

Birth Satisfaction Scale/Birth Satisfaction Scale-Revised (BSS/BSS-R): A large scale

United States Planned Home Birth and Birth Centre Survey

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**Abstract**

**Objective:** To explore the prevalence of birth satisfaction for childbearing women planning to birth in their home or birth centers in the United States. Examining differences in birth satisfaction of the home and birth centers; and those who birthed in a hospital using the 30-item Birth Satisfaction Scale (BSS) and the 10-item Birth Satisfaction Scale- Revised (BSS-R).

**Study design:** A quantitative survey using the BSS and BSS-R were employed. Additional demographic data were collected using electronic linkages (Qualtrics™).

**Participants:** A convenience sample of childbearing women (n=2229) who had planned to birth in their home or birth center from the US (United States) participated. Participants were recruited via professional and personal contacts, primarily their midwives.

**Results:** The total 30-item BSS score mean was 128.98 (SD 16.92) and the 10-item BSS-R mean score was 31.94(SD 6.75). Sub-scale mean scores quantified the quality of care provision, women's personal attributes, and stress experienced during labor. Satisfaction was higher for women with vaginal births compared with caesareans deliveries. In addition, satisfaction was higher for women who had both planned to deliver in a home or a birth center, and who had actually delivered in a home or a birth center.

**Key conclusions:** Total and subscale birth satisfaction scores were positive and high for the overall sample

**Implications for practice:** The BSS and the BSS-R provide a robust tool to quantify women's experiences of childbirth between variables such as birth types, birth settings and providers.

**Highlights:**

The meaning of birth satisfaction is diverse and may take on many forms

Being respected, in control and listened to, are important constructs of birth satisfaction.

Birth satisfaction represents quality of care provision, women's personal attributes and stress experienced during labour.

Recently there has been an increase of out-of-hospital births (e.g., Homes, Birth Centres) occurring in the industrialised world (Hodnett, Downe, & Walsh, 2010; Olsen & Clausen, 2012; MacDorman, Declercq, & Mathews, 2014). Current research supports the safety and cost effectiveness of this emerging phenomenon (Birthplace in England Collaborative Group, 2011; Cheyney, Bovbjerg, Everson, Gordon, Hannibal, and Vedam, 2014; de Jonge, Geerts, van der Goes, et al., 2015; Hutton, Reitsma, Kaufman, 2009; Janssen, Saxell, Page, et al., 2009; Schroeder, Petrou, Patel, et al, 2012). Research quantifying women's birth satisfaction using a valid and reliable tool is limited and has been primarily focused on hospital births (Hollins Martin & V. Fleming, 2011; Hollins Martin et al., 2012; Hollins Martin & Martin, 2014; Barbosa-Leiker, S. Fleming, Hollins Martin, & Martin, 2015; Vardavaki, Hollins Martin, Martin, 2015). The Institute of Healthcare Improvement (IHI) has developed a framework in the United States (US) to optimize health care and considers consumer satisfaction a major component of this framework's triad. This triad is known as "The Triple Aim" and provides a systematic approach to improve perinatal outcomes and satisfaction, while lowering costs. Birth satisfaction correlates with the childbearing women's quality of care, personal attributes and stress experienced during labour/labor. High quality maternal birth care cannot be realized unless the childbearing woman is satisfied. The meaning of birth satisfaction is diverse and may take on many forms (Hollins Martin & V. Fleming, 2011). For example, being respected, in control and listened to, are important constructs of birth satisfaction. Presently, in the US there is a nationwide joint effort by healthcare providers and policy makers to meet the goals of the "Triple Aim" by improving patients' health and healthcare experiences. This raises the leading question of whether or not homes and

birth centers/centres are a viable birthing option for low-risk women. Specifically, ones that offer high quality care at a lower cost (than hospitals), whilst continuing to maintain birth satisfaction.

In the US, during the early 1900s, the home represented the chosen birth setting for more than 95% of women. However, that percentage dwindled to 44% during the mid 1940s and had diminished to a mere 1% by the late 1960s (MacDorman, Declercq, Mathews, 2014). Since 2004, the US has seen a resurgence of women gravitating to giving birth outside of the hospital, greater than 40% increase, which represents 1.4% of all births in 2013 with nearly 66% of those births occurring in the home, 29% in freestanding birth centers, and the remainder in doctors offices, clinics or elsewhere (see Table 1; Martin, Hamilton, Osterman, Curtin, Mathews, 2015, ACNM, 2016). The pacific northwestern region (i.e., Alaska, Idaho, Montana, Oregon, Washington) of the US, has led this increase where out-of-hospital births represented 3%-6% of all births in 2013 (MacDorman, Declercq, Mathews, 2014).

The United States has approximately 4 million births annually, with a birth rate of 12.49 births/1000 population (CIA, 2015). During 2012 over 98% of births occurred in US hospitals (Martin et al., 2013). Many types of midwives practice in the US with varying degrees of training, experience and scope of practice. There is no federal regulation, and licensing laws vary from state to state. Certified Nurse-Midwives (CNM), who have graduate degrees and practice primarily in hospital settings, are legally recognised in all 50 states, while Certified Midwives (CM) who are direct entry, non-nurse midwives, are recognised in only ten. There are two main credentialing bodies offering national midwifery certification recognized by the US Department of Education.

