

The Effects of Perineal Massage Performed During Labor on Childbirth Comfort, Perineal Pain, and Trauma in Nulliparous Women: A Quasi-Experimental Study

 Habibe YAŞAR YETİŞMİŞ^a,  Yeşim AKSOY DERYA^b

^aDepartment of Midwifery, Munzur University Faculty of Health Sciences, Tunceli, Türkiye

^bDepartment of Midwifery, İnönü University Faculty of Health Sciences, Malatya, Türkiye

This study was prepared based on the findings of Habibe YAŞAR YETİŞMİŞ's thesis study titled "The effect of perineal massage performed during the labour on the childbirth comfort, perineal pain and trauma in nulliparous women" (Malatya: İnönü University; 2019).

This study was presented as an oral presentation at 4th International/5th National Midwifery Congress, November 6-9, 2019, Ankara, Türkiye.

ABSTRACT Objective: The purpose of this study was to examine the effects of perineal massage performed during labor on childbirth comfort, perineal pain, and genital tract trauma in nulliparous women. **Material and Methods:** This is a quasi-experimental study with a control group. The sample consisted of a total of 182 pregnant women, including 91 in the experimental group and 91 in the control group. Perineal massage was performed in the experimental group two, four, and four to six times during the latent, active, and transition phases, respectively. The participants in the experimental group continued to receive perineal massage with every push throughout the second stage of labor. Data were collected using the "Personal Introductory Form", "Visual Analog Scale (VAS)", "REEDA Scale" and "Childbirth Comfort Questionnaire (CCQ)". **Results:** There was a statistically significant difference between the groups in terms of labor conditions including duration of the second stage of labor, perineal trauma status, severity of perineal trauma, and episiotomy application status ($p<0.05$). After perineal massage, the CCQ mean score at the end of the active phase was 30.53 ± 8.78 in the experimental group and 26.83 ± 7.78 in the control group ($p<0.05$). Additionally, the postpartum VAS mean score was 3.04 ± 2.08 in the experimental group and 5.72 ± 2.64 in the control group ($p<0.001$). The REEDA mean total score was 3.23 ± 0.53 in the experimental group and 5.50 ± 1.70 in the control group ($p<0.001$). **Conclusion:** Perineal massage administered to nulliparous women during labor increased childbirth comfort and decreased perceptions of perineal pain, and it was associated with lower rates of genital tract trauma.

Keywords: Childbirth comfort; perineal massage; perineal tear; perineal pain

The prevalence of post-delivery perineal trauma varies significantly due to inconsistency in medical descriptions and reporting, and the condition is especially common among primiparous women.¹ One study conducted in the US reported that as many as one out of every three women birthing vaginal experience 3rd or 4th degree tears, which can result in long-term physical and psychological health issues.²

Today, multiple methods are used by childbirth team members in an attempt to protect the perineum, including delivery positions, pushing techniques, manual protection of the perineum during the delivery of the fetal head, application of heat and/or lubricants to the perineum and perineal massage.^{3,4} One of these methods, perineal massage, has been recommended as a strategy to increase the flexibility and stretching of the perineum at the second stage of

Correspondence: Habibe YAŞAR YETİŞMİŞ

Department of Midwifery, Munzur University Faculty of Health Sciences, Tunceli, Türkiye

E-mail: habibeyasar@munzur.edu.tr

Peer review under responsibility of Journal of Clinical Obstetrics & Gynecology.

Received: 12 Sep 2023

Accepted: 06 Dec 2023

Available online: 11 Dec 2023

2619-9467 / Copyright © 2023 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



labor. Some evidence shows that perineal massage may prevent or reduce the rates of laceration, and it is widely considered an important technique for reducing the need for episiotomy.⁵ Studies report that perineal massage may be useful when applied during pregnancy and/or in the intrapartum period.⁵⁻¹⁰

Studies discuss whether perineal management methods such as perineal massage really reduce perineal trauma and pain, suggesting that further extensive studies should be conducted on this topic.^{5,10} A limited number of studies have shown that antenatal perineal massage, which is often administered starting from the 35th week of gestation, decreases perineal traumas, and researchers have reported that women with perineal trauma have more postpartum perineal pain than those without perineal trauma.^{3,11,12}

Studies on the labor care process have suggested that relaxing practices should be practiced on women during labor.^{7,13-16} Studies have also reported that perineal massage, one of these practices, may alleviate perineal trauma and postpartum pain.^{3,7,8} A limited number of studies have presented the opinions of women about perineal massage, reporting that women would prefer perineal massage in their next delivery.^{10,17} However, Beckmann and Stock found no change in the general satisfaction levels of women who received perineal massage during labor.⁸

Pregnant women's satisfaction with childbirth is largely associated with their perception of comfort during labor.¹⁸ Childbirth comfort is an important concept, which can be achieved by alleviating physical complaints and providing effective care.^{19,20} In this context, midwives play an important role in providing and maintaining comfort during the childbirth process. There are only a few studies on childbirth comfort. Schuiling et al. examined the effects of one-on-one continuous support, freedom of movement and massage on childbirth comfort, and they found that massage affected childbirth comfort positively.²⁰ In another study, holistic/alternative techniques were implemented to increase the participants' childbirth comfort, which resulted in an increase in their post-intervention comfort scores.²¹ However, these studies did not evaluate the effects of perineal massage on childbirth comfort.^{20,21} Considering this informa-

tion, this study aimed to examine the effects of perineal massage administered to nulliparous women during labor on childbirth comfort, perineal trauma, and perineal pain.

