Clinical and Experimental Obstetrics & Gynecology

Clin. Exp. Obstet. Gynecol. **2022**; 49(11): 258
https://doi.org/10.31083/j.ceog4911258

Original Research

Correlation between Fear of Childbirth and Childbirth Self-Efficacy during Labor

Yue Huang[1], Yuehua Zhong[1], Yongfang Deng[1], Jie Zheng[1], Huiqin Zou[1], Qiaozhu Chen[1,*]

[1]Guangzhou Women and Children's Medical Center Guangdong Provincial Clinical Research Center for Child Health, 510623 Guangzhou, Guangdong, China

*Correspondence: xiaoqiao00195@163.com (Qiaozhu Chen)

Academic Editor: Anca Maria Panaitescu

Submitted: 28 May 2022 Revised: 5 July 2022 Accepted: 18 July 2022 Published: 18 November 2022

Abstract

Background: The research on fear of childbirth and childbirth self-efficacy of pregnant women in China mainly concentrates on the late pregnancy, and there is a lack of research on the psychology of women during labor. This study aimed to investigate the correlation between fear of childbirth and childbirth self-efficacy during labor. **Methods**: 378 pregnant women in labor were selected by convenience sampling. They were investigated using a self-designed questionnaire, the Chinese version of Childbirth Attitudes Questionnaire, and the Childbirth Self-Efficacy Inventory. **Results**: The total score of fear of childbirth during labor was 31.95 $\pm$ 9.01, and the total score of childbirth self-efficacy was 212.03 $\pm$ 59.64. The total score of fear of childbirth and the score of each dimension were significantly negatively correlated with those of childbirth self-efficacy (R^2 = –0.354 to –0.155, $p < 0.01$). **Conclusions**: Fear of childbirth during labor should arouse attention of medical staffs. It is necessary to enhance psychological support and childbirth self-efficacy during labor to reduce the fear of childbirth.

Keywords: during labor; pregnant women; fear of childbirth; childbirth self-efficacy; correlation

1. Introduction

Labor is a physiologic process for women as a major life event during their lifetime. Psychological and cognitive factors of pregnant women affect labor, which are considered to play a crucial role in labor outcomes [1]. Fear of childbirth (FOC) is a psychological problem arising from the unreasonable dread of labor pain, fetal damage, labor complications, and losing control of oneself during labor [2], which is widespread throughout the world. The incidence of FOC is reported to be 4.5%–30% in foreign countries [3–5], and 73.06%–79.2% in China [6,7]. Childbirth efficacy is defined as a woman's confidence in managing labor by a variety of strategies, including analgesia [8]. It has been shown that labor pain may induce FOC and impair childbirth efficacy. The parturients may suffer from behavioral dysfunction [9] due to synergistic effects of increased FOC and decreased childbirth self-efficacy, and prefer non-medically-induced cesarean delivery [10]. Even after birth, women experiencing severe FOC may face role transition, family problems and parent-child relationship disorders, or even postpone and reject a second pregnancy [11]. Moreover, physical and psychological adverse reactions of primiparas with FOC may occur when they are pregnant or experience labor again, which is harmful for three-child policy in China [12].

Previous studies primarily focus on prenatal FOC and infer the correlation between prenatal FOC and childbirth self-efficacy based on pregnant women' imagination of labor scenarios. FOC may happen at prenatal, intrapartum, and postpartum stages. When facing labor pain in real-world scenarios, FOC of pregnant women may have a stronger negative impact on childbirth self-efficacy. Moreover, a study found that obstetricians reported their anxiety during labor of pregnant women, and FOC of pregnant women also had adverse effects on the working feelings of obstetricians [13]. Due to the fact that the research on pregnant women's FOC and childbirth self-efficacy in China mainly concentrates on the late pregnancy, there is a lack of research on the psychology of women during labor. Therefore, in order to improve health care services and experience of pregnant women during labor, and guarantee safe labor and mental health of pregnant women, FOC and childbirth self-efficacy of pregnant women during labor were investigated in this study, which filled a gap in the research on psychological status of pregnant women during labor.

