Clinical and Experimental Health Sciences

The Effect on Birth Pain and Process of the Freedom of Movement in the First Stage of Labor: A Randomized Controlled Study

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ABSTRACT

Objective: To determine the effect of freedom of movement implemented in the dilatation stage, which is the first stage of labor, on the labor process in pregnant women who will give their first birth.

Methods: This study was designed as a randomized controlled trial. The study consisted of 70 primiparous women, including 35 in the study group (SG) and 35 in the control group (CG). Freedom of movement was provided to the study group in the first stage of labor. Data were collected using a Personal Information Questionnaire, a Labor Assessment Form, and the Visual Analog Scale (VAS) for perceived pain.

Results: The SG was observed to be walking when dilatations were 4-7 cm and mostly squatting when 8-10 cm (94.2%). The level of effacement, frequency of contraction, and descent of the fetal head were faster ($p<0.01$), and total dilatation, expulsion, placental expulsion, and total labor and delivery time were shorter in pregnant women in the SG ($p<0.001$). After delivery, the SG had shorter initial contact with their babies and first breastfeeding time, and the total 24-hour postpartum hemorrhage was less ($p<0.001$). When there was no freedom of movement during labor, the total dilation time (OR=2.41), expulsion time (OR=1.25), placental expulsion time (OR=1.16), total delivery time (OR=2.76), the VAS score at 6 – 7cm dilatation time (OR=2.48), and first breastfeeding time (OR=1.15) were found to increase ($p<0.05$-0.01).

Conclusion: The freedom of movement allowed at the first stage of labor was observed to reduce perceived labor pain, the process of labor and delivery time, the volume of postpartum hemorrhage, and the time of the first contact with the infant and the first breastfeeding.

Keywords: Labor, delivery, stage, birth process, freedom of movement, effect

1. INTRODUCTION

Labor pain is one of the most severe pain types and is described as a sophisticated experience based on physiological, psychological, and social components (1). While the pain experienced during labor is a normal and important component of the birth process, it may also increase the fear of birth and cause a negative birth experience if not managed well (2, 3). It is stated that women who had a negative birth experience especially talk about the pain that they experienced at birth, in addition to many factors. (4-6). While negative perception about pain causes fear of birth, fear of birth, on the other hand, decreases pain tolerance. This situation may cause many complications, such as prolonged labor, negative birth experience, an increase in reasons to choose epidural anesthesia or cesarean, etc. (6).

Freedom of movement during the labor process means the pregnant can take any position at any time spontaneously according to the normal course of the delivery (7-12). The World Health Organization (WHO) recommends that the labor should be supported in its normal course by maintaining its natural physiology, the woman should be allowed to take any position at any time at her will without any interference with the position she should take at a given stage while the labor is progressing, and that no intervention should be introduced unless necessary (7,11-15).

As the provision of mobility will encourage women to move freely and change positions during labor and birth, supporting the pregnant in this regard is important (10-17). Although there is a belief that all women should be allowed to choose freely and consciously according to labor and birth physiology, a common approach used by health professionals is that the woman should be in bed during labor. Nevertheless, it is not ethical to restrict the freedom of movement of the pregnant especially during labor unless there is a medical obligation (8,18,19).

In birth centers, which provide care with a human rights-based approach, women are in control, and health professionals help

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and encourage them to take the most comfortable position throughout childbirth (11,16,17,21,22). In the systematic evaluation results on the Cochrane database, it is stated that women should be encouraged and supported for positions that they find suitable, and that free movement should not be restricted unless there is a clinical obstacle (10,22). Since inactivity affects delivery negatively, it is stated that the position should be changed every 30 minutes during labor and that the woman should be encouraged about the position change. It is emphasized that the change or choice of the position should be based on the current instincts and preference, safety, and comfort of the mother, effective progression of the labor, and hemodynamic knowledge (10,22,23). The International Lamaze Organization determined six care practices in 2007 to support normal labor. The second of the six care practices created is "freedom of movement throughout labor." Freedom of movement in labor is stated to make the delivery process easier, increase the sense of control, accelerate the delivery, and increase the comfort of delivery and the possibility of normal vaginal delivery (13).

