Vicarious Birth Experiences and Childbirth Fear: Does It Matter How Young Canadian Women Learn About Birth?

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ABSTRACT

In our secondary analysis of a cross-sectional survey, we explored predictors of childbirth fear for young women (n = 2,676). Young women whose attitudes toward pregnancy and birth were shaped by the media were 1.5 times more likely to report childbirth fear. Three factors that were associated with reduced fear of birth were women's confidence in reproductive knowledge, witnessing a birth, and learning about pregnancy and birth through friends. Offering age-appropriate birth education during primary and secondary education, as an alternative to mass-mediated information about birth, can be evaluated as an approach to reduce young women's childbirth fear.

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> *Birth has been removed from its place in the realm of natural female experiences, effectively denying generations of women the right to observe, participate in, and fully understand the birthing process before they themselves experience it. It is a natural characteristic of the human psyche to fear the unknown [. . . .]*
>
> *—(Bak, 2004, p. 45)*

Fear of birth is associated with anxiety, longer labors, a higher likelihood of having epidural anesthesia, maternal preferences and requests for elective cesarean surgeries (CS), and emergency CS.

Estimates of the prevalence of childbirth fear range from 6% (Saisto & Halmesmäki, 2003) to 78% (Melender, 2002), depending on the definition and measurement of childbirth fear. Fear of birth is associated with significant anxiety during pregnancy (Hall et al., 2009) and has been linked to longer labors (Adams, Eberhard-Gran, & Eskild, 2012), maternal preferences and requests for elective cesarean surgeries (CS; Haines, Robertsson, Pallant, & Hildingsson, 2012; Karlström et al., 2010; Nieminen, Stephansson, & Ryding, 2009; Ryding, 1993), and a higher likelihood of having epidural anesthesia and experiencing an emergency CS (Hall, Stoll, Brown, & Hutton, 2012; Ryding, Wijma, Wijma, & Rydhström, 1998).

Significant associations between fear of childbirth and preferences for epidural analgesia and CS have also been documented among young Canadian adults who are contemplating pregnancy (Stoll, in press). Fear of birth among these nonpregnant adults is not based on previous, direct experiences but has resulted from vicarious birth experiences, such as stories told by family and friends, school-based reproductive health education, and media depictions of pregnancy and birth.

Birth in the Media

The next generation of maternity care consumers is surrounded by a wealth of print and digital media outlets representing birth; however, childbirth educators have lamented the way birth is depicted in the media (Lothian & Grauer, 2003). Bak (2004) made notes on 145 episodes of "A Baby Story" and found that 41.4% of women depicted had a CS and 71.0% had an epidural or other anaesthetic drug during labor. Not only did the episodes normalize pharmacological agents and surgical birth, but they also depicted birth as something "that was performed on women, rather than something women performed" (p. 45). Birthing knowledge was no longer within the realm of childbearing women; it was replaced by specialist knowledge held by the physicians who cared for them.

Another content analysis of reality birth shows was published by Morris and McInerey (2010). The authors chose two mainstream birth shows to study "popular constructions of cultural expectations of birth" (p. 134). They noted that close to 70% of childbearing American women watch reality TV programs on pregnancy and birth and one-third of these women felt more worried about birth after watching these shows (Declercq, Sakala, Corry, & Applebaum, 2006). Their content analysis of 123 births aired on reality TV revealed media depictions of labor and birth that are more dramatic and perilous than typical birth experiences. The shows overrepresented complications of pregnancy, in an attempt to increase the entertainment value of the episode, and showed doctors solving problems and saving mothers' and babies' lives. Laboring women were often depicted as helpless and childlike; they tended to be rewarded for complying with doctors' suggestions (e.g., to have an induction or a CS), whereas the few women who had a natural physiologic birth were characterized as out of control and in intolerable pain. The authors concluded reality shows represent birth as potentially dangerous and glorify physicians and obstetric technology as the "saving grace for women's imperfect bodies" (Morris & McInerey, 2010, p. 140).

It is reasonable to view such reality shows as having an effect on young women's constructions of birth, by inflating perceptions that birth is risky and glorifying surgical birth and other interventions. These depictions of birth as unpredictable, risky, and in need of technological intervention may contribute to a climate of fear surrounding birth (Sakala, 2007).

