

# Fear of Childbirth and Preference for Cesarean Delivery Among Young American Women Before Childbirth: A Survey Study

Kathrin Stoll, PhD, Joyce Katherine Edmonds, PhD, and Wendy A. Hall, PhD

**ABSTRACT: Background:** Fear of birth and mode of delivery preferences are similar among pregnant and nonpregnant women, suggesting that attitudes toward birth are formed in young adulthood or earlier. Understanding why some young women fear birth and prefer obstetric interventions can inform public health initiatives aimed at reducing fear and promoting birth as a normal life event. **Methods:** We conducted an online survey with 752 American nulliparous young women to assess their preferences and attitudes toward childbirth. We identified explanatory variables associated with reported fear of childbirth and cesarean delivery (CD) preferences. **Results:** A preference for CD was reported by 14 percent of young women and 27 percent had scores indicating elevated fear of birth. Fear of birth increased the likelihood of cesarean preference (adjusted relative risk (ARR) 3.84 [95% CI 2.49–5.95]) as did a family history of CD (ARR 1.65 [95% CI 1.13–2.42]). The likelihood of reporting elevated childbirth fear was increased among young women who reported concerns about the physical changes pregnancy and birth have on women's bodies (ARR 2.04 [95% CI 1.50–2.78]). Young women who reported a high degree of confidence in their knowledge about childbirth were significantly less likely to report childbirth fear (ARR 0.61 [95% CI 0.42–0.87]). Access to childbirth information was also associated with a decreased likelihood of fear of birth (ARR 0.75 [95% CI 0.59–0.95]). **Conclusions:** Young women reporting high levels of childbirth fear are nearly four times more likely to prefer a CD. Specific fears, such as worries over the influence of pregnancy and birth on the female body, need to be addressed before pregnancy. (BIRTH 2015)

**Key words:** attitudes, cesarean delivery, childbirth, fear of birth, online survey, young women

## Background

Cesarean delivery (CD) rates are a concern worldwide and reduction in rates is a national priority in most high-income countries as a result of safety, quality, and cost concerns. Evidence from population-based and survey studies from Australia, Canada, the United Kingdom, and Scandinavia demonstrate that fear of

childbirth is associated with elective CD on maternal request, emergency, and planned CD (1–5). Internationally, fear of childbirth affects 2.5–25 percent of women, depending on how childbirth fear is assessed (6–9). Fear of birth is reported to precede pregnancy (10,11), suggesting that attitudes toward birth and birth preferences are formed in young adulthood or even earlier. Fear of birth is a potentially modifiable factor and

---

Kathrin Stoll is a Postdoctoral Fellow at School of Population & Public Health, University of British Columbia, Vancouver, BC, Canada; Joyce Katherine Edmonds is an Assistant Professor at Boston College, School of Nursing, Chestnut Hill, MA, USA; Wendy A. Hall is a School of Nursing, Professor at University of British Columbia, Vancouver, BC, Canada.

Address correspondence to Kathrin Stoll, PhD, School of Population & Public Health, University of British Columbia, 2206 West Mall, Vancouver, BC V6T1Z3, Canada.

Accepted April 22, 2015

© 2015 Wiley Periodicals, Inc.

a better understanding of the factors that are associated with fear of birth and CD preferences in a population of nulliparous women is needed to shape strategies designed to prevent or reduce childbirth fear.

This study was based on a secondary analysis of data from a survey study of young American women's attitudes and preferences toward childbirth before pregnancy (12). In this analysis we assess the proportion of young women with elevated levels of childbirth fear and CD preference and identify variables that potentially explain their fear and preferences for operative delivery.

## Methods

We conducted a web-based cross-sectional study between March 13 and April 30, 2013, at a private college in the Northeastern United States. We recruited from a sample of undergraduate female students ( $n = 3,600$ ), after obtaining Institutional Review Board approval. The survey items were adapted from a Canadian instrument (10,11) and included questions about birth preferences, fear of birth, and attitudes toward birth. Questions about sources of influential childbirth information and experiences potentially associated with attitude formation were also included.

Young women were recruited using posters, flyers, and e-mail messages that included the survey link. Of the 897 women who agreed to participate in the survey, 752 were included in the analysis. Young women who were not pregnant at the time of the survey or who had no children were eligible to participate. Those who were not planning to have children in the future, students who already had children or were pregnant at the time of data collection as well as students who did not answer the question about mode of delivery preference were excluded from the analysis. A more detailed description of the survey methods is published elsewhere (12).