In the literature, the freedom of movement given to the woman during the first stage of the labor and the positions that she takes are reported to reduce the duration and severity of the uterine contractions that she feels, shorten the delivery time, accelerate the delivery by facilitating the descent of the fetus, bring about positive perineal outcomes, and increase the anatomical and physiological adaptation and the comfort and satisfaction of the mother (10-12, 19-21, 24-27). It is stated that allowing the woman to take any position that she seeks instinctively and providing her with freedom of movement in the first stage of the birth when the dilation occurs supports the normal physiological process but does not interrupt it, and therefore, it is safer and healthier (10,11, 13-17).

In recent years, a considerable number of studies have been conducted about labor positions practiced especially in the second stage of delivery. Yet, research into freedom of movement/positions practiced in the first stage of labor is relatively limited. This study was conducted to determine the effect of freedom of movement encouraged in the first stage of labor on the labor and delivery process in *primiparous women*. In the study, the effect of freedom of movement (instinctively) in labor process on the perceived pain, dilatation, expulsion, placental expulsion, total delivery time, volume of postpartum hemorrhage, newborn, and breastfeeding outcomes of pregnant women was evaluated. It is thought that the results of the study will contribute to the literature on the planning and implementation of care to be given to women who give birth.

2. METHODS

2.1. Study Design

This study was designed as a randomized controlled trial and carried out in the maternity ward of an Education and Research Hospital, a city hospital in Istanbul province between April 2016 and February 2017.

2.2. Study Sample

A G-Power (V3-1.7) analysis was conducted to calculate the number of participants to be taken into groups (The calculation was performed based on an effect size of d= 0.8). In the analysis, it was determined that at least 26 women in the birth process should be included in the groups. The study was carried out with 70 women in the first stage of labor, including 35 in the study group-SG (n=35) and 35 in the control group-CG (n=35).

The pregnant women who were admitted to the hospital for delivery were first evaluated in terms of the inclusion criteria. Sample inclusion criteria were as follows: being primiparous; being at the term/gestation week; having a spontaneous vaginal delivery; a dilatation of ≥4cm; not having cephalopelvic disproportion; the fetus in longitudinal, vertex position; having an alive, single, and healthy fetus; not having maternal and fetal complications and early membrane rupture (EMR); an estimated fetal weight of less than 4 kg; not having language-communication problem. Sample exclusion criteria were as follows: having unexpected maternal-fetal risk conditions during the birth process (bleeding, fetal distress, etc.); having a cesarean section; being unable to adapt to the study; quitting or wanting to leave the study.

Randomization: Women who met the sampling criteria were randomized and divided into groups. The randomization was performed on computer software (http://www.randomizer.org/form.html). The numbering was based on the order of admission to the delivery room. Randomization and stages of the study were given in Figure 1. CONSORT flow diagram.