2. Subjects and Methods

2.1 Subjects

378 pregnant women in labor were selected using convenience sampling at a tertiary obstetrics and gynecology hospital in Guangzhou from April to October 2020. Inclusion criteria: singleton pregnancy with head downward position of the fetus; voluntary for vaginal delivery without contraindication; parturiency or already in labor; gestational age $\geq$36 weeks; maternal age of 20–40 years; able to read Chinese characters; able to communicate in Mandarin or Cantonese. Exclusion criteria: severe pregnancy complications or comorbidities; abnormal fetal growth and

development; mental disorders. The protocol was approved by Ethics Committee of Guangzhou Women and Children Medical Center (Guangzhou Ethical Approval for Scientific Research Involving Women and Children [2021] No. 113A01). The present study conformed to the Declaration of Helsinki. Among 378 parturients selected, 347 (91.8%) parturients completed the questionnaire survey.

2.2 Methodology

2.2.1 Research Tools

The questionnaire was designed by researchers according to the literature [14], which mainly covered sociodemographics, parity and gestational weeks of parturients.

2.2.2 Childbirth Attitudes Questionnaire

Wei Juan [15] modified the Childbirth Attitudes Questionnaire (CAQ) developed by American nursing scholar Lowe [8], and proposed a Chinese version. The questionnaire consisted of 16 items with a Likert response scale of 1–4, and higher scores indicated stronger fear. The total score of the questionnaire was 16–64. The scores of 16–27, 28–39, 40–51, and 52–64 indicated no, mild, moderate, and severe FOC, respectively. Cronbach's alpha of the Chinese Version of Childbirth Attitudes Questionnaire was 0.916, and Cronbach's alpha of each dimension was 0.678–0.853. The test-retest reliability of the questionnaire was 0.812–0.921, and the content validity index was 0.924 [15].

2.2.3 Childbirth Self-Efficacy

The short form of the 32-item Chinese Childbirth Self-Efficacy Inventory (CBSEI-C32) was used. This inventory consisted of two parallel sub-inventories, one related to the sense of confidence and the other related to outcome expectancy. Each sub-inventory covered 16 items, with a score of 0–10. The total score of CBSEI-32 was 32–320. The higher the score, the higher the childbirth self-efficacy would be. One domestic study found that the internal consistency coefficient of CBSEI-C32 was 0.96 [16], indicating good reliability and validity.

2.2.4 Research Methodology

Before the survey began, the informed consent was signed by all participants, and the researchers guided participants on how to fill out the questionnaire. All copies of the questionnaire were retrieved on site. Then it was checked whether there were unanswered items and answers not meeting the requirements. Timely corrections and clarifications were made if there were any. A total of 378 copies of the questionnaire were distributed, and 347 (91.8%) copies were valid.

2.2.5 Statistical Analysis

All data were analyzed statistically using the SPSS Statistics version 20.0 (IBM, Chicago, IL, USA). Measurement data were expressed as ($\bar{x} \pm$ S. Enumeration data were expressed as counts and percentages. Measurement data were analyzed by *t*-test, and count data were analyzed by chi-square test. Spearman's correlation coefficient was calculated to measure the correlation between FOC and childbirth self-efficacy during labor. $p < 0.05$ indicated a significant difference.

3. Results

3.1 Baseline Information of Parturients

There were 183 primiparas and 186 multiparas. The baseline information of these parturients is shown in Table 1.

3.2 Scores of FOC and Childbirth Self-Efficacy

The total score of FOC during labor was 31.95 $\pm$ 9.01, indicating mild FOC. Among all participants, 123 participants (35.4%) experienced no FOC at all; 147 participants (42.4%) experienced mild FOC; 77 participants (22.2%) experienced moderate to severe FOC. The total score of childbirth efficacy was 212.03 $\pm$ 59.64 (Table 2).

3.3 Correlation Between FOC and Childbirth Self-Efficacy During Labor

The total score of FOC was negatively correlated with the total score of childbirth efficacy ($R^2 = -0.302, p < 0.01$). Each dimension of FOC was significantly correlated with that of childbirth self-efficacy ($p < 0.01$) (Table 3).