Hypotheses:

H_{0-a}: Perineal massage applied during labor does not increase childbirth comfort.

H_{1-a}: Perineal massage applied during labor increases childbirth comfort.

H_{0-b}: Perineal massage applied during labor does not relieve postpartum perineal pain.

H_{1-b}: Perineal massage applied during labor relieves postpartum perineal pain.

H_{0-c}: Perineal massage applied during labor does not reduce postpartum perineal trauma.

H_{1-c}: Perineal massage applied during labor reduces postpartum perineal trauma.

MATERIAL AND METHODS

OBJECTIVE AND DESIGN

This study was conducted using a quasi-experimental design with control group to determine the effects of perineal massage administered to nulliparous women during labor on childbirth comfort, perineal trauma, and perineal pain.

PARTICIPANTS AND SAMPLE SIZE

The participants of the study were composed of nulliparous women who were in their 38th-42nd gestational weeks and referred to the delivery room of a public hospital in the eastern region of South Türkiye. Power analysis was performed to determine the sample size within a 95% confidence and an 80% population representation power. Accordingly, at least 86 pregnant women should have been included in each of the intervention and control groups, assuming that perineal massage increases mean childbirth comfort score (31.77±7.19) by 3 points.¹⁸ The number of women planned to be included in the study was increased by 5% due to possible data losses. Therefore, the sample consisted of a total of 182 pregnant women, including 91 in each group. Having no complications for vaginal deliv-

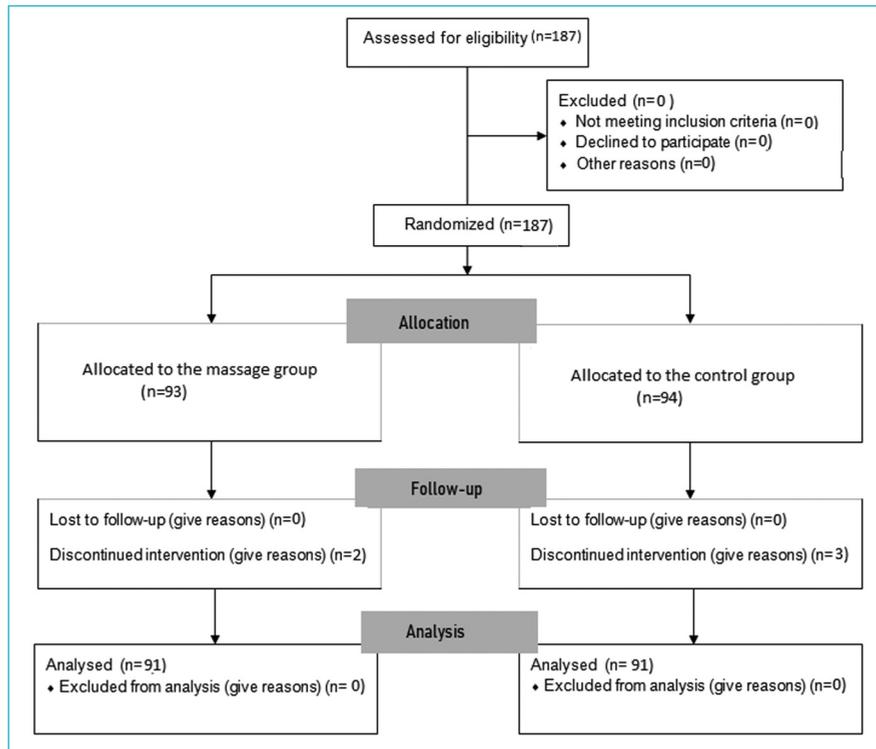


FIGURE 1: Consort flow diagram.

ery, having a singleton pregnancy, having a fetal head with an anterior cephalic position, being at the latent phase of labor and having no communication problems were enrolled in this study. Pregnant women who developed fetal distress during labor or had to undergo cesarean delivery were excluded from this study. Five of pregnant women, including two in the intervention group and three in control group, were excluded from the study because they underwent cesarean-section delivery due to fetal distress (Figure 1). The data were collected until 91 pregnant women were included in each group. The random sample approach was used to choose from the population pregnant women who met the inclusion requirements.

