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Experiences of vaginal examination by pregnant women during labour: A cross-sectional study

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Abstract

Giving birth is undoubtedly one of the most important experiences in women's lives. It is critical to provide technically competent care and improve women's care experiences to provide quality care during labour. This study was undertaken to determine the factors affecting vaginal examination (VE) experiences of women during labor. The descriptive and correlational study was conducted with 213 postpartum women who gave birth vaginally. Data were collected using a Descriptive Data Form and the Women's Experiences of Vaginal Examinations in Labor Scale (WEVEL). The mean score of the postpartum women on the total WEVEL score was 66.6±4.8. A significant negative relationship was found between postpartum mothers' VE experiences and the frequency of VEs' and the level of discomfort during VE (r=-0.33), while a positive relationship was shown with the level of the person performing VE (r=0.38) (p<0.01). Factors explaining 25.7% of VE experiences were the level of discomfort during VE and the level of the person performing VE. We conclude that the level of discomfort during VE and the level of the person performing VE were significant predictors of women's VE experiences, with the former having a positive and the latter a negative effect. *(Afr J Reprod Health 2025; 29 [5]: 53-62).*

Keywords: Labor, Vaginal Examination, Women

Résumé

L'accouchement est sans aucun doute l'une des expériences les plus importantes de la vie d'une femme. Il est essentiel de prodiguer des soins techniquement compétents et d'améliorer l'expérience des femmes afin d'assurer des soins de qualité pendant le travail. Cette étude a été menée afin de déterminer les facteurs influençant le ressenti des examens vaginaux (EV) des femmes pendant le travail. Cette étude descriptive et corrélationnelle a été menée auprès de 213 femmes en post-partum ayant accouché par voie basse. Les données ont été recueillies à l'aide d'un formulaire de données descriptives et de l'échelle WEVEL (Women's Experiences of Vaginal Examinations in Labor Scale). Le score moyen des femmes en post-partum sur le score WEVEL total était de 66,6 ± 4,8. Une relation négative significative a été observée entre le ressenti des EV des mères en post-partum et la fréquence des EV ainsi que le niveau d'inconfort ressenti pendant l'EV (r = -0,33), tandis qu'une relation positive a été observée avec le niveau de la personne réalisant l'EV (r = 0,38) (p < 0,01). Les facteurs expliquant 25,7 % des expériences d'examen vaginal étaient le niveau d'inconfort ressenti pendant l'examen et le niveau de la personne qui le pratiquait. Nous concluons que le niveau d'inconfort ressenti pendant l'examen vaginal et le niveau de la personne qui le pratiquait étaient des prédicteurs significatifs des expériences d'examen vaginal des femmes, le premier ayant un effet positif et le second un effet négatif. *(Afr J Reprod Health 2025; 29 [5]: 53-62).*

Mots-clés: Accouchement, Examen vaginal, Femmes

Introduction

Giving birth is undoubtedly one of the most important experiences in every woman's life. It is critical to provide technically competent care and improve women's care experiences to provide quality care during labor.[1,2] The World Health Organization (WHO) recommends the use of actionable health management information systems and functional referral systems, as well as evidence-based practices for routine care and management of complications. In addition, it is recommended to improve women's care experiences by providing them with informative and clear communication, care by respecting their dignity, choices, and decision-making autonomy, and social, emotional, and practical birth support.[3-5]

VE is among the frequently preferred practices in the clinic. It is used both in obstetrical monitoring of the birth process and in gynecological controls. It is a valuable practice, especially for protecting women's health, obtaining information,

and early diagnosis. Although this application takes a short time, studies show that women do not like VE and are afraid and ashamed of it.[6-8] Due to these reasons, most women experience VE for the first time either in their first pregnancy or during the birth process of their first pregnancy.[6]

VE applied during the birth process helps to determine birth findings, to make it easier to follow the labor, and to record the process regularly.[9,10] Regular monitoring of the birth process is of great importance in identifying pathological conditions in birth and intervening early.[10] VE performed by health professionals provides information about cervical effacement, cervical dilatation, membranes, amniotic fluid, and fetal presentation. In this way, the health professional decides the type of birth, that is, whether it should be a vaginal birth or an intervention is necessary.[9] Supporting the woman during the birth process is important for the quality of care provided during labor.[3,4] It has been found that as supportive care during labor increases, women transition to the parenting role more easily, their self-esteem levels increase, and they perceive the birth experience positively.[5]

