


The Effect and Role of Trained Companion, During Delivery Process: A Randomized controlled trial (RCT)

Nahid Maleki¹, Zahrasadat Hosseinivaeaz², Fatemeh Babamohammadi¹, Sakineh Seddighi^{3*}

¹ Department of Midwifery, School of Nursing and Midwifery, Shahroud University of Medical Sciences, Shahroud, Iran.

² Department of Nursing, Mashhad Medical Sciences, Islamic Azad University, Mashhad, Iran.

³ Nursing Department, Mashhad University of Medical Sciences, Mashhad, Iran.

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ABSTRACT

Background: Several factors play a role in improving birth experience, and it seems presence of a trained companion can play a role in birth process. Despite there is insufficient evidence in this regard among Iranian health system, so this study was conducted to investigate role and effect of a trained companion in birth process.

Methods: This RCT was conducted in 2018 on 60+ pregnant mothers referred to Um-al-Banin Hospital in Mashhad. Both control group (CG) and intervention group (IG) received eight 90-minute childbirth preparation classes. Additionally, IG received two joint sessions (companion&mother) and two sessions alone (companion). Before and after training, demographic form, companion, role and impact researcher-made questionnaire were completed by two groups. Data were analyzed using independent&paired t-test, Fisher's exact, and chi-square tests in SPSS vol.16 software.

Results: The mean age of mothers in IG was 26.7±8.3 and CG was 28.3±5.9. A significant finding was that 83.3% of mothers in the IG, compared to 56.7% in the CG, considered the companion's presence effective in their choice of delivery mode (Chi-square test, P=0.024). Furthermore, 96.7% of mothers in the IG, versus 66.7% in the CG, reported the companion to be effective in enhancing self-efficacy and expectations of a positive birth outcome (Chi-square test, P=0.003).

Conclusion: Findings indicate that presence of a trained birth companion significantly enhances maternal self-efficacy, improves childbirth experience, and promotes more informed decision-making regarding mode of delivery. As a simple and cost-effective intervention, it holds practical potential for improving maternity care and should be considered in health policy planning.

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Introduction

Childbirth is one of the most profound and vital experiences in a woman's life, encompassing not only physical aspects but also psychological, social, and cultural dimensions. The choice of delivery method—whether vaginal birth or cesarean section—is among the most important decisions faced by expectant mothers, and this choice may be influenced by multiple factors, including maternal knowledge and attitudes, previous experiences, fear of pain, medical staff

recommendations, clinical conditions, as well as the level of social and psychological support (1). In recent years, despite the World Health Organization's emphasis on vaginal delivery in the absence of medical contraindications, the rate of cesarean sections has risen sharply in many countries, including Iran (2). According to the Ministry of Health and Medical Education, the cesarean section rate in some regions of Iran has been reported to exceed 50%, which is nearly twice the globally recommended level (3).

*Corresponding author: Sakineh Seddighi, Nursing Department, Mashhad University of Medical Sciences, Mashhad, Iran.

Tel: +9851-3859-1511, Email: seddighiS@mums.ac.ir

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One of the major reasons for the growing preference for cesarean delivery is the negative attitude toward, and fear of, the pain associated with vaginal birth among pregnant women. Studies indicate that many mothers opt for cesarean section—often without clinical necessity—due to fear of labor pain, lack of social support, negative experiences shared by others, or unfamiliarity with the natural birthing process (4). This issue reflects, to some extent, the insufficient emotional and psychological support provided to mothers during pregnancy and childbirth—an aspect that has increasingly attracted the attention of researchers and health policymakers in recent years.