The American Midwifery Certification Board (AMCB) conducts the national certification exam for CNMs and CMs (AMCB, 2013). Whereas, the North American Registry of Midwives (NARM), via multiple methods, credentials the certified professional midwife (CPM) (NARM, 1992-2016).

In 2013, CNMs and CMs attended 8.2% of all US births and 12% of vaginal births as primary providers (may work independently or in collaboration with a physician, physician group, or midwifery group), which is a rate that has been slowly increasing. In 2015, there were 11,018 CNMs and 88 CMs with current credentials. These birth attendants account for 92% of US midwife attended births. Direct-entry midwives (e.g., CPMs, Licensed midwives (LM), lay midwives), usually those without a nursing degree, may or may not be legally recognized in their state. These midwives attended the remaining 8%. (CDC, 2015; see Table 1 & 2; Martin, Hamilton, Osterman, Curtin, Mathews, 2015).

The purpose of this study was to gather and collect data from childbearing women who had planned to have their birth in a home or birth center in the United States (US) and to determine the validity of the BSS and BSS-R scale in the US setting. This design was based on the following research questions 1). What is the prevalence of birth satisfaction for childbearing women planning to birth in their home or birth centers in United States? 2). Are there differences in birth satisfaction for those who birth in their home and those who birth in birth centers; and those who planned to birth in home or birth center, but ended up birthing in a hospital? 3). What childbearing women's demographic variables are significantly related to birth satisfaction?

## **METHODS**

## *Design*

The Birth Satisfaction Scale/Birth Satisfaction Scale-Revised (BSS/BSS-R; Hollins Martin & V. Fleming, 2011) was employed and distributed as an electronic Qualtrics™ survey to our participants via electronic linkages (e.g., Professional websites [MANA, Birth Centers, Midwife], Facebook, Twitter & email).

## *Ethics approval and considerations*

In July 2015 an application was submitted to Seattle University's Internal Review Board (IRB). The IRB deemed that this survey was eligible for exempt status. Thus, no formal review was conducted. Informed consent was embedded into the electronic survey where women could read about this study and make an informed choice whether to participate or not.

## *Participant characteristics*

A total of (n=2232) US women completed the 30-item BSS and its associated sub-scales between July 1, 2015 and November 30, 2015. As part of completing the 30-item BSS, participants also completed the short-form 10-item BSS-Revised (BSS-R), which consists of the same sub-scales with reduced numbers of items. Participants in this study have a mean age of 34.10 (SD = 7.03). Ninety-two percent of the women in this sample identified as primarily White (n=2062); 2.5% as Hispanic (n = 55); 1.6% as Asian (n = 35); 1.3% as Black (n = 30); 0.4% as American Indian or Alaska Native (n = 10); 0.3% as Pacific Islander (n = 6); 0.9% as Other (n = 20); while 1.9% chose not to answer the question (n = 43). The majority of the women (86.1%) in this sample at time of data collection were married (n=1921), and 6.5% living with a partner (n = 144). Single women comprised 3.1% of the sample (n = 83), and divorced women comprised 2.4% of

the sample (n = 63). Three women were widowed, and 17 chose “other” as the answer for “current marital status”. Thirty-six percent of the women in this sample hold a bachelor’s degree (n=813); 31.3% have some AA or college education (n = 698); 26.7% have a master’s degree or higher (n = 595); and 5% have a high school degree as their highest education level (n = 111); while 0.4% have less than a high school degree (n = 9). Finally, two women chose not to answer.

### *Measurement Tools*

*Birth Satisfaction Scale.* The Birth Satisfaction Scale (BSS) was developed and psychometrically validated in the UK (Hollins-Martin & Martin, 2014; Hollins Martin & V. Fleming, 2011; Hollins Martin, Snowden, & Martin, 2012). The BSS is a quantitative measure examining women’s satisfaction with labour experiences and outcomes (Hollins Martin & V. Fleming, 2011; Hollins Martin et al., 2012). The BSS was originally created by recording and evaluating birth satisfaction and dissatisfaction of women’s birth experiences found in the literature (Hollins Martin & V. Fleming, 2011). The literature review uncovered three themes that were hypothesized to represent satisfaction with birth: quality of care provision (reflecting home assessment, birth environment, support, and relationships with health care professionals); women’s personal attributes (reflecting ability to cope during labour, feeling in control, childbirth preparation, and relationship with baby); and stress experienced during labour (reflecting distress, obstetric injuries, receiving sufficient medical care, obstetric intervention, pain, long labour, and baby’s health) (Hollins Martin & V. Fleming, 2011). Next, perceptions of birth satisfaction and dissatisfaction were turned into statements that were assessed by 30 Likert-type items with multiple response categories (ranging from 1 to 5, with 1 = Strongly Disagree, 2 =



Disagree, 3 = Neither Agree or Disagree; 4 = Agree; 5 = Strongly Agree; see Table 3).