4. Discussion

4.1 Incidence of FOC During Labor

Our results showed that the incidence of FOC during labor was 66.6%. The total score of FOC was 31.95 $\pm$ 9.01, indicating mild FOC. Compared with the previous studies on FOC during labor, the total score of FOC in the participants in our study was significantly lower than that reported by Deng *et al.* [17]. This difference may be explained by the discrepancy in the educational background of parturients. In the present study, 80.03% of the participants had an education level of junior college and above, which was higher than that in the study by Deng *et al.* [17] Besides, 68.59% of the parturients in our study had already gained some knowledge related to labor, and 62.25% of the parturients had been informed of the methods to relief labor pain. The higher the education level, the greater the ability of the parturients to acquire new knowledge related to labor. And the more the labor-related knowledge acquired, the greater the parturients' ability to assuage their FOC [18]. The total score of FOC among parturients in our study was also higher than that before labor in the studies by Gao *et al.* [6] and Wei *et al.* [7]. Many previous surveys on FOC [6–8] focused on parturients before labor, and FOC was largely based on imagination. In the present study, labor had already begun, and FOC was recorded in the real world.

Table 1. Baseline data of pregnant women (n = 347).

	Cases	Ratio, %
Age		
20–34 years old	289	83.29
≥35 years old	58	16.71
Gestational age		
<37 weeks	14	4.03
≥36 weeks	333	95.97
First pregnancy or not		
Yes	150	43.23
No	197	56.77
Primipara/pluripara		
Primipara	183	52.74
Pluripara	164	47.26
With or without a labor partner		
Yes	288	83.00
No	59	17.00
Educational background		
Junior high school	28	8.10
Senior high school or technical secondary school	41	11.82
Junior college or bachelor's degree	248	71.47
Master's degree or doctoral degree	30	8.65
Occupation		
None	50	14.41
Civil servant/staffs at public institutions	69	19.89
Employee	150	43.23
Self-employed	26	7.50
Other	52	14.99
Family monthly income per capita (CNY)		
≤6000	115	33.14
6001–10,000	117	33.71
≥10,001	115	33.14
Any labor-related knowledge or not		
No	109	31.41
Yes	238	68.59
Adequately prepared or not		
No	76	21.90
Yes	271	78.10
Spousal relationship		
Excellent	276	79.54
Good	63	18.16
Average	5	1.44
Below average	3	0.86
Poor	0	0
Knowing about any ways to relieve labor pain or not		
No	131	37.75
Yes	216	62.25

This fact may explain the difference in FOC. Furthermore, the parturients surveyed in our study came from the obstetrics ward in a tertiary maternal and child health care hospital in Guangzhou, China, which was on evidence-based practice for non-pharmacological analgesia. The evidence-based nursing program in this hospital has noticeably improved the quality of obstetric care services. The parturients included in our survey also already acquired some knowledge on childbirth. After admission, videos about labor-related health education and non-pharmacological analgesia were delivered to parturients via the electronic health education system. The nurses in charge provided parturients and their family members one-to-one guidance on non-pharmacological labor analgesia. Labor pain was assessed regularly, and the non-pharmacological analgesia strategy was based on personal preference and adaptability. The professional and individualized support above may greatly boost parturients' sense of safety and help relieve labor pain. The parturients would be more confident about natural childbirth and experience weaker FOC [19]. It is indicated that FOC during labor should arouse our attention, which should be evaluated after the parturient enters labor, and targeted strategies are recommended to alleviate fear and pain of childbirth according to the parturients, such as non-pharmacological analgesia knowledge and skills (such as relaxation breathing, massage, acupoint pressing, warm water shower, music therapy, free position), how to cooperate during labor, etc. [20]. Moreover, health education for parturients may be enhanced, including newborn health, labor pain management, cooperation during labor, and introduction about available resources of the hospital and department. Using the electronic platform, education can be directly delivered to the maternal mobile phone, and the content of education can also be shown in animated short films, which are vivid and intuitive; the childbirth tips can be taught using scenario simulation; non-pharmacological analgesia can be educated by one-to-one guidance. The most important point is to evaluate outcomes, that's to evaluate whether pregnant women can manage labor using methods learnt from nurses, and ask whether FOC is alleviated and confidence of pregnant women in labor is enhanced. Family members are required to support the parturients; the labor partners are also instructed on how to support the parturients in thoughts, language, and action to reduce their FOC [15,21].

