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Frequency of Episiotomy and Perineal Injury in Home Births and Influencing Factors

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ABSTRACT

Objective: Women may choose home birth to avoid medical interventions such as episiotomy, as midwife-assisted births involve fewer interventions and support the physiological birth process. The aim of this study is to examine perineal outcomes (episiotomy and perineal injury) in planned home births and the associated factors.
Methods: This descriptive study was conducted between August 2021 and January 2022. The sample consisted of 159 women. The data were collected by using the Personal Information Form and Satisfaction Scale (Visual Analog Scale-Satisfaction).
Results: Participants preferred home birth for reasons such as preserving privacy, avoiding IV oxytocin use, having their spouse present during labor, and preventing episiotomy. Intact perineum was observed in 33.3% of participants, while 17.0% underwent episiotomy, and 51.6% experienced perineal injury requiring suturing. Multiparity and flexible sacrum positions were associated with a higher rate of perineal integrity, while multiparity was also linked to a higher risk of perineal injury requiring suturing. Participants received midwifery support during home births and reported high levels of satisfaction with the care they received.
Conclusion: The rate of episiotomy and perineal injury was low in-home births. These results show that women's preference for home birth enables them to avoid medical interventions. Midwives and nurses are recommended to provide pregnant women with the necessary information to help them determine a safe place for childbirth.

Keywords: Episiotomy, perineal trauma, birth, home birth

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Introduction

The medicalization of childbirth is a key characteristic of Western societies. Since the mid-20th century, most women in high- and middle-income countries have delivered their babies in hospital settings. Nevertheless, in some regions, home birth remains a common and accepted practice (Olsen & Clausen, 2023). International Confederation of Midwives (ICM) states that every woman and gender-diverse individual has the right to have a home birth with professional midwife-led care (ICM, 2017). The United Kingdom National Health Service (NHS) states that low-risk pregnancies can be managed with planned home births attended by a midwife, provided that the necessary precautions are taken (NHS, 2024). The American College of Obstetricians and Gynecologists' Committee (ACOG) states that home births can be safe under the following conditions: appropriate selection of candidates for home birth; the presence of a certified nurse-midwife, a certified midwife, or a midwife whose education and licensure meet the International Confederation of Midwives' Global Standards for Midwifery Education, or a physician attending births within an integrated and regulated healthcare system; easy access to consultation; and safe and timely transfer to nearby hospitals (ACOG 2017). In Türkiye, home births have been addressed as one of the services that can be provided under the regulation *Opening and Operation of Health Cabins* (1997-3), specifically under the provision of birth intervention at home. This regulation allows midwives and nurses to establish and operate health cabins within a defined framework of rules and procedures (T.C. Sağlık Bakanlığı, 1997). Another directive issued by the Ministry of Health concerning home births is the *Directive on Maternal Mortality*, which aims to reduce maternal deaths by implementing necessary measures to ensure that pregnant women give birth in a hospital setting (T.C. Sağlık Bakanlığı, 2008). The home birth rate in Türkiye has decreased over the years (HUIPS, 2019). Especially in recent years, with the development of healthcare policies, unplanned home births have decreased, while interest in planned home births has increased in the social media and online platforms (Kumru & Topuzoğlu, 2019). Women prefer planned home birth because they want a personalized birth and want to take an active role in decision-making, and because they think that these cannot be provided in a hospital setting (Leon-Larios et al., 2019). In addition, one of the reasons why women prefer home birth is to avoid medical interventions such as episiotomy (Prates et al., 2018; Rodríguez-Garrido et al., 2020; Sassine et al., 2021; Skrondal et al., 2020).

The selective use of episiotomy reduces perineal trauma, the effect of routine episiotomy in preventing severe perineal trauma, and that routine episiotomy has no benefit for the baby or the mother (Jiang et al., 2017). WHO and FIGO does not recommend routine episiotomy for uncomplicated vaginal birth (WHO, 2018; Wright et al. 2021). On the other hand, episiotomy, which is one of the causes of perineal trauma, is increasing significantly throughout the world. The global rate of episiotomy ranges from 21% to 91% (WHO, 2018). Studies on the prevalence of episiotomy in Türkiye are limited, and the prevalence of episiotomy has been reported as 52-92% (Hotun Şahin et al., 2007; Karaçam et al., 2013; Kartal et al., 2017).

