

# The Effects of Intrapartum Supportive Care on Fear of Delivery and Labor Outcomes: A Single-Blind Randomized Controlled Trial

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## ABSTRACT

**Background:** Supportive care during labor, the primary role of intrapartum nurses and midwives, provides comfort to prepartum women and helps facilitate a positive labor experience. It has been argued that supportive care during labor reduces fear and anxiety as well as the resultant side effects. However, evidence supporting this argument is insufficient.

**Purpose:** The aim of this study was to assess the effects of intrapartum supportive care on fear of delivery and on the key parameters of the labor process.

**Methods:** This study used a single-blind randomized controlled trial approach. Randomized block assignment was used to assign 72 participants to either the intervention group ( $n = 36$ ) or the control group ( $n = 36$ ). Three women in the intervention group and six in the control group were later excluded from the study because they received emergency cesarean delivery. The intervention group received continuous supportive care, and the control group received routine hospital care.

**Results:** No significant differences were identified between the two groups at baseline. The intervention group reported less fear of delivery during the active and transient phases of labor, higher perceived support and control during delivery, lower pain scores during the transient phase of labor, and a shorter delivery period than the control group ( $p < .05$ ). However, no significant difference in the use of oxytocin during delivery between the two groups was reported.

**Conclusions/Implications for Practice:** The results of this evidence-based study suggest that continuous support during labor has clinically meaningful benefits for women and that all women should receive this support throughout their labor and delivery process.

## KEY WORDS:

supportive care, labor, fear of delivery, intrapartum nursing.

care directed toward easing the anxiety, discomfort, loneliness, and/or exhaustion of the patient to help her use her own strengths and to ensure that her needs and wishes are known and respected (Simkin, 2002). Intrapartum supportive care is traditionally provided by nurses and midwives. Midwives may be women who are not hospital employees and have no personal relationship to the laboring woman or women who are selected by prepartum women from their social network. Intrapartum supportive care covers the dimensions of physical support and comfort, emotional support, instructional or informational support, and advocacy support (Adams & Bianchi, 2008; Hodnett et al., 2012).

Physical support and comfort during labor are achieved through the use of environmental controls in the delivery room, through enabling women to manage pain, through providing hygiene and eliminating urine, and through the maintenance of nutrition (Adams & Bianchi, 2008; Simkin, 2002). Although a limited number of studies have been published on the effect of physical comfort during labor, interventions that use water (e.g., entering a birth pool or taking a shower), relaxation techniques, acupuncture, or massage have been shown to alleviate pain and increase satisfaction with the labor process (Jones et al., 2012).

Emotional support is one of the most important parameters of supportive care during labor. Fear, the most common experience of women in labor, negatively affects the labor process, causing women to experience more severe pain and

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## Introduction

Throughout history, women have received support during the process of giving birth (Hodnett, Gates, Hofmeyr, & Sakala, 2012). Supportive care during labor may refer to nonmedical

prolonging the delivery process, which reduces patient satisfaction with labor (Saisto, Kaaja, Ylikorkala, & Halmesmaki, 2001). Fear during delivery leads to tension, which reduces the self-perceived control of the patient over her labor process (Cheung, Ip, & Chan, 2007; Dick-Read, 2004). It has been reported that women who experience fear of delivery have lower perceived intrapartum care (Haines, Hildingsson, Pallant, & Rubertsson, 2013). Emotional support during labor increases patients' perceived effectiveness of the intrapartum care offered by health staff. Emotional support in labor can be achieved by using effective communication skills and by distracting the attention of women from their labor, allowing them to express their feelings, changing their negative feelings into positive feelings, and making use of spirituality (Adams & Bianchi, 2008; Royal College of Midwifery, 2012).

