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Effect of Childbirth Care Methods on Birth Experience and Satisfaction: A Systematic Review and Meta-Analysis

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Abstract

Objectives: Women's satisfaction with their childbirth experience is crucial in determining their likelihood of undergoing a cesarean section (CS) in future pregnancies. However, there is a significant gap in investigating the effectiveness of maternity care methods during childbirth on women's satisfaction. This systematic review and meta-analysis aimed to fill this gap by assessing the impact of care methods on women's satisfaction with the childbirth experience.

Methods: We conducted an extensive literature search using electronic databases such as Medline, Embase, Scopus, CINAHL, ProQuest, Cochrane library, Web of Science, Google Scholar, PubMed, SID and Magiran from 1990 to June 2023. Studies were included if they were published in English, examined the effect of childbirth care interventions on women's satisfaction, and reported sufficient data to calculate the mean difference or standardized mean difference. The quality of the studies was assessed using the Cochran's risk of bias tool.

Results: Our search yielded 9 relevant studies with moderate quality. These interventions were categorized into three types as follows: continuous care, respectful care, and care based on effective communication. The meta-analysis revealed that communication-based care methods significantly improved women's satisfaction with the childbirth experience (mean difference [MD]: 4.73; 95% CI: 1.35 to 8.11; $P = 0.001$) and overall childbirth experience (MD: 11.04; 95% CI: -4.34 to 26.42; $P = 0.001$). The heterogeneity among the studies was high ($I^2 = 98\%$).

Conclusions: Our findings suggested that the methods of childbirth care play a substantial role in creating a pleasant experience and improving women's satisfaction. However, more studies with robust methodology and standardized instruments are required to determine the efficacy of such care in diverse cultural contexts, particularly in countries with high CS rates. Moreover, healthcare providers and policymakers must prioritize communicative dignity-based care during childbirth to enhance women's experiences and reduce the likelihood of CS.

Registration: PROSPERO website (CRD42023447752).

Keywords: Continuous care, Respectful care, Childbirth experience, Childbirth satisfaction

Introduction

Physical and mental stress is unavoidable during childbirth, which is a main procedure in women's life (1,2). In addition, childbirth is associated with long-term emotional, social, and psychological effects on mothers' life. Therefore, despite the fact that vaginal delivery is a valuable and pleasant event, it may be an unpleasant event with long-term negative psychological effects, causing women to choose cesarean section (CS) to avoid the negative experiences of vaginal delivery (3-6).

Due to the importance of the childbirth experience and its consequences, the World Health Organization (WHO) has emphasized the health of the mother and child and highlighted the provision of integrated services for the mental health of the mother during perinatal period by mentioning it in the agenda of the development goals for the years after 2015 (7). A review of studies indicated that the effective communication between parturient and midwife is important for the emotional aspect of a positive childbirth experience (8-11). Meanwhile, the most substantial factor in creating a better childbirth experience is the perceived support resulting from a communication between parturient and health care provider (12,13), which can have many benefits for the mother and baby (14-17). On the other hand, studies revealed that women who are satisfied with the delivery services are expected to take better self-care; this can also positively affect the mother-baby attachment and make it faster (18). Other factors related to childbirth satisfaction include benefiting from continuous care, having pain relief during labor, providing reliable caregivers, and providing respectful services (19-22).

Communication and dignity are extremely important in human life, as some scientists claim that the root of the progress of personal programs lies in the progress in communication, which is a combination of several fields, including art, anthropology, and behavioral skills. The studies conducted on providing quality services

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related to women's satisfaction during labor and delivery demonstrated that the care conditions for women in labor should be improved (23-27).

Based on our search, there is no review study to investigate the effect of different interventions on childbirth experience and satisfaction. Therefore, to investigate the types of interventions used to increase childbirth satisfaction, the present study was conducted to systematically review the pooled effect of maternity care interventions on women's childbirth experience and satisfaction.

Methods

Eligibility Criteria

In this systematic review study, we examined all randomized controlled clinical trials, experimental or quasi-experimental, and interventional studies investigating the effect of different care methods on the childbirth experience and satisfaction. Studies with irrelevant interventions and cross-sectional studies were excluded.

Types of Participants

We included primiparous women with term pregnancy (37 to 42 week) in the reproductive age (18 to 49 years) who received different care during childbirth.

Types of Interventions

The intervention included providing continuous care in labor, shared decision-making, respectful care, communication-based care, and psychological intervention like mindfulness. The control group received routine care.