The majority of women experience negative feelings during VE, such as embarrassment, guilt, loneliness, discomfort, fear, and anxiety.[8,10,11]Also, most women see this practice during the birth process as important and necessary.[7,12,13]

However, although VE is a widely used practice by health professionals, there is not enough evidence regarding its benefits and harms, maternal and neonatal outcomes, necessity during labor, frequency of practice, and the women's emotions during the practice.[14-16]

In contrast, intrapartum ultrasound is increasingly recommended as a method of assessing the progress of labor to predict birth outcomes such as time of birth and mode of delivery.[17,18]

VE performed for follow-up and care during labor is of critical importance, especially for the health of both the mother and the newborn. However, for expectant mothers to go through this process positively, the necessary information and support should be provided and their VE experiences should be examined. Therefore, the aim of this study is to determine the factors affecting the VE experiences of women during labor.

Methods

Type and setting of the study

The study was a descriptive and correlational research study design. The research was conducted in Tokat State Hospital and Tokat Gaziosmanpasa University Hospital in Tokat, Turkiye. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist was used in reporting the study. In this cross-sectional study, all sections in the main text were explained according to the 22 categories in the STROBE checklist.[19]

Population and sample of the study

The study sample included women who were in the obstetrics and gynecology department of the hospitals, were healthy puerperants in the postpartum period, who had given birth vaginally, did not have any barriers to or restrictions for vaginal birth, underwent VE during labor, had an uncomplicated birth, and volunteered to participate in the study. The haphazard sampling technique was used as the sampling selection method in the study. Postpartum women in both hospitals were randomly selected according to their discharge date and included in the study. Women scheduled for discharge on the same day were interviewed in order according to their room number. The sample of the study was determined with the G*Power 3.1.9.7 software.[20] The effect size was calculated as 0.22 by considering the mean WEVEL score obtained by Küçük & Çalık (2021)[21], who evaluated women's VE experiences during labour. According to the power analysis performed to calculate the sample size, the power of the test was determined as Power (1-β err prob) = 0.85, based on an effect width of d = 0.22 and the two-tailed hypothesis method. The confidence interval was calculated as 95% and the margin of error as 5%. As a result of the calculation, the sample size was determined to be at least 188. Considering possible attritions, 213 mothers were included in the study. At the end of the study, the confidence interval was calculated as 95%, the margin of error as 5%, the effect width as d = 0.22, and the power of the test as (1-β errprob) = 0.88 according to the two-tailed hypothesis method in the

post hoc power analysis conducted with 213 puerperal mothers. In the study, it was determined that the sample size with a power value of 88% that included 213 puerperal mothers was adequate.

Data collection tools

Data were collected using a questionnaire by face-to-face interview method from women in the early postpartum period who applied to the relevant hospitals for delivery in 2022, gave birth vaginally, met the research criteria and agreed to participate in the study. Each participant was interviewed in the patient room at least 24 hours postpartum. Data were collected using a Descriptive Data Form, and The Women's Experiences of Vaginal Examinations in Labor Scale (WEVEL).[21-24]

Descriptive data form

This form was created by the researchers following a review of the literature. It contains 24 questions about the sociodemographic and obstetric characteristics of postpartum women. To determine the participants' level of discomfort during VE, they were given a line graph (0-10 points) and they were asked to score their discomfort level on this line between "0 = it was not disturbing at all" and "10 = it was extremely disturbing." Scores were interpreted as follows: 0-3=low; 4-6=moderate; 7-10=high. Similarly, to determine the level of the person performing VE, another line graph (0-10 points) was given to the women and they were asked to score it between "0 = very bad" and "10 = very good." Scores were interpreted as follows: 0-3=low; 4-6=medium; 7-10=high.[21-24]

The women's experiences of vaginal examinations in labor scale (WEVEL)

This scale was developed by Lewin *et al*. (2005)[25] to evaluate women's VE experiences during labor. The Turkish validity and reliability study was conducted by Afacan (2018).[24] Examples of items in the scale; "The healthcare personnel always asked for my permission before performing a vaginal examination" (Item: 3), "Vaginal examinations made me very embarrassed" (Item: 10) "My privacy was always protected during vaginal examinations" (Item: 9). It has 20 items, which are scored on a five-point Likert-type scale using the following options: 1 point = totally disagree; 2 points = disagree; 3 points = undecided; 4 points = agree; 5 points = totally agree. The scores of the negative items (5, 10, 13, 14, 15, 16, 17, 19, and 20) are reversed and the scores of all items are summed to calculate the total score, which ranges between 20 and 100. A high score on the scale indicates that VE experiences are good, and a low score shows the opposite. Cronbach's alpha value of the scale is 0.85.[24,25] The alpha value was determined as 0.780 in this study.