### *Mode of Delivery*

Mode of delivery preference was assessed by the following question: If you could choose the delivery method of your child, which would you prefer it to be? The response options were vaginal or cesarean. A preference for a CD was an outcome variable in the analysis.

### *Fear of Birth*

Fear of childbirth was assessed using a previously validated scale (10), consisting of six items measured on a

5-point Likert scale (1—strongly disagree to 5—strongly agree). Three items assessed confidence in managing childbirth (e.g., “I think I will be able to handle the pain of childbirth”) and three items directly measured childbirth fear (“I am fearful of the labor process”). The first three items were reverse scored. In the current sample, the internal reliability of the scale was acceptable ( $\alpha = 0.74$ ); unidimensionality of the scale was verified by examining factor loadings and Eigen values by means of unweighted least squares factor analysis. Scale scores were normally distributed. To address missing values, we summed scores for respondents who completed at least five of the six scale items. For the five women who missed one item, we averaged the completed five items and multiplied by six. The fear of birth scale was an outcome variable and an explanatory variable for mode of delivery preference in the analysis.

### *Explanatory Variables*

The following scales and items were constructed and used as explanatory variables in the analysis. Variable selection was based on findings from the Canadian study (10), a review of the relevant literature, and expert opinion.

#### *Concern about body changes after childbirth*

Concern about body changes after childbirth was measured by summing two items to create a scale (Cronbach's  $\alpha = 0.72$ ). The two items were: “I am afraid what the labor and birth process will do to my body” and “Changes that occur to a woman's pelvic floor after a vaginal birth are a concern for me.” Higher scores indicate elevated concerns about physical changes after childbirth.

#### *Belief in technology-managed birth*

Belief in technology-managed birth was measured by summing two items to create a scale (Cronbach's  $\alpha = 0.79$ ). The two items were: “Childbirth requires a reliance on technology and medical interventions” and “Technology is necessary to deliver a child.” Higher scores indicate more favorable attitudes toward technological interventions during birth.

Cutoff scores for the scales that measure fear of birth, concerns about body changes, and belief in a technology-managed birth were defined at the 75th percentile. Scores at or above the cutoff were considered elevated, and scores below the cutoff were considered low/normal. The 75th percentile is often used to define elevated/high scores on measurement scales (13).

### *Childbirth risk perception and knowledge of cesarean risks*

Childbirth risk perception was measured by asking young women to rate the following statement from 1 (low risk) to 9 (high risk): “Overall, how risky is childbirth for the mother?” Students with scores of six or higher were categorized as having an elevated childbirth risk perception. To measure knowledge of the risks associated with CD, as compared with vaginal delivery, young women were asked to check nine pre-defined items that were selected based on a review of the empirical evidence (e.g., increased risk of infection, increased risk of hemorrhage, and increased risk of delays in breastfeeding). This measure was recoded into two categories: scores below 6 and scores  $\geq 6$ . The latter category indicated elevated risk perceptions associated with CD.

### *Sources of childbirth information*

Sources of childbirth information were measured by a question that asked young women to rank eight sources that influenced their thoughts and feelings about childbirth from most (1) to least influential (7). Sources included conversations with friends and relatives, reading books, browsing the Internet, watching TV or movies, witnessing a live birth, sexual or health education class in primary and/or secondary school, information from a health care provider, and others. Rankings were recoded into high degree of influence (1–3) versus moderate/low degree of influence (4–8).

### *Access to childbirth information*

Access to childbirth information was measured using a single item with a 5-point Likert scale (i.e., I find it easy to access childbirth and reproductive health information; 1—strongly disagree to 5—strongly agree). Responses were recoded into two categories: 1 represented access to childbirth information (i.e., students who ticked “strongly agree” or “agree”) and 0 represented lack of access (students were assigned this category if they ticked “strongly disagree,” “disagree,” or “neither agree or disagree”).

### *Confidence in childbirth knowledge*

Confidence in childbirth knowledge was measured using a single item with a 5-point Likert scale (i.e., I feel confident about my level of knowledge around childbirth and reproductive health, 1—strongly disagree to 5—strongly agree). Responses were recoded into two categories: 1 represented confidence in childbirth knowledge (i.e., students who ticked “strongly agree”

or “agree”) and 0 represented lack of confidence (students were assigned this category if they ticked “strongly disagree,” “disagree,” or “neither agree or disagree”).