Information Sources

We searched for all the eligible clinical trials, experimental, and quasi-experimental studies published in English and Persian until 2023 in databases, including Medline, Embase, CINAHL, ProQuest, Cochrane library, Web of Science, Google Scholar, PubMed, SID, Magiran, and Scopus using the related MeSH/EMTREE keywords. The keywords included childbirth satisfaction, childbirth experience, effective communication, respectful care, continues care, sympathy-empathy-based care. Furthermore, the references of all the relevant articles were manually searched to maximize the comprehensiveness of the search. Also, we followed the PICO criteria (P = parturient, I = intervention and care based on dignity and communication, C = control group, and O = the childbirth experience and satisfaction).

Data Collection and Analysis

Selection Process

Two authors (Mahdie Arab Bafrani and Esmat Mehrabi) independently searched the databases and found the relevant articles. Two authors (Shiva Shamsdanesh and Zahra Shamoradifar) reviewed the titles and abstracts of the retrieved papers for eligibility criteria. Then, the full texts were reviewed by the third author (Esmat Mehrabi). Disagreements between the authors were resolved through discussion. If they could not be resolved, the third author was consulted. The study diagram shows the number of identified records and included/excluded studies (Figure 1).

Synthesis Methods

To review the eligible studies, four authors independently extracted the specifications of the studies using the data extraction form and any disagreements were resolved by discussion. The data, including time, author, method, type of intervention, characteristics of participants, and mean score for childbirth satisfaction and experience in both intervention and control group were extracted. Table 1 illustrates the summary of information and details of relevant articles.

Assessment of risk of bias in the included studies

Two authors (Hoorieh Shaigan and Shiva Shamsdanesh) independently assessed the publication bias (selection bias, performance bias, assessment bias, attrition bias, and reporting bias) based on the Cochrane handbook for all the included studies. The risk of bias of each item for clinical trial studies was classified as "low risk", "high risk", and "unclear". Then, the judgments of the two authors were compared and reconciled; in case of any conflict, the third author (Esmat Mehrabi) was consulted.

Quality Assessment the of the Studies

The quality of the included studies was evaluated using the Cochran's checklist .

Results

In the initial search, we found a total of 263 articles. Next, 102 articles were removed due to duplication using Endnote software. Then, 67 articles were removed in the first level of screening (the title and abstract review). In the second level of screening (the full-text review), 85 of the remaining 94 articles were excluded due to ineligibility. Finally, nine articles entered the research. Meta-analysis was performed for two studies with childbirth satisfaction outcome and three studies with childbirth experience outcome. The other studies did not present the mean (SD) for study outcomes (Figure 1).

Study Design

Among the nine included studies, five studies were RCT and four studies were interventional, quasi-experimental, and experimental. All studies divided the participants into two groups of intervention and control, except for the two studies conducted by Bashour et al (9) and Aktas & Pasinliglu (15).