OUTCOME MEASUREMENTS

Personal Introduction Form

This form consisted of two parts, including questions on the pregnant women's individual characteristics (woman's age, education level, employment status etc.) and birth history (gestational week at birth, cervical dilatation etc).

Visual Analog Scale

Visual Analog Scale (VAS) is frequently used to measure childbirth pain. It provides fast results, can assess the sense of pain subjectively, and it is more sensitive and reliable in measuring the severity of pain compared to other one-dimensional scales. VAS is a 10-cm ruler that has anchor statements on the left (no pain) and on the right (extreme pain), allowing patients to indicate their pain severity. The distance between the point marked by the patient and the no pain end is measured and recorded in cm.²²⁻²⁴

REEDA Scale

The REEDA was developed by Davidson and adapted into the Turkish language by Üstünsöz.^{25,26} The scale consists of five variables of wound healing. These variables are redness, ecchymosis, edema, approximation of the wound edges, and discharge. The scale items are scored between 0 and 3 points. A higher score indicates a greater level of perineal trauma.²⁶

Childbirth Comfort Questionnaire

In 2003, Schuiling developed the Childbirth Comfort Questionnaire (CCQ), which was based on Kolcaba's comfort theory.²⁰ Coşkuner Potur et al. conducted a study on Turkish validity and reliability. The Cronbach's alpha coefficient of the scale was found to be 0.75. In the study, the Cronbach's alpha coefficient was determined as 0.63. Comfort in the delivery room is expected to be considered when responding to items on the CCQ, which is a 9-item 5-point Likert-type scale. Each item reports a certain sense (relaxation, superiority or relief) and dimension (physical, psychospiritual, environmental or social) of comfort. A higher score indicates increased comfort.¹⁸

DATA COLLECTION

The researcher conducted the study at the hospital between December 2018 and July 2019 using the face-to-face interview method. The data were collected starting from the intervention group. Perineal massage was administered to all pregnant women in the intervention group by the researcher for two, four, and four to six times at the latent, active, and transition phases of labor, respectively. Throughout the second stage of labor, the participants in the intervention group continued to receive perineal massage at every push. The researcher is also a currently employed midwife at the institution where the study was conducted. This midwife researcher (H.YY.) performed the massage intervention and conducted labor. CCQ was applied among the pregnant women twice, including once before starting the massage intervention during the latent phase of labor and once at the end of the active phase of labor (7-cm cervical dilation) just before they were placed on the gynecological examination table. Evaluations were made between the contractions. The REEDA Scale was administered 4-6 hours after the delivery, and the perineal trauma was evaluated. The possible results including "discharge" and "approximation of the wound edges" that could appear in the following days of the postpartum period could not be assessed using the REEDA Scale as the pregnant women who gave birth through normal vaginal delivery were discharged shortly after the delivery. Painkillers are not

administered routinely at the hospital, but they are optionally provided at least 6 hours after the delivery. Therefore, the VAS was applied together with the REEDA Scale 4-6 hours after the delivery and before the painkillers were administered. The pregnant in the control group received no intervention except for routine hospital childbirth care practices. The scales used in the study were administered to the pregnant women in the intervention group at the same periods.

INTERVENTION

All pregnant women in the intervention group were given a perineal massage during both the labor and resting phases between contractions. The participants received an average of 5-10 minutes of perineal massage two, four, and four to six times at the latent (0-3-cm cervical dilation), active (4-7-cm cervical dilation), and transition (8-10-cm cervical dilation) phases of labor, respectively. These women continued to receive perineal massage at every push throughout the second stage of labor. The majority of women in Türkiye give birth in a semi-recumbent position or supine lithotomy. Studies have reported reasons such as the preference of the health professional, cultural influences, that fetal monitoring is easier, and the hands on/hands poised preference of the health professionals.²⁷ All women in the study received perineal massage in the semi-recumbent position or supine lithotomy, which is a routine practice in the hospital. The intervention procedure was created by reviewing the literature.^{6,9,28,29} Before perineal massage, the researcher wore sterile gloves, placed two fingers into the 3-4-cm wide-open vagina, and applied vaseline routinely to lubricate the vagina in the delivery room. The researcher midwife gently widened the perineal muscles by making stretching movements with her fingers. Perineal massage was applied using all three of the "from one edge to the other", "U shape" and "pressure" massage techniques. The researcher gently applied a rhythmic "U" pressure with both fingers, moving them on the vagina downwards about 3 to 9 o'clock. Each pressure movement was maintained laterally for 1-2 minutes towards the rectum. The degree of pressure was determined according to the expectant mother's feed-

back, where the pressure was reduced when the mother felt a sense of burning and pain.^{6,9,29} No participant left the study due to pain or discomfort. The pregnant in the control group were not massaged, and only routine vaseline administration was performed to lubricate the vagina in the delivery room, where the participants' babies were delivered using the Ritgen maneuver (a maneuver for controlled removal of the fetal head at childbirth).