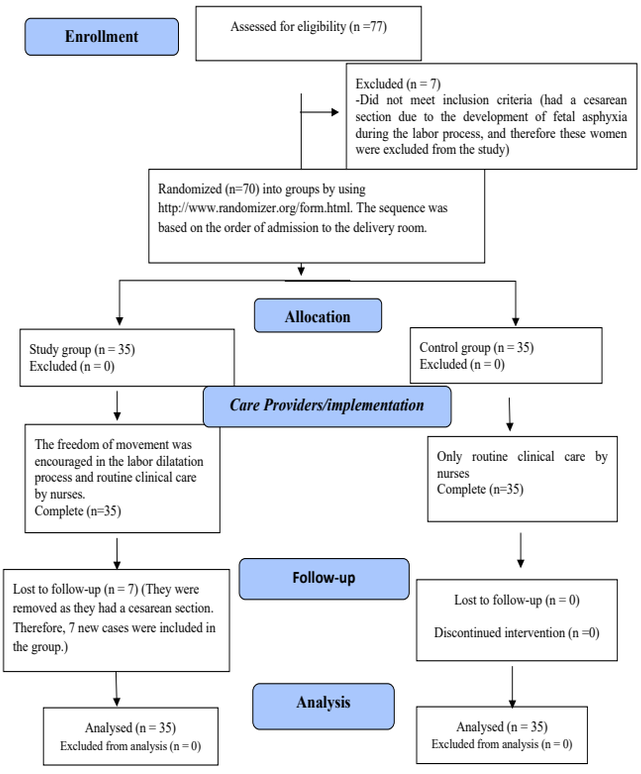

Figure 1. *CONSORT flow chart of the study.*

2.3. Instruments

The study data were collected by using a Personal Information Questionnaire, a Labor Assessment Form, the Visual Analog Scale (VAS), and the Diheng-2000 digital precision scale.

The Personal Information Questionnaire: This questionnaire consists of 13 questions, including 3 open-ended, 4 multiple-choice, and 6 structured items, which were prepared to collect socio demographic and pregnancy-related information about pregnant women.

The Labor Assessment Form: This form was used to evaluate the labor and birth process and the clinical course of the pregnant woman and to assess and record the clinical measurements, observations, and those taken and made by the researchers.

The Visual Analog Scale (VAS): VAS is a scale used to measure perceived pain. Its foundations date back to 1921 when Hayes and Paterson claimed that emotion levels could be shown on a line. The boundaries of these lines are determined by expressions indicating the most extreme states of emotions. VAS is stated to be a more sensitive and reliable measure compared to other one-dimensional scales in the measurement of pain perception. This scale, whose validity and reliability study was conducted, is 10 cm long, and its two ends are named differently on the vertical or horizontal line. This 10-cm long scale reads "no pain" on one end and "the most severe pain possible" on the other end. During pain assessment, individuals are asked to mark the point on the 10-cm line that corresponds to the pain intensity they feel. This scale is used for the assessment of birth pain as well as general pain assessment.[24] In the study, the assessment of birth pain with the VAS was conducted at the dilatation stage of labor, and both groups were evaluated with the VAS three times. To be more specific, evaluations were done in the active phase of dilatation when it reached 4-5 cm, 6-7 cm, and 8-10 cm.

Evaluation of postpartum hemorrhage: A precision weighing scale (Diheng-2000 g) was used to evaluate the 24-hour postpartum hemorrhage. After the birth, all mothers were given hygienic pads (Joly Large Adult Diaper) of the same size and standard. The bleeding findings obtained from the pads weighed with the Diheng-2000 digital precision scale were recorded in the Labor Assessment Form.

2.4. Interventions

This study was carried out during the dilatation process, which is the first stage of labor. In the study, freedom of movement was provided to the study group in the first stage of labor, but no intervention was implemented in the control group other than clinical applications.

The women with pregnancy who came to the clinic for birth were hospitalized in double rooms. In the implementation phase of the study, the women with pregnancy in the study and control groups were placed in different rooms as much as possible to consider ethical issues and to prevent the women with pregnancy from being influenced from each other. The researchers collected all data using the specified data collection tools via the face-to-face interview technique and based on women's self-reports. The intervention procedures of the study for both groups are given in Figure 2.