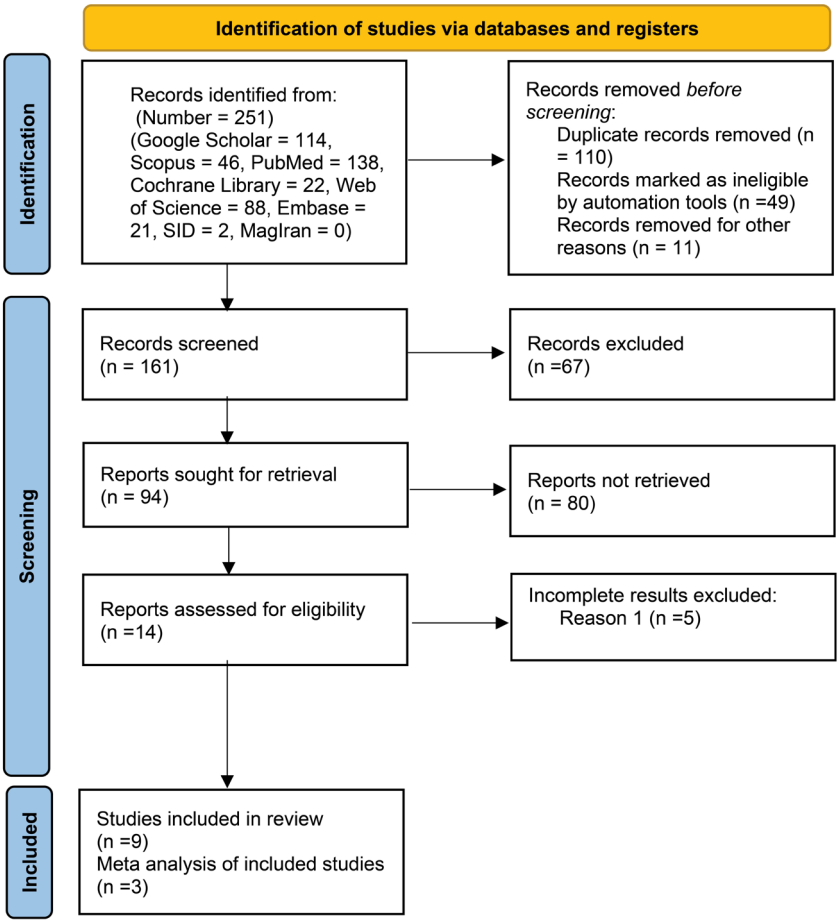

Figure 1. PRISMA Flow Chart Summarizing the Study Screening and Selection Process.

Setting

Among the included studies, five articles were conducted in Iran, two in the US, one in Syria, and one in Turkey.

Outcome Measures

The Labor Agency Scale (LAS) and Childbirth Experience Scale (CEQ) were used to examine childbirth experience. Also, the Modified Medical Interview Satisfaction Scale and Birth Satisfaction Scale (BSS) were used to examine childbirth satisfaction.

Risk of Bias in Included Studies

The randomization process was at low risk in all studies (9,15,19,23-25,28-30). The second domain, i.e. deviation from the intended intervention had a high risk in two studies (9,15) and low risk in other studies. The performance bias had a low risk in three studies (15,19,30) with some concerns in others. There were two high-risk studies (15,30) in terms of detection bias, but other studies had a low risk. The incomplete outcome data had a high risk in three studies (9,23,28), low risk in four studies (15,25,29-30), and there were some concerns in two others (19,24). The selection of reported results had a low risk in three studies (9,19,24) and with some concerns in others. Finally, four of the nine studies had a low risk (23-25,28) for other types of bias, two studies had a high risk (15,30), and three studies had some concerns in this regard (9,19,29), (Figures 2 and 3).

Statistical Method

The data were analyzed using the Review Manager version 5.3 (The Nordic Cochrane Centre, Cochrane Collaboration, 2014, Copenhagen, Denmark). Data on the childbirth satisfaction and experience were extracted for the intervention and control groups for each study. The meta-analysis results were reported as mean difference (MD) to compare the mean score of mentioned outcomes between the two groups. Heterogeneity was investigated using the I^2.

This is the first systematic review to identify the effect of childbirth care methods on women's childbirth experience and satisfaction. The findings were reported based on the PRISMA checklist. The results indicated the significant impact of different types of care on improving women's childbirth experience and satisfaction. Among the conducted studies, the control groups received routine prenatal care. The minimum and maximum sample size was 62 and 2,000 individuals, respectively. The studies were conducted in Syria, Turkey, the US, and Iran.

Discussion

In general, the interventions of the reviewed studies were

Table 1. Characteristics of Studies Based on Effective Communication in Labor and Delivery

Study	Type and Objective of Study	Type of Intervention	Number of Subjects	Investigated Outcomes	Final Conclusion
Bashour et al (9)	A cluster RCT	Providing communication skills training to physicians and midwives to establish effective communication with parturient	2000 parturient women and 140 physicians and midwives	Women's satisfaction with the communication of physician and midwife with women during labor and delivery	Lack of significant relationship between physician communication training and satisfaction of parturient
Campbell et al (28)	RCT	Providing continuous care with a doula	Intervention group (300 primiparous mothers) Control group (300 primiparous mothers)	Labor length and CS rate and childbirth experience	The length of labor was shorter and the rate of CS was reduced among mothers receiving continuous care with a doula. Women reported a better overall experience.
Kennel et al (29)	RCT	Providing continuous care with a doula	Intervention group (212 primiparous mothers) Control group (200 primiparous mothers)	Labor length and CS rate and childbirth experience	The length of labor and the rate of CS were lower among mothers who received continuous care with a doula, compared to those in control group. Mothers reported satisfaction with childbirth experience
Shahveisi et al (24)	Interventional study	Shared decision-making	66 primiparous mothers	Childbirth experience	Mothers receiving Shared decision-making reported higher scores in childbirth experience and satisfaction than control group.
Bahri et al (30)	RCT	Providing continuous care	Intervention group (31 primiparous mothers) Control group (31 primiparous mothers)	Mothers' anxiety and satisfaction with childbirth experience	Mothers receiving professional continuous care reported less anxiety and more satisfaction with childbirth experience compared to women in control group.
Hajizadeh et al (19)	Prospective study	Relationship between respectful care and childbirth experience	344 primiparous mothers	Childbirth experience	A direct and statistically significant relationship was reported between the provision of respectful care and childbirth experience
Aktas and Pasinlioğlu (15)	Semi-experimental	Care based on empathic communication	15 midwives and 134 primiparous mothers	Childbirth satisfaction	Childbirth satisfaction among mothers receiving this care by trained midwives was significantly higher.
Shamoradifar et al (23)	Experimental study	Communication-based care	80 primiparous women	Childbirth experience and satisfaction	The mean scores of childbirth experience and satisfaction in the intervention group were significantly higher than that in the control group
Sharegi Oskoui et al (25)	RCT	Mindfulness-based counseling	64 primiparous women	Childbirth experience	Mindfulness-based counseling improves the childbirth experience and reduces labor pain during childbirth.