DATA ANALYSIS

Using the SPSS 16.0 (SPSS Inc., Chicago, IL) package program, the data were coded and analyzed, and the statistical analyses involved descriptive statistics including percent, arithmetic mean, and standard deviation, as well as the independent t-test and Pearson's chi-squared test.

ETHICAL CONSIDERATIONS

The İnönü University Scientific Research and Publication Ethics Committee gave ethical approval be-

fore starting the study (date: January 8, 2019, no: 2019/01-26), and necessary permissions were obtained from the institutions where this study was conducted. An informed consent form, which allowed the pregnant women to withdraw from the study to protect participant rights, was obtained from the participants before starting to collect the research data. Helsinki Declaration principles were followed in the study. A clinical trials registry was taken retrospectively for the study (ClinicalTrials.gov NCT05962918).

RESULTS

There was no statistically significant difference between the control and intervention groups in terms of their descriptive characteristics such as age, gestational week, body mass index, educational level, employment status, family structure and economic status ($p>0.05$, Table 1). These results showed that both groups had similar descriptive characteristics.

TABLE 1: Comparison of the descriptive characteristics of pregnant women in the experimental and control groups (n=182).

Descriptive characteristics	Experimental group (n=91)		Control group (n=91)		Test and p value
	$\bar{X}\pm SD$		$\bar{X}\pm SD$		
Age (years)	21.97±4.19		22.91±4.32		t=-1.479 p=0.141
Body mass index (kg/cm ²)*	21.92±3.06		21.29±2.71		t=1.468 p=0.144
Pregnancy week	38.61±2.09		38.49±3.93		t=0.259 p=0.796
	n	%	n	%	
Education status					
Literate	14	15.3	12	13.1	X ² =5.863 p=0.210
Primary school graduate	19	20.9	28	30.8	
Secondary school graduate	36	39.6	31	34.1	
High school graduate	18	19.8	11	12.1	
University and above	4	4.4	9	9.9	
Working status					
Working	4	4.4	3	3.3	X ² =0.149 p=0.700
Not working	87	95.6	88	96.7	
Economic status					
Good	15	16.5	16	17.6	X ² =0.042 p=0.979
Middle	52	57.1	51	56.0	
Bad	24	26.4	24	26.4	
Family structure					
Nuclear family	35	38.5	31	34.1	X ² =0.380 p=0.537
Extended family	56	61.5	60	65.9	

*Body mass index before pregnancy; t: Independent-samples t-test; X²: Pearson's chi-squared test; SD: Standard deviation.

There was no statistically significant difference between the intervention and control groups in terms of their initial dilatation levels, fetal weights, fetal head circumferences, oxytocin use, and fundal pressure procedures ($p>0.05$, Table 2). These results showed that both groups had similar characteristics in terms of the specified variables. However, a statistically significant difference was found between the groups with respect to their labor characteristics such as the duration of the second stage of labor, perineal trauma status, degree of perineal trauma, and episiotomy application status ($p<0.05$, Table 2).

The mean total CCQ score was 27.35 ± 5.72 for the pregnant women in the intervention group and 29.45 ± 4.42 for those in the control group, where the difference between the groups was statistically significant ($t=-2.769$, $p=0.006$, Table 3). The mean scores in the physical, psychospiritual, and environmental sub-dimensions are 12.54 ± 4.30 , 5.47 ± 2.52 , 9.32 ± 2.43 , respectively in the intervention group; and

13.05 ± 3.70 , 6.02 ± 2.51 , 10.37 ± 2.11 , respectively in the control group; and except for the environmental dimension ($p>0.05$), there is no statistical significance between the groups.

The mean total CCQ score was 30.53 ± 8.78 for the pregnant women in the intervention group and 26.83 ± 7.78 for those in the control group, where the difference between the groups was statistically significant ($t=3.011$, $p=0.003$, Table 4). The mean scores in the physical, psychospiritual, and environmental sub-dimensions are 13.20 ± 4.24 , 6.07 ± 2.56 , 11.25 ± 6.19 , respectively in the intervention group; and 11.83 ± 4.12 , 5.24 ± 2.70 , 9.75 ± 2.53 , respectively in the control group; and the difference between groups is statistically significant ($p<0.05$).

The redness subscale mean score was 1.16 ± 0.37 for the pregnant in the intervention group and 2.01 ± 0.56 for those in the control group, where the difference between the scores was statistically significant ($t=-11.885$, $p=0.000$,

TABLE 2: Comparison of the labor characteristics of pregnant women in the experimental and control groups (n=182).