### *Family history of cesarean*

Family history of cesarean was measured with a single item. Young women who reported that their mothers and/or sisters had one or more CDs were considered to have a family history of CD.

### *Descriptive terms for childbirth*

Young women were asked to choose three words from a list of 10 adjectives that best described their thoughts and feeling about birth. Options included normal, painful, natural, scary, transformative, and exciting.

## *Data Analysis*

Fear of childbirth, mode of delivery preference, and the other categorical variables are reported as frequencies. The relationships between explanatory and outcome variables were assessed, using the chi-squared test (for categorical explanatory variables) and independent Student's *t* test (for continuous explanatory variables). Variables significant in the bivariable analysis were retained in one or both of the log binomial regression models used to calculate adjusted relative risks (14). A *p* value of  $\leq 0.05$  was considered significant. The outcome variable for the first model was CD preference and the outcome variable for the second model was elevated childbirth fear. Adjusted relative risks and 95 percent confidence intervals are reported. SPSS 22 (IBM Corp., Armonk, NY) was used for all statistical analyses.

## **Results**

### *Sample Characteristics*

Respondents were between the ages of 18–24 and approximately 75 percent self-identified their race as White (Table 1). The majority of young women planned to have more than two children and intended to have their first child between the ages of 25–34. The average fear of birth score was 17.4 (SD = 3.7), with a range of 7–30. Approximately 1 in 3 (27%) young women reported elevated fear of birth. Close to 14 percent of young women stated their preferred mode of delivery was a cesarean.

Over half of the young women (50.5%) reported elevated concerns about physical changes after birth and

35.5 percent favored technology-managed labor and birth. Birth was described as scary by 35.1 percent of young women, along with positive descriptors, such as transformative, natural, and exciting.

#### *Explanatory Variables Associated with Cesarean Delivery Preference*

In the bivariable analysis, the following explanatory variables were significantly associated with CD preferences: elevated childbirth fear, elevated concerns about physical changes after childbirth, elevated risk perception, and family history of CD. Increased confidence in knowledge of childbirth was significantly and negatively associated. A favorable attitude toward technology-managed birth was not significantly associated with CD preferences. Furthermore, none of the reported influential sources of childbirth information were significantly associated with CD preferences. Sociodemographic indicators (such as age and race) were not significantly associated with CD preferences.

In the first regression model (Table 2), the likelihood of preferring a CD was nearly four times higher for young women with elevated fear levels relative to young women with normal/low fear levels (adjusted

relative risk [ARR] 3.84 [95% CI 2.49–5.95]), higher for young women with elevated perceptions of the risks of childbirth to the mother compared with those with lower risk perception (ARR 1.55 [95% CI 1.06–2.26]) and higher for young women with a family history of CD compared with no family history of operative delivery (ARR 1.65 [95% CI 1.13–2.42]).

#### *Explanatory Variables Associated with Childbirth Fear*

In the bivariable analysis, several explanatory variables were significantly associated with elevated fear of childbirth: elevated concerns about physical changes after pregnancy and birth, favorable beliefs toward a technology-managed birth, and elevated childbirth risk perception. Confidence in knowledge about childbirth, access to information about childbirth, and self-identifying as White were significantly and negatively associated with elevated fear of childbirth. Young women who ranked the following sources of information about childbirth as influential also reported significantly elevated fear: watching TV or movies, and sexual or health education in primary and/or secondary school. Fewer young women who rated reading books about pregnancy and birth and information from health care providers as influential had elevated fear scores. Elevated fear of birth was not significantly associated with having ever witnessed a live birth, a family history of CD, or age.

In the second regression model (Table 3), the likelihood of reporting elevated fear of birth was two times higher for young women who reported a high degree of concern about body changes after childbirth relative to those who reported a low degree of concern (ARR 2.04 [95% CI 1.50–2.78]). The likelihood of reporting elevated fear of birth was reduced in young women who reported access to childbirth information (ARR 0.75 [95% CI 0.59–0.95]), confidence in their level of knowledge about pregnancy and birth (ARR 0.61 [95% CI 0.42–0.87]), and who self-identified their race as White (ARR 0.70 [95% CI 0.55–0.89]) relative to women who reported lack of access to childbirth information, lack of confidence in their knowledge, and who self-identified their race as non-White, respectively.