Providing information to women during labor provides both physical and emotional comfort. Thus, this activity should be initiated during the antenatal period and be continued during labor to help women prepare both cognitively and emotionally for delivery. It has been shown that education offered on coping strategies for labor during the antenatal period increases self-efficacy, reduces pain and anxiety during the first and second stages of labor, and enhances the ability of prepartum women to manage their labor as well as their satisfaction with labor (Ferguson, Davis, & Browne, 2013; Ip, Tang, & Goggins, 2009; Malata, Hauck, Monterosso, & McCaul, 2007; Vasegh Rahimparvar, Hamzehkhani, Geranmayeh, & Rahimi, 2012). Women should be encouraged to make use of the information offered during labor. Midwives and intrapartum nurses should use effective communication skills to inform women about delivery room routines, the labor process, and relaxation interventions performed during labor (Adams & Bianchi, 2008). In one study, a single-session training offered during the latent phase of labor increased perceived self-efficacy significantly (Eom, Kim, Kim, Bang, & Chun, 2012). Therefore, in countries where a standard antenatal education program is lacking, the latent phase of labor may be an opportune time to provide women with information that will enable them to become prepared both cognitively and emotionally for delivery.

Advocacy also plays an important role in intrapartum supportive care. Intrapartum advocacy support includes taking responsibility, protection of privacy, confidentiality, detection of the candidate mothers' expectations about labor, and solution of conflicts (Adams & Bianchi, 2008). It is essential to determine the candidate mothers' expectations about labor appropriately. It has been reported in the literature that women desire to have control over decisions made during labor and that their satisfaction with the labor experiences decreases when they are not allowed to influence these decisions (Lally, Murtagh, Macphail, & Thomson, 2008). In addition, it has been noted that a realistic determination of expectations enhances satisfaction with labor and reduces the pain that patients perceive during the labor process (Christiaens & Bracke, 2007).

Continuously available labor support that is provided by an intrapartum nurse has been shown as critical to improving

birth outcomes (Association of Women's Health, Obstetric and Neonatal Nurses, 2000). Women who received continuous labor support were more likely to give birth "spontaneously," were less likely to use pain medications, were more likely to be satisfied, had slightly shorter labor periods, and were more likely to have no identified adverse effects. In addition, it has been proposed that intrapartum supportive care reduces labor-related fear and anxiety, which in turn has been associated with a decrease in side effects (Hodnett et al., 2012; Sauls, 2002). Moreover, it was proposed that intrapartum supportive care reduces the rate of oxytocin stimulation (Gagnon, Waghorn, & Covell, 1997). However, published studies have not provided clear evidence regarding the strength of this effect on labor outcomes. Thus, further research is needed to study the relationships between the content of intrapartum supportive care and the outcomes of care. The aim of this study was to assess the effects of intrapartum supportive care on fear of delivery and on the key parameters of the labor process.

## Study Hypotheses

H1: Intrapartum supportive care reduces fear of delivery.

H2: Intrapartum supportive care increases perceived support and control in labor.

H3: Intrapartum supportive care reduces perceived pain in the first stage of labor.

H4: Intrapartum supportive care shortens the duration of labor.

H5: Intrapartum supportive care reduces the rate of oxytocin stimulation used in delivery.

## Methods

### Design and Data Collection

This was a single-blind randomized controlled trial. Data were collected from 72 women giving birth in the obstetrics clinic of a state hospital in a city located in the Middle Anatolia Region in Turkey between April and August 2014. Randomized block assignment was used to assign 72 women to the intervention group ( $n = 36$ ) and the control group ( $n = 36$ ). A randomized block procedure (Vickers, 2006) was performed as follows: (a) a block size of 4 was selected; (b) subjects were calculated as having six conditions (TTCC, TCTC, CCTT, TCCT, CTCT, and CTTC); and (c) blocks were randomly selected to determine the assignment of all 72 participants, with an allocation ratio of 1:1. Three women in the intervention group and six in the control group underwent emergency cesarean delivery during the study period and were thus excluded from the data (Figure 1).