Labor characteristics	Experimental group (n=91)		Control group (n=91)		Test and p value
	$\bar{X}\pm SD$		$\bar{X}\pm SD$		
Initial dilation level (cm)	2.65±1.13		2.52±1.17		t=0.769 p=0.443
Duration of the second stage of birth (minute)	63.26±43.10		77.06±43.47		t=-2.151 p=0.033*
Fetal weight (g)	3130.82±360.85		3113.95±356.23		t=0.317 p=0.751
Fetal head circumference (cm)	34.72±2.04		34.50±0.87		t=0.895 p=0.372
	n	%	n	%	
Oxytocin use					
It was used	75	82.4	82	90.1	$\chi^2=2.272$
It was not used	16	17.6	9	9.9	p=0.132
Fundal pressure					
It was used	32	35.2	30	33.0	$\chi^2=0.098$
It was not used	59	64.8	61	67.0	p=0.754
Perineal trauma					
Yes	34	37.4	51	56.0	$\chi^2=6.379$
No	57	62.6	40	44.0	p=0.012*
Degree of perineal trauma					
First degree	30	88.2	27	52.9	$\chi^2=11.504$
Second degree	4	11.8	24	47.1	p=0.001*
Application status of episiotomy					
Performed	40	44.0	86	94.5	$\chi^2=54.579$
Not performed	51	56.0	5	5.5	p=0.000*

* $p<0.05$; t: Independent-samples t-test; χ^2 : Pearson's chi-squared test; SD: Standard deviation.

TABLE 3: Comparison of the CCQ total and dimension mean scores of the pregnant women in the experimental and control groups measured before the massage intervention.

CCQ	Experimental group (n=91) $\bar{X}\pm SD$	Control group (n=91) $\bar{X}\pm SD$	Test and p value
CCQ dimensions			
Physical	12.54±4.30	13.05±3.70	t=-0.848 p=0.397
Psychospiritual	5.47±2.52	6.02±2.51	t=-1.470 p=0.143
Environmental	9.32±2.43	10.37±2.11	t=-3.086 p=0.002*
Total	27.35±5.72	29.45±4.42	t=-2.769 p=0.006*

*p<0.05; CCQ: Childbirth Comfort Questionnaire; t: Independent-samples t-test; SD: Standard deviation.

TABLE 4: Comparison of the CCQ total and dimension mean scores of the pregnant women in the experimental and control groups measured at the end of the active phase of labor.

CCQ	Experimental group (n=91) $\bar{X}\pm SD$	Control group (n=91) $\bar{X}\pm SD$	Test and p value
CCQ dimensions			
Physical	13.20±4.24	11.83±4.12	t=2.213 p=0.028*
Psychospiritual	6.07±2.56	5.24±2.70	t=2.135 p=0.034*
Environmental	11.25±6.19	9.75±2.53	t=2.130 p=0.035*
Total	30.53±8.78	26.83±7.78	t=3.011 p=0.003*

*p<0.05; CCQ: Childbirth Comfort Questionnaire; t: Independent-samples t-test; SD: Standard deviation.

TABLE 5: Comparison of the VAS, REEDA total and subscale mean scores of the pregnant women in the experimental and control groups.

Scales	Experimental group (n=91) $\bar{X}\pm SD$	Control group (n=91) $\bar{X}\pm SD$	Test and p value
REEDA			
Redness	1.16±0.37	2.01±0.56	t=-11.885 p=0.000*
Edema	1.02±0.14	1.78±0.75	t=-9.376 p=0.000*
Ecchymosis	1.04±0.25	1.71±0.65	t=-9.105 p=0.000*
REEDA total	3.23±0.53	5.50±1.70	t=-12.111 p=0.000*
VAS	3.04±2.08	5.72±2.64	t=-7.585 p=0.000*

*p<0.001; VAS: Visual Analog Scale; t: Independent-samples t-test; SD: Standard deviation.

Table 5). The edema subscale mean score was 1.02 ± 0.14 for the pregnant women in the intervention group and 1.78 ± 0.75 for those in the control group, where the difference between the groups was statistically significant ($t = -9.376$, $p = 0.000$). The ecchymosis subscale mean score was 1.04 ± 0.25 for the pregnant women in the intervention group and 1.71 ± 0.65 for those in the control group, where the difference between the groups was statistically significant ($t = -9.105$, $p = 0.000$). The mean total REEDA Scale score was 3.23 ± 0.53 for the pregnant women in the intervention group and 5.50 ± 1.70 for those in the control group, where the difference between the groups was statistically significant ($t = -12.111$, $p = 0.000$). The mean total VAS score was 3.04 ± 2.08 for the pregnant women in the intervention group and 5.72 ± 2.64 for those in the control group, where the difference between the groups was statistically significant ($t = -7.585$, $p = 0.000$).

DISCUSSION

The results of this study demonstrated that perineal massage performed in the second stage of labor can decrease the rate of perineal trauma, and perineal pain and increase birth comfort.