The perineum is at risk of trauma during childbirth due to episiotomy and spontaneous perineal injury (Goh et al., 2018). More than 85% of women who give vaginal birth develop different degrees of perineal injury (Frohlich & Kettle, 2015). These damages can cause short-term and long-term complications in women (Goh et al., 2018). Factors, such as nulliparity, fetal macrosomia (≥4000 g), shoulder dystocia, occiput posterior position, instrumental birth, use of epidural, use of oxytocin, and lithotomy position, affect the prevalence of perineal injury and episiotomy (Goh et al., 2018). In addition, the birth environment affects the rate of perineal injury and episiotomy. The prevalence of perineal injury increases in women who give birth in a hospital and that it is lower in women who give birth at home (Lindgren et al., 2011). In a freestanding birth center in Brazil, the perineum remained intact in 11.8% of women. The prevalence of spontaneous first-degree tears was 61.9%, followed by 26.3% with spontaneous second-degree tears. There were no cases of spontaneous third- or fourth-degree tears or episiotomy (Lopes et al., 2019).

There is inadequate up-to-date data on home births in Türkiye (Kumru & Topuzoğlu, 2019). Studies on the experiences of women giving birth at home are limited. No study has been found to determine the prevalence of episiotomy and perineal injury in home births in Türkiye. The purpose of this study is to determine the frequency of episiotomy and perineal injury in women who have a planned home birth and the factors associated with them. It is thought that the results obtained will shed light on the development of health policies related to home births and will guide the prevention of adverse happenings that may be experienced due to episiotomy and perineal injury, which are quite high in Türkiye. Moreover, this study contributes to the understanding of how approaches aimed at preserving the physiology of birth can positively impact perineal outcomes and reduce routine interventions.

Methods

Study Design and Participants

This descriptive designed study's population consisted of women who gave birth at home in Türkiye. The sample included women who were older than 18, Turkish-speaking and understanding, and had a planned home birth in the last year. There were 1 million 112 thousand 859 live births in Türkiye (TÜİK, 2021). The home birth rate is 1% (HUIPS, 2019). The minimum sample size was determined as 134 based on a 98% statistical power, 0.02 margin of error. The study population consisted of 159 women.

Data Collection

Study data were collected between August 2021 and January 2022 online (Google Forms). Participants were recruited through posts shared on home birth/natural birth pages on social media platforms (Facebook, Twitter, Whatsapp and Instagram). Initially, individuals who saw these posts and met the inclusion criteria were invited to participate. Additionally, these participants were encouraged to share the study with others who had similar experiences, facilitating a referral-based recruitment process.

Measurements

The data were collected by using the Personal Information Form and Satisfaction Scale (Visual Analog Scale-Satisfaction).

Personal Information Form: The data were collected using a structured form, which included variables investigated in the study, such as women's demographic characteristics, pregnancy and birth histories, and their experiences with perineal injury.

Satisfaction Scale (Visual Analog Scale-Satisfaction): The satisfaction levels of the participants regarding home birth, the support received from the midwife, the midwife's interventions aimed at protecting and maintaining the integrity of the perineum during and after childbirth were assessed using the VAS-Satisfaction scale. The VAS is a 10 cm-long measurement tool frequently used to evaluate emotions and other subjective experiences (Wewers & Lowe, 1990). The left end of the scale (0) represents "No satisfaction at all", while the right end (10) represents "The highest possible satisfaction". A higher score on the scale indicates a higher level of satisfaction, whereas a score of 0 reflects dissatisfaction (Brokelman et al., 2012).

Statistical Analysis

The Statistical Package for the Social Sciences (IBM SPSS Corp., Armonk, NY, USA) 20.0 software package was used to evaluate the study data. Descriptive statistics were used in the analysis. A binary logistic regression analysis was performed to examine the factors influencing perineal injury. The model assessed how different independent variables, including multiparity, flexible sacrum positions (kneeling, standing, all-fours, lateral position, squatting and giving birth on the birth seat) and birth weight ≥ 4000 g, affected the likelihood of an intact perineum, episiotomy, and sutured perineal injury. $P<.05$ was accepted as the level of statistical significance.

Ethical Approach of the Research

Ethics committee permission was obtained from The Ankara University Ethics Committee (Date: 02.08.2021, Number: 11/131). Online consent was obtained from those who agreed to participate. The Declaration of Helsinki was followed at all stages of this study.