In this context, the presence of a trained birth companion alongside the pregnant woman has been proposed as an effective strategy to improve the childbirth experience and increase the likelihood of vaginal delivery. This companion may be a family member, a spouse, or a specially trained individual who, through knowledge of the birthing process, psychological support techniques, and care principles, plays an active role in reducing anxiety, enhancing confidence, and managing pain (5). Evidence indicates that the presence of such companions is associated with shorter labor duration, reduced need for analgesics, lower rates of medical interventions (such as labor induction or episiotomy), and greater maternal satisfaction with the birth experience (6,7). In particular, supportive models such as the doula in developed countries have demonstrated that continuous, trained support can significantly reduce the likelihood of cesarean delivery (8). Despite global evidence, this approach has not yet been institutionalized in many hospitals in Iran and faces challenges such as resistance from healthcare providers, lack of clear hospital policies, insufficient training programs for companions, and inadequate cultural and organizational infrastructure (9). Furthermore, some studies suggest that the presence of a spouse or family member in the delivery room—despite its positive impact—encounters cultural, structural, and attitudinal barriers in Iran (10). Therefore, conducting a scientific examination of the role and impact of trained birth companions within the cultural context and healthcare system of Iran may serve as an important step toward reducing unnecessary cesarean deliveries, improving women's childbirth experiences, and enhancing the quality of maternity care.

Methods and Materials

This randomized clinical trial was conducted on 60 primiparous pregnant women who

attended Omolbanin Hospital in Mashhad in 2019. Participants were selected through convenience sampling based on inclusion and exclusion criteria and were then randomly assigned into intervention and control groups using block randomization. Blocks were formed according to demographic variables, with half of the participants in each block allocated to the intervention group and the other half to the control group.

The inclusion criteria consisted of willingness to participate in the study, age between 18 and 35 years, literacy (reading and writing skills), gestational age of 20–37 weeks, singleton pregnancy, absence of known contraindications for vaginal delivery, absence of high-risk pregnancy, no prior participation in childbirth preparation classes, and no communication difficulties. Exclusion criteria included withdrawal from participation, absence from more than one training session, or inability to continue the program due to illness.

Regarding ethical considerations, the necessary approvals were obtained from the Ethics Committee of Mashhad University of Medical Sciences (IR.MUMS.NURSE.REC.1397.084). The data collection instruments used in this study included: the research unit selection form (inclusion and exclusion criteria form), informed consent form, demographic information form, and a researcher-designed questionnaire on the role and impact of a birth companion. To ensure validity of the research unit selection form, demographic form, and the researcher-designed questionnaire, face and content validity methods were applied.

Accordingly, after reviewing the most recent books and articles related to the study topic, the initial draft of the relevant forms was prepared and then submitted to seven faculty members of the School of Nursing and Midwifery for review and revision. The content and face validity of the instruments were subsequently confirmed. The researcher-designed "Role and Impact of Birth Companion" questionnaire focused on the companion's functions and influences during childbirth. It consisted of 12 items, 5 of which were assessed with dichotomous (yes/no) responses. The content validity of this questionnaire was examined, and after incorporating the suggested modifications, the final version was employed in the study. The reliability of the instrument was confirmed with a Cronbach's alpha coefficient of 0.73 (11).

After obtaining approval from the university ethics committee and presenting the authorization to Omolbanin Educational and Medical Center, the mothers in both groups (30 participants each) completed the questionnaires prior to the intervention. Subsequently, a trained midwife conducted childbirth preparation classes for pregnant women (control group) from the 20th to the 37th week of pregnancy, every other week, across eight 90-minute sessions delivered both verbally and practically.

The educational content included:

Table 1. Educational Content of Sessions.

Session Number	Session Content
Session 1	personal hygiene and adaptation to pregnancy changes
Session 2	nutrition during pregnancy and dietary guidelines
Session 3	mental health, the husband's role, and mood changes in pregnancy
Session 4	warning signs and differentiation between normal and abnormal pregnancy pains
Session 5	birth planning and delivery mode selection
Session 6	recognition of labor signs and labor pains
Session 7	postpartum hygiene and postpartum exercises
Session 8	newborn care, breastfeeding education, and neonatal danger signs

In the intervention group, in addition to these sessions, two joint sessions with the companion (mother or sister) were held during sessions 5 and 6, as well as two separate sessions exclusively for the companion during sessions 3 and 4. The training content addressed vaginal delivery, its benefits, cesarean complications, and pain relief methods. Non-pharmacological methods included: (1) stretching exercises, relaxation, and breathing techniques; (2) positioning during labor; (3) counterpressure; (4) concentration, creative visualization, and distraction; (5) vocalization or music; (6) hypnosis; (7) superficial heat application; (8) superficial cold application; (9) hydrotherapy; (10) touch and massage; (11) acupuncture; (12) acupressure; (13) transcutaneous electrical nerve stimulation (TENS); and (14) aromatherapy. Pharmacological methods included: (1) spinal or epidural anesthesia; (2) inhalation analgesics; and (3) injectable analgesics. Immediately after the completion of the educational program, the questionnaires were again completed by both intervention and control groups. Given that this was a two-group, two-phase study, data from both pre- and post-intervention assessments were analyzed using descriptive statistics (mean, standard deviation, etc.) and inferential tests. Data analysis was performed

with SPSS software version 16, with a significance level set at $p < 0.05$.