The pregnant women in the intervention group had a significantly shorter duration of the second stage of labor and lower rates of application of episiotomy and frequency of perineal trauma. In general, they also developed first-degree perineal trauma much more frequently than they developed second-degree perineal trauma ($p < 0.05$). Studies have reported that perineal massage reduces the need for episiotomy.^{9,12} Shahoei et al. reported that the frequency of episiotomy after perineal massage was 69.47% in the intervention group and 92.31% in the control group.¹² In this study, 44.0% of intervention group and 94.5% of the control group underwent episiotomy ($p < 0.05$, **Table 1**). The results were consistent with the literature, suggesting that perineal massage decreases the need for episiotomy. Geranmayeh et al. reported in their study that perineal massage with petroleum jelly short-

ened the duration of the second stage of labor and reduced the frequency of perineal trauma and episiotomy.³⁰

This study revealed that the pregnant women in the control group had higher mean scores in both the total CCQ and the environmental dimension before starting the massage intervention at the latent phase of labor (**Table 3**). However, the perineal massage administered to the nulliparous women until the end of the active phase of labor caused a significant increase in the mean total CCQ scores and the physical, psychospiritual, and environmental dimension mean scores of the pregnant women in the intervention group compared to the scores of those in the control group (**Table 4**, $p < 0.05$). These results showed that perineal massage applied during labor significantly increases childbirth comfort, confirming the research hypothesis of “perineal massage applied during labor increases childbirth comfort”. A systematic review reported that randomized-controlled studies did not investigate perineal massage directly in terms of “comfort during childbirth”, they generally examined the effects of perineal massage in reducing trauma levels, and they studied the perineal complaints of mothers in the postpartum period.²⁸ Moreover, the literature review revealed a limited number of studies that examined the effects of perineal massage on comfort levels during childbirth, and it was determined that such studies did not utilize any measurement instrument.^{7,8,17,29} In their study which compared the “warm compresses”, “massage with lubricant” and “hands off” techniques, Albers et al. emphasized that there was no significant difference between the groups in terms of genital trauma, and thus, the mother’s comfort should be considered in determining the technique to be used.⁷ Additionally, in a few studies using perineal massage, women reported that they wanted to have perineal massage in their next births.^{8,17} The fact that women want to have perineal massage in their next birth suggests that they are satisfied with perineal massage and consider it comfortable. A study that was carried out in Türkiye also ascertained that a few women felt discomfort when perineal massage started, but none of the women refused to have per-

ineal massage.²⁹ The increase in the mean total CCQ score of the pregnant women in this study may be interpreted that the mother's satisfaction and comfort levels were high in relation to the perineal massage. Furthermore, it is believed that this quantitative result will contribute to the relevant literature. This study found significantly higher levels of postpartum perineal pain in the control group (Table 5, $p < 0.05$). Therefore, the hypothesis of "perineal massage applied during labor relieves postpartum perineal pain" was confirmed. Demir obtained similar results, reporting that perineal massage reduces perineal pain.³¹ Perineal pain that is prevalently seen in nulliparous women after delivery may lead to problems such as insomnia, anxiety, delay in mother-newborn attachment, and failure to find a suitable position to breastfeed.¹⁸ For these reasons, the clinical management of postpartum perineal pain is highly important. Regarding the participating women's mean scores on the REEDA Scale and its subscales, this study found significantly higher redness, edema and ecchymosis subscale and total mean scores among the pregnant women in the control group ($p < 0.05$, Table 5). Therefore, the hypothesis of "perineal massage performed during labor reduces postpartum perineal trauma" was confirmed. Shahoei et al. reported that perineal massage applied at the second stage of labor can reduce perineal trauma, perineal pain and the need for episiotomy.¹² It has also been reported that different perineal interventions and techniques should be used to stretch the perineum slowly, preventing perineal damage.³ One of these techniques, perineal massage, increases perineal flexibility and blood flow to the perineum during labor, reducing the possibility of perineal laceration, the requirement for episiotomy and postpartum perineal pain.³²

Akhlaghi et al. found that perineal massage reduced the need for episiotomy and had a significant effect on the duration of the second stage of labor.³³ They stated that, for this reason, perineal massage is a safe, simple, low-cost, and effective technique for reducing perineal trauma during labor.³³ In a systematic review, it was reported that perineal massage before labor reduced the probability of perineal

trauma and pain levels, and it was a practice generally accepted by women.⁸ Therefore, the conclusion of this study were compatible with those in the literature, suggesting that perineal massage during labor reduces the possibility of perineal pain and trauma.

STRENGTHS AND LIMITATIONS

This study is limited to the pregnant women at the delivery room of a maternity hospital in the eastern region of Türkiye. In addition, the fact that the study was conducted in a single-center and quasi-experimental manner is another limitation of the study. The strength of this study is that it is the first to evaluate the impact of perineal massage on comfort in the literature.

CONCLUSION

Perineal massage administered to nulliparous women during labor increased childbirth comfort and decreased perceptions of perineal pain, it was associated with lower rates of genital tract trauma. This quasi-experimental study with a control group, which aimed to examine the effects of perineal massage administered to nulliparous women during labor on childbirth comfort, perineal pain, and perineal trauma, found that the perineal massage administered to the pregnant women in the intervention group during labor significantly reduced the duration of the second stage of labor, the prevalence of perineal trauma, the severity of perineal trauma, and the need for episiotomy.