Twelve of the items are reverse-coded (e.g. “I found giving birth a distressing experience”). The three themes of quality of care provision (8 items), women’s personal attributes (8 items), and stress experienced during labour (14 items) were further supported via narrative text analysis written by postnatal women in the West of Scotland who simultaneously took the BSS (Hollins Martin et al., 2012; Hollins Martin & V. Fleming, 2011). In order to make the BSS culturally relevant to US mothers, three primary changes were previously made to the scale (Barbosa-Leiker, S. Fleming, Hollins Martin, & Martin, 2015). First, the term “midwife” was changed to “midwife/nurse” in order to make it applicable to the US hospital healthcare provider (i.e., nurse midwife and intrapartum nurse) in the role of the UK midwife. Next, both spellings of “labour” in the scale items were included (e.g. “I was not distressed at all during labour/labor”). Finally, an item was added at the end of the scale that used a different term for “unscathed” (“I came through childbirth virtually unscathed”). Researchers thought that this term was not often used in the US so the item “I came through childbirth virtually unharmed” was included (Barbosa-Leiker et al., 2015). Results indeed showed that US mothers responded significantly differently when asked if they came through childbirth unscathed vs. unharmed; thus, researchers recommend using “I came through childbirth virtually unharmed” in US samples in order to gain more precise BSS scores (Barbosa-Leiker, 2015). Following, the factor structure, validity, and reliability of the BSS were also examined (Hollins Martin & Martin, 2014). The researchers discovered that the originally conceptualized three-factor model of quality of care provision, women’s personal attributes, and stress experienced during labour, resulted in a poor model fit. Furthermore,

an examination of a one-factor model of birth satisfaction also resulted in a poor model fit. Following an inspection of poor factor loadings (cross-loadings, loadings < .30, etc.) and modification indices, the BSS was reduced to a 10-item scale, and renamed the Birth Satisfaction Scale – Revised (BSS-R).

*BSS-R.* The BSS-R is a 10-item, self-report scale that was reduced from the original 30-item BSS (Hollins Martin & Martin, 2014). The BSS-R assesses women's perceptions of birth in order to determine women's satisfaction with their birth experience (Hollins Martin & V. Fleming, 2011; Hollins Martin et al., 2012; Hollins Martin & Martin, 2014). The BSS-R consists of one, higher-order factor (*experience of childbearing*) containing three lower-order factors (*quality of care provision, women's personal attributes, and stress experienced during labour*). Four items measure quality of care provision; four items measure stress during labour; and two items measure women's attributes. The BSS-R is a Likert-type scale that requests participants to rate their level of agreement with each item (0 = Strongly Disagree, 1 = Disagree, 2 = Neither Agree or Disagree; 3 = Agree; 4 = Strongly Agree), with four of its items being reverse-coded (e.g. "I found giving birth a distressing experience"; see Table 5).

*Delivery.* Delivery plan and delivery setting were coded as hospital (including military hospitals, birth center, or home (including those endorsing either "my home" or "other home")). Birth plan vs. Actual birth was the discrepancy between the delivery plan and delivery setting, where a discrepancy existed for mothers who had planned to give birth at home or at a birth center and ended up giving birth at a hospital.

*Data analysis*

Data was analyzed using IBM SPSS version 22 (IBM Corporation, 2013). Associations between variables were assessed using Pearson's  $r$  correlation coefficient. Internal consistency was assessed using Cronbach's alpha. Comparisons between groups were conducted using Mann-Whitney Independent-Samples and Kruskal-Wallis Independent-Samples tests. The Mann-Whitney and Kruskal-Wallis tests are a non-parametric equivalents to the Independent-Samples t-test and One-way Analysis of Variance (ANOVA), needed in this study due to the large discrepancies in the sample sizes between groups resulting in violation of homogeneity of variance assumption. Dunn-Bonferroni post-hoc tests were conducted using the Bonferroni procedure to control for family-wise error rate when conducting multiple comparisons.

## **RESULTS**

### *Responses and Participants*

The total 30-item BSS score mean was 128.98 (SD 16.92) and the 10-item BSS-R mean score was 31.94(SD 6.75). Sub-scale mean scores quantified the quality of care provision, women's personal attributes, and stress experienced during labor. Satisfaction was higher for women with vaginal births compared with caesareans deliveries. In addition, satisfaction was higher for women who had both planned to deliver in a home or a birth center, and who had actually delivered in a home or a birth center.

### *Item characteristics*

Most of the BSS items demonstrated normal distributions (skewness  $< 3$ , kurtosis  $< 10$ ) and all response categories were utilized by the participants. Similarly to the finding in Barbosa-Leiker et al. (2015), a paired-samples t-test indicated a statistically significant difference between "I came through childbirth virtually unscathed" ( $M = 4.02$ ,

SD = 1.16) compared to “I came through childbirth virtually unharmed” (M = 4.27, SD = 1.04),  $t(2222) = 15.73$ ,  $p < .001$ . Therefore, the item “I came through childbirth virtually unharmed” was used in all analyses (see Table 3).