Results

The sociodemographic and obstetric characteristics of the participants are given in Table 1. The mean age of the participants was 29.15±4.38, and 64.2% had a university degree or higher education level. The income of 56.6% of the participants was equal to their expenses. A total of 64.2% of the participants had received childbirth preparation education. The mean gestational week was 39.36±1.30 during birth (min-max=36-43), and babies' mean birth weight was 3315.94±452.78 g (min-max=2000-4600). Additionally, 50.3% of the participants preferred episiotomy only when necessary.

The reasons of the participants for preferring home birth included protection of privacy 95.6%, avoidance of IV oxytocin use 83.0%, wanting the company of their partner at birth 72.3%, avoidance of episiotomy 70.4%, and home as a safe/comfortable area 10.7% (Figure 1).

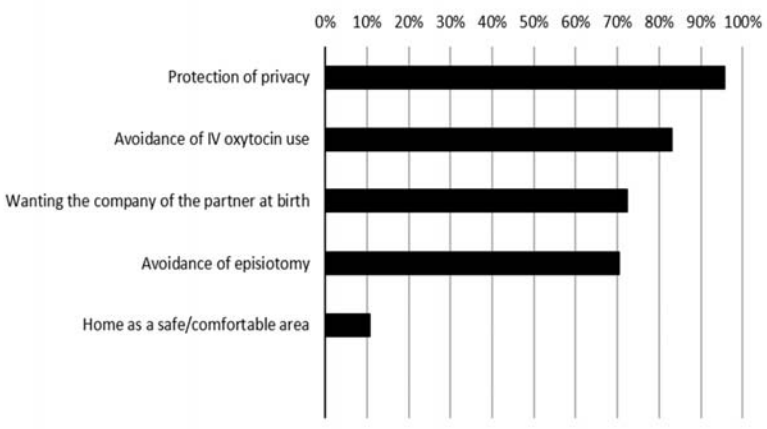

Figure 1. The reasons of the participants for preferring home birth

Table 1. *Sociodemographic and Obstetric Characteristics of the Participants*		
Variables	Mean	Standard deviation
Age	29.15	4.38
	n	**%**
Level of education		
Elementary	7	4.4
Middle	14	8.8
High school	36	22.6
University or above	102	64.2
Family type		
Nuclear	145	91.2
Extended	14	8.8
Income status		
Income<expenses	24	15.1
Income=expenses	90	56.6
Income>expenses	45	28.3
Total	159	100
Number of pregnancies		
1	67	42.1
2	48	30.2
3	27	17.0
≥4	17	10.7
Number of childbirths		
1	73	45.9
2	56	35.2
≥3	30	19.9
Status of miscarriage/curettage		
Yes	27	17.0
No	132	83.0
Sex of the baby born at home		
Female	89	56.0
Male	70	44.0
Status of having received childbirth preparatory education		
Yes	102	64.2
No	57	35.8
Episiotomy choice		
Did not want it absolutely	45	28.3
Did not want it	34	21.4
Wanted it when necessary	80	50.3
Total	159	100

It was determined that women used different positions during childbirth. The most commonly used birthing positions were lying on back 34%, going on all fours 24.5%, sitting 20.8), and squatting 18.2%. It was observed that nonflexible sacrum positions (sitting or lying on back, such as the supine and the side lying position) were used more 54.7% (Figure 2).

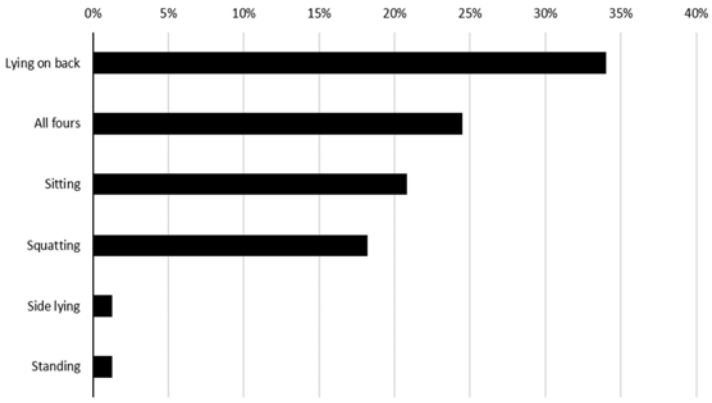

Figure 2. The birthing positions utilized by participants during home birth

The rate of women with intact perineum was 33.3%. While this rate was 19.2% in primiparas, it was 45.3% in multiparas. In addition, 17.0% of the participants had episiotomy, and 51.6% had sutured injuries. While the rate of episiotomy was 23.3% in primiparas, it was 11.6% in multiparas (Table 2). None of the participants developed third- and fourth-degree lacerations.