Acknowledgements

We would like to thank the women who participated and completed this questionnaire.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the

potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Habibe Yaşar Yetişmiş; **Design:** Habibe Yaşar Yetişmiş; **Control/Supervision:** Yeşim Aksoy Derya; **Data Collection and/or Processing:** Habibe Yaşar Yetişmiş; **Analysis**

and/or Interpretation: Habibe Yaşar Yetişmiş, Yeşim Aksoy Derya; **Literature Review:** Habibe Yaşar Yetişmiş, Yeşim Aksoy Derya; **Writing the Article:** Habibe Yaşar Yetişmiş, Yeşim Aksoy Derya; **Critical Review:** Yeşim Aksoy Derya; **References and Fundings:** Habibe Yaşar Yetişmiş, Yeşim Aksoy Derya; **Materials:** Habibe Yaşar Yetişmiş, Yeşim Aksoy Derya; **Other:** Habibe Yaşar Yetişmiş, Yeşim Aksoy Derya.

REFERENCES

- Dahlen HG, Homer CS, Cooke M, Upton AM, Nunn R, Brodrick B. Perineal outcomes and maternal comfort related to the application of perineal warm packs in the second stage of labor: a randomized controlled trial. *Birth*. 2007;34(4):282-90. [Crossref] [PubMed]
- Labrecque M, Eason E, Marcoux S, Lemieux F, Pinault JJ, Feldman P, et al. Randomized controlled trial of prevention of perineal trauma by perineal massage during pregnancy. *Am J Obstet Gynecol*. 1999;180(3 Pt 1):593-600. [Crossref] [PubMed]
- Aasheim V, Nilsen ABV, Reinart LM, Lukasse M. Perineal techniques during the second stage of labour for reducing perineal trauma. *Cochrane Database Syst Rev*. 2017;6(6):CD006672. [Crossref] [PubMed] [PMC]
- Mamuk R, Gençal NS. Effect of heat application to the perineum in normal vaginal deliveries on perineal integrity and pain. *IJHS*. 2013;10(2):48-66. [Link]
- Mei-dan E, Walfisch A, Raz I, Levy A, Hallak M. Perineal massage during pregnancy: a prospective controlled trial. *Isr Med Assoc J*. 2008;10(7):499-502. [PubMed]
- Sayiner FD, Demirci N. Prenatal perineal masajın vaginal doğumlarda etkinliği [Effectiveness of prenatal perineal massage in vaginal delivery]. *Florence Nightingale Journal of Nursing*. 2007;15(60):146-54. [Link]
- Albers LL, Sedler KD, Bedrick EJ, Teaf D, Peralta P. Midwifery care measures in the second stage of labor and reduction of genital tract trauma at birth: a randomized trial. *J Midwifery Womens Health*. 2005;50(5):365-72. [Crossref] [PubMed] [PMC]
- Beckmann MM, Stock OM. Antenatal perineal massage for reducing perineal trauma. *Cochrane Database Syst Rev*. 2013;(4):CD005123. [Crossref] [PubMed]
- Demirel G, Golbasi Z. Effect of perineal massage on the rate of episiotomy and perineal tearing. *Int J Gynaecol Obstet*. 2015;131(2):183-6. [Crossref] [PubMed]
- Zare O, Pasha H, Faramarzi M. Effect of perineal massage on the incidence of episiotomy and perineal laceration. *Health*. 2014;6(1):10-4. [Crossref]
- Beckmann MM, Garrett AJ. Antenatal perineal massage for reducing perineal trauma. *Cochrane Database Syst Rev*. 2006;(1):CD005123. Update in: *Cochrane Database Syst Rev*. 2013;4:CD005123. [Crossref] [PubMed]
- Shahoei R, Zaheri F, Nasab LH, Ranaei F. The effect of perineal massage during the second stage of birth on nulliparous women perineal: a randomization clinical trial. *Electron Physician*. 2017;9(10):5588-95. [Crossref] [PubMed] [PMC]
- Albers LL. Reducing genital tract trauma at birth: launching a clinical trial in midwifery. *J Midwifery Womens Health*. 2003;48(2):105-10. [Crossref] [PubMed]
- Altuntuğ K, Kızıllırmak A, Kartal B, Başer M. Vajinal doğumlarda perine travmasının önlenmesinde perine masajının etkisi [The effect of perineal massage in preventing perineal trauma during vaginal delivery]. *J Anatolia Nursing and Health Sciences*. 2010;13(3):62-5. [Link]
- Dahlen HG, Homer CS, Cooke M, Upton AM, Nunn RA, Brodrick BS. 'Soothing the ring of fire': Australian women's and midwives' experiences of using perineal warm packs in the second stage of labour. *Midwifery*. 2009;25(2):e39-48. [Crossref] [PubMed]
- Renfrew MJ, Hannah W, Albers L, Floyd E. Practices that minimize trauma to the genital tract in childbirth: a systematic review of the literature. *Birth*. 1998;25(3):143-60. [Crossref] [PubMed]
- Labrecque M, Eason E, Marcoux S. Women's views on the practice of prenatal perineal massage. *BJOG*. 2001;108(5):499-504. [Crossref] [PubMed]
- Coşkuner Potur D, Doğan Merih Y, Külek H, Can Gürkan Ö. Doğum Konforu Ölçeği'nin Türkçe geçerlik ve güvenilirlik çalışması [The validity and reliability of the Turkish version of the childbirth comfort questionnaire]. *J Anatolia Nursing and Health Sciences*. 2015;18(4):252-8. [Crossref]
- Karaman ÖE, Yıldız H. Doğum eylemi travay sürecinde hareket serbestliği: nasıl? Ne sağlar? Kadın doğum hemşiresinin rolü nedir? [Freedom of movement during labor: how? What does it provide? What is the role of the obstetrician and gynecology nurses?] *Türkiye Klinikleri J Nurs Sci*. 2018;10(1):78-87. [Crossref]
- Schuiling KD, Sampson C, Kolcaba K. Exploring the presence of comfort within the context of childbirth. In: Bryar R, Sinclair M, eds. *Theory for Midwifery Practice*. 2nd ed. New York: Palgrave Macmillan Publisher; 2011. p.197-212. [Crossref]
- Charles NA, Yount S, Morgan A. Comfort over pain in pregnancy. *Pain Manag Nurs*. 2016;17(3):197-203. [Crossref] [PubMed]
- Eti Aslan F. The assessment methods of pain. *J Cumhuriyet University School of Nursing*. 2002;6(1):9-16. [Link]
- Eti Aslan F. Ameliyat sonrası ağrı değerlendirilmesinde görsel kıyaslama ölçeğiyle basit tanımlayıcı ölçeğin duyarlık ve seçiciliği [The sensitivity and selectivity of the visual analog scale and the verbal rating scale in the assessment of postoperative pain]. *J Intensive Care Nursing*. 2004;8(1):1-6. [Link]
- Cline ME, Herman J, Shaw ER, Morton RD. Standardization of the visual analogue scale. *Nurs Res*. 1992;41(6):378-80. [Crossref] [PubMed]
- Davidson N. REEDA: evaluating postpartum healing. *J Nurse Midwifery*. 1974;19(2):6-8. [PubMed]
- Üstünsöz A. Epizyotomi iyileşmesinde sıcak ve soğuk uygulamaların etkisi [Yüksek lisans tezi]. Ankara: GATA; 1996. [Erişim tarihi: 12 Şubat 2019]. Erişim linki: [Link]
- Moraloglu O, Kansu-Celik H, Tasci Y, Karakaya BK, Yılmaz Y, Cakir E, et al. The influence of different maternal pushing positions on birth outcomes at the second stage of labor in nulliparous women. *The Journal of Maternal-Fetal & Neonatal Medicine*. 2017;30(2):245-9. [Crossref] [PubMed]
- Aquino CI, Guida M, Saccone G, Cruz Y, Vitagliano A, Zullo F, Berghella V. Perineal massage during labor: a systematic review and meta-analysis of randomized controlled trials. *J Matern Fetal Neonatal Med*. 2020;33(6):1051-63. [Crossref] [PubMed]