#### *Internal consistency*

Calculated Cronbach’s alpha of the 30-item BSS total scale and thematically-derived BSS subscales of stress during labour, quality of care, and women’s attributes were 0.93, 0.85, 0.82 and 0.80, respectively (see Table 4). The Cronbach’s alpha of the 10-item BSS-R total scale and SEM-derived BSS-R sub-scales of stress during labour, quality of care, and women’s attributes were 0.86, 0.74, 0.80 and 0.76 respectively (see Table 5).

#### *Convergent and Divergent validity*

Correlations between BSS and BSS-R full scale and subscale scores are as follows: BSS total score is significantly and substantially correlated with its sub-scales, as well as with the BSS-R and BSS-R sub-scales, demonstrating convergent validity (see Table 6). In addition, both the BSS and BSS-R subscales are significantly correlated with each other, but none of the correlations between sub-scales are above .85, indicating divergent validity between similar, yet theoretically separate constructs represented by the sub-scales.

#### *Overall birth satisfaction*

The total 30-item BSS score mean was 128.98 (SD 16.92), and sub-scale mean scores of the quality of care provision, women’s personal attributes, and stress experienced during labour sub-scales were 34.69(SD 5.61), 35.78(SD 4.51), and 58.52(SD 8.38), respectively. The 10-item BSS-R mean score was 31.94(SD 6.75) and

the mean scores of the quality of care provision, women's personal attributes and stress experienced during labour sub-scales, were 14.01(SD 2.67), 6.04(SD 1.97), and 11.91(SD 3.43), respectively.

#### *Delivery setting*

Significant differences were found between groups differentiated by birth setting (setting: home birth vs. birth center vs. hospital birth) on the BSS total score,  $\chi^2 (3) = 544.09$ ,  $p < 0.001$ , BSS stress during labour sub-scale score,  $\chi^2 (2) = 452.89$ ,  $p < 0.001$ , BSS quality of care sub-scale score,  $\chi^2 (2) = 553.78$ ,  $p < 0.001$ , and the BSS women's attributes sub-scale score,  $\chi^2 (2) = 367.86$ ,  $p < 0.001$ . Further, similar statistically significant differences were observed in the BSS-R total score,  $\chi^2 (2) = 388.07$ ,  $p < 0.001$ , BSS-R stress during labour sub-scale score,  $\chi^2 (2) = 340.87$ ,  $p < 0.001$ , BSS-R quality of care sub-scale score,  $\chi^2 (2) = 292.87$ ,  $p < 0.001$ , and the BSS-R women's attributes sub-scale score,  $\chi^2 (2) = 272.50$ ,  $p < 0.001$ . The Dunn-Bonferroni post-hoc tests revealed these differences are significant between home births and hospital births where home births had higher total and subscale scores, as well as birth center deliveries and hospital deliveries, where birth center deliveries had higher total and subscale scores. However, there were no significant differences in birth satisfaction scores between mothers who delivered at home and mothers who delivered at a birth center (see Table 7).

#### *Delivery plan*

Significant differences were found between groups differentiated by birth plan (plan: home vs. birth center vs. hospital) on the BSS total score,  $\chi^2 (2) = 126.72$ ,  $p < 0.001$ , BSS stress during labour sub-scale score,  $\chi^2 (2) = 102.40$ ,  $p < 0.001$ , BSS quality of care sub-scale score,  $\chi^2 (2) = 97.60$ ,  $p < 0.001$ , and the BSS women's attributes sub-scale

score,  $\chi^2 (2) = 115.67$ ,  $p < 0.001$  in the direction predicted. Further, similar statistically significant differences were observed in the BSS-R total score,  $\chi^2 (2) = 88.63$ ,  $p < 0.001$ , BSS-R stress during labour sub-scale score,  $\chi^2 (2) = 94.35$ ,  $p < 0.001$ , BSS-R quality of care sub-scale score,  $\chi^2 (2) = 52.52$ ,  $p < 0.001$ , and the BSS-R women's attributes sub-scale score,  $\chi^2 (2) = 84.46$ ,  $p < 0.001$  in the direction predicted, as a function of delivery plan. The Dunn-Bonferroni post-hoc tests revealed these differences are significant between mothers who planned to have a home birth and a hospital birth, and mothers who planned to deliver at a birth center and at a hospital, where mothers planning to have a home birth and a birth center delivery had higher total and subscale scores when compared to mothers who planned to give birth at a hospital. However, there were no significant differences in birth satisfaction scores between mothers who planned to deliver at home and mothers who planned to deliver at a birth (see Table 7).