Data analysis

Normality of the data was tested with the Kolmogorov-Smirnov test, histogram graphs, and skewness and kurtosis values. Student's t-test was used for comparisons of two independent groups with a normal distribution, and one-way analysis of variance (ANOVA) was used for comparisons of three or more groups. The relationship between the variables was examined with the Pearson correlation test. Multiple linear regression analysis was conducted to determine the effects of variables, such as perception of self-sufficiency at birth regarding the last labor, emotional communication during VE, duration of VE at birth, frequency of VEs at birth, the level of discomfort during VE, and the level of the person performing VE, on the WEVEL scores.

Ethical consideration

Necessary ethical approval for the study was obtained from Tokat Gaziosmanpasa University Social and Humanities Research Ethics Committee (Date: 28.01.2022, Session No: 02, Decision No: 02.04) indicating that the study conformed with the provisions of the Helsinki

Declaration

Necessary institutional permissions were obtained from the institutions where the study was conducted. The women participating in the study were informed and their written and verbal consents were obtained. In addition, written consent was obtained from the author of the scale used in the study via e-mail. The researchers declare that there are no conflicts of interest in connection with this article.

Results

This research was completed with a total of 213 postpartum mothers. Their average age was 27.3±4.7, 40.4% were high school graduates, 34.3% were primary school graduates, 36.2% had equal income and expenses, the income of 31.5% was less than their expenses, and 74.2% were housewives.

Table 1: Comparison of some sociodemographic characteristics and scores on the WEVEL

Sociodemographic characteristics (N=213)	Group	N	X ± SD	test	p
Level of education	Primary school graduate	73	67.4±4.6	1.866	0.157**
	High school graduate	86	65.9±5.0		
	University and above	54	66.7±4.8		
Level of income	İncome less than expenses	67	66.5±4.7	0.446	0.641**
	İncome equals expenses	77	66.4±4.6		
	İncome more than expenses	69	67.1±5.2		
Working status	Not working	158	66.3±4.5	-1.761	0.102*
	Working	55	67.6±5.3		
Age groups	25 years and under	78	66.5±4.7	-0.208	0.835*
	Over 25 years	135	66.7±4.9		

Table 2: Comparison of some obstetric characteristics and scores on the WEVEL scale

Obstetric characteristics (N=213)	**Group**	**N**	**X ± SD**	**test**	**p**
Status of having received prenatal education	Yes	81	66.4±10.7	-1.407	0.162*
	No	132	62.9±17.6		
Receiving information during the birth process	Yes	165	65.8±14.6	1.708	0.090*
	No	48	60.7±14.0		
Source of information during birth***	Midwife or physician	109	62.8±15.5	0.065	0.948*
	Other	56	62.6±13.7		
Perception of self-sufficiency at birth	Yes	169	67.1±14.0	-3.216	**0.002***
	No	44	58.5±14.4		
Previous VE experience	Yes	167	64.4±14.7	-0.502	0.617*
	No	46	66.0±14.2		
Emotional communication during VE	Positive	163	70.5±12.8	-2.736	**0.007***
	Negative	50	62.7±14.7		
Duration of VE at birth	Shorter than a minute	147	67.0±14.9	3.088	**0.002***
	Longer than a minute	66	58.6±11.9		
Healthcare personnel performing VE	Only the midwife	90	66.3± 4.2	0.665	0.551**
	More by midwives and less by physicians	103	67.0± 5.3		
	More by physicians and less by midwives	20	66.2± 4.8		
Health personnel performing the delivery	Midwife	140	66.2±14.5	-1.064	0.289*
	Physician	73	63.5±14.7		