4.2 Childbirth Self-Efficacy During Labor

In the present study, the total score of childbirth self-efficacy during labor was 212.03 ± 59.64. The average score of outcome expectancy was 106.78 ± 29.82, and that of confidence was 105.24 ± 31.02. These scores were higher than those reported in the study by Sun *et al.* [21]. Such a difference may be explained by a higher percentage of multiparas in the present study. Multiparas are more experienced in childbirth and, therefore, more confident than primiparas [22]. Besides, parturients with an education level of junior college and above accounted for a higher proportion and had a more accurate understanding of delivery methods [23]. Generally speaking, the higher the education level, the higher the ability to acquire new knowledge, including the knowledge on childbirth. Sun *et al.*

Table 2. Scores of FOC and childbirth self-efficacy during labor (n = 347).

Variable	Number of items	Total score	Maximum	Minimum	Mean ± standard deviation
FOC	16	64	63	16	31.95 ± 9.01
Fear of child's health	5	20	20	5	11.41 ± 3.49
Fear of labor pain	4	16	16	4	7.84 ± 2.57
Fear of losing control	4	16	16	4	8.40 ± 2.67
Fear of hospital intervention and environment	3	12	11	3	4.30 ± 1.62
Childbirth self-efficacy	32	320	320	39	212.03 ± 59.64
Sense of confidence	16	160	160	23	105.24 ± 31.02
Outcome expectancy	16	160	160	16	106.78 ± 29.82

FOC, fear of childbirth.

Table 3. Correlation between FOC and childbirth self-efficacy during labor (R^2).

Variable	Total score of childbirth self-efficacy	Confidence	Outcome expectancy
Total score of FOC	–0.302	–0.274	–0.320
Fear of children' health	–0.223	–0.196	–0.241
Fear of labor pain	–0.290	–0.268	–0.302
Fear of losing control	–0.341	–0.316	–0.354
Fear of hospital intervention and environment	–0.177	–0.155	–0.194

$p < 0.01$ for all. FOC, fear of childbirth.

[24] focused on late pregnancy before labor. Parturients' confidence in childbirth varies with the environment, the ability to manage childbirth, and labor pain management after labor begins. Prenatal education can reduce FOC and improve childbirth self-efficacy [24]. Alternatively, childbirth simulation education [25], peer education, and perinatal health education can be combined [26] to help improve parturients' childbirth self-efficacy and promote natural childbirth. After admission, the parturients' awareness of childbirth-related knowledge and skills is assessed, and bedside guidance is provided accordingly.

4.3 Correlation Between FOC and Childbirth Self-Efficacy During Labor

As indicated in previous studies [7,27], parturients' FOC was negatively correlated with childbirth self-efficacy. However, the correlation coefficient for the total score of FOC and childbirth self-efficacy during labor was higher in our study [7,27]. This is probably because the previous studies are generally concerned with late pregnancy before labor. But during labor, FOC affected childbirth self-efficacy more strongly, highlighting psychological support for parturients during labor to reduce FOC and boost their confidence in childbirth. One systematic review of FOC-targeted interventions [28] has shown that cognitive-behavioral therapy, relaxation, psychological counseling, childbirth class, mindfulness program, and psychological education as the main psychological interventions can effectively reduce FOC among parturients. Munkhondya *et al.* [29] conducted companion-integrated childbirth preparation based on structured childbirth education, which reduced FOC and improved childbirth self-efficacy. Midwife-dominated group prenatal care can also help reduce FOC [30] and boost parturients' confidence and childbirth self-efficacy. Therefore, in the future health care about pregnancy, the intervention measures for FOC should not be limited to FOC itself, and childbirth self-efficacy should also arouse attention of medical staffs. Midwifery service [16], peer education [26], music therapy during labor [31], and companion-nursing integration scheme are also recommended to improve parturients' childbirth self-efficacy.

However, there are also some limitations in this study. First, the research was only conducted in a single center, and the sample cannot represent the whole population. Our findings remain to be further verified by well-designed multi-center studies. Second, interventions for FOC were not investigated in this study.