No studies to date have examined the role of young women's exposure to vicarious birth experiences (first-hand or mass-mediated), their knowledge of pregnancy and birth, and the role of different sources of information about pregnancy and birth on childbirth fear. The current study fills this gap by posing the following questions: (a) Are childbirth fear scores lower among young women who have had the opportunity to witness a birth, compared to women who have not witnessed a birth; (b) Do young women with more confidence in their reproductive health knowledge report lower fear of birth scores compared to women with less confidence; (c) Do fear scores differ by the location where a birth is witnessed (home, hospital, on TV/video/Internet); and (d) Do first-hand experience with birth, knowledge of pregnancy and birth, and different sources of birth information (media, school, family, friends) predict high childbirth fear.

METHODS

Procedures

After ethics approval was obtained, a link to an online survey was sent out by enrollment services to the student body of the University of British Columbia, Canada (N = 42,583) in September 2006. Students who had ever given birth and those who did not indicate a desire to have children were excluded from the survey (Stoll et al., 2009). The survey consisted of four sections: demographic information; birth preferences; students' attitudes toward pregnancy, labor, and birth; and a section about sources of information that shaped students' attitudes toward pregnancy and birth. The survey was active for 3 weeks; most surveys were completed in the first week, with few additional submissions in Weeks 2 and 3. Both women and men were invited to participate in the survey. Findings of the primary analysis were gender-based and are published elsewhere (Stoll et al., 2009). The results presented in

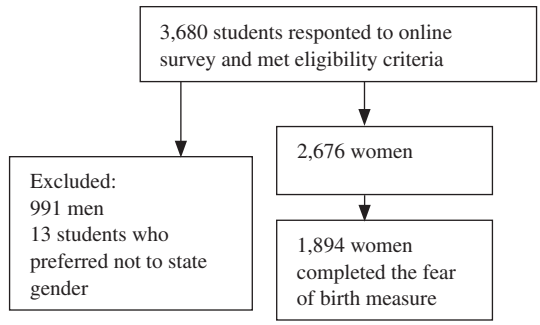

Figure 1. Sample selection.

this article are drawn from a subset of the original survey data. In this secondary analysis, we focused our attention on the subsample of female university students (n = 2,676; see Figure 1).

Measurement of Childbirth Fear

Development of Fear of Birth Scale. From the existing data set, we developed a 6-item scale to assess fear of birth among female university students (see Table 1). Response options ranged from *strongly disagree* (1) to *strongly agree* (6; scale range is 6–36). The scale items we selected from the questionnaire are similarly worded to the items that comprise the most widely applied fear of birth scale: the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ; Wijma, Wijma, & Zar, 1998). The W-DEQ uses 33 items to assess fear of birth and requires respondents to rate their expectations about birth, using a range of positive and negative adjectives. Among the 33 items are statements that use the words frightful, afraid, confident, panic, and pain.

TABLE 1
Means, Factor Loadings, and Item to Total Correlations of Fear of Birth Scale Items

Component	Mean (*SD*)[a]	Corrected Item to Total Correlations	Factor Loadings
(1) I am worried that labor pain will be very intense.	4.82 (1.09)	0.509	0.655
(2) I am afraid that I might panic and not know what to do during labor.	3.46 (1.34)	0.510	0.664
(3) I am fearful of the labor process.	4.01 (1.37)	0.632	0.766
(4) I believe I will have enough confidence to give birth vaginally.	5.09 (1.02)	0.520	0.706
(5) I feel that my body is able to successfully birth a child.	5.05 (0.86)	0.413	0.593
(6) I think I will be able to handle the pain of childbirth.	4.55 (1.04)	0.552	0.731

Note. Prior to reverse scoring of items 4–6.

Three of the six scale items capture worries and fears about labor and birth, whereas the remaining three items assess levels of confidence in one's ability to manage labor and birth (Items 4, 5, & 6). To ensure that items with higher scores consistently measured increased fear of birth, we reverse-scored the three items measuring confidence in birth. It is a common approach in scale development to include reverse-scored items in a scale to measure a related part of a construct but one with a different valence; for example, items where higher scores indicate increased sadness would have to be reverse scored for inclusion in a happiness scale (DeVellis, 2012).

Of the 2,676 women who participated in the survey and met study eligibility criteria, 1,894 women responded to all of the six scale items. The number of missing values was large, in part, because women had the option of answering "I don't know" for each item. Those responses were excluded from analysis. Missing items can be replaced at the case or item level to increase the number of cases available for analysis (Rueda, González, & Arcos, 2007); however, because of consistent differences in the sociodemographic profile among women who completed five items versus six items of the scale and the nonrandom pattern of missing values, we only computed fear of birth scores for those women who completed all six items of the scale (n = 1,894).