Participants who met the inclusion criteria were provided with information about the purpose of the study and the procedures to be performed and were requested to sign informed consent when they agreed to participate. The researcher collected data upon admission to the delivery room, during

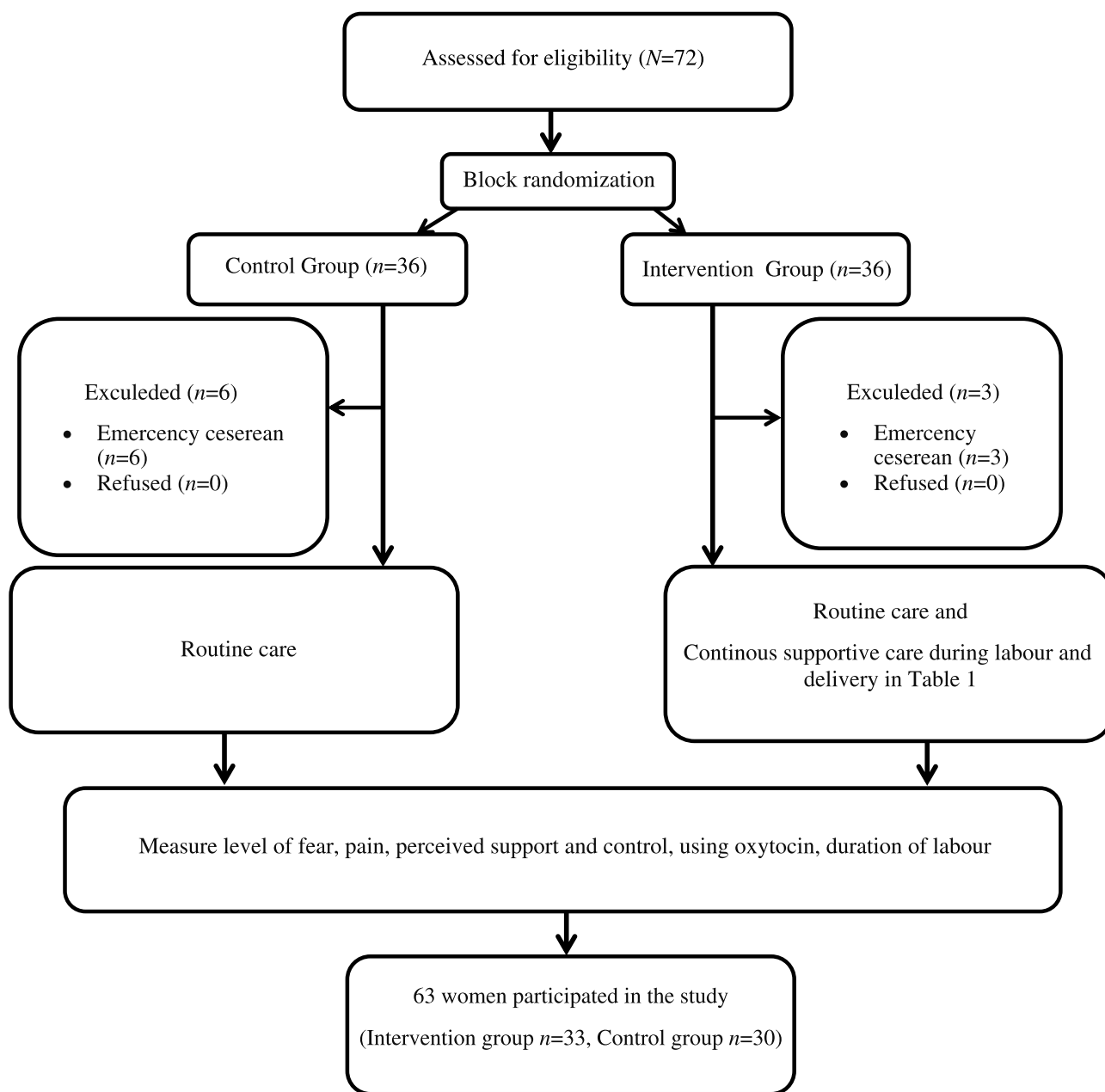


Figure 1. Flow chart of study phases.

labor (latent phase, active phase, and transition phase), and within the 24 hours after delivery. To avoid data collection bias, a nurse/midwife who was blinded to the group assignments accompanied the researcher to make sure that all data were collected and logged correctly.