## **Discussion**

We found that elevated fear of birth, elevated childbirth risk perception, and a family history of CD were significantly associated with CD preferences among young American women before their first pregnancy. Furthermore, fear of birth was significantly associated with concerns about body changes after childbirth, perceived

**Table 1. Characteristics of Students from Boston, Massachusetts, Who Participated in Survey in 2013 ( $n = 752$ )**

<i>Characteristic</i>	<i>No. (%)</i>
Age (years)	
18–21	621 (82.6)
22–24	131 (17.4)
Race	
Asian	77 (10.3)
Black or African American	32 (4.3)
White	560 (74.8)
Multiracial	51 (6.8)
Other	19 (2.5)
Unknown/decline	10 (1.3)
Hispanic, Latina, or Spanish origin	
Yes	86 (11.4)
No	660 (87.8)
Unknown/decline	6 (0.8)
Mode of delivery preference	
Vaginal	650 (86.4)
Cesarean delivery	102 (13.6)
Fear of birth	
Low	538 (73.0)
Moderate/high	199 (27.0)

difficulties in accessing childbirth information, and reduced confidence in women's knowledge of pregnancy and birth. These findings add to the growing body of evidence linking fear of birth and CD preference (1–4,10) and identify modifiable factors that might reduce fear of birth.

A larger proportion of non-White young women reported childbirth fear compared with young women who identified their race as White. A Canadian study that used the same scale to assess fear of birth (10) found higher proportions of Asian women reported childbirth fear. Research is needed to explore reasons for reports of higher childbirth fear among Asian and other women who self-report their race as non-White.

Young women with a mother or a sister who had at least one CD were significantly more likely to prefer CD; nearly 35 percent of young women in this study fell into this category. This finding is consistent with those of two other studies. Kornelsen et al conducted in-depth interviews with 17 nulliparous women who

requested CD without medical indication. Their decisions to opt for operative deliveries were influenced by their mothers' history of CD (4,15). Stoll et al analyzed comments about birth from young adults categorized as suffering from high childbirth fear and found that young women expected obstetric complications for themselves if their mothers or sisters had had a difficult pregnancy and/or birth (11).

The proportion of young women who reported concern about the influence of birth on their bodies was similar to the proportion of Canadian women that was reported in a previous study (10). This specific concern highlights the importance of educating young women about potential pelvic floor damage and sexual dysfunction after vaginal and cesarean birth and changes to the pelvic floor that are associated with aging. The rates of urinary incontinence and sexual dysfunction for women who have had a CD and those with a vaginal delivery have been similar (16–21). Educating young women about strategies to minimize

**Table 2. Explanatory Variables Associated with Cesarean Delivery Preference Among Students from Boston, Massachusetts, 2013 (n = 752)**

	n	% prefer cesarean	% prefer vaginal	p*	Adjusted RR (95% CI) <sup>†</sup>
Elevated fear of childbirth scores	199	64.9	21.3	< 0.01	3.84 (2.49–5.95)
Elevated concerns about body changes after childbirth	380	68.8	51.1	< 0.01	1.21 (0.81–1.82)
Knowledge of risks associated with cesarean delivery	156	11.5	25.6	< 0.01	0.54 (0.28–1.04)
Elevated childbirth risk perception	117	31.0	16.0	< 0.01	1.55 (1.06–2.26)
Confidence in childbirth knowledge	232	19.8	34.7	< 0.01	0.83 (0.51–1.35)
Family history of cesarean delivery	248	53.8	32.1	< 0.01	1.65 (1.13–2.42)

\*Based on chi-squared test. <sup>†</sup>Based on Log binomial regression (n = 601), adjusted for all variables listed in the table.

**Table 3. Explanatory Variables Associated with Fear of Childbirth Among Students from Boston, Massachusetts, 2013 (n = 752)**

	n	% with moderate/high fear	% with low fear	p*	Adjusted RR (95% CI) <sup>†</sup>
Race: White	548	69.4	77.8	0.008	0.70 (0.55–0.89)
Elevated concerns about body changes after childbirth	380	73.7	46.0	> 0.01	2.04 (1.50–2.78)
Confidence in childbirth knowledge	232	17.9	38.2	> 0.01	0.61 (0.42–0.87)
Access to childbirth information	523	62.6	78.0	> 0.01	0.75 (0.59–0.95)
Belief in technology-managed birth	258	42.8	33.0	0.01	1.15 (0.91–1.47)
Elevated childbirth risk perception	117	22.7	16.2	0.05	1.12 (0.84–1.45)
Source of childbirth information:					
TV/movies	364	63.4	48.1	> 0.01	1.19 (0.86–1.64)
Health care provider	209	21.5	33.1	> 0.01	0.84 (0.57–1.23)
Sexual and health education	265	46.2	35.0	> 0.01	1.20 (0.91–1.59)
Reading books	202	22.6	31.5	0.02	0.86 (0.61–1.21)

\*Based on chi-squared test. <sup>†</sup>Based on Log binomial regression (n = 633), adjusted for all variables listed in the table.

physical changes, such as healthy diets, exercise, and strengthening of pelvic floor muscles during pregnancy and after childbirth could provide them with reassurance about manageable symptoms experienced over the life course.