Psychometric Properties of Fear of Birth Scale

We assessed internal consistency reliability of our scale; the six-item scale had a Cronbach's alpha of 0.77. Correlations among items ranged from 0.147 to 0.608 and item-to-total correlations (see Table 1) ranged from 0.413 to 0.632. Item-to-total correlations that exceed 0.3 indicate that items are appropriate for inclusion in the scale (Nunnally & Bernstein, 1994).

Because our goal was to assess the construct validity of the measure we developed (rather than confirm a pattern of relationships based on previous

analytic results), we chose an exploratory factor analysis (DeVellis, 2012). Specifically, we conducted an unrotated principal components factor analysis, which identified a one-factor solution. All of the items had factor loadings greater than 0.5, which provides support for our argument that the items measure one underlying construct (DeVellis, 2012).

Measurement of Variables

Vicarious Birth Experiences. In the survey, women were asked to indicate whether they had ever witnessed a birth; if so, they were encouraged to describe the birth(s). We created a dichotomous variable that measured whether or not women had ever witnessed a (human) birth. To further delineate between different types of vicarious birth experiences, we placed the women who commented on where they saw the birth into three categories: home birth, hospital birth, and TV/video/Internet birth. Women were also asked to select any of several sources of information that they believed shaped their attitudes toward pregnancy and birth. Response options included media, family, friends, and school.

Confidence in Knowledge. We assessed women's confidence in reproductive health knowledge with the following item: "I feel confident about my knowledge around reproductive health." In the survey cover letter, we presented pregnancy and birth as falling under the rubric of *reproductive health*. Women who felt confident about their reproductive health knowledge scored between 4 and 6 on this item.

Data Analysis

We compared continuous fear scores among women who did and did not witness a birth first-hand, using Student's *t* test. To assess whether the location where the birth was seen (hospital, home, or TV/Internet) was associated with fear of birth, we used one-way analysis of variance (ANOVA). We used Student's *t* test to calculate mean differences in fear scores among the group of women who agreed versus those who disagreed with the item "I feel confident about my knowledge around reproductive health"; we report *p* values and effect sizes for all *t* tests. In a logistic regression model, with fear of birth scores of 23 or higher (mean score plus one standard deviation) as the outcome variable, we entered the following predictors: the four sources of information about birth (media, family, friends, and school; coded 1 if student chose the option and 0 if she did not), having witnessed an actual birth (coded 1 for yes and 0 for no), and confidence in one's knowledge of reproductive health (coded 1 for scores of 4–6 and 0 for scores of 1–3).

RESULTS

Sample Characteristics

Sample demographics are reported in Table 2. On average, women were 22 years old. Hundreds of self-reported ethnicities were recoded into three broad groups: White (63.8%), Asian (22.3%), and other (13.9%). The other category included women who self-identified as Hispanic, Middle Eastern, Aboriginal, and affiliated to various religious groups, or who reported belonging to two or more ethnicities. Each of these "other" categories comprises less than 2% of the full sample; they were, therefore, collapsed into one category.

Of the 2,676 women who participated in the survey and met the inclusion criteria, 13.6% (n = 363) exhibited high fear of birth. It should be noted that this study only included women who reported a desire to have children. As such, fear of birth may have been underreported because some young women may plan to avoid pregnancy altogether because of severe fear of birth.

Seven percent of women (n = 186) had witnessed an actual birth. Most of the deliveries were witnessed at the hospital, either in a personal (e.g., supporting

TABLE 2
Demographic Characteristics of Women Who Completed the Fear of Birth Scale (n = 1,894)

Demographic Variable	*n* (%)
Age categories (n = 1,878)	
17–20	750 (39.9)
21–25	749 (39.9)
26–30	273 (14.5)
31–35	79 (4.2)
36–40	21 (1.1)
41–47	6 (0.3)
Education (n = 1,894)	
High school completed	149 (7.9)
Some college or university	1,051 (55.5)
College or university degree	491 (25.9)
Graduate degree	203 (10.7)
Relationship status (n = 1,894)	
Single	625 (33.0)
Married/common-law	158 (8.3)
Casual dating relationship	759 (40.1)
Committed dating relationship	347 (18.3)
Separated, divorced, or widowed	5 (0.3)

a mother, sister, or friend) or professional capacity (e.g., as a doula, nursing, midwifery, or medical student). Women's reactions to seeing the births were mostly positive, but several women witnessed mild to severe birth complications. Regardless of the complexity of the birth, women who had witnessed a birth had significantly lower fear of birth scores (16.43) compared with women who had no direct experience with birth (18.81; $t = 6.37$, $p < .001$, Cohen's $d = 0.52$, 95% CI: 0.30–1.23).