5. Conclusions

It was found that FOC and childbirth self-efficacy were closely related to each other. Stronger FOC caused lower childbirth self-efficacy, and lower childbirth self-efficacy resulted in increased FOC. Therefore, FOC during labor should be evaluated by medical staffs, and timely intervention is recommended.

Author Contributions

YH and YFD designed the study. YH performed the research. YH, YHZ and HQZ analyzed the data. YH and QZC wrote the manuscript. JZ supervised the project. All authors have read and approved the final manuscript.

Ethics Approval and Consent to Participate

The protocol was approved by Ethics Committee of Guangzhou Women and Children Medical Center (Guangzhou Ethical Approval for Scientific Research Involving Women and Children [2021] No. 113A01). Each subject has signed an informed consent form.

Acknowledgment

The successful completion of this research relied on a cast of people to whom we are obliged. Chiefly, we wish to thank all the women who participated in this study and our partners, the field researchers (Yue Huang and Yongfang Deng), for their thorough and trustworthy determination in the field. We also extend our sincere appreciation to Qiaozhu Chen, Head of Obstetric Department at Guangzhou Women and Children's Medical Center, whose valuable contributions to this research are from beginning to end. Thanks to the head nurseYuehua Zhong for her administrative support and trust throughout. Last but not least, the authors are indebted to the reviewers and editors for their insights and comments which only served to improve the paper's rigor and readability.

Funding

The present study was supported by the grants from Ministry of Science and Technology of People's Republic of China (2019YFC0121905) and Guangzhou Medical Science and Technology General Guidance Project (No.20221A011025).

Conflict of Interest

The authors declare no conflict of interest.

References

[1] Xie X, Gou WL. Obstetrics and Gynaecology. People's Medical Publishing House: Beijing. 2016: 536–540.

[2] Ringler M, Pavelka R. Fear of childbirth-definition and description of the term on the basis of empirical data. Zeitschrift Fur Geburtshilfe Und Perinatologie. 1982; 186: 55–57.

[3] Størksen HT, Garthus-Niegel S, Adams SS, Vangen S, Eberhard-Gran M. Fear of childbirth and elective caesarean section: a population-based study. BMC Pregnancy and Childbirth. 2015; 15: 221.

[4] Lukasse M, Schei B, Ryding EL. Prevalence and associated factors of fear of childbirth in six European countries. Sexual and Reproductive Healthcare. 2014; 5: 99–106.

[5] Haines HM, Rubertsson C, Pallant JF, Hildingsson I. The influence of women's fear, attitudes and beliefs of childbirth on mode and experience of birth. BMC Pregnancy and Childbirth. 2012; 12: 55.

[6] Gao GF. An analysis of the incidence and influence factors of fear of childbirth in primiparas of child-bearing age. Maternal and Child Health Care of China. 2020; 35: 541–543.

[7] Wei J, Liu JY. Correlation analysis between pregnant women's fear of childbirth and childbirth self-efficacy. Chinese Nursing Research. 2017; 31: 2246–2248.

[8] Lowe NK. Maternal confidence for labor: Development of the childbirth self-efficacy inventory. Research in Nursing and Health. 1993; 16: 141–149.

[9] Eriksson C, Jansson L, Hamberg K. Women' s experience of intense fear related to childbirth investigated in Swedish qualitative study. Midwifery. 2006; 22: 240–248.

[10] Wigert H, Nilsson C, Dencker A, Begley C, *et al*. Women's experiences of fear of childbirth: a metasynthesis of qualitative studies. International Journal of Qualitative Studies on Health and Well-being. 2020; 15: 1704484.

[11] Sydsjö G, Angerbjörn L, Palmquist S, Bladh M, Sydsjö A, Josefsson A. Secondary fear of childbirth prolongs the time to subsequent delivery. Acta Obstetricia Et Gynecologica Scandinavica. 2013; 92: 210–214.

[12] Rania N. Giving voice to my childbirth experiences and making peace with the birth event: the effects of the first childbirth on the second pregnancy and childbirth. Health Psychology Open. 2019; 6: 205510291984449.

[13] Morano S, Migliorini L, Rania N, Piano L, Tassara T, Nicoletti J, *et al*. Emotions in labour: Italian obstetricians' experiences of presence during childbirth. Journal of Reproductive and Infant Psychology. 2018; 36: 30–41.