Table 2. *Status of Perineal Injury*			
Status	Total n=159 n (%)	Primiparas n=73 n (%)	Multiparas n=86 n (%)
Perineal injury			
No	53 (33.3%)	14 (19.2%)	39 (45.3%)
Yes	106 (66.7%)	59 (80.8%)	47 (54.7%)
Episiotomy			
Yes	27 (17.0%)	17 (23.3%)	10 (11.6%)
No	132 (83.0%)	56 (76.7%)	76 (88.4%)
Sutured injury			
Yes	82 (51.6%)	47 (64.4%)	35 (40.7%)
No	77 (48.4%)	26 (35.6%)	51 (59.3%)

Multiparity and flexible sacrum positions were associated with higher intact perineum. Multiparity was associated with a higher risk of sutured injury (Table 3).

All of the participants received midwife support at birth. The level of participants' satisfaction was as follows: level of satisfaction with home birth (9.80±.62, min:5-max:10); level of satisfaction with the support received from the midwife (9.52±1.07, min:4-max:10); level of satisfaction with the midwife's interventions aimed at protecting and maintaining the integrity of the perineum during and after childbirth (9.16±1.67, min:0-max:10).

Table 3.
Risk Factors for Perineal Injury

	Intact perineum	Episiotomy	Sutured injury
Multiparity	3.084 (1.445-6.584) *p*=.004*	0.462 (0.187-1.140) *p*=.094	0.432 (0.221-0.846) *p*=.014*
Flexible sacrum positions	0.382 (0.183-0.797) *p*=.010*	0.899 (0.366-2.212) *p*=.817	1.357 (0.692-2.660) *p*=.374
Birth weight ≥4000 g	0.910 (0.228-3.641) *p*=.894	0.697 (0.125-3.895) *p*=.681	1.427 (0.362-5.624) *p*=.611

Coding information:
Multiparity: 0 = Primiparous, 1 = Multiparous
Birth positions (flexible sacrum positions): 0 = Not used, 1 = Used
Birth weight ≥ 4000 g: 0 = <4000 g, 1 = ≥4000 g
*p<.05

Discussion

This study was carried out to determine the factors associated with the prevalence of episiotomy and perineal injury of women who had a planned home birth.

In our study, it was found that the education level of women who gave birth at home was high, which is similar to the case of Australia (Sassine et al., 2021). It was observed that most of the women participating in our study received childbirth education. Skondral et al. reported that women's intrinsic motivation was a key element in planning a home birth and that they were well prepared for it (Skrondal et al., 2020). Similarly, some studies have shown that women prepare for home birth through childbirth education, getting information from health personnel, and searching books and Internet (Galera-Barbero & Aguilera-Manrique, 2022; Leon-Larios et al., 2019; Naylor Smith et al., 2018). These results suggest that planned home birth is consciously preferred by educated women.

Many factors affect the choice of home birth. The use of IV oxytocin and the desire to avoid medical interventions such as episiotomy were effective in the preference of the participants in our study for a home birth. Similarly, Sassine et al. reported that women preferred home birth to avoid medical interventions, especially induction and episiotomy (Sassine et al., 2021). There are other studies reporting that avoiding medical interventions used in hospital births is effective in women's preference for home birth (Prates et al., 2018; Rodríguez-Garrido et al., 2020; Skrondal et al., 2020). Women who preferred homebirth stated that they avoided routine interventions because they made childbirth difficult and that these procedures did not facilitate the birth, either (Rodríguez-Garrido et al., 2020). Non-evidence-based obstetric practices are common in Türkiye, including restriction of mobility and nutrition, inducing labor with oxytocin, fundal pressure, supine position for childbirth, and routine episiotomy. A mother-friendly hospital program, which aims to eliminate these non-evidence-based interventions in women with pregnancy who give birth in maternity units, has been implemented in Türkiye since 2015 (Erbaydar, 2021). Dissemination and effective use of the mother-friendly hospital program seems to be appropriate approach for women to prefer hospital births. In addition, guidelines clearly state that pregnants should be informed about all possible places of birth so that they can make an informed choice and make the best decisions (ACOG, 2017; ICM, 2017). If a woman chooses home birth after receiving proper information, her birth preference should be recognized as a fundamental human right, and necessary medical support should be ensured. However, ensuring these conditions especially in rural settings with limited healthcare access presents significant challenges. The American College of Obstetricians and Gynecologists (ACOG) emphasizes that home births can be safe only under specific conditions, including careful selection of candidates, attendance by a qualified midwife or physician operating within an integrated and regulated healthcare system, easy access to consultation, and the ability for safe and timely transfer to a hospital if needed (ACOG, 2017). Therefore, national health policies should focus on both improving midwife-led hospital births and developing region-specific strategies that prioritize maternal autonomy while safeguarding maternal and neonatal health.