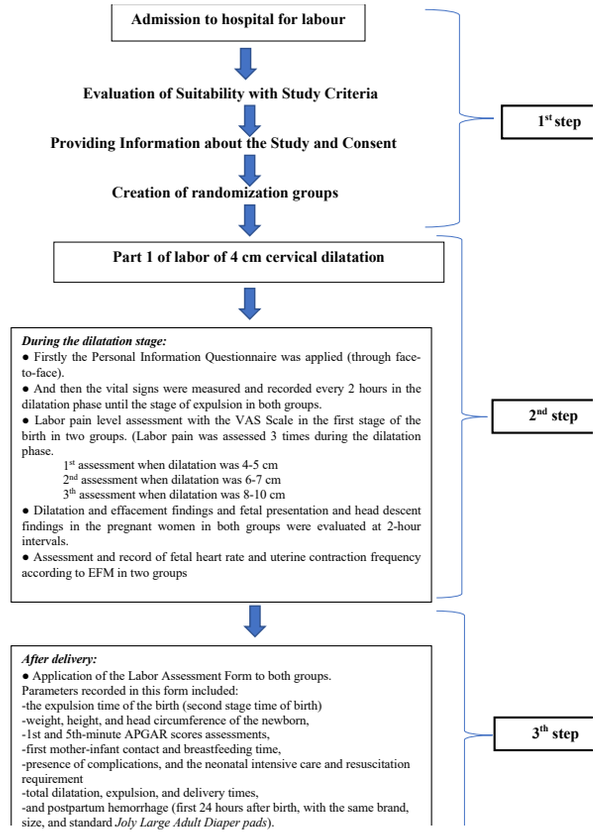

Figure 2. *The intervention procedure stages of the study for both groups*

2.5. Ethical Considerations

At the outset, the ethical committee approval of the non-interventional clinical research ethics committee of Halic University *(27.10.2015, Issue: 55, Decision no: 8)* and the necessary institutional permissions were obtained *(Issue: 150.000.7415).* The study was conducted in compliance with the "Ethical principles for medical research involving human subjects" of the Helsinki Declaration.

2.6. Statistical Analysis

Statistical analysis was performed on the Statistical Package for the Social Sciences software (SPSS, Chicago, IL, USA). Independent t, chi-square, and Fisher chi-square and ANOVA tests were used to compare the findings and the significance level was set at a confidence interval of 95% and a significance level of 0.05. As the values of variables were not normally distributed in the population, the Mann-Whitney U-test was used. The Pearson's correlation test was employed to handle the relationship between parameters of labor and delivery process. The Backward (Conditional) Logistic regression analysis was used to evaluate the effect of no freedom of movement in labor on some labor and delivery process parameters.

2.7. Limitations and Implications

The results cannot be generalized since the study was carried out in a certain place and group.

The freedom of movement that was applied in the study group is not routinely applied in clinics and therefore, there are no institutional or country-based procedures.

The immigrant population is large in the region where the study was conducted, but we could not include them in the study sample due to language problems, so we had difficulty making up the number of cases, and therefore the study took longer than planned (Sometimes, there were no cases at all in the institution on days when the researcher was there.)

Although all the healthcare workers in the institution had been informed about the purpose and process of the study at the outset and they showed approval, some of the staff in the birth service showed negative attitudes towards the freedom of movement of the women with pregnancy during the labor dilatation phase (during labor) (They did not want the women with pregnancy in the service moving around; for this reason, we had to often make explanations and compromise).

The researcher could not attend the institution where the research was carried out every day of the week because she worked in a different institution.

3. RESULTS

The mean age was 22.1 ± 4.0 in the SG and 23.1 ± 3.9 in the CG, and there was no difference between the groups. There was no statistically significant difference in both groups in terms of age, employment status, number of pregnancies, gestational week, the planned status of pregnancy, prenatal education, etc. (p>.05). However, the number of university graduates was significantly higher in the SG (p< .01) (Table 1). All of the pregnant women in both groups had head-first presentation and longitudinal situs. In the first examination findings, there was no statistically significant difference in terms of the fetal position, the status of the amniotic sac membrane, amniotic fluid status, situs, and dilatation (p>.05). Only the percentage of effacement level was significantly higher in the SG (SG: 59.7%; CG: 53.4%) (p< .01) (Table 1).

Table 1. *Characteristics and the first examination findings of women in the two groups*