Results

The results of this study showed that the intervention and control groups did not differ significantly in terms of age, education, occupation, income level, type of insurance, number of pregnancies, or mode of delivery, and were therefore homogeneous (Tables 2-5). All mothers included in the study had a gestational age of 20–32 weeks. The two groups were homogeneous with respect to maternal age. The mean age \pm standard deviation of the companions of mothers in the intervention group was 33.5 ± 7.5 years, and in the control group was 33.8 ± 8.6 years. The independent t-test indicated no significant difference ($P = 0.886$), confirming homogeneity between the groups in this respect.

The mean \pm standard deviation of the number of pregnancies of companions in the intervention group was 2.3 ± 1.0 , compared to 2.6 ± 1.5 in the control group. The Mann-Whitney test revealed no significant difference ($P = 0.637$), indicating homogeneity between the groups.

The mean \pm standard deviation of the number of deliveries of companions in the intervention group was 2.2 ± 1.0 , compared to 2.5 ± 1.5 in the control group. The Mann-Whitney test showed no significant difference ($P = 0.450$), again confirming homogeneity between the groups (Table 2).

Table 2. Mean and Standard Deviation of Maternal Age and Companion Age in the Intervention and Control Groups.

Variable	P-value	df	Test Statistic	Control (n=30)	Intervention (n=30)
Maternal age (years)	0.403	52	t=-0.8	5.9 \pm 28.3	8.3 \pm 26.7
Companion age (years)	0.886	58	t=-0.1	8.6 \pm 33.8	7.5 \pm 33.5
Companion pregnancies (number)	0.637	-	z=-0.5	1.5 \pm 2.6	1.0 \pm 2.3
Companion deliveries (number)	0.450	-	z=-0.8	1.5 \pm 2.5	1.0 \pm 2.2

Significance was set at $P \leq 0.05$ using the independent t-test. The intervention and control groups were also homogeneous with respect to other demographic characteristics. In the intervention group, 73.3% and in the control group, 63.3% of the mothers had a companion who was their sister. The chi-square test showed no significant difference in the frequency of companion type between the

two groups ($P = 0.405$), indicating homogeneity regarding companion type. In the intervention group, 30% and in the control group, 53.3% of mothers had companions with a history of vaginal delivery. The chi-square test showed no significant difference in the type of companion's previous delivery between the groups ($P = 0.186$), confirming homogeneity. In the intervention group, 86.7% and in the control group, 76.7% of mothers had companions with a positive

attitude toward vaginal delivery. The chi-square test indicated no significant difference in companion attitude toward vaginal delivery between the groups ($P = 0.317$), confirming homogeneity in this regard. Significance was set at $P \leq 0.05$, using the Mann-Whitney and chi-square tests. The results of the present study showed that before the intervention, 63.3% of mothers in the intervention group and 70% in the control group considered the

companion influential in the choice of delivery method. The chi-square test indicated no significant difference between the two groups before the intervention ($P = 0.584$).

After the intervention, 83.3% of mothers in the intervention group and 56.7% in the control group considered the companion influential in delivery method choice. The chi-square test showed a significant difference between the two groups after the intervention ($P = 0.024$) (Table 3).

Table 3. Frequency Distribution of the Study Sample According to the Influence of Companion on Delivery Method Choice Before and After Intervention in the Intervention and Control Groups.