#### *Type of delivery*

The mean 30-item BSS total score and sub-scale scores and the 10-item BSS-R and sub-scale scores as a function of delivery type are also shown in Table 5. Significant differences were found between groups differentiated by delivery type (Vaginal vs. Caesarean vs. VBAC) on the BSS total score,  $\chi^2 (2) = 228.14$ ,  $p < 0.001$ , BSS stress during labour sub-scale score,  $\chi^2 (2) = 230.73$ ,  $p < 0.001$ , BSS quality of care sub-scale score,  $\chi^2 (2) = 209.01$ ,  $p < 0.001$ , and the BSS women's attributes sub-scale score,  $\chi^2 (2) = 167.63$ ,  $p < 0.001$  in the direction predicted. Further, similar statistically significant differences were observed in the BSS-R total score,  $\chi^2 (2) = 181.14$ ,  $p < 0.001$ , BSS-R stress during labour sub-scale score,  $\chi^2 (2) = 189.03$ ,  $p < 0.001$ , BSS-R quality of care sub-scale score,  $\chi^2 (2) = 100.74$ ,  $p < 0.001$ , and the BSS-R women's attributes sub-scale score,  $\chi^2 (2) =$

138.19,  $p < 0.001$  in the direction predicted, as a function of type of type of childbirth. The Dunn-Bonferroni post-hoc tests revealed these differences are significant between vaginal deliveries and caesarean deliveries, as well as VBAC deliveries and caesarean deliveries, indicating that women giving birth vaginally, or vaginally after a caesarean delivery, had higher total and subscale scores when compared to mothers that had caesarean deliveries. However, there were no significant differences in birth satisfaction scores between mothers who had a vaginal delivery and a VBAC delivery.

#### *Birth Plan vs. Actual Birth*

Significant differences were found between mothers who had planned to give birth at home or at a birth center and ended up giving birth at a hospital, on the BSS total score,  $U = 33,906$ ,  $p < 0.001$ , BSS stress during labour sub-scale score,  $U = 51,420$ ,  $p < 0.001$ , BSS quality of care sub-scale score,  $U = 27,760$ ,  $p < 0.001$ , and the BSS women's attributes sub-scale score,  $U = 75,741$ ,  $p < 0.001$  in the direction predicted. Further, similar statistically significant differences were observed in the BSS-R total score,  $U = 63,518$ ,  $p < 0.001$ , BSS-R stress during labour sub-scale score,  $U = 74,411$ ,  $p < 0.001$ , BSS-R quality of care sub-scale score,  $U = 98,652$ ,  $p < 0.001$ , and the BSS-R women's attributes sub-scale score,  $U = 97,086$ ,  $p < 0.001$  in the direction predicted.

#### *Mothers' Current Age and BSS/BSS-R total scores and subscale scores*

No significant correlations were detected between mothers' current age and BSS total scores ( $r = 0.03$ ,  $p = 0.19$ ) and subscale scores (stress  $r = 0.12$ ,  $p = 0.17$ ; quality of care  $r = 0.01$ ,  $p = 0.70$ ; women's attributes  $r = 0.03$ ,  $p = 0.12$ ), as well as between mothers' current age and BSS-R total scores ( $r = 0.03$ ,  $p = 0.27$ ) and BSS-R sub-scale scores of quality of care, and women's attributes ( $r = -0.03$ ,  $p = 0.26$ ;  $r = 0.03$ ,  $p = 0.13$ ). However,

the BSS-R stress during labour sub-scale score revealed a small, but statistically significant correlation with mothers' current age,  $r = 0.05$ ,  $p=0.02$ .

#### *Planned Pregnancy and BSS/BSS-R total scores and subscale scores*

Significant negative correlations were detected between planned pregnancy and BSS total score,  $r = -0.05$ ,  $p=0.01$ , BSS quality of care subscale score,  $r = -0.08$ ,  $p=0.001$ , and BSS women's attributes,  $r = -0.06$ ,  $p=0.007$ , where those that planned their pregnancy had higher birth satisfaction scores. However, no significant correlation was detected between planned pregnancy and BSS- stress in labour subscale score,  $r = -0.02$ ,  $p=0.26$ . Similarly, significant negative correlations were detected between planned pregnancy and BSS-R total score,  $r = -0.05$ ,  $p=0.02$ , and the BSS quality of care subscale score,  $r = -0.06$ ,  $p=0.008$ , where those that planned their pregnancy had higher birth satisfaction scores. However, no significant correlations were detected between planned pregnancy and BSS stress in labour subscale score,  $r = -0.02$ ,  $p=0.28$  or BSS women's attributes,  $r = -0.04$ ,  $p=0.06$ .

#### *Education and BSS/BSS-R total scores and subscale scores*

No significant correlations were detected between mothers' education level and BSS total scores ( $r = 0.01$ ,  $p=0.77$ ) and subscale scores (stress in labour  $r = -0.01$ ,  $p=0.73$ ; quality of care  $r = 0.03$ ,  $p=0.20$ ; women's attributes  $r = 0.003$ ,  $p=0.88$ ), as well as between mothers' education level and BSS-R total scores ( $r = -0.02$ ,  $p=0.33$ ) and quality of care ( $r = 0.02$ ,  $p=0.39$ ) and women's attributes ( $r = -0.02$ ,  $p=0.39$ ) subscale scores (. However, education was related to the BSS-R stress in labour subscale score ( $r = -0.05$ ,  $p=0.03$ ), where those with higher education reported lower levels of stress.