29. Karaçam Z, Ekmen H, Calişir H. The use of perineal massage in the second stage of labor and follow-up of postpartum perineal outcomes. *Health Care Women Int.* 2012;33(8):697-718. [[Crossref](#)] [[PubMed](#)]
30. Geranmayeh M, Rezaei Habibabadi Z, Fallahkish B, Farahani MA, Khakbazan Z, Mehran A. Reducing perineal trauma through perineal massage with vaseline in second stage of labor. *Arch Gynecol Obstet.* 2012;285(1):77-81. [[Crossref](#)] [[PubMed](#)]
31. Demir S. Doğumun birinci evresinde ebenin uyguladığı perine masajının genital travmaları ve postpartum ağrıyla azaltmadaki rolü [Yüksek lisans tezi]. İzmir: Ege Üniversitesi; 2011. [Erişim tarihi: 12 Şubat 2019]. Erişim linki: [[Link](#)]
32. Williams A, Herron-Marx S, Knibb R. The prevalence of enduring postnatal perineal morbidity and its relationship to type of birth and birth risk factors. *J Clin Nurs.* 2007;16(3):549-61. [[Crossref](#)] [[PubMed](#)]
33. Akhlaghi F, Sabeti Baygi Z, Miri M, Najaf Najafi M. Effect of perineal massage on the rate of episiotomy. *J Family Reprod Health.* 2019;13(3):160-6. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]