Variable	Intervention (n=30)	Control (n=30)	Test Statistic	df	P-value
Before Intervention			Chi ² =0.3	1	0.584
Yes	19 (63.3%)	21 (70%)			
No	11 (36.7%)	9 (30%)			
Total	30 (100%)	30 (100%)			
After Intervention			Chi ² =5.1	1	0.024
Yes	25 (83.3%)	17 (56.7%)			
No	5 (16.7%)	13 (43.3%)			
Total	30 (100%)	30 (100%)			

Before the intervention, 60% of mothers in the intervention group and 70% in the control group considered the companion influential in expecting a positive childbirth outcome. The chi-square test indicated no significant difference between the two groups before the intervention ($P = 0.417$).

After the intervention, 96.7% of mothers in the intervention group and 66.7% in the control group considered the companion influential in expecting a positive childbirth outcome. The chi-square test showed a significant difference between the two groups after the intervention ($P = 0.003$) (Table 4).

Table 4: Frequency Distribution of the Study Sample According to the Influence of Companion on Expectation of Positive Childbirth Outcome Before and After Intervention in the Intervention and Control Groups.

Variable	Intervention (n=30)	Control (n=30)	Test Statistic	df	P-value
Before Intervention			Chi ² =0.7	1	0.417
Yes	18 (60%)	21 (70%)			
No	12 (40%)	9 (30%)			
Total	30 (100%)	30 (100%)			
After Intervention			Chi ² =9.0	1	0.003
Yes	29 (96.7%)	20 (66.7%)			
No	1 (3.3%)	10 (33.3%)			
Total	30 (100%)	30 (100%)			

Before the intervention, 86.7% of mothers in the intervention group and 93.3% in the control group considered the companion's (mother or sister) previous unpleasant childbirth experience influential in their intention to choose a delivery method. The Fisher's exact test indicated no significant difference between the two groups before the intervention ($P = 0.671$).

After the intervention, 60% of mothers in the intervention group and 76.7% in the control group considered the companion's previous unpleasant experience influential in their delivery method choice. The chi-square test showed no significant difference between the

two groups after the intervention ($P = 0.165$).

Before the intervention, 93.3% of mothers in the intervention group and 86.7% in the control group considered the companion's fear of labor pain (based on the companion's experience) influential in their intention to choose a delivery method. The Fisher's exact test indicated no significant difference between the two groups before the intervention ($P = 0.671$).

After the intervention, 90% of mothers in the intervention group and 80% in the control group considered the companion's fear of labor pain influential in their delivery method choice. The Fisher's exact test showed no significant difference between the two groups after the intervention ($P = 0.472$) (Table 5).

Table 5. Frequency Distribution of the Study Sample According to the Influence of Companion's Fear of Labor Pain on Delivery Method Choice Before and After Intervention in the Intervention and Control Groups.

Variable	Intervention (n=30)	Control (n=30)	Test Statistic	df	P-value
Before Intervention			Fisher's exact	-	0.671

Yes	28 (93.3%)	26 (86.7%)			
No	2 (6.7%)	4 (13.3%)			
Total	30 (100%)	30 (100%)			
After Intervention			Fisher's exact	-	0.472
Yes	27 (90%)	24 (80%)			
No	3 (10%)	6 (20%)			
Total	30 (100%)	30 (100%)			

Before the intervention, 60% of mothers in the intervention group and 70% in the control group considered the companion influential in their childbirth self-efficacy. The chi-square test indicated no significant difference between the two groups before the intervention ($P = 0.417$).

After the intervention, 96.7% of mothers in the intervention group and 66.7% in the control group considered the companion influential in their childbirth self-efficacy. The chi-square test showed a significant difference between the two groups after the intervention ($P = 0.003$).

Discussion

The findings of the present study indicated that a trained companion plays a significant role in improving mothers' attitudes toward childbirth, enhancing their sense of self-efficacy (expectation of positive outcomes) during labor, and influencing their choice of delivery method. In fact, the results showed that a considerable proportion of mothers in the intervention group, who had the support of a trained companion, acknowledged the companion's supportive role in delivery method selection and in effectively managing labor pain, evaluating this presence as more beneficial than before. This change in mothers' attitudes was not observed in the control group, highlighting the direct impact of the educational intervention on mothers' perceptions.