Other factors affecting the choice of home birth by the participants in our study included protection of privacy, wanting the company of the spouse at birth, and the comfort/safety of home. Women feel safe and comfortable (Rodríguez-Garrido et al., 2020) and they can receive the support of their spouses at home (Leon-Larios et al., 2019; Prates et al., 2018), which are effective in preferring home birth.

While the total prevalence of episiotomy in women participating in our study was 17.0%, it was 23.3% in primiparas and 11.6% in multiparas. The prevalence of episiotomy in the world varies between 30%-85% in nulliparous and 7%-39% in multiparas (Rodrigues et al., 2019; Singh et al., 2016; Smith et al., 2013). In studies conducted in our country, it was reported that episiotomy was performed at a rate of 89.6%-93.3% in primiparas and 30.2%-72% in multiparas (Hotun Şahin et al., 2007; Kartal et al., 2017; Okumuş, 2017). The rate of episiotomy determined in our study was considerably lower than the childbirths performed in the hospital. In a study comparing home and hospital births, it was determined that although

the rate of episiotomy was lower in home births than in hospital births, it was 37.3% in primiparas and 6.3% in multiparas giving birth at home (Bolten et al., 2016). In a study conducted in Scandinavian countries, it was reported that episiotomy was applied to only 1% of women who gave birth at home (Edqvist et al., 2016). These results support the growing evidence for lower levels of intervention for low-risk women who prefer giving birth at home.

In our study, the rate of intact perineum was 33.3%, while this rate was 19.2% in primiparas and 45.3% in multiparas. In a study conducted in a hospital in our country, the rate of intact perineum was found to be 3.5% in primiparas (Karaçam et al., 2013). In their study, which included women who gave birth in a birth center in Portugal, the rate of intact perineum was 25% (Rodrigues et al., 2019). In a study comparing home and hospital births, it was determined that the rate of intact perineum was higher in home births than in hospital births (Bolten et al., 2016). These results support the positive effects of home birth on the preservation of perineal integrity.

Birth positions that take the weight off the sacrum and could be categorized as flexible sacrum positions are kneeling, standing, all-fours, lateral position, squatting and giving birth on the birth seat. On the other hand, all the positions where the woman is sitting or lying on her back, such as the supine and the side lying position, put weight on the sacrum and could be categorized as non-flexible sacrum positions (Smith et al., 2013). It was determined that women participating in our study used different positions during childbirth. The most commonly used birthing positions were lying on the back (34%), all fours (24.5%), sitting (20.8%), and squatting (18.2%). It was observed that nonflexible sacrum positions were used more (54.7%). In addition, while flexible sacrum positions were associated with higher intact perineum in our study, it was not associated with episiotomy and sutured injury. Rodrigues et al. found that the use of positions other than the lithotomy position and high parity were associated with high intact perineum (Rodrigues et al., 2019). Edqvist et al. also reported that the use of flexible sacrum positions in women who gave birth at home was not associated with sutured injury but associated with the rate of episiotomy (Edqvist et al., 2016). Women who give birth at home use less supine positions than those who give birth in a hospital (Bolten et al., 2016). These results suggest that the liberating effect of home births on position is important. The evidence as to the impact of upright birth and flexible sacrum positions on perineal outcomes remains inconclusive and should be supported by studies to determine its effect on women who give birth at home (Kemp et al., 2013).