#### *Discussion*



The results from this investigation suggest that homes and birth centers are a viable birthing option for low-risk women, which can offer high quality care at a lower cost (than hospitals), whilst continuing to maintain birth satisfaction. The prevalence of birth satisfaction for childbearing women planning to birth in their home or birth centers in United States is very high. There are not differences in birth satisfaction for those who birth in their home and those who birth in birth centers. However, there is less satisfaction for women who planned to birth in home or birth center, but ended up birthing in a hospital. Childbearing women's demographic variables significantly related to birth satisfaction include.... CNMs were the most common providers to attended births (49%) in a birth centre; whereas, CPMs and LMs were the most common providers to attended births home births (53%) (see Table 2).

The BSS and BSS-R are valid and reliable psychometric instruments for measuring childbearing women's postnatal satisfaction with out-of-hospital (e.g., Home Births, Birth Centre births) births. The BSS-R may have greater appeal for women completing the study as the 10-item survey takes less time. They can provide satisfaction data currently missing in the triad of "The Triple Aim." The Triple Aim provides a systematic approach to improve perinatal outcomes and satisfaction, while lowering costs. Birth satisfaction correlates with the childbearing women's quality of care, personal attributes and stress experienced during labour/labor. High quality maternal birth care can be realized when the childbearing woman is satisfied (Hollins Martin & V. Fleming, 2011).

Research regarding birth satisfaction is limited, particularly as it relates to birth center and home birth. Listening To Mothers III Pregnancy and Birth: Report of the

Third National U.S. Survey of Women's Childbearing Experiences describes the experiences of American women giving birth to a singleton in hospital. This multi-stakeholder, grant funded report was the third in a series, and detailed the experiences of both the prenatal and intrapartum period, with many labor interventions included.

(Declercq ER, Sakala C, Corry MP, Applebaum S, Herrlich A. 2013) Listening To Mothers is an ongoing initiative of Childbirth Connection, a program of the National Partnership of Women and Families.

### *Strengths and Limitations*

This study has limitations. Recruitment via the Internet limits responses from only those who use this technology. This study was limited to those childbearing women who were aware of this study and only those who were willing to share their experiences. A large percentage of the respondents were white and highly educated, however, this does reflect the population of women seeking to birth at home and/or birth centers. Initially this survey was open to women of North America (Canada, United States, Mexico).

During the survey there was the rapid enrollment of childbearing women from the US (n = 2229). However, with Canada fewer women enrolled (n = 32) and Mexico only one (n = 1) woman enrolled. Thus, the results from Canada and Mexico were excluded from this paper, as there were not enough respondents to adequately represent their countries.

### *Recommendations for midwifery practice and further research.*

The BSS-R provides a robust tool to quantify childbearing women's birth satisfaction and can provide the means for a midwifery practice to utilize their resources more efficiently as well as provide clients with a decision making tool to aid in selecting a birthplace. The BSS-R study needs to be replicated and dispersed to Canada, Mexico,

and other nations recruiting women from diverse backgrounds and ethnicity. Professional translation of this survey in Spanish is warranted for future investigations in Spanish speaking countries. This tool can be adapted to use throughout the world. Perhaps, women who chose to birth in a home or birth center can receive support from US policy makers and medical community when their satisfaction of care is disclosed and added to the triad of the “Triple Aim.” In addition, in the US a recent edition of a Home Birth Practice Manual was recently published by the American College of Nurse-Midwives in 2016. This informative manual not only provides a guide for nurse midwives engaged in home births, it is an educational tool, which can promote a deeper understanding of what constitutes a safe birth as the benefits and limitations are discussed. Finally this manual includes the historical context of midwifery in the US as well as the elements needed to create and manage a home birth practice (ACNM, 2016).

## Conclusion

In conclusion, total birth satisfaction scores were positive and high for the overall sample. Satisfaction was higher for women with vaginal births compared with caesareans deliveries. In addition, satisfaction was higher for women who had both planned to deliver in a home or a birth center, and who had actually delivered in a home or a birth center, compared with those who ended up planning to deliver in a hospital or had planned a home birth or birth center birth and actually delivered in a hospital. Being respected, in control and listened to, are important constructs of birth satisfaction and were rated highly by the childbearing women of this study.

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Table 1. Midwife attended births: United States, 2013.

<b>Birth Setting</b>	<b>All Births<sup>3</sup></b>	<b>Certified Nurse Midwives/Certified Midwives (i.e., CNMs/CMs)</b>	<b>Other Midwives<sup>2</sup> (e.g., CPMs, LMs)</b>	<b>Other<sup>2</sup> (e.g., unlicensed midwives or CPMs/LMs in an unlicensed state, spouse, friend, birth attendant, fireman, nurse)</b>
<b>Total Births</b>	<b>3,932,181 (100%)</b>	<b>320,983 (8.2%)</b>	<b>27,865(&lt; .01%)</b>	<b>27,354 (&lt; .01%)</b>
Hospital <sup>1</sup>	3,876,042 (98.6%)	303,501 (7.8%)	4,720(< .01%)	15,476 (< .01%)
Free standing birthing center	16,913 (.4%)	8,956 (53%)	6,661 (39%)	629(4%)
Home (planned)	36,080 (0.9%)	8,177 (23%)	15,930 (44%)	9,882 (27%)
Clinic or Doctor office	378 (< .01%)	152(40%)	21(6%)	29 (7.7%)
Other <sup>2</sup> (e.g., automobile, store, out doors, unplanned home)	2,646(< .01%)	192(7%)	532(20%)	1,313 (50%)

<sup>1</sup>Includes births occurring en route to or on arrival to hospital.