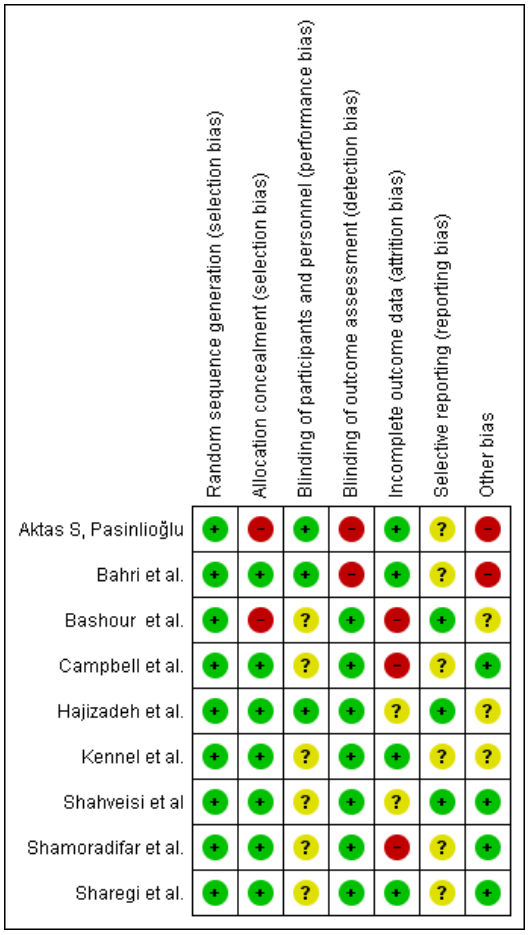

Figure 2. Assessment of Study Bias.

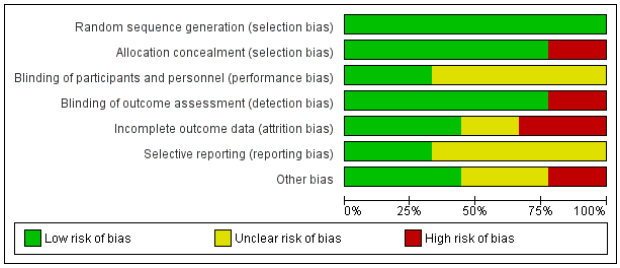

Figure 3. Assessing The Study Bias and Quality Based on Cochran's Checklist

classified as follows:

Interventions Based on the Communication of Labor Caregivers With the Parturient

In a cluster clinical trial in Syria, Bashour et al (9) investigated the communication skills training among physicians and its effect on women's childbirth satisfaction during labor and delivery and after birth. They examined about 2000 women referred for childbirth during 2008-2009. In this trial, a training package was presented to 137 physicians and residents working at four educational hospitals. The content of the training package included discussions related to the methods of strengthening physicians' communication skills and the skills of overcoming communication barriers and improving communication with women during labor and delivery and after childbirth. Besides, physicians participated in the training workshop, which was repeated every three days. The primary outcome included measuring women's satisfaction with interpersonal communication during labor, delivery, and after delivery using the 21-item Modified Medical Interview Satisfaction Scale (MMISS-21). Women were interviewed two weeks after hospital discharge, and they were asked to complete the MMISS-21 questionnaire. Midwives were excluded from the study; they simply accompanied the physician based on the hospital policies. The results indicated no significant relationship between the physician's communication training and the satisfaction of the parturient, which could be due to the following reasons: failure to comply with the issue of introducing the physician to parturient during the research; failure to explain the steps of labor and delivery to parturient; failure to provide instructions on the steps of labor and baby care; violent behaviors such as screaming and shouting at patients by physicians; and the lack of attention to the presence of other individuals, including medical students, midwives, nurses, and even hospital cleaning staff in the delivery room (19).