There was no significant difference between participants' sociodemographic characteristics, such as age, education level, employment status, income status, and their mean score on the total WEVEL scale (p>0.05) (Table 1). When some obstetric characteristics were examined, it was found that the total number of pregnancies was 2.4±1.2, the total number of live births was 2.1±1.0, the number of living children was 2.0±1.0, the frequency of VEs at the last birth was 8.5±4.9, the level of discomfort during VE was 6.5±3.1, and the level of the person performing VE was 7.4±2.9. It was determined that 62% of the women had not received birth preparation education before; 77.5% had received information about the birth process before; while 66.1% of those who had knowledge said that they obtained it from a midwife or a physician. Similarly, 79.3% considered themselves competent in the birth process, and that 78.4% had previous vaginal examination experience. Of the VEs performed in the last birth, 69% lasted less than a minute, 42.3% were performed only by the midwife, and 48.8% were performed more by midwives and less by the physician. It was found that 65.7% of the last births were performed by midwives and 34.3% by physicians.

Table 3: Correlation of WEVEL scale scores and some variables

		WEVEL
Age	r	0.012
	p	0.867
Total number of pregnancies	r	0.019
	p	0.788
Total number of live births	r	0.049
	p	0.473
Total number of living children	r	0.059
	p	0.394
Number of VEs at birth	r	-0.224**
	p	0.002
Level of discomfort during VE	r	-0.330**
	p	0.000
Level of the person performing VE	r	0.382**
	p	0.000

r: Pearson correlation test. **p<0.01

Table 4: The effect of some variables related to the last labor on WEVEL scores

Independent variables	B	Standard error	β	t	p
Constant	53.032	6.981		7.541	0.000
Perception of self-sufficiency at birth (Yes)	3.557	2.609	0.110	1.364	0.165
Emotional communication in VE (Positive)	4.506	2.512	0.135	1.758	0.081
VE duration at birth (less than 1 minute)	1.186	2.726	0.034	0.435	0.654
Frequency of VE at birth	1.225	2.320	0.044	0.568	0.782
Level of discomfort during VE	-1.031	0.368	-0.231	-2.799	**0.006**
Level of the person performing VE	1.287	0.354	0.299	3.636	**0.000**
$F_{(5.131)}$=10.428; p<0.001; R^2=0.285; AdjR^2=0.257					

The emotional communication with the midwife and physician during VE in the last birth was reported as positive by 76.6% of the women. The women stated
that they expected the examiner to be more caring during the examination (30%), to be smiling (29.1%), and to talk to them during the procedure (16.4%) to increase VE comfort.

In the study, the mean score of the postpartum mothers was 66.6±4.8 on the total WEVEL. There was a significant difference between women's mean scores on the total WEVEL and the variables of perception of self-sufficiency at birth, emotional communication during VE, and the duration of VE at birth (p<0.05) (Table 2).

A negative and weak correlation was found between the WEVEL scale score and the frequency of VEs at birth (r=-0.224) and the level of discomfort during VE (r=-0.330) (p<0.01). A weak, positive, and significant relationship was determined between the WEVEL score and the level of the person performing VE, (r=0.382, p<0.01) (Table 3).

The effects of postpartum women's perception of birth self-sufficiency in the last labor, emotional communication status in VE, duration of VE at birth, the frequency of VEs during birth, the level of discomfort during VE, and the level of the person performing VE, on WEVEL scores were examined. The multiple linear regression model established was statistically significant (F(5,131)=10.428; p<0.001; R^2=0.285; AdjR^2=0.257) (Table 4).

The independent variables in the regression model explained 25.7% of the variance in VE scale scores. The variables of the level of discomfort during VE (β =-0.231, t=-2.799, p<0.05) and the level of the person performing VE (β =0.299, t=3.636, p<0.05) significantly predicted VE scores. The effect of the level of discomfort during VE on WEVEL scale scores was negative, while the effect of the level of the person performing VE was positive (Table 4

Discussion

In this study, the majority of women (76.6%) reported their emotional communication with the midwife and physician during VE in the last birth as

positive. In a study conducted in the Netherlands, it was reported that 35.2% of women had a negative experience due to pain, embarrassment, discomfort, and disrespect related to VE during labor and that 64.8% did not have a negative experience.[5] In a study by Lewin et al. (2005)[25], 53% of the women were very satisfied with the VE during labor, 44% were satisfied, and 3% were dissatisfied. It was emphasized that ensuring privacy, especially during VE, treating the woman with respect and sensitivity, providing support, and managing the frequency of examinations were important factors for birth satisfaction.[24] In various studies, it was stated that women often experienced discomfort, pain, stress, embarrassment, and fear during VE.[26-28] In this study, the majority of the women had positive emotional communication with the midwife and physician during VE, which showed that their views on VE were positive.