<sup>2</sup> Suggested examples.

<sup>3</sup>All births include unspecified and physician attended births.

Table is made from Martin JA, Hamilton BE, Osterman MJK, Curtin, SC, Mathews TJ. Births: Final Data for 2013. National Vital Statistics Reports; Vol 64, No 1. Hyattsville, MD: National Center for Health Statistics. 2015.

Table 2. United States Home Birth-Birth Center survey Birth Satisfaction Scale (BSS) (Caroline Hollins Martin & Valerie Fleming, 2011).

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- 1) I coped well during my birth.
  - 2) The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.
  - 3) I was well prepared for my labor (i.e., read a lot of literature and/or attended parenthood education classes).
  - 4) I found giving birth a distressing experience.
  - 5) \*I came through childbirth virtually-unharmed.
  - 6) I gave birth to a healthy normal baby.
  - 7) During labor I received outstanding medical care.
  - 8) I received a lot of medical intervention, (i.e., induction, forceps, section etc).
  - 9) I had a swift and speedy labor.
  - 10) I felt well supported by my partner during labor and birth.
  - 11) I was encouraged to hold my baby for a substantial amount of time after birth.
  - 12) My birth experience was considerably different to what I intended.
  - 13) I had the same midwife/nurse throughout the entire process of labor and delivery.
  - 14) I felt that the delivery room was unthreatening and comfortable.
  - 15) I felt very anxious during my labor and birth.
  - 16) I felt out of control during my birth experience.
  - 17) I felt it was better not to know in advance about the processes of giving birth.
  - 18) I was not distressed at all during labor.
  - 19) I felt mutilated by my birth experience.
  - 20) My baby was avoidably hurt during birth.
  - 21) The staff provided me with insufficient medical care during my birth.
  - 22) I had a natural labor, i.e., minimal medical intervention.
  - 23) I thought my labor was excessively long.
  - 24) I felt well supported by staff during my labor and birth.
  - 25) I was separated from my baby for a considerable period of time after my birth.
  - 26) My birth proceeded as I planned it.
  - 27) The staff communicated well with me during labor.
  - 28) The delivery room was clean and hygienic.
  - 29) Giving birth was incredibly painful.
  - 30) Labor was not as painful as I imagined.

\*US Recommendation to use unharmed rather than unscathed; labor rather than labour; midwife/nurse rather than nurse. (Barbosa-Leiker, S. Fleming, Hollins Martin, & Martin, 2015).



Table 3. Home Birth-Birth Center Study themes and subthemes based on the Birth Satisfaction Scale (BSS) themes and subthemes identified in a literature review (Hollins Martin & Fleming, 2011).

(1) Quality of Care provision (QC)	1.1 Home assessment (Q12 & 26) 1.2 Birth environment (Q14 & 28) 1.3 Sufficient support (Q10 & 14) 1.4 Relationships with health care professionals (Q13 & 27)
(2) Women's Attributes (WA)	2.1 Ability to cope during labour/labor (Q1 & 15) 2.2 Feeling in control (Q12 & 16) 2.3 Preparation for childbirth (Q3 & 17) 2.4 Relationship with baby (Q11 & 25)
(3) Stress experienced during Labour/labor (SL)	3.1 Distress experienced during labour/labor (Q4 & 18) 3.2 Obstetric injuries (Q31 & 19) 3.3 Perception of having received sufficient medical care (Q7 & 21) 3.4 Receipt of an obstetric intervention (Q8 & 22) 3.5 Pain experienced (Q29 & 30) 3.6 Long labour/labor (Q9 & 23) 3.7 Health of baby (Q6 & 20)

Table 4. Valid and reliable United States version of Birth Satisfaction scale Revised (BSS-R). C. Hollins Martin & V. Fleming, 2011.

- (1) I came through childbirth virtually **unharm**ed (unscathed).
- (2) I thought my labor 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 labor and birth.
- (5) I felt well supported by staff during my labor and birth.
- (6) The staff communicated well with me during labor.
- (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 labor.
- (10) The delivery room was clean and hygienic.