In an experimental study, Shamoradifar et al (23) evaluated the impact of effective communication-based care on the childbirth experience and satisfaction among 80 primiparous women. The intervention group received effective communication-based care according to the WHO care model, and the control group received the routine care. Data were collected using the standard tools, including Labor Agentry Scale (LAS), Birth Satisfaction Scale-Revised (BSS-R), and Support and Control in Birth (SCIB) scale applied 12 to 24 hours after the intervention. After controlling the effect of confounding variables, they found that the mean scores of childbirth experience and satisfaction in the intervention group were significantly higher than that in the control group.

Continuous Care-Based Interventions During Labor

Interventions Based on the Sympathy and Empathy of Labor Caregivers With Parturient

Two clinical trials investigated the effect of providing continuous care with the presence of a doula on the duration of labor, rate of CS, and women's general experience of vaginal delivery in American private and public hospitals. They concluded that women who benefited from continuous care with the presence of a doula during childbirth had a shorter labor length, less CS, and more childbirth experience and satisfaction compared to the control group receiving routine care (28,29). Furthermore, Bahri et al (30) in a clinical trial study in Iran examined the effect of professional continuous care on the childbirth satisfaction and experience. They reported that professional continuous care improved women's satisfaction with childbirth compared to routine

care during labor and delivery. However, standard tools were not employed to examine the childbirth experience and satisfaction in none of the mentioned studies (28-30). In a quasi-experimental study in Turkey, Pasinlioğlu and Aktas (15) assessed the effect of care based on the empathetic relationship of midwife with parturient on the childbirth satisfaction. They revealed that sympathy and empathy-based care during labor and delivery increased the women's satisfaction with the childbirth experience.

Interventions Based on Respect (Respectful Care)

In a prospective study, Hajizadeh et al (19) evaluated the relationship between respectful care and childbirth experience of 344 parturient women using the standard tools of Respectful Maternity Care (RMC) and Childbirth Experience Questionnaire (CEQ). They found a direct and statistically significant relationship between respectful care and childbirth experience. In our investigations, we found no respect-based interventional study.

Interventions Based on the Shared Decision-Making

Shahveisi et al (24) in an interventional study in Iran investigated the effect of shared decision-making in choosing the method of labor analgesia on childbirth experience among primiparous women. The participants were 66 primiparous women with 38–42 weeks gestational age and with symptoms of labor and childbirth onset. Standard questionnaires, including LAS, McKay Childbirth Satisfaction Rating Scale (MCSRS), and SCIB were used. They concluded that women who benefited from shared decision-making had higher mean score of childbirth experience and satisfaction, control and support during childbirth and its subscales than the control group receiving routine care.

Interventions Based on Psychological Interventions (Mindfulness-Based Counseling)

In a randomized controlled clinical trial in Iran, Sharegi Oskoui et al (25) investigated the effect of mindfulness-based counseling on the childbirth experience of primiparous women. This study was conducted on 64 primiparous with gestational age of 32-34 weeks referred to the perinatology clinics of Al-Zahra and Taleghani hospitals in Tabriz, Iran. Eight mindfulness counseling sessions were offered to the intervention group. The intensity of childbirth pain with visual analog scale in the active phase of labor at 8 cm dilatation and the childbirth experience questionnaire were completed by interview after childbirth. The findings showed that providing mindfulness-based counseling improved the childbirth experience and reduced labor pain during childbirth.

In a review study, Chang et al (21) evaluated interventions to support the effective communication between maternity care staff and women in labor and delivery phases. They concluded that communication was an important component of quality care to improve childbirth experiences of parturient.

In another study, Mattison et al (17) highlighted the importance of paying attention to communication with parturient as a key concept in the context of a positive childbirth experience, which allows parturient to have a positive experience during childbirth. In the study of Kozhimannil et al (27), women expressed the quality of the relationship as an important issue for their childbirth experience. Regarding the factors affecting childbirth satisfaction, there was a positive and significant relationship between interpersonal relationship and satisfaction. They reported that interpersonal relationship, including good communication leading to building trust between hospital personnel, especially the midwife, and parturient, was one of the strongest predictors of satisfaction with childbirth.