Of the 275 women who commented on where they saw the birth(s), 20 reported seeing a home birth, 132 witnessed a hospital birth, and 123 saw a birth on TV/video/Internet. Results from a one-way ANOVA revealed that fear of birth scores varied significantly by birth location ($F = 16.03$, $df = 2$, $p < .001$). Fear scores were lowest among the women who witnessed a home birth (14.06, Range: 7–19) and highest for the women who saw the birth on TV/video/Internet (19.31, Range: 9–32). Women who witnessed hospital deliveries had higher childbirth fear scores (16.55, Range: 7–29) than women who observed the birth in a home setting, but lower scores than women who saw a birth on TV/video/Internet. Quite a few women described being frightened and repulsed after seeing a birthing video during biology or sexual education classes.

Most of the young women (71.5%) felt confident about their reproductive health knowledge. Women with more confidence in their knowledge had significantly lower fear scores compared with less confident women (17.92 vs. 20.19, $t = 9.96$, $p < .001$, Cohen's $d = 0.50$, 95% CI: 0.12–0.74). Women were asked to check all of the sources of information that shaped their attitudes toward pregnancy and birth. Family was the most often cited source of information (61.5%), followed by friends (44.4%), school (44.2%), and the media (40.8%).

Several significant predictors of high fear of birth were identified (see Table 3). Young women who felt confident about their knowledge of reproductive health had significantly decreased odds of experiencing childbirth fear. The odds of experiencing high fear of birth were reduced by nearly half for women who had witnessed an actual birth, however, the p value was not quite significant ($p = .06$). Women who indicated that their attitudes toward pregnancy and birth were influenced by the media had significantly increased odds of high fear of birth compared to women who did not report the media as shaping their attitudes toward birth.

TABLE 3
Predictors of Fear of Birth among Young Women ($n = 1,813$)

Predictor	*B*	*SE*	*OR*	95% CI	*p*
Confidence in knowledge about RH	−0.68	0.13	0.51	0.40–0.66	<.001
Live modeling	−0.52	0.28	0.59	0.35–1.02	.059
Media	0.40	0.13	1.49	1.17–1.91	.001
Friend	−0.49	0.13	0.61	0.48–0.79	<.001
Family	−0.19	0.14	0.83	0.62–1.09	.177
School	0.19	0.13	1.21	0.95–1.55	.125

Note. RH = reproductive health.

Learning about pregnancy and birth from friends was associated with significantly reduced odds of fear of childbirth. Family and school exposure to reproductive health information were not significantly associated with fear of childbirth, but it should be noted that family exposure decreased the odds of high fear of birth whereas school exposure increased the odds.

DISCUSSION

Our finding that first-hand exposure to birth is associated with reduced fear of birth, irrespective of the quality of the experience, is supported by Bandura (1977, 1982), who identified that live modeling reduced fear in phobic subjects. Because birth has become a hospital-based event that is usually only attended by medical staff, a woman's partner, and sometimes immediate family members, most women will not witness a birth prior to becoming pregnant; consequently, they rely on stories from family members and friends and media images to inform their attitudes about birth.

Media exposure to birth was significantly associated with fear of birth, based on two separate analyses. We argue that descriptions of birth in the media do not provide conditions for empowering women, and may induce learned helplessness and an external locus of control. If birth in the media is depicted as risky, uncontrollable, and requiring medical interventions (Morris & McInerney, 2010), it is unsurprising that women might become frightened and want their births managed by medical experts.

The location where the birth was observed made a difference; women who had witnessed a home birth had lower fear scores compared with women who had witnessed a hospital birth. Women who opt for a homebirth tend to have strong childbirth philosophies that emphasize birth as a normal event

(Kornelsen, 2005). This attitude may have influenced the views of women in our study who typically recounted the planned homebirth of a sibling.