Table 5. Frequency table of birth attributes by birthing location

	<b>Home Birth</b>	<b>Birth Centre</b>	<b>Hospital</b>
	(n=1436)	(n=441)	(n=344)
<b>Provider Type</b>			
CNM (Certified Nurse Midwife)	(25%)	(49%)	(36%)
CM (Certified Midwife)	(4%)	(5%)	(4%)
CPM (Certified Professional Midwife)	(34%)	(15%)	(12%)
LM (Licensed Midwife)	(19%)	(13%)	(8%)
Midwife (unsure credentials)	(10%)	(16.0%)	(9%)
Midwife (No licence)	(6%)	(0.5%)	(0.5%)
OBGYN	(0.5%)	(3%)	(26%)
Family Practice Doctor	(0.5%)	(0.00%)	(2%)
Doctor	(0.1%)	(0.00%)	(2%)
Other Lay person	(1%)	(0.00%)	(0.00%)
<b>Type of Birth</b>			
Vaginal	(93%)	(97%)	(69.0%)
Cesarean	(0.00%)	(0.4%)	(28%)
VBAC	(7%)	(3%)	(3%)
<b>Pain Relief</b>			
Water (Tub)	(63%)	(72%)	(28%)
Music	(28%)	(30%)	(24%)
Massage	(32%)	(26%)	(31%)
Epidural or Spinal	(0.00%)	(1%)	(56%)
Inhaled Gas	(0.1%)	(4%)	(3%)
IV Medications	(0.1%)	(1%)	(17%)
No	(29%)	(23%)	(21%)
<b>Recent Birth Planned</b>			
Yes	(75%)	(76%)	(75%)
No	(25%)	(24%)	(25%)
<b>Spontaneous Labor</b>			
Labor started on its own	(88%)	(83%)	(57%)
<b>Breast feeding</b>			
No	(0.5%)	(0.2%)	(2%)
Yes (under 2 weeks)	(13%)	(12%)	(15%)
Under 6 months	(6%)	(13%)	(13%)
6-12 months	(12%)	(15%)	(16%)
12 months or greater	(68%)	(59%)	(54%)

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\*Home Birth include 5% other home (n =49). Hospital includes military hospital (n=3).

Table 6. Correlations between 30-item BSS scores, thematically-derived BSS sub-scale scores, 10-item BSS-R total and associated sub-scale scores.

Scale	BSS Total	BSS-SL	BSS-QC	BSS-WA	BSS-R Total	BSS-R-SL	BSS-R-QC	BSS-R-WA
BSS Total		.94	.88	.90	.94	.83	.74	.76
BSS-SL			.72	.78	.89	.90	.58	.69
BSS-QC				.74	.81	.59	.83	.58
BSS-WA					.88	.72	.67	.85
BSS-R Total						.89	.76	.83
BSS-R-SL							.44	.70
BSS-R-QC								.47
BSS-RWA								

*Note.* All correlations statistically significant at  $p < 0.001$

Table 7. Mean 30-item BSS and BSS thematically-determined subscales and 10-item BSS-R and BSS-R sub-scale scores categorized by delivery type, delivery setting and delivery plan.

Variable	Delivery Type			Delivery Setting			Delivery Plan		
	Vaginal (n=2004)	Caesarian (n=97)	VBAC (n= 124)	Home (n=1437)	Birth Center (n=441)	Hospital (n=343)	Home (n=1530)	Birth Center (n=562)	Hospital (n=131)
BSS-total	130.72 (14.6)	90.84 (18.5)	130.52 (15.6)	133.57 (11.6)	133.17 (10.8)	104.62 (21.0)	131.42 (14.7)	126.09 (18.6)	112.90 (22.5)
BSS-SL	59.37 (7.3)	40.04 (8.5)	59.03 (7.8)	60.70 (6.1)	60.13 (5.9)	47.48 (10.5)	59.67 (7.4)	57.01 (9.2)	51.56 (10.8)
BSS-QC	35.19 (5.1)	23.60 (5.6)	35.20 (5.3)	36.03 (4.2)	36.63 (3.4)	26.72 (6.3)	35.32 (5.0)	34.12 (6.1)	29.60 (7.0)
BSS-WA	36.16 (4.0)	27.20 (6.4)	36.28 (4.6)	36.88 (3.3)	36.42 (3.4)	30.42 (6.2)	36.43 (3.9)	34.96 (4.9)	31.74 (6.2)
BSS-R total	32.49 (6.1)	19.62 (7.8)	32.49 (6.1)	33.44 (5.3)	33.28 (5.0)	24.00 (8.3)	32.73 (6.2)	31.04 (7.1)	26.46 (8.7)
BSS-R-SL	12.19 (3.2)	5.97 (3.1)	12.02 (3.3)	12.69 (2.9)	12.18 (2.9)	8.34 (3.9)	12.36 (3.2)	11.21 (3.6)	9.76 (3.8)
BSS-R-QC	14.16 (2.5)	10.62 (3.8)	14.26 (2.6)	14.35 (2.2)	14.98 (1.7)	11.48 (3.8)	14.14 (2.4)	14.14 (2.7)	11.92 (3.9)
BSS-R-WA	6.16 (1.8)	3.03 (2.4)	6.34 (1.9)	6.45 (1.7)	6.12 (1.8)	4.22 (2.3)	6.27 (1.9)	5.69 (2.1)	4.77 (2.3)

Note. Standard deviations in parentheses