Young women who reported that the media and sexual health education classes influenced their feeling and thoughts about birth were more likely to experience childbirth fear. Women who learned about childbirth through books or from a health care provider reported reduced fear of childbirth. Popular media representations of childbirth (e.g., reality TV) typically portray dramatizations of births with women exposed to high levels of interventions and requiring rescue by health care providers (22). The association between school-based sexual health classes as a source of childbirth information and childbirth fear suggests that the content of existing sexual and reproductive health curricula requires critical examination for negative messages. It might be that sexual health education that is focused on the prevention of pregnancy is intended to frighten young women. It is also possible that teachers have varying levels of comfort with and knowledge of pregnancy and birth, which affects the content and quality of information presented. Evidence-based teaching resources for young adults who are fearful of and/or misinformed about childbirth are needed, because attitudes toward birth are formed well in advance of pregnancy. It is important to provide sources of information for young women that are balanced and evidence-based to avoid frightening them. For example, childbirth education for young women could focus on the low prevalence of adverse maternal and newborn outcomes, understanding of medically necessary versus elective obstetric interventions, and the health benefits and risks for mothers and babies of a planned vaginal delivery and a planned CD.

Confidence in knowledge about childbirth was linked to significantly lower levels of fear, consistent with findings from a Canadian study of university students (23). To further explore these findings, we examined the proportion of women who felt confident about their knowledge of pregnancy and birth, by source of information. Finding information on the Internet or through books was not significantly associated with confidence. However, young women who reported confidence in their knowledge were significantly more likely to report health care providers and having witnessed a live birth as influential sources and significantly less likely to report movies, experiences of family and friends, and sex education at school as influential sources that shaped their feeling about pregnancy and birth.

The findings highlight the importance of learning about birth through professionals or firsthand experience.

### Limitations

Several limitations should be considered. First, the cross-sectional design prevents claims about cause and effect relationships. Second, a voluntary, nonrandom sample of college students at one private university in the northeast United States limits the generalizability of the results and presents a self-selection bias. Further, the fear of childbirth measure was biased toward vaginal delivery. Although this aspect raises concern about the validity of the measure it is consistent with other measures of childbirth fear that are used to study associations between prenatal fear and mode of delivery outcomes (24–27) and presents opportunities for future research.

### Conclusions

Our findings add to the growing body of evidence relating fear of childbirth to CD preference and the potential role that access to and knowledge of childbirth information has in shaping young women's childbirth preferences. Future research on childbirth education for young adults before pregnancy is needed to determine the effect of education on fear of childbirth and mode of delivery preferences.

### References

1. Laursen M, Johansen C, Hedegaard M. Fear of childbirth and risk for birth complications in nulliparous women in the Danish National Birth Cohort. *BJOG* 2009;116:1350–1355.
2. Sydsjö G, Bladh M, Lilliecreutz C, et al. Obstetric outcomes for nulliparous women who received routine individualized treatment for severe fear of childbirth - a retrospective case control study. *BMC Pregnancy Childbirth* 2014;14:126.
3. Wiklund I, Edman G, Andolf E. Cesarean section on maternal request: Reasons for the request, self-estimated health, expectations, experience of birth and signs of depression among first-time mothers. *Acta Obstet Gynecol Scand* 2007;86:451–456.
4. Kornelsen J, Hutton E, Munro S. Influences on decision making among primiparous women choosing elective caesarean section in the absence of medical indications: Findings from a qualitative investigation. *J Obs Gynaecol Can* 2010;32:962–969.
5. Fuglenes D, Aas E, Botten G, et al. Why do some pregnant women prefer cesarean? The influence of parity, delivery experiences, and fear. *Am J Obs Gynecol* 2011;205:e1–e45.
6. Hall WA, Hauck YL, Carty EM, et al. Childbirth fear, anxiety, fatigue, and sleep deprivation in pregnant women. *J Obstet Gynecol Neonatal Nurs* 2009;38:567–576.
7. Fenwick J, Gamble J, Nathan E, et al. Pre- and postpartum levels of childbirth fear and the relationship to birth outcomes in a cohort of Australian women. *J Clin Nurs* 2009;18:667–677.
8. Toohill J, Fenwick J, Gamble J, Creedy DK. Prevalence of childbirth fear in an Australian sample of pregnant women. *BMC Pregnancy Childbirth* 2014;14:e1–e10.