### Study Participants and Sampling

Study inclusion criteria were (a)  $\geq 18$  years old and literate, with at least a primary education; (b) being primipara or multipara and  $\geq 37$  days of gestational age; (c) having no contraindications related to giving normal, spontaneous vaginal birth; (d)  $\leq 3$ -cm cervical dilatation; and (e) being conscious

and able to communicate in Turkish. Exclusion criteria included having undergone an emergency cesarean delivery during the labor process, declining to participate in the study, or withdrawing from the study during labor.

Because no other experimental studies have used the data collection instrument that was used in this study, the sample size could not be calculated at the outset of the study. When the sample size reached seven participants in each group, Minitab 14 calculated the sample size based on the data already collected. The total score for fear of delivery was considered the primary outcome. The number of the participants required for each group was determined by the power calculation based on a significance level of .05 for the assumed

mean differences (11) and the standard deviations (13.15) within the proposed data collection tool. It turned out that at least 24 participants were required in each group to achieve a study power of 80%. Considering the potential for participant withdrawals during the study, 36 participants were assigned to each group. Figure 1 shows the flow chart for the study phases.

### Intervention

Participants were blinded to the differences in the interventions used between the two groups. Intrapartum supportive care in the intervention group was provided by five midwifery students from the School of Health who had taken an obstetrics course in their third year and had expressed willingness to join the study. The students were provided 24 hours of skills training directed toward continuous supportive care and practices during labor and a 2-hour theoretical course for the research procedures that was taught by the researchers. The researchers controlled the care process and gave feedback to students during the provision of intrapartum supportive care.

The intervention group was given continuous supportive care during labor and delivery as recommended by Adams and Bianchi (2008) and The Royal College of Midwives (2012) in addition to routine care. This supportive care process is shown in Table 1. The interventions began upon hospital admission and finished at the end of the third stage of labor. These interventions were not standardized, as the labor process differs for every woman and each woman responds differently to different relaxation methods. During the labor, the interventions shown in Table 1 were performed in accordance with the preferences of the participants at different times, durations, and frequencies. For instance, some women preferred massages, whereas others preferred acupressure.

Participants in the control group received the routine care that was normally provided at the hospital only. At the par-

ticipating hospital, pregnant women are monitored, and midwives perform the deliveries; doctors are consulted when necessary. The physical support normally offered by midwives during the first phase of labor included controlling room temperature and odors, patient positioning, and hygiene and urinary elimination. The emotional labor support offered by midwives in this study included encouragement. The instructional–informational labor support offered by midwives in this study included routines and procedures (e.g., familiarization with the hospital environmental and routine procedures) and pushing techniques. The advocacy labor support offered by midwives in this study included conflict resolution.

Data were collected for all participants in the two groups on labor, pain, and fear in the latent (dilatation of 0–3 cm), active (dilatation of 4–7 cm), and transition (dilatation of 8–10 cm) phases during the first stage of labor at the time of vaginal examination and on perceived support and control within 24 hours postpartum.

### Data Collection Instruments

#### Personal information form

This form is composed of questions about the personal and obstetric characteristics of the participants. This form was given to participants upon their enrolment in the study.

#### Labor outcomes information form

This form queries information on the labor process and oxytocin administration during labor. This form was administered during the first-hour postpartum.

#### Pain score

Pain was assessed on a 10-cm visual analogue scale ranging from 0 (*no pain at all*) to 10 (*the worst pain*). Scores reflected participants' subjective feelings at the time of scoring. This scale was used four times: upon participant enrolment and during the latent, active, and transition phases of the first stage of labor.