The VE procedure can be humiliating, painful, or traumatic for many women.[29-33] According to the research results, the top three expectations of women to increase VE comfort were that the examiner should act more gently during the examination, be friendly, and talk to them during the procedure. In a study by Tan *et al*. (2022),[28] participants expected healthcare professionals to act more gently and slowly, ensure privacy, and be smiling during VE, respectively.[28] According to the study results of Yıldırım and Bilgin (2021),[27] women expected special attention to their physical and psycho-social care needs during VE. In particular, they expected healthcare professionals to be friendly and informative and the labor environment to be ergonomically suitable.[27] Our research results are similar to those in the literature. Women's expectations during VE are common.

The World Health Organization (WHO) recommends that VE be performed every four hours during labor in low-risk women in the active phase of the first stage of labor and that the examination be done by the same healthcare personnel.[34] However, the National Institute of Health and Clinical Excellence (NICE) states that frequent VEs have no proven value and should only be performed when necessary and where the examination will provide vital information for decision-making during active management.[35] In this study, the frequency of women's VE was 8.5±4.9. The average VE discomfort level at birth was 6.5±3.1, and it was found to cause moderate discomfort in women. The average performance level of the person doing VE was determined as 7.4±2.9, which was at a good level. Lewin *et al*. (2005)[25] reported the VE frequency of women as 3.0 ±1.6 and the VE performance as 7.9 ±2.1. Afacan (2018)[24] found the frequency of VE as 5.7±3.7, VE performance as 7.8±2.7, and the feeling of discomfort experienced during the examination as 4.8±3.5. [24] Küçük & Çalık (2021)[21] found that the frequency of VE in women was 4.05±1.72 and the Results show that the frequency of VE and the feeling of discomfort experienced during the examination vary, but the performance level of the person performing VE is similar and has been evaluated as good.

The mean WEVEL total score of the postpartum women participating in the study was 66.6±4.8. Considering the range of WEVEL scores between 20 and 100, it can be said that almost all of the postpartum mothers scored above the average and that their VE experiences in this research were good. Lewin *et al*., (2005)[25] reported that 74.4% of the women in their study were satisfied with their VE experience. Afacan (2018)[24] determined that the mean WEVEL total score was 65.5±10.8 and that the majority of the women evaluated their communication with the midwife/physician positively. It was found that the WEVEL scores of women who described their communication during VE as negative (55.8±9.3) were significantly lower than the scores of those who described it as positive (67.0±10.3).[24] Dabagh-Fekri *et al*. (2020) reported the mean WEVEL total score as 62.9 ± 26.2.[36] Küçük & Çalık (2021)[21] stated that women's mean WEVEL total score was 74.1±10.0, which was at a good level. While it was reported that women who were informed before VE, their privacy was protected, and VE was applied by the same healthcare personnel had more positive experiences, they mostly experienced fear, pain, and embarrassment during VE.[21] The majority of women had positive VE experiences in the studies examined in the literature, which is similar to the findings of this research. However, although the majority of women's VE experiences were positive, the negative emotions experienced during VE were similar.

In this study, it was determined that women who perceived themselves as competent during labor, who had positive emotional communication with the midwife or physician during the vaginal examination, and whose vaginal examination took

less than a minute had better VE experiences. Bonilla-Escobar et al. (2016)[37] stated the relevant factors for a successful VE as trust in the examiner, the examiner's respect for the expectant mother, and the ability to perform VE. In addition, another important factor was the expectant mother's confidence that she would receive support and appropriate information regarding the examination findings.[37] Many studies have been found in the literature about women's perceptions, opinions, and experiences with VE.[26,28,29,30] However, studies on a detailed examination of the factors about women's VE experiences and the factors affecting their VE experiences are very limited.[35-38]

In this study, VE experiences of postpartum women had a significant negative relationship with the frequency of VEs and the level of discomfort during VE (r=-0.330) and a positive relationship with the level of the person performing VE (r=0.382). As women's VE discomfort levels and VE frequency decreased, their VE experiences improved positively. It was determined that as the performance level of the person doing VE increased, women's VE experiences also got better. Some studies in the literature support these results and show that unnecessary and frequent examinations negatively affect the VE experience.[5,27,36] In a study by Tan *et al*. (2022), 60.8% of the women reported that they were subjected to VE very frequently, while 64.2% stated that they were uncomfortable with the VE performed.[28] However, in some studies, unlike the results of this research, it was determined that although the frequency of VE and the feeling of discomfort experienced during the examination varied, the performance level of the person doing VE was similar and was evaluated as good.[21,24,25] Since women's VE experiences may be related to many different variables, it is natural that the results will differ.