Meta-analysis Results

The results of the present meta-analysis demonstrated a high heterogeneity among the included studies (I^2 = 98%) due to different intervention types and different instruments for outcome assessment.

Childbirth Satisfaction

The meta-analysis of two studies showed (MD: 11.04; 95% CI: −4.34 to 26.42; p = 0.23), and the random effect model was used due to the high heterogeneity (I^2 = 98%) (Figure 4).

Childbirth Experience

The meta-analysis of three studies revealed (MD: 4.73; 95% CI: 1.35 to 8.11; P = .001), and the random effect model was employed due to the high heterogeneity (I^2 = 98%) (Figure 5).

Limitations of the Study

There were several limitations in this review study. Different tools were used to examine the childbirth experience and satisfaction in the reviewed articles and the tools were used in different times in the included

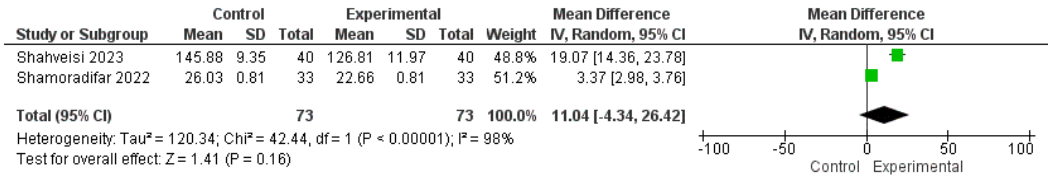

Figure 4. Random Effect Model Analysis for childbirth satisfaction.

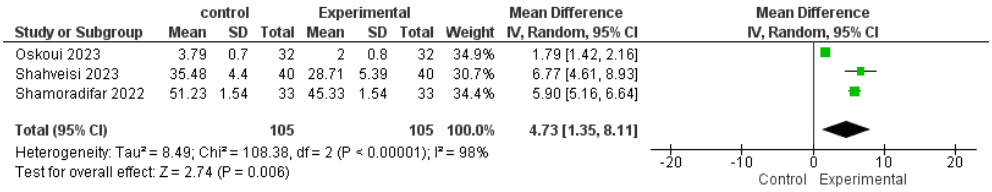

Figure 5. Random Effect Model Analysis for Childbirth Experience.

studies, causing a high heterogeneity in meta-analysis. Therefore, a definite conclusion regarding the results of the studies cannot be provided. Although randomized clinical trials are considered as the standard studies to determine the impact of interventions, the quality assessment of studies in the present review study based on Cochran's checklist showed that blinding was not done in some studies and women participating in the study were aware of their assignment in the intervention or control group. Therefore, there was the possibility of performance bias in the aforementioned studies. On the other hand, only Persian and English studies were examined due to the financial resource limitations in the present study regarding the costs of translating articles.

Conclusions

According to our results, the useful interventions included effective communication, continuous care and shared decision-making during childbirth, in which women can feel safe, trust, and support. The individual expectations, unique desires and needs of women during labor should be prioritized by dignity-based and mother-centered care and appropriate communication of birth attendants, as women can feel self-efficacy and take the control of their birth. However, there are limited studies on the impact of interventions on the childbirth experience and satisfaction. To create valid scientific evidence, clinical trials with a larger sample size and standard tools should be conducted to provide decisive conclusion by preparing care guidelines during labor and delivery. This can make women's childbirth experience a pleasant experience.

Authors' Contribution

Conceptualization: Hoorieh Shaigan, Shiva Shamsdanesh.
Data curation: Hoorieh Shaigan, Esmat Mehrabi.
Formal analysis: Esmat Mehrabi.
Funding acquisition: Shiva Shamsdanesh, Mahdie Arab Bafrani.
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Methodology: Zahra Shamoradifar, Esmat Mehrabi.
Project administration: Shiva Shamsdanesh.
Resources: Mahdie Arab Bafrani.
Software: Hoorieh Shaigan.
Supervision: Esmat Mehrabi.
Validation: Esmat Mehrabi.
Visualization: Esmat Mehrabi.
Writing–original draft: Hoorieh Shaigan.
Writing–review & editing: Hoorieh Shaigan, Shiva Shamsdanesh, Mahdie Arab Bafrani, Zahra Shamoradifar, Esmat Mehrabi.

Conflict of Interests

The authors declare that they have no competing interests.

Ethical Issues

Not applicable.

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