9. Räisänen S, Lehto S, Nielsen H, et al. Fear of childbirth in nulliparous and multiparous women: A population-based analysis of all singleton births in Finland in 1997–2010. *BJOG* 2014;121:965–970.
10. Stoll K, Hall W, Janssen P, Carty E. Why are young Canadians afraid of birth? A survey study of childbirth fear and birth preferences among Canadian University students. *Midwifery* 2014;30:220–226.
11. Stoll K, Hall WA. Attitudes and preferences of young women with low and high fear of childbirth. *Qual Health Res* 2013;23:1495–1505.
12. Edmonds JK, Cwiertniewicz T, Stoll K. Childbirth education prior to pregnancy? Survey findings of childbirth preferences and attitudes among young women. *J Perinat Educ* 2015;24(2):93–101.
13. Kuriyan R, Thomas T, Lokesh D, et al. Waist circumference and waist for height percentiles in urban South Indian children aged 3–16 years. *Indian Pediatr* 2011;48:765–771.
14. McNutt L, Wu C, Xue X, Hafner JP. Estimating the relative risk in cohort studies and clinical trials of common outcomes. *Am J Epidemiol* 2003;157:940–943.
15. Munro S, Kornelsen J, Hutton E. Decision making in patient-initiated elective cesarean delivery: The influence of birth stories. *J Midwifery Womens Health* 2009;54:373–379.
16. Connolly A, Thorp J, Pahel L. Effects of pregnancy and childbirth on postpartum sexual function: A longitudinal prospective study. *Int Urogynecol J Pelvic Floor Dysfunct* 2005;16:263–267.
17. Klein M, Kaczorowski J, Firoz T, et al. Urinary and sexual outcomes in women experiencing vaginal compared with cesarean births. *JOGC* 2005;27:313–320.
18. Hannah M, Whyte H, Hannah W, et al. Term Breech Collaborative Group: Maternal outcomes at 2 years after planned cesarean section versus planned vaginal birth for breech presentation at term: The international randomized Term Breech Trial. *Am J Obs Gynecol* 2004;191:917–927.
19. Botros S, Abramov Y, Miller J, et al. Effect of parity on sexual function: An identical twin study. *Obstet Gynecol* 2006;107:765–770.
20. Rogers R, Leeman L, Borders N, et al. Contribution of the second stage of labour to pelvic floor dysfunction: A prospective cohort comparison of nulliparous women. *BJOG* 2014;121:1145–1153.
21. Rortveit G, Kjersti Daltveit A, Hannestad Y, Hunskaar S. Urinary incontinence after vaginal delivery or cesarean section. *N Engl J Med* 2003;348:900–907.
22. Morris T, McInerney K. Media representations of pregnancy and childbirth: An analysis of reality television programs in the United States. *Birth* 2010;37:134–140.
23. Stoll K, Hall W. Vicarious birth experiences and childbirth fear: Does it matter how young Canadian women learn about birth? *J Perinat Educ* 2013;22:226–233.
24. Jokić-Begić N, Zigić L, Nakić Radoš S. Anxiety and anxiety sensitivity as predictors of fear of childbirth: Different patterns for nulliparous and parous women. *J Psychosom Obs Gynaecol* 2014;35:22–28.
25. Hall WA, Stoll K, Hutton EK, Brown H. A prospective study of effects of psychological factors and sleep on obstetric interventions, mode of birth, and neonatal outcomes among low-risk British Columbian women. *BMC Pregnancy Childbirth* 2012;12:doi:10.1186/1471-2393-12-78.
26. Ryding E, Lukasse M, Van Parys A, et al. Fear of childbirth and risk of cesarean delivery: A cohort study in six European countries. *Birth* 2015;42:48–55.
27. Takegata M, Haruna M, Matsuzaki M, et al. Does antenatal fear of childbirth predict postnatal fear of childbirth? A study of Japanese women. *Open J Nurs* 2015;5:144–152.