



A quasi experimental study on menstrual cup use: Women's experiences, satisfaction, and menstruation impact

Menstrüel kap kullanımı üzerine yarı deneysel bir çalışma: Kadınların deneyimleri, memnuniyeti ve menstrüasyonun yaşam üzerindeki etkisi

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ABSTRACT

Aim: This study aimed to evaluate women's experiences with menstrual cup use, their satisfaction levels, and the impact of menstruation on their lives.

Methods: This quasi experimental mixed methods study was conducted with 34 women who were either employed or studying at a university in Türkiye. Participants were provided with menstrual cups following an educational intervention and asked to use them for at least two menstrual cycles. Data were collected using the Menstrual Cup Use Satisfaction Form, the Menstruation Impact Scale (MIS), and a semi-structured interview form. Quantitative data were analyzed using descriptive statistics and the Wilcoxon signed-rank test, while qualitative data were analyzed using Braun and Clarke's six-phase thematic analysis.

Results: The mean age of participants was 32.76±6.77 years; 85.3% were married, and 58.8% held a bachelor's degree. The mean total pretest MIS score (38.32±9.19) decreased significantly to 33.88±9.46 after the intervention (p=0.003). All participants reported that menstrual cup use eliminated odor, was easy to clean, reduced environmental waste, and provided economic benefits. Overall, 85.3% expressed satisfaction and willingness to continue use; however, 55.9% reported difficulty with insertion and 58.8% with removal. Qualitative analysis revealed four themes: initial concerns, attitude change, use experiences, and environmental awareness.

Conclusion: Menstrual cup use was regarded by women as a hygienic, economical, and environmentally friendly alternative. Despite initial concerns, high satisfaction rates were achieved after use. Difficulties experienced in insertion and removal can be overcome through education and practical applications. Nurses and midwives should integrate menstrual cup education into reproductive health counseling.

Keywords: environmental awareness; menstrual cup; menstrual hygiene; women's health

ÖZ

Amaç: Bu çalışma, kadınların menstrüel kap kullanım deneyimlerini, memnuniyet düzeylerini ve menstrüasyonun yaşamlarına etkisini değerlendirmeyi amaçlamıştır.

Yöntem: Bu yarı deneysel karma yöntemli çalışma, Türkiye'de bir üniversitede çalışan veya öğrenim gören 34 kadın ile yürütülmüştür. Katılımcılara eğitim müdahalesinin ardından menstrüel kap sağlanmış ve en az iki menstrüasyon döngüsü boyunca kullanmaları istenmiştir. Veriler Menstrüel Kap Kullanım Memnuniyet Formu, Menstrüasyon Etki Ölçeği (MEÖ) ve yarı yapılandırılmış görüşme formu ile toplanmıştır. Nicel veriler tanımlayıcı istatistikler ve Wilcoxon işaretli sıralar testi ile; nitel veriler Braun ve Clarke'ın altı aşamalı tematik analiz yöntemi ile analiz edilmiştir.

Bulgular: Katılımcıların yaş ortalaması 32.76±6.77 yıl olup %85.3'ü evli, %58.8'i lisans mezunudur. Ön test MEÖ toplam puan ortalaması (38.32±9.19), müdahale sonrasında 33.88±9.46'ya istatistiksel olarak anlamlı düzeyde düşmüştür (p=0.003). Tüm katılımcılar kap kullanımının kötü kokuyu ortadan kaldırdığını, temizliğinin kolay olduğunu, çevresel atığı azalttığını ve ekonomik fayda sağladığını bildirmiştir. Genel memnuniyet oranı %85.3'tür; ancak katılımcıların %55.9'u takma, %58.8'i çıkarma güçlüğü yaşadığını bildirmiştir. Nitel analizde dört tema belirlenmiştir: başlangıç endişeleri, tutum değişikliği, kullanım deneyimleri ve çevre farkındalığı.