Characteristics	Study Group (n=35)		Control Group (n=35)		χ^2	p
	n	%	n	%		
Education status						
Illiterate	4	11.4	3	8.6	10.29	**0.01**
Primary education	2	5.7	12	34.3		
High school	17	45.7	15	42.9		
University	12	**37.1**	5	**14.3**		
Number of pregnancies						
Primigravida	29	82.9	30	85.7		
Multigravida (2nd pregnancy)	6	17.1	5	14.3	0.10	0.74
Participation in antenatal classes						
Yes	2	5.7	3	8.6		
No	33	94.3	32	91.4	1.01	0.60
	Average age and gestational week					
	Min-Max	**Mean±SD**	**Min-Max**	**Mean±SD**	**t**	**P**
Age /year	18-35	22.1±4.0	18-34	23.1±3.9	1.08	0.28
Gestational week	38-41	39.3±0.8	37-41	39.3±0.9	0.00	1.00
	The first examination findings of women admitted to the delivery room					
	N	**%**	**n**	**%**	χ^2	**p**
Head presentation	35	100.0	35	100.0		
Situs (longitudinal)	35	100.0	35	100.0		
Fetal Position						
D1*	16	45.7	11	31.4	1.50	0.22
D2**	19	54.3	24	68.6		
Amniotic sac membrane						
Intact	5	14.3	10	28.6	2.12	0.14
Rupture	30	85.7	25	71.4		
Amnion fluid						
Clear	28	85.7	24	80	1.64	0.43
Meconium	2	2.9	1	0.0		
	Effacement and Dilatation					
	Min-Max	**Mean±SD**	**Min-Max**	**Mean±SD**	**t**	**p**
Effacement (%)	50-70	59.7±6.6	40-60	53.4±6.8	13.5	0.004
Dilatation (cm)	1-5	4.6±0.7	4-6	4.6±0.5	2.5	0.45

: D1; The back of the fetus is on the left relative to the mother,: D2; The back of the fetus is on the right relative to the mother.*

The pregnant women in the SG were determined to be generally walking when dilatation reached 4-5 cm, walking around, sitting upright, and leaning against the wall or bed when it reached 6-7 cm, and often squatting when it reached 8-10 cm (p < .01) (Table 2).

Table 2. *The actions of the pregnant women in the study group during the dilatation phase*

Actions	Dilatation			χ^2	p
	4-5 cm n (%)	6-7 cm n* (%)	8-10 cm n* (%)		
Upright sitting	12(34.3)	6(17.1)	-	0.89	0.64
Leaning against the wall / bed	5(11.4)	11(31.4)	15(42.8)	2.90	0.82
Take a walk	19(54.3)	25(71.3)	11(31.4)	2.44	0.87
Squatting	0(0.0)	2(5.7)	33(94.2)	2.15	**0.00**
Total*	36	47	59		

**: Pregnant women were folded because they made more than one movement during the dilatation process.*

Regarding the labor, the means values for total dilatation time / hour (SG: 6.4 ± 0.8; CG: 7.4 ± 1.0), expulsion time/minute (SG: 16.0 ± 5.1; CG: 23.4 ± 6.6), placental expulsion time/minute (SG: 16.5 ± 4.4; CG: 21.0 ± 5.0) and total labor and delivery time / hour (SG: 8.5 ± 0.8; CG: 9.4 ± 0.9) were significantly lower in favor of the pregnant women in the SG (p < .001). Also, the volume of total postpartum bleeding within 24 hours/g (SG: 275.0 ± 33.9; CG: 380.8 ± 47.5) was less among pregnant women in the SG and the mean values for the first contact with baby/minute (SG: 17.2 ± 5.8; CG: 22.7 ± 6.8) and the first breastfeeding time/ minute (SG: 18.9 ± 5.1; CG: 24.4 ± 7.5) was also shorter in the SG (p <0.001). The pain scores in the first VAS assessment done when dilatation was 4-5 cm (SG: 5.1 ± 1.1; CG: 5.8 ± 1.2) and the second VAS assessment performed when it reached 6-7 cm (SG: 6.9 ± 1.0; CG: 7.6 ± 1.1) was significantly lower in the SG (p < .01 – p < .001). On the other hand, the pain scores obtained in the third VAS assessment performed when the dilation was 8-10 cm were found to be similar in the two groups (p> .05). The number of cases developing postpartum complications was very low, and there was no significant difference between the groups in this regard (p> .05). Besides, there was no difference between groups in terms of induction application (SG: 17.1%, CG: 8.60%), non-induction medication (SG: 2.90%, CG: 14.3%), and episiotomy application (SG: 82.9%, CG. 97.1) at birth (p> .05) (Table 3).