None of the participants in our study developed 3rd or 4th degree lacerations. Karaçam et al. reported that no 3rd or 4th degree lacerations were observed in women who gave birth in a hospital in Türkiye (Karaçam et al., 2013). Bolten et al. reported that the rate of 3rd or 4th degree perineal injury was similar in hospital and home births (Bolten et al., 2016).

In our study, midwives attended all participants' births. In addition, participants' satisfaction levels with home birth, the support received from the midwife, and perineal care provided by the midwife were quite high. The support and presence of midwives play a crucial role in shaping home birth as a highly positive experience for women, allowing them to maintain control over their birth, experience greater autonomy, and contribute to their personal development (Galera-Barbero & Aguilera-Manrique, 2022; Leon-Larios et al., 2019). Similarly, studies in both Türkiye and other countries have shown that midwife-led care, not only in home births but also in birth centers and mother-friendly hospital settings, contributes significantly to women's birth satisfaction (Liu et al., 2021; Hailemeskel et al., 2022; Aktaş, & Küçük Alemdar, 2024; Nabirye et al., 2024). Women particularly value the ability to experience labor with greater autonomy, fewer medical interventions, continuous support from a midwife, and an overall positive emotional experience (Sandall et al., 2016). The high birth satisfaction observed in our study may be attributed to the continuous midwifery care provided to these women. In Türkiye, 99% of births occur in healthcare facilities. However, only 8% of these births are attended by midwives, while another 8% are assisted by nurses (HUIPS, 2019). As a result, women may turn to home birth to receive the continuous support they highly value. In Türkiye, the Mother-Friendly Hospital Program promotes a supportive and home-like birth environment by ensuring that "pregnant women should feel comfortable and at home with a suitable companion by their side, and they should be provided with freedom of movement." (T.C. Sağlık Bakanlığı, 2023) Moreover, the expansion of midwives' roles and responsibilities, the strengthening of midwifery education, and the implementation of the "Midwife for Every Pregnant Woman" initiative, as outlined in the Normal Birth Action Plan (T.C. Sağlık Bakanlığı, 2025), are strategic efforts to encourage midwife-assisted births in hospitals, which are considered safer birth environments in terms of maternal and neonatal mortality (ACOG, 2017). Although hospitals provide a safe birth environment, every woman has the right to make a medically informed decision regarding her place of birth (ACOG, 2017; ICM, 2017). According to ICM, midwives attending home births should operate within a national health system, ensuring access to appropriate

referral services when necessary, as well as receiving adequate insurance coverage and fair compensation. However, not all health systems offer home birth services, leading to suboptimal care for women who choose this option, as it remains disconnected from the formal healthcare system. ICM calls on national governments to consider the substantial scientific evidence supporting home birth and to establish the necessary frameworks that allow midwives to provide home birth services as an integrated part of the healthcare system for families who opt for this model of care (ICM, 2017).

Conclusion and Recommendations

In conclusion, it was determined in our study that women who gave birth at home consciously preferred the mode of birth, experienced lower perineal injury and episiotomy, and did not experience third- and fourth-degree perineal injury. It was observed that women have freedom of movement and position during childbirth. Women in the study received midwife support at birth, and it was determined that their satisfaction with the birth and the support was high. Our study revealed that the rates of perineal injury and episiotomy in women who gave birth at home in Türkiye were considerably lower than in those who gave birth in hospitals. The desire to avoid medical interventions such as episiotomy, led some women to give birth at home.

Midwives and nurses are the primary healthcare providers working closely with mothers and newborns (Çankaya et al., 2024). Therefore, it is recommended that nurses and midwives involved in perinatal care provide pregnant women with appropriate information to assist them in making informed decisions about their place of birth. Additionally, it is crucial to maintain the commitment to ongoing efforts aimed at increasing midwife-assisted births in hospitals. Furthermore, for the safety of women who still choose home birth, the development of national health policies that align with the recommendations of organizations such as ICM and ACOG should be evaluated.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Ankara University (Date: 02.08.2021, Number: 11/131).
Informed Consent: Online consent was obtained.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - MNA,EA; Design-MNA; Resources-MNA,EA; Data Collection and/or Processing- MNA,EA; Analysis and/or Interpretation-MNA; Literature Search-MNA; Writing Manuscript-MNA; Critical Review- MNA,EA
Conflict of Interest: The authors have no conflicts of interest to declare.
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