Sonuçlar: Menstrüel kap kullanımı kadınlar tarafından hijyenik, ekonomik ve çevre dostu bir alternatif olarak değerlendirilmiştir. Başlangıç endişelerine karşın yüksek memnuniyet oranlarına ulaşılmıştır. Takma ve çıkarma güçlükleri eğitim ve pratik uygulamalarla aşılabilmektedir. Hemşire ve ebeler menstrüel kap eğitimini üreme sağlığı danışmanlığına entegre etmelidir.

Anahtar kelimeler: çevre farkındalığı; kadın sağlığı; menstrüasyon hijyeni; menstrüel kap

Introduction

Menstruation is a normal and healthy part of women's lives. Women need quality menstrual hygiene products to manage menstruation safely and hygienically (United Nations Children's Fund [UNICEF], 2019). Failure to meet these hygiene needs can result in physical health risks (UNICEF, 2018). These risks include reproductive and urinary tract infections, vulvovaginal irritation and dermatitis caused by prolonged contact with moisture or chemical additives, and, in low-resource settings, restricted participation in school, work,

and social life due to inadequate menstrual hygiene management (Kaur et al., 2018; UNICEF, 2018). While some women prefer to use a single method during menstruation, others may change their method over time (Nemours Children's Health/KidsHealth, 2024). The methods used should be safe, effective, and acceptable. Products used for menstruation include disposable sanitary pads, washable pads, tampons, menstrual cups, and absorbent underwear (United Nations Population Fund [UNFPA], 2022). The most commonly used menstrual product is the sanitary pad. Sanitary



pads are single use products with high plastic content. Additionally, in individuals with sensitive skin, various reactions (such as contact dermatitis, pruritus, erythema, and allergic hypersensitivity reactions) may occur due to chemicals such as perfume used in some pads. Tampons, like pads, are single-use products, and toxic shock syndrome may occur with prolonged use (UNFPA, 2022). These environmental and dermatological concerns related to single use menstrual products are consistently documented across the literature (Kaur et al., 2018; Mouhanna et al., 2023; van Eijk et al., 2019).

Women use approximately 10,000 disposable menstrual hygiene products throughout their lifetime (Valentin & Hechanova, 2023). The time required for these products to decompose in nature is much longer than a human lifespan. In the United States alone, disposable menstrual products generate 240,000 tons of solid waste annually (Mouhanna et al., 2023; UNFPA, 2022). Among more environmentally friendly options are reusable menstrual cups (UNFPA, 2022). Menstrual cup use significantly reduces waste and costs associated with hygienic protection (Valentin & Hechanova, 2023). Menstrual cups can be made from silicone, thermoplastic elastomers, or natural rubber. Although allergic reactions to these materials are rare, it is important for users to be aware of this possibility. Unlike tampons that absorb blood, menstrual cups collect approximately 10–38 mL of blood in a reservoir. Depending on the user's needs and product features, cups need to be emptied every 4–12 hours. With proper care and hygiene, they can be used for up to 10 years (Manley et al., 2021; van Eijk et al., 2019).

Menstrual cups are produced in different designs including V-shape, bell shape, round, and asymmetric. Manufacturers generally offer two basic size options. A smaller size is recommended for women under 30 without pregnancy or delivery history, while a larger size is recommended for women aged 30 and over or those with pregnancy and delivery history. Selecting the wrong size or firmness can lead to various problems. Products that are too small or soft may not open sufficiently, causing leakage, while cups that are too large or firm may cause discomfort and irritation to vaginal tissues (Manley et al., 2021). Correct size and firmness selection has likewise been associated with comfort, leakage prevention, and continued use in other studies (van Eijk et al., 2019; North & Oldham, 2011; Tokay Argan et al., 2023).