Results regarding the Regression Analysis; Regression analysis was based on no freedom of movement in labor. According to the regression analysis conducted for the parameters regarding the effect of no freedom of movement on total dilatation, expulsion, placental expulsion, total labor and delivery times, 1st and 2nd VAS pain scores, and the time of first breastfeeding, the general explanatory coefficient was 100%, sensitivity was 100%, and specificity was 100%. According to the results of the regression analysis, when there was no freedom of movement during labor, there was an increase in the total dilation time (OR=2.41), expulsion time (OR=1.25), placental expulsion time (OR=1.16), total delivery time (OR=2.76), the VAS score at 6-7cm dilatation time (OR=2.48), and first breastfeeding time (OR=1.15) (p<0.05-0.01). Although it increased the 1st VAS score by 1.11, the result was not significant (p>.05) (Table 3).

Results regarding the Correlation Analysis; There was a highly significant negative correlation between the freedom of movement provided to pregnant women in the first stage of labor and 1st VAS and 2nd VAS assessment, total dilatation, expulsion, placental expulsion, total labor, and delivery, first breastfeeding times and the volume of postpartum hemorrhage within 24 hours (p<.01) (Table 4).

Table 3. *The pain levels and birth process data of women according to the groups, and logistic regression analysis results*

Specifications	Study Group (n=35)		Control Group (n=35)		t	p
	Min-Max	Mean±SD	Min-Max	Mean±SD		
Total dilatation time/hrs*	5-8	6.42±0.8	5-9	7.40±1.0	-4.36	**0.00**
Expulsion time/min.	9-30	16.00±5.1	15-40	23.42±6.6	-5.24	**0.00**
Placenta release time/min.	10-25	16.57±4.4	10-35	21.00±5.0	-3.90	**0.00**
The amount of bleeding for 24 hours after birth/g	200-330	275.0±33.9	300-550	380.8±47.5	-10.9	**0.00**
Total duration of labor time/h*	7-10	8.51±0.8	7-12	9.48±0.9	-4.49	**0.00**
First contact time of baby/min.	5-35	17.28±5.8	10-40	22.71±6.8	-3.5	**0.00**
First breastfeeding time/min.	10-35	18.94±5.1	15-45	24.42±7.5	-3.5	**0.00**
Pain levels according to the VAS						
	Min-Max	Mean±SD	Min-Max	Mean±SD	t	p
1st VAS assessment *(dilatation 4-5 cm)*	2-7	5.1±1.1	2-8	5.8± 1.2	-2.48	**0.01**
2nd VAS assessment *(dilatation 6-7 cm)*	4-9	6.9±1.0	3-10	7.6± 1.1	-3.31	**0.00**
3th VAS assessment *(dilatation 8-10 cm)*	8-10	9.4±0.7	9-10	9.7±0.4	-1.56	0.11

Table 3. *Continued*

Multivariate logistic regression analysis results according to the absence of freedom of movement in labor				
Variables	**Multivariate logistic regression**			
	OR	**%95 CI**		**p**
		Lower	**Upper**	
Total dilatation time	2,414	1,083	5,379	**0.031**
Expulsion time	1,256	1,086	1,452	**0.002**
Placenta release time	1,168	1,006	1,370	**0.045**
Total duration of labor	2.767	1.278	5.992	**0.010**
1st VAS assessment *(dilatation 4-5 cm)*	1,116	0,442	2,818	0.816
2nd VAS assessment *(dilatation 6-7 cm)*	2,488	1,220	5,074	**0.012**
First breastfeeding time	1,152	1.052	1,263	**0.002**

** Total dilatation and total delivery times were calculated by accepting the initial dilatation to be 4 cm.*
OR: Odds Ratio, CI: Confidence Interval