Women who felt less confident about their reproductive health knowledge were more fearful of birth; this was an association with a moderate effect size. Our findings support the importance of timely educational initiatives in addressing fear of childbirth. Because fear of childbirth can affect young women in advance of pregnancy, age-appropriate birth education could be effective in preventing women's fear, if implemented throughout the school years.

In our multivariate analysis, increased knowledge about birth, witnessing a live birth, and learning about pregnancy and birth via friends predicted low fear of birth. Media exposure to information about pregnancy and birth was linked to increased odds of high fear of birth. Our findings reinforce the importance of social learning and the effects on fear of birth associated with different types of vicarious childbirth experiences in particular media exposure.

Women who reported that their attitudes toward pregnancy and birth were influenced by their friends had reduced odds of high fear of birth. Of interest is Fisher, Hauck, and Fenwick's (2006) report of "horror stories" about birth told by friends as a salient social dimension of childbirth fear among women who self-identified as being fearful of birth. Understanding about the prevalence of shared positive birth stories and their contribution to the development of women's confidence in birth is less well developed. Future research could focus on the type of information about pregnancy and birth that is shared among women and how it impacts their attitude development.

Implications and Recommendations

Pregnancy and birth are universal phenomena, yet young women in industrialized countries have very limited exposure to birth. Findings from our study suggest that, to counteract this trend, young adults need to be exposed to real, not mass-mediated, birth experiences. Attendance at the births of siblings can be encouraged and other formal opportunities for witnessing a birth ought to be explored. Likewise, prenatal education programs that rely on media-based birth depictions may want to evaluate pregnant women's impressions of birth videos shown during class.

Because increased knowledge of pregnancy and birth was associated with reduced fear of birth, future work should evaluate the impact of introducing curricula on pregnancy and birth for primary and secondary students. Providing information about the major adaptations of women's bodies for birth and their effectiveness at supporting fetal life may assist children and young women to regain some confidence in their bodies' functioning. There is also a need for evidence-based information during the developmental life course to counteract sensationalized information about pregnancy and birth. Opportunities for young women to discuss how birth is depicted in the media and how these media images contribute to a culture of fear should be facilitated. Women who are informed about pregnancy and birth may share this information with friends to promote confidence in birth within their social network.

Young women who reported media exposure (to birth) had the highest childbirth fear scores.

Limitations

Our study has numerous limitations. The categorization of sources of information about pregnancy and birth was relatively crude (media, school, family, and friends). Qualitative approaches may be a better way to explore factors that contribute to fear of birth among young women. Our childbirth fear measure was developed from preexisting survey data that limited our ability to examine the convergent validity of the measure with existing scales.

There are numerous psychosocial factors we did not measure that may predispose women toward fear of birth. These include neuroticism, vulnerability, depression, low self-esteem, and lack of social support. These factors have been associated with pregnancy-related anxiety and fear of vaginal birth in a previous study (Saisto, Salmela-Aro, Nurmi, & Halmesmäki, 2001). Future studies of childbirth fear among young women should control for these potential confounders. A particularly important confounder is anxiety; it was highly correlated with fear of birth in Canadian pregnant women (Hall et al., 2009).

Three factors that decreased fear of birth were confidence in knowledge of pregnancy and birth, having witnessed a birth, and reporting friends as a source of information.

Although the sample size for this study was large, the response rate was relatively low (10.5% for all respondents and 8.6% for eligible respondents), which limits the generalizability of study findings. Finally, caution must be exercised when interpreting bivariate and multivariate findings from a cross-sectional survey. Although an association between two or more variables can be demonstrated, causality should not be implied.

CONCLUSION

The women we surveyed had not given birth; therefore, they based their attitudes about birth on culturally circulated stories and images and their vicarious experiences with births. With the advent of reality TV, there are more opportunities for young women to watch birth processes on TV; however, the most popular shows tend to dramatize pregnancy and birth and overrepresent obstetric complications and the need for interventions.

Our findings clearly indicate that young women who reported media exposure had the highest childbirth fear scores and significantly increased odds of high fear of birth. Three factors that decreased fear of birth were confidence in knowledge of pregnancy and birth, having witnessed a birth, and reporting friends as a source of information. These findings are congruent with Bandura's (1982) assertion that vicarious experiences can reduce fear.

Results from this study have important implications for the timing and the content of public health initiatives aimed at enhancing confidence in birth among future generations of childbearing women. Developing and evaluating a pregnancy and birth workshop, possibly offered through university health services or other postsecondary institutions, for young nonpregnant women would be an important next step.

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