Reasons for the limited acceptance of menstrual cups compared to other hygiene products include contact with blood, hygiene concerns, perceptions that the vagina should not be touched, blood phobia, beliefs that cups are unsuitable for virgins, and disgust toward the product. Additionally, the limited number of reported cases of vaginal damage, toxic shock syndrome, and urinary tract complaints associated with menstrual cup use, as well as difficulties in cup removal, may increase concerns about the product's reliability, negatively affecting its widespread adoption (Tokay Argan et al., 2023; van Eijk et al., 2019). The advantages of menstrual cups are not limited to being economical and environmentally friendly; they also provide long-term safe use, easy portability and storage, minimized leakage and odor, and freedom of movement. Moreover, existing studies indicate that menstrual cup use does not increase the risk of infection or toxic shock syndrome, and may contribute to reducing menstrual pain in some users (Howard et al., 2011; Kaur et al., 2018; North & Oldham, 2011; Phillips-Howard et al., 2016; Tokay Argan et al.,

2023; van Eijk et al., 2019). The proposed mechanism is that, unlike absorbent products, menstrual cups collect rather than absorb fluid and therefore do not dry the vaginal mucosa; by avoiding local desiccation and irritation, they may reduce reflex uterine and pelvic discomfort. This effect, however, is reported inconsistently and is not yet supported by strong experimental evidence (Tokay Argan et al., 2023; van Eijk et al., 2019).

This study was conducted to examine the menstrual cup use experiences, satisfaction levels, and the effects of menstruation on the lives of women who were employed as academic/administrative staff or enrolled as students at a university. This population was selected purposively for two reasons. First, university staff and students are educated, reachable women who are well positioned to adopt and disseminate sustainable menstrual practices, yet menstrual cup uptake remains low even in this group, suggesting that barriers are attitudinal and experiential rather than purely informational. Second, despite growing international interest, evidence on the lived experience and acceptability of menstrual cups among educated Turkish women is scarce, and existing national studies are largely cross sectional and based on women who have not used the product. Addressing this gap, the present study combined an educational intervention with actual product use to capture both measurable attitude changes and in depth experiential accounts.

Methods

Study design

This study used a single group pretest–posttest intervention design with an embedded qualitative component conducted to evaluate women's awareness and behavioral changes regarding menstrual cup use. Although the design is sometimes labelled quasi-experimental, it included neither a control group nor randomization; it is therefore described here more precisely as a single group, before–after intervention study, and this is acknowledged as a limitation. The study was based on a mixed methods approach encompassing both quantitative and qualitative components. The quantitative component aimed to measure changes in awareness and attitudes, while the qualitative component aimed to provide an in-depth understanding of participants' experiences, perceptions, and recommendations.

Population and sample

The study population consisted of female academic/administrative staff and female students at a university in Türkiye. The sample size was calculated using the G*Power 3.1 program, with $\alpha=0.05$, effect size (d_z)=0.5, and power $(1-\beta) = 0.80$, resulting in a minimum required sample size of $n = 34$. Women aged 18–49 years who voluntarily agreed to participate and had no medical contraindications for menstrual cup use were included. Women receiving hormonal therapy, those with a history of surgical menopause, and those diagnosed with menstrual irregularities or chronic gynecological conditions were excluded. Regarding participant flow, 41 women were invited and screened for eligibility; 4 were excluded on the basis of the exclusion criteria and 3 declined to participate. The remaining 34 women provided written informed consent, received the educational intervention, and were supplied with a menstrual cup. All 34 used the cup for at least two menstrual cycles and completed both the pretest and posttest measures, with no attrition. From these, 10 women

who consented to an in depth interview were selected for the qualitative phase. No participants were lost to follow up.

Data collection tools

Descriptive information form

The Descriptive Information Form, developed by the researchers based on the literature (Dündar & Özsoy, 2020; Gharacheh et al., 2021; van Eijk et al., 2019), consisted of two sections. The first section included participants' sociodemographic characteristics (age, marital status, educational level, monthly income) and menstrual characteristics (age at menarche, menstrual cycle regularity, duration of menstruation, menstrual frequency, type of hygiene product used).