Table 4. *Correlation analysis results*

	Variables	1 r	2 r	3 r	4 r	5 r	6 r	7 r	8 r	9 r	10 r	11 r	12 r
1	**Freedom of movement in labor**	1	**-,288****	**-,339****	,229	**-,468****	**-,537****	**-,428****	**-,479****	-,112	,036	**-,798****	**-,396****
2	1st VAS assessment *(D: 4-5 cm)*		1	**,779****	**,275***	,291*	-,007	,060	,205	-,006	,076	,178	**,263***
3	2nd VAS assessment *(D:6-7 cm)*			1	**,443****	,288*	,024	,120	,272*	,020	-,003	,193	,190
4	3th VAS assessment *(D:8-10 cm)*				1	,032	,147	,051	-,068	,083	,042	,072	,184
5	Total dilatation time					1	**,307****	**,270***	**,732****	-,141	-,149	**,320****	**,253***
6	Expulsion time						1	**,427****	**,265***	-,163	-,031	**,484****	**,381****
7	Placenta release time							1	,172	-,084	-,089	**,410****	**,391****
8	Total duration of labor								1	-,083	-,143	**,433****	**,238***
9	First APGAR									1	**,488****	-,186	-,077
10	Second APGAR										1	,006	-,131
11	Total amount of bleeding for 24 hrs.											1	**,415****
12	First breastfeeding time												1

**: p<0,05; **: p<0,01 Spearman correlation analysis was used; r: correlation coefficient*
D: Dilatation

4. DISCUSSION

The vast majority of studies on movement or positions in labor are generally related to the process of expulsion. The discussion in this section will be handled in terms of the data in the literature that is relevant to the results of our study.

Although it is said that keeping pregnant women in bed from the early stages of birth creates a favorable environment for healthcare professionals and constant EFM, most pregnant women would like to walk or change positions frequently, especially in the early stages of delivery (7,29). Since there is not enough evidence that a position is better than another, there is no single position to be recommended or prohibited. In studies, it has been difficult to isolate the independent impact of the position on the progression of labor. Pregnant women cannot keep a single position during a study, and they cannot be expected to do it (21,28,29). As of the active phase, the pregnant women in the SG were determined to be generally walking when dilatation reached 4-5 cm, walking around, sitting upright, and leaning against the wall or bed when it reached 6-7 cm, and often squatting when it reached 8-10 cm (Table 2). In the literature, walking or upright positions are stated to be preferred in the first stage of the birth because they are more comfortable (27,30-40). The results reported in the study of Akin et al. (2017) are similar to the results of the current study related to walking or moving during labor (40).

In our study, the movements that the pregnant women did when the dilatation was 4-5 cm and 6-7 cm can be said to be similar to these data in terms of walking. However, it is noteworthy that pregnant women do not only walk/move but also sit or lean against the wall or bed, and that they squat at the last stage of dilatation to adapt to the labor. These results show us that pregnant women do not perform a fixed pattern of movement in the process of labor and that they shape their movements/positions instinctively according to the labor

process. These findings are considered important in terms of showing that no restriction of movement can be applied or there cannot be a single position for pregnant women in the labor process. The positions are shaped according to the birth process and the pregnant woman's instincts; therefore, support and encouragement about freedom of movement are necessary.

In the study, the dilatation time in the SG participants who were allowed freedom of movement at the first stage of delivery was 1 hour, the expulsion time was 6 minutes, the placental expulsion time was 5 minutes on average, and the total labor and delivery time was 1 hour shorter than that of the pregnant women in the CG (Table 3). Thilagavaty (2012) reported that using an upright position in the active phase in the first stage shortened the second (11 min) and third stage (10 min) of labor (33). Similarly, Miquiletti et al. (2007) stated that taking an upright position in the first stage of labor shortened the time of this phase (36). Also, Mamede et al. (2007) reported that the total delivery time in pregnant women who were allowed to walk in the active phase was between 3 and 14 hours and took an average of 7.66 hours (37). The study results in the literature were found to support our data. The results of our study revealed that the freedom of movement in the first stage had an important role in shortening the first, second, and third stages of labor and the total time of the labor and delivery. Therefore, the findings of our study are thought to make a contribution to the literature in this regard.