#### Delivery fear scale

This 10-item scale was developed by Wijma, Alehagen, and Wijma (2002) to measure fear during delivery. Participants are asked to respond to each item with a score from 1 to 10. Five items (1, 3, 5, 7, and 10) have a positive meaning, and five items (2, 4, 6, 8, and 9) have a negative meaning. Items with a negative meaning are scored on a 10-point scale: 1 = *completely disagree* and 10 = *completely agree*. The positive-meaning items are scored in reverse order. The lowest and highest possible scores for the scale are 10 and 100, respectively, with higher scores indicating greater fear. It took 30–90 seconds for participants to complete the scale. The scale is quite practical. The Cronbach's alpha for the original scale was measured as .88 (Wijma et al., 2002). In this study, this scale was used four times: upon enrolment in the study and

**TABLE 1.**  
**Continuous Supportive Care During Labor and Delivery in the Intervention Group**

Supportive Care During Labor and Delivery
Physical support: environmental control, positioning, touch, application of cold and heat, hygiene, urinary elimination, nourishment
Emotional support: distraction, verbal and nonverbal expression, reframe negative thoughts into positive, prayer
Instructional support: breathing, relaxation and pushing techniques, acupressure, positioning for first and second stages, massage
Informational support: routines and procedures
Advocacy support: conveying respect, ensuring security, acknowledging mother's expectations for labor and birth, conflict resolution, partner care



during the latent, active, and transition phases of the first stage of labor.

### **Perceived control and support in birth scale**

The Perceived Support and Control in Birth scale (SCIB) was developed by Ford, Ayers, and Wright in 2009 to measure perceived support and control in birth. SCIB subscales include internal control, external control, and support, with a total of 33 items. A 5-point Likert scale was used to score responses, ranging from “completely agree” to “completely disagree.” The lowest possible score for the scale is 33, and the highest possible score is 165. Higher scores are associated with a higher degree of perceived support and of control during birth. Ten items are scored in reverse order. The Cronbach’s alpha value of the SCIB was measured as .95. In this study, this scale was administered within 24 hours postpartum.

### **Ethical Consideration**

Approval was obtained from the ethics committee of the university located in the city where the study was conducted and also from the hospital (Institutional Review Board approval number 04.03.2014-02-03). The participants were given information about the purpose of the study, and each participant provided oral informed consent. Participants were free to withdraw from the study at any time during the study period. To protect the privacy of participants, all data were encoded and used only for research purposes.

### **Data Analysis**

Data were analyzed using SPSS Version 16.0. Descriptive statistics were used to analyze frequency distributions, percentages, means, and standard deviations. Statistical significance was defined as  $p < .05$ . The independent sample  $t$  test was used to analyze demographic and obstetric data, including age, number of pregnancies, and number of gestational weeks. The chi-square test was used to analyze data on level of education, parity, and the amount of oxytocin administered. A significance test of the difference between two mean values was used to compare the two groups in terms of duration of labor and scores for perceived pain, *Delivery Fear Scale* (DFS), and SCIB during the phases of the first stage of labor.

## **Results**

Table 2 summarizes the demographic characteristics of the participants. There were no significant differences between the two groups in terms of age, education, parity, number of pregnancies, gestational weeks, pain score before intervention, and DFS score before intervention ( $p > .05$ ).

Table 3 summarizes differences in critical variables between the two groups after the intervention. Although no significant difference in DFS scores during the latent phase of the first stage of labor was noted between the groups, the

differences in DFS scores between the active and transition phases were significant ( $p > .05$ ,  $p < .05$ ,  $p < .01$ ). Although the amount of oxytocin used did not differ significantly between the groups, duration of labor was significantly shorter in the intervention group ( $p > .05$ ,  $p < .01$ ). Furthermore, the participants in the intervention group had significantly lower pain scores during the transition phase of the first stage of labor ( $p < .01$ ). In addition, the mean SCIB scores showed that the intervention group had a higher degree of total perceived intrapartum support and control, perceived support, and perceived internal and external control ( $p < .01$ ).