Previous studies also support that the presence of a trained companion, particularly in high-stress hospital environments, plays a crucial role in fostering a sense of security, reducing anxiety, and alleviating the experience of pain (12). Bohrns and colleagues, in a systematic review, demonstrated that continuous labor support decreases the likelihood of cesarean delivery, reduces the use of epidural anesthesia, and increases maternal satisfaction with the childbirth process (13). In line with these findings, the results of the present study indicate that simple yet targeted educational interventions, by preparing companions to play an effective role, can lead to more informed maternal decision-making and a greater inclination toward vaginal delivery.

Furthermore, the findings indicated that maternal self-efficacy (expectation of positive outcomes) in the intervention group increased significantly after the companion's training. This result can be interpreted using Bandura's self-efficacy theory, which posits that receiving emotional and social support is one of the most important sources for enhancing an individual's belief in their own capabilities (14). A trained companion can play an effective role in boosting confidence and reducing maternal dependence on medical interventions by providing emotional support, reminding the mother of her abilities, and teaching simple relaxation skills. McGrath and Kennell, in a classic study, also concluded that couples who received joint training and had the active presence of the spouse during labor reported a more positive psychological experience of childbirth and had lower rates of cesarean delivery (15). Another important point is the homogeneity of the two groups in terms of demographic characteristics and obstetric history. This homogeneity allows the observed changes to be attributed to the intervention with greater confidence. In fact, potential confounding variables in the present study were well controlled, which enhances the internal validity of the results.

From a cultural and social perspective, the findings of this study can play an important role in health policy-making in Iran. Despite the World Health Organization's emphasis on the role of support during labor, many healthcare centers in Iran still lack formal policies for the active presence of a trained companion, and in practice, the entry of companions into labor wards faces structural and cultural barriers (16). The results of the present study indicate that these barriers can be largely addressed through targeted training and awareness-raising among healthcare staff and families. Moreover, these findings are consistent with the study by Gharacheh et al. (2020), which showed that one of the main obstacles to companion participation in labor is the lack of sufficient training and information on how to provide effective support (17).

On the other hand, the findings suggest that training companions can not only improve the maternal childbirth experience but also promote mental health, reduce postpartum depression, and increase overall satisfaction with care services. Considering that vaginal delivery offers multiple advantages over cesarean section—such as faster maternal recovery, reduced surgical complications, and immediate skin-to-skin contact with the newborn—any intervention that increases women's inclination toward vaginal

delivery holds strategic importance (18). However, it is necessary to acknowledge certain limitations, including the implementation of the intervention in a single center, a limited sample size, and the lack of long-term follow-up, all of which restrict the generalizability of the results. It is recommended that future studies employ longitudinal designs, larger sample sizes, and multiple healthcare centers to obtain more precise evidence on the long-term effects of trained companions during labor on maternal and neonatal health.

Conclusion

The present study demonstrated that the presence of a trained companion during labor plays a significant role in enhancing mothers' positive attitudes toward delivery method choice, as well as their self-efficacy and expectation of positive outcomes during childbirth. These findings underscore the importance of investing in educational programs for companions during labor—programs that can effectively reduce fear of childbirth, increase pregnant women's confidence, and ultimately decrease unnecessary cesarean sections.

Given that the cesarean rate in the country exceeds global standards, utilizing trained companions as a low-cost, human-centered, and evidence-based strategy can serve as a key tool for improving the quality of maternity care within Iran's health system. Therefore, it is recommended that educational interventions for companions be formally and widely incorporated into childbirth preparation programs, and that conditions be created to enable their effective presence alongside mothers. Additionally, establishing the necessary cultural and structural infrastructure for implementing this approach

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Ethics approval and consent to participate

The ethics committee of Maragheh university of medical sciences approved this research (ethics code: IR.MUMS.NURSE.REC.1397.084).

Conflict of Interest

The authors declare no conflicts of interest.

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Author Contributions

- NM: Supervision of the study, statistical analysis, manuscript writing, formatting the manuscript according to the journal's requirements, manuscript submission, re-analysis of statistics, implementing revisions in consultation with other authors, responding to reviewers.
- ZHV: manuscript writing, formatting the manuscript according to the journal's requirements
- FB: manuscript writing, formatting the manuscript according to the journal's requirements
- SS: Study proposal, sampling, data entry, manuscript writing, manuscript submission, responding to reviewers.

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