In the literature, allowing pregnant women to move freely during labor is reported to make uterine contractions effective and reduce the need for analgesia (17, 22, 39, 43, 44). Miquiletti et al. (2007) and Thilagavaty (2012) reported that VAS pain scores were lower in those who took an upright position in the active phase of the first stage of labor, pregnant women felt more comfortable, and that it increased satisfaction (34). Mamede et al. (2007) reported that when the dilatation was 5 cm, there was a significant correlation between VAS pain scores of walking pregnant women. At the same time, the pain was stated to increase as birth progressed and dilatation increased, also increasing the associated VAS pain scores (37). Jonge et al. (1997) stated that pain scores were less in upright positions in the first stage of labor. In this study, VAS pain scores were significantly lower among pregnant women in the SG who were provided freedom of movement in the first stage of labor when the dilatation was 4-5 cm and 6-7 cm, while no significant difference was found between the groups at 8-10 cm dilatation (30). The literature supporting the study results mentioned above shows that allowing pregnant women to have freedom of movement and to change position as they like during labor and birth process has a positive effect on perceived pain and facilitates pain management until the dilatation reaches 8-10 cm. Besides, these results suggest that the effect of freedom of movement on reducing the perceived pain in the process of labor and birth will contribute positively to the comfort of birth and birth experience.

In the literature, there are many studies investigating the effect of positions implemented in the second stage of birth on postpartum hemorrhage (27,30,33,35,42,43); nevertheless, research into the effect of freedom of movement in the 1st stage of labor on postpartum hemorrhage is limited. In this study, the volume of postpartum hemorrhage within the first 24 hours in pregnant women in the SG who were allowed freedom of movement at the first stage of labor was found to be significantly less than those of the pregnant women who were not provided freedom of movement (SG: 275.0 ± 33.9; CG: 380.8 ± 47.5). Accordingly, the results of the study have been evaluated as an important finding regarding its contribution to the literature. Also, the freedom of movement allowed in the 1st stage of labor may have an essential role in reducing the risk of postpartum hemorrhage, which is one of the most important postpartum complications. In the literature, interventions in labor and prolongation of labor have been reported to possibly delay the first breastfeeding time (20,44). However, there is no study in the literature evaluating the effect of freedom of movement applied in the first stage of labor on breastfeeding and first contact with baby. In this study, the first contact and breastfeeding time of the pregnant women in the SG who were allowed freedom of movement in the first stage of labor was found to be shorter compared to that of the pregnant women in CG. This result suggested that the freedom of movement in the first stage of labor might have shortened the duration of all stages in labor and the total labor process and reduced the perceived pain and that all these results might have been achieved due to the positive effects of the energy of the freely moving mother.

In the correlation analyses of the study, a highly significant relationship was found between the freedom of movement provided in the first stage of labor and birth pain, total dilatation, expulsion, placental expulsion, total delivery, and first breastfeeding times, and the total volume of bleeding. Also, the regression analyses indicated that allowing no freedom of movement in the first stage of labor increased the total dilation time 2.4 times, the expulsion time 1.2 times, the placental expulsion time 1.1 times, the total labor and delivery time 2.7 times, the birth pain 2.4 times, and the first breastfeeding time 1.1 times. All these results are extremely important and are thought to contribute to the literature in terms of showing the positive effects of freedom of movement in the first stage of labor on the process of labor, perceived birth pain, and the onset of first breastfeeding.

5. CONCLUSION

The freedom of movement provided to pregnant women in the first stage of labor was determined to reduce the perceived birth pain, shorten total dilation, expulsion, placental expulsion, and delivery times, decrease the volume of postpartum hemorrhage, and shorten the time of first breastfeeding and contact with baby. Due to the positive birth outcomes, it is thought that this application should be spread in the clinical setting, and it is deemed important that health professionals encourage women who give birth. Also,

conducting training programs on this topic will be beneficial. In addition, it will be beneficial to contribute to and support the literature with randomized controlled trials in which the freedom of movement allowed in the first stage of labor and the effectiveness of each of the different positions that women refer to in this phase in the natural course of the labor are evaluated.

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