## **Discussion**

This study revealed that the participants in the intervention group had a lower degree of fear and a higher degree of perceived intrapartum support and control during the active and transition phases of labor, lower pain scores during the transition phase of the first stage of labor, and a shorter duration of labor in comparison with the control group.

The results of this study suggest that fear was the primary variable that affected the other variables. Continuous intrapartum supportive care was found to reduce fear of labor during the active and transition phases of labor. This may be explained by two factors. First, the continuous accompaniment of the women may have eliminated feelings of loneliness and decreased the fear of labor. In fact, it has also been shown in the literature that fear of labor is caused by experiencing feelings of loneliness and receiving insufficient intrapartum support from health professionals (Nilsson, Bondas, & Lundgren, 2010; Nilsson & Lundgren, 2009). Second, participants in the intervention group reported having a higher degree of perceived intrapartum support. The application of relaxation-enhancing methods during the active and transition phases of labor, when frequency, duration, and severity of contractions increase, may have led participants to adopt a positive attitude toward the intrapartum supportive care intervention, which may have subsequently reduced their fear of labor. Similarly, Ford and Ayers (2009) reported that, as the positive perception of women of the intrapartum supportive care offered by health staff increases, their perceived control over labor increases and their anxiety and negative mood decrease.

Fear of delivery causes tension, which decreases the feeling of control over labor in women (Cheung et al., 2007; Dick-Read, 2004). Stevens, Wallston, and Hamilton (2012) found that intrapartum supportive care enhances perceived control. Consistent with those findings, this study revealed that intrapartum supportive care improves perceived internal and external control during birth. Perceived control during birth involves coping with pain, exhibiting the behavior expected of the self-birth, making decisions, accessing medical information, self-competency, and emotional status (Elmir, Schmied, Wilkes, & Jackson, 2010; Ford & Ayers, 2009; Goodall, McVittie, & Magill, 2009; Stevens et al., 2012). Perceived control during childbirth has been associated with

**TABLE 2.**  
**Participant Sociodemographic and Obstetric Characteristics**

Variable	Intervention Group (n = 33)		Control Group (n = 30)		p/ $\chi^2$
	n	%	n	%	
Age <sup>a</sup> (years), mean and SD	24.9	5.9	25.0	4.7	.982
Education <sup>b</sup>					
Primary education	27	81.8	21	70.0	.149 $\chi^2 = 5.330$
High school or university program	6	18.2	9	30.0	
Parity <sup>b</sup>					
Primipara	10	30.3	13	43.3	.283 $\chi^2 = 1.151$
Multipara	23	69.7	17	56.7	
Gestational week <sup>a</sup> , mean and SD	39.3	1.0	39.2	1.2	.646
Pain score before intervention <sup>a</sup> , mean and SD	3.4	1.7	2.6	2.6	.149
DFS score before intervention <sup>a</sup> , mean and SD	40.5	20.7	41.5	19.1	.845

Note. DFS = Delivery Fear Scale.  
<sup>a</sup>Independent t test. <sup>b</sup>Chi-square test.

emotions felt during the birth process (Elmir et al., 2010). Higher subjective controllability has been related to more intense positive emotions and less intense negative emotions. Furthermore, higher subjective controllability has been associated with less self-reported severe pain (Tinti, Schmidt, & Businaro, 2011).