In this study, the factors that explained 25.7% of the VE experiences of postpartum women in their last labor were VE discomfort level and the performance level of the person doing VE. While VE discomfort level negatively affected women's VE experiences, VE performance level had a positive impact. However, of the other variables examined, perception of self-sufficiency at birth, emotional communication status during VE, the duration of VE, and the frequency of VE did not affect women's VE experiences. In a study conducted in Iran, it was determined that VE experiences were affected by the duration of the examination, the feeling of comfort with the examiner, and the number of people performing the examination. The duration and the frequency of VE, the feeling of comfort with the examiner, and the number of examiners explained 8% of VE experiences.[37] Unlike the results of the study by Dabagh-Fekri *et al.* (2020)[36], the duration and the frequency of VEs did not affect women's VE experiences in this study. However, it is noteworthy that the level of VE discomfort negatively affected VE experiences as a similar finding. Özkul (2023)[38] stated that there was a significant difference between the state of thinking that the health professional applying VEs showed the necessary sensitivity and the average score for feeling uncomfortable. While the mean score of those who thought that healthcare professionals showed the necessary sensitivity during VE was 4.8±2.3, the mean score of those who thought the opposite was 6.7±2.1. The necessary sensitivity of the healthcare professional during VE reduces women's feeling of discomfort.[38] Findings in the literature support our research results. However, no different research specifically into the predictors of VE experiences has been found.

According to our research results, women's VE experiences were affected positively by the level of the person performing VE and negatively by the level of discomfort during VE, which are two significant predictors of the experience. Of course, women's VE experiences should be evaluated multi-dimensionally, as they can be affected by many different variables, physically, psychologically, individually, socially, or culturally. However, our research results on improving VE experiences are very important from a physical and technical perspective.

It is critical to provide technically competent care and improve women's care experiences to provide quality care during labor. The results show that postpartum women's VE experiences were good.

Increased discomfort during VE negatively affected women's experience of VE. The improvement of the level of the person performing VE had a positive impact on women's experience of VE. Therefore, it is recommended that obstetric care providers improve VE practices in the clinic, avoid unnecessary practices, and provide personalized quality care to women.

Conclusion

According to the research results, women's VE experiences were at a good level. Women who perceived themselves as competent during labor, who had positive emotional communication with the midwife or physician during VE, and whose vaginal examination took less than a minute had better VE experiences. As women's VE discomfort levels and the frequency of VEs decreased, their VE experiences improved positively. It was determined that as the performance level of the person doing VE increased, women's VE experiences also got better. The factors that explained 25.7% of VE experiences were VE discomfort level and the performance level of the person doing VE. While VE discomfort level negatively affected women's VE experiences, the performance level of the person doing VE affected them positively.

Strengths and limitations

The strong and unique feature of this study is the discovery of factors that affect the VE experience. The strength and originality of this study is the identification of the factors that affect vaginal examination experience. These factors are explained in detail in the discussion section. This study includes several limitations. Women with chronic diseases, high-risk pregnancies, complications during vaginal birth, and women whose delivery method was cesarean section were excluded from the study. Since these factors would affect the research results, they were not included in the sample. The research was conducted cross-sectionally in a province located in the north of Turkiye and had a limited sample size, which restricts the generalization of the results. Nevertheless, the study makes important contributions to understanding women's reactions to vaginal examination in labour and the factors that need to be acted upon to improve their experiences.

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Author contributions

Dilek Öcalan (DÖ): Conceptualization; data curation; formal analysis; visualization; writing – original draft; methodology; investigation; supervision; project administration; writing – review and editing; software; funding acquisition; validation.
Saadet Hilal Oguz (SHO): Resources; validation; investigation; writing – review and editing;visualization; data curation; conceptualization.

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Conflıct of interest statement

No conflict of interest has been declared by the authors.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions

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