[14] Xiao SQ. A study on the influence of central group-based health care on fear of childbirth in primiparas in late pregnancy. University of South China. 2021.

[15] Wei J, Liu JY. Reliability and validity of the Chinese version of Childbirth Attitudes Questionnaire. Journal of Nursing Science. 2016; 31: 81–83.

[16] Yang WQ, Xie LL, An XH. Effect of team midwifery model on primiparas' childbirth efficacy and birth outcomes. Chinese Nursing Management. 2015; 15: 1277–1280.

[17] Deng Y, Lin Y, Yang L, Liang Q, Fu B, Li H, *et al*. A comparison of maternal fear of childbirth, labor pain intensity and intrapartum analgesic consumption between primiparas and multiparas: a cross-sectional study. International Journal of Nursing Sciences. 2021; 8: 380–387.

[18] Nilsson C, Hessman E, Sjöblom H, Dencker A, Jangsten E, Mollberg M, *et al*. Definitions, measurements and prevalence of fear of childbirth: a systematic review. BMC Pregnancy and Childbirth. 2018; 18: 28.

[19] Qi F, Guo L, Bi M, Wang XJ, Zhang Z, Gu CY. Application of the best evidence of non-pharmacological labor analgesia during labor. Journal of Nursing Science. 2021; 36: 48–51.

[20] Simkin P, Klein MC. Nonpharmacological approaches to management of labor pain. Nursing. 2021; 51: 62–68.

[21] Sun M, Hou CY, He XJ, Yang X. Effects of pregnancy stress and social support on self-efficacy of women during delivery. Nursing Journal of Chinese People's Liberation Army. 2019; 36: 60–63.

[22] Shakarami A, Mirghafourvand M, Abdolalipour S, Jafarabadi MA, Iravani M. Comparison of fear, anxiety and self-efficacy of childbirth among primiparous and multiparous women. BMC Pregnancy and Childbirth. 2021; 21: 642.

[23] Çankaya S, Şimşek B. Effects of Antenatal Education on Fear of Birth, Depression, Anxiety, Childbirth Self-Efficacy, and Mode of Delivery in Primiparous Pregnant Women: A Prospective Randomized Controlled Study. Clinical Nursing Research. 2021; 30: 818–829.

[24] Bara'a Samara, Anton R. Sabella. The knowledge and attitudes of Palestinian women towards different childbirth delivery options. Clinical and Experimental Obstetrics & Gynecology. 2021; 48: 138–143.

[25] Dai L, Shen Q, Redding SR, Ouyang Y. Simulation-based childbirth education for Chinese primiparas: a pilot randomized controlled trial. Patient Education and Counseling. 2021; 104: 2266–2274.

[26] Luo LX, Chen LF, Li CX. Effects of peer education on childbirth self-efficacy and childbirth outcomes of primiparas. Maternal and Child Health Care of China. 2020; 35: 794–796.

[27] Liu YJ, Shangguan FF, Zheng RM, Shen YQ, Xu W. Mediating effect of childbirth self-efficacy between pregnant women's mindfulness level and fear of childbirth. Chinese Journal of Behavioral Medicine and Brain Science. 2019; 9: 783–787.
[28] Azizi M, Kamali M, Elyasi F, Shirzad M. Fear of childbirth in Iran: A systematic review of psychological intervention research. International Journal of Reproductive BioMedicine. 2021; 19: 401–420.
[29] Munkhondya BMJ, Munkhondya TE, Chirwa E, Wang H. Efficacy of companion-integrated childbirth preparation for childbirth fear, self-efficacy, and maternal support in primigravid women in Malawi. BMC Pregnancy and Childbirth. 2020; 20: 48.
[30] Hu JL, Zhou L, Tu MY. Effects of midwife-dominated centering group prenatal care on self-efficacy, childbirth outcomes, and psychological state of primiparas. Journal of Nurses Training. 2020; 35: 210–213.
[31] Hu Y, Zhou MF, Fan Y, Yu LL, Wan YP. The intervention study of music delivery prenatal training on childbirth fear and self-efficacy of women in late pregnancy. Journal of Nursing Administration. 2021; 21: 436–441.