Menstrual cup use satisfaction form

The satisfaction form, developed by the researchers based on the literature (Dündar & Özsoy, 2020; Gharacheh et al., 2021; North & Oldham, 2011; Stewart et al., 2009; van Eijk et al., 2019), assessed satisfaction with menstrual cup use. The form consisted of 32 items evaluating the dimensions of insertion and removal ease, comfort and safety, hygiene and cleanliness, and satisfaction and willingness to continue use, using a "Yes/No" format. Content validity was established by obtaining expert opinions from five academics in the fields of women's health and nursing, and necessary revisions were made accordingly. Expert ratings were quantified using the content validity index (CVI); the item level CVI (I-CVI) ranged from 0.80 to 1.00 and the scale level CVI (S-CVI/Ave) was 0.94. Because no further psychometric testing (e.g., factor analysis or internal consistency estimation of a composite score) was performed, this form was used as a structured questionnaire to describe satisfaction rather than as a validated psychometric scale; accordingly, no total satisfaction score was computed and items are reported individually as frequencies and percentages.

Menstruation Impact Scale (MIS)

The MIS was developed by Gün Kakaşçı and Coşkuner Potur (2022) to assess the physical and psychosocial effects of menstruation on women's lives. The scale consists of 14 items and two subscales: The Physical Impact Subscale (7 items) measures physical limitations, decreased activity, and difficulty with routine tasks; the Psychosocial Impact Subscale (7 items) measures embarrassment, concealment, social withdrawal, and decreased self-confidence. The scale uses a 5-point Likert format (1=Strongly Disagree to 5=Strongly Agree). Total scores range from 14 to 70, with higher scores indicating greater menstrual impact. The total explained variance of the scale is 54.92%. The original Cronbach's alpha coefficient was 0.87. In this study, the Cronbach's alpha was 0.83.

Semi structured interview form

A semi structured interview form prepared by the researchers was used for qualitative data collection. The form consisted of the following open ended questions: (1) What were your initial thoughts about menstrual cup use? (2) How did your thoughts change after using a menstrual cup? (3) What were the ease and difficulties you experienced during the use process? (4) How did menstrual cup use affect your environmental awareness? The interview questions were derived from the study aims and the menstrual cup literature (Pokhrel et al., 2021; Tokay Argan et al., 2023; van Eijk et al., 2019). Before use, the questions were reviewed for clarity and relevance by two experts in qualitative research and women's

health, and a pilot interview was conducted with one volunteer (not included in the analysis) to refine wording and probing.

Data collection procedure

The data collection process was conducted in four phases, between January 19 and March 15, 2026. In the first phase, participants were informed about the purpose and procedure of the study, written consent forms were obtained, and the Descriptive Information Form along with the MIS (pretest) were administered. In the second phase, an approximately 15 minute educational intervention on menstrual cup use was delivered. The educational program, prepared by the researchers based on current literature, covered the definition, types, size selection, insertion and removal techniques, cleaning and maintenance methods, advantages, and potential side effects of menstrual cups. The training content was developed on the basis of current peer reviewed literature and manufacturer instructions (Manley et al., 2021; van Eijk et al., 2019) and, prior to delivery, was reviewed for accuracy and completeness by two experts in women's health nursing. Visual materials and demonstration models were used during the training. All sessions were delivered by a single trained researcher to maximize consistency. Standardization was ensured by using a written lesson plan, a fixed slide set, and the same demonstration model in every session. Rather than training all 34 participants simultaneously, the education was delivered in small groups of four to six women, with the identical standardized protocol followed in each group. Following the education, each participant was provided with a menstrual cup appropriate for her individual size. The cups were purchased and supplied free of charge by the research team after the educational intervention; participants did not purchase the cups themselves and incurred no cost. All participants received the same commercially available, medical grade silicone menstrual cup (single brand and model) in the manufacturer's two standard sizes. Size was assigned using a predefined algorithm: the smaller size was given to women under 30 years with no history of vaginal delivery, and the larger size to women aged 30 years and over or with a history of vaginal delivery; where flow volume or reported anatomy suggested otherwise, the researcher adjusted the choice according to manufacturer guidance. In the third phase, participants were asked to use the menstrual cup for at least two menstrual cycles. During this period, telephone and text message support was provided. Adherence was monitored using a structured usage diary in which participants recorded each insertion and removal, emptying frequency, and any difficulties experienced; the researcher reviewed these diaries during scheduled telephone check ins after each cycle. Verification was based on self-report through the diary and the check in calls; no direct visual inspection was performed, in keeping with the intimate nature of the practice. To protect privacy and confidentiality, educational sessions were held in a private room in small same-sex groups, and follow up support was delivered through individual (one to one) telephone calls and text messages rather than through a group platform. All records were de-identified using participant codes, and interviews were conducted individually in a private setting. In the fourth phase, after the usage period was completed, the Menstrual Cup Use Satisfaction Form was administered, and the MIS (posttest) was readministered, and face to face semi structured in depth interviews were conducted with 10 volunteer participants. These 10 participants were purposively selected to reflect

