-R to improve delivery of intrapartum care in a diverse range of contexts worldwide including education and research

(4) The BSS-R scale has been translated and adopted by more than 30 countries so far and has been used by researchers over 100 international sites

(5) The Birth Satisfaction Scale-Revised (BSS-R) can be accessed by contacting Professor Hollins Martin at c.hollinsmartin@napier.ac.uk.

Declaration of Interest

The authors report no conflict of interests. No financial support was received.

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