When pain scores were compared between the two groups, the intervention participants had significantly lower pain scores during the transition phase of labor. This may be

because of the reduction effect of intrapartum supportive care on fear of labor and the increase in perceived intrapartum support and control. In fact, fear may cause women to experience more severe pain (Saisto et al., 2001), with their increased control over labor decreasing perceived pain in labor (Christiaens & Bracke, 2007). The duration, frequency, and severity of contractions are the highest during the transition phase of labour, making this phase the most difficult phase of labor for women (Rathfisch, 2012). Furthermore,

**TABLE 3.**  
**Comparison of Critical Variables Between the Two Groups After Intervention**

Variable	Intervention Group (n = 33)		Control Group (n = 30)		p/ $\chi^2$
	Mean	SD	Mean	SD	
Delivery fear <sup>a</sup>					
Latent phase	47.0	19.6	50.6	25.5	.534 .037 .002
Active phase	52.0	21.4	65.3	27.5	
Transitional phase	60.8	23.6	79.0	20.6	
Pain score <sup>a</sup>					
Latent phase	6.1	1.7	5.2	2.6	.111 .212 .010
Active phase	7.3	1.7	7.9	2.3	
Transitional phase	9.0	1.4	9.7	0.7	
Perceived Control and Support in Birth <sup>a</sup>					
Support	61.7	9.2	46.0	11.1	.000 .014 .000 .000
Internal control	29.2	9.3	23.0	10.3	
External control	14.1	4.5	6.5	1.6	
Total	105.1	16.3	75.5	18.1	
Duration of labor (hours) <sup>a</sup>	8.0	3.1	12.7	5.0	.000
Oxytocin <sup>b</sup> , n and %					
Yes	23	69.7	25	83.3	.204 $\chi^2 = 1.611$
No	10	30.3	5	16.7	

Note. <sup>a</sup>Independent t test. <sup>b</sup>Chi-square test.

it has been reported that intrapartum supportive care reduces the rates of painkiller use during labor (Hodnett et al., 2012). In the hospital where the current study was conducted, analgesia is not normally administered during labor. A striking finding of this study is that enabling women to cope with pain reduces their severity of pain during the transition phase. This has great clinical importance as well and further underscores the importance of intrapartum supportive care provided by midwives and intrapartum nurses.

Another important finding of this study is that, although the amount of oxytocin used did not differ between the two groups, the duration of labor was about 4.7 hours shorter in the intervention group. However, it has been reported in the literature that supportive care decreases the duration of labor by 0.58 hours (Hodnett et al., 2012). This significant difference may have been because of the quality of care offered in hospitals where the studies were performed. Fear leads women to experience longer duration of delivery (Adams, Eberhard-Gran, & Eskild, 2012). The finding of the current study may be because intrapartum supportive care reduced the fear of labor. Shortened duration of labor is of clinical importance and has been shown to enhance satisfaction with labor and cause mothers and their fetuses to undergo fewer interventions during labor, which has a positive effect on labor outcomes. In addition, this care helps optimize the use of healthcare manpower resources. To achieve this, the number of pregnant women per midwife and intrapartum nurse should be well planned by healthcare institutions. In the absence of midwives and intrapartum nurses, support may be delivered either by professionals who have been educated in supportive care in labor such as doula or midwifery or by nursing students.

## Conclusion, Study Limitations, and Suggestions

Supportive care alleviates fear and perceived pain in labor, increases perceived support and control, and shortens the duration of labor. On the basis of the results from this evidence-based study, it is suggested that continuous intrapartum support has considerable clinical benefits for women and that all women should be provided with support throughout the labor process.

A limitation of this study is that it is a single-blind randomized controlled trial. In other words, only the women included in the study were blinded to the interventions offered. Although the study could have been designed as a double-blinded randomized controlled trial, and data could have been collected by nurses blinded to the study group, it was necessary for the researcher to collect the data because the nurses working in the clinic where the study was conducted did not have sufficient knowledge or skills for conducting research. To eliminate any bias related to data collection, a nurse and a midwife who were blinded to the intervention group assignments accompanied the researcher during the data collection process to double-check for data collection accuracy.

Double-blinded randomized controlled studies are needed in future research to investigate the effects of intrapartum supportive care on self-efficacy, satisfaction with labor, and maternal–fetal complications.

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