variation in age, marital status (including both married and unmarried women), educational level, and reported ease or difficulty of use, so that a broad range of experiences was represented. A maximum variation sampling strategy was used, and the sample deliberately included potential negative or deviant cases (e.g., women who reported persistent difficulty or dissatisfaction) to reduce the risk of confirmation bias. Interviews lasted an average of 20–30 minutes and were audio recorded with participants' permission.

Data analysis

Quantitative data were analyzed using IBM SPSS Statistics 25.0. The normality of data distribution was assessed using the Shapiro-Wilk test. Descriptive statistics were presented as mean, standard deviation, frequency, and percentage. Scale reliability was determined using Cronbach's alpha coefficient. Qualitative data were analyzed using the six-phase thematic analysis method proposed by Braun and Clarke (2006): (1) familiarizing with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) writing the report. Interview transcripts were independently coded by the researchers, followed by a consensus meeting to agree on codes and themes. To enhance the reliability of qualitative findings, inter coder reliability was evaluated, and member checking was performed. Direct quotations were used to support the transferability of findings. Each transcript was read repeatedly for familiarization; initial codes were generated line by line and then grouped into candidate themes, which were reviewed against the coded extracts and the full data set before being defined and named. Inter coder agreement between the two independent coders was quantified using Cohen's kappa, which was 0.82, indicating substantial agreement; remaining discrepancies were resolved by consensus. Data saturation was monitored during analysis: no new codes or themes emerged after the eighth interview, and the final two interviews were used to confirm that saturation had been reached, supporting the adequacy of the 10 interview sample. Reflexivity was addressed through an audit trail and a reflexive journal in which the researchers documented their own positions as women and as nurses and considered how these might influence data interpretation. Pretest-posttest comparisons of the MIS scores were performed using the Wilcoxon signed-rank test, as the data did not meet the assumption of normal distribution. Effect sizes were calculated as $r = z/\sqrt{n}$. The level of statistical significance was set at $p < 0.05$.

Ethical considerations

Ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Amasya University (Decision No: E-76988455-050.04-310040, Date: January 15, 2026). Participants were informed about the study's purpose, methods, and the principle of voluntary participation, and written informed consent was obtained. The study was conducted in accordance with the principles of the Declaration of Helsinki. As this was a noninterventional, single-group educational study that did not evaluate a health care

intervention against a comparator, prospective clinical trials registration was not required; the study was therefore not registered in a clinical trials registry. No participants were lost during the study: all 34 women who consented completed the two-cycle use period and both the pretest and posttest measures, and there was no attrition.

Results

Table 1. Sociodemographic and menstrual characteristics of participants (n=34)

Variable	n	%
Age (M $\pm$ SD= 32.76 $\pm$ 6.77)		
Menarche age (M $\pm$ SD= 12.71 $\pm$ 0.46)		
Marital status		
Married	29	85.3
Other	5	14.7
Educational level		
Bachelor's	20	58.8
Master's	10	29.4
Doctorate	4	11.8
Monthly income		
> 35,000 TRY	24	70.6
15,000–35,000 TRY	10	29.4
Menstrual cycle		
Regular	25	73.5
Irregular	9	26.5
Previous hygiene product		
Pads	34	100
Knowledge about cups		
Yes	29	85.3
No	5	14.7
Intention to use		
Yes	24	70.6
Undecided	5	14.7
No	5	14.7

Note. M = mean; SD = standard deviation.

The sociodemographic and menstrual characteristics of participants are presented in Table 1. The mean age of participants was 32.76 $\pm$ 6.77 years. Of the participants, 85.3% were married and 58.8% held a bachelor's degree. Regarding menstrual characteristics, the mean age at menarche was 12.71 $\pm$ 0.46 years, 73.5% of participants had regular menstrual cycles, and all had previously used pads as their hygiene product (Table 1).

The pretest and posttest MIS scores of participants are presented in Table 2. The posttest was administered after participants had completed the second (final) menstrual cycle of cup use; the pretest reflected the cycle immediately before the intervention. The mean total pretest MIS score was 38.32 $\pm$ 9.19, which decreased significantly to 33.88 $\pm$ 9.46 after the menstrual cup intervention ($z = -3.012$, $p = 0.003$). The physical impact subscale score decreased from 23.24 $\pm$ 5.29 to 20.47 $\pm$ 5.84 ($z = -2.847$, $p = 0.004$), and the psychosocial impact subscale score decreased from 15.09 $\pm$ 4.30 to 13.41 $\pm$ 4.02 ($z = -2.124$, $p = 0.034$). These findings indicate that menstrual cup use significantly reduced the perceived impact of menstruation on participants' daily lives, with the greatest improvement observed in the physical domain.

Table 2. Comparison of pretest and posttest menstruation impact scale scores (n=34)

Subscale	Items	Pretest M $\pm$ SD	Posttest M $\pm$ SD	z	p
Physical impact	7	23.24 $\pm$ 5.29	20.47 $\pm$ 5.84	-2.847	0.004*
Psychosocial impact	7	15.09 $\pm$ 4.30	13.41 $\pm$ 4.02	-2.124	0.034*
Total	14	38.32$\pm$9.19	33.88$\pm$9.46	-3.012	0.003*

Note. Score range: 14–70; higher scores indicate greater menstrual impact. * $p < 0.05$. Wilcoxon signed-rank test was used.

The menstrual cup use satisfaction results are presented in Table 3. These satisfaction data were collected at the end of the use period, that is, after the second (final) menstrual cycle of cup use. All participants reported that menstrual cup use eliminated odor problems, cleaning was easy, environmental waste was reduced, economic benefits were provided, and they felt more hygienic. Of the participants, 85.3% expressed overall satisfaction and willingness to continue use. However, 55.9% reported difficulty with insertion and 58.8% reported difficulty with removal. Only 29.4% felt comfortable during insertion and did not feel the cup.

Table 3. Menstrual cup use satisfaction distribution (n=34)

Satisfaction dimension	Yes n (%)	No n (%)
Odor problem eliminated	34 (100.0)	–
Easy to clean	34 (100.0)	–
Reduced environmental waste	34 (100.0)	–
Economic advantage	34 (100.0)	–
Feels more hygienic	34 (100.0)	–
No leakage experienced	29 (85.3)	5 (14.7)
Overall satisfaction	29 (85.3)	5 (14.7)
Willing to continue use	29 (85.3)	5 (14.7)
Would recommend to friends	29 (85.3)	5 (14.7)
No difficulty with insertion	15 (44.1)	19 (55.9)
No difficulty with removal	14 (41.2)	20 (58.8)
Comfortable during insertion	10 (29.4)	24 (70.6)
Did not feel the cup	10 (29.4)	24 (70.6)

Qualitative results

Thematic analysis of the semi structured interviews conducted with 10 volunteer participants revealed four main themes: (1) initial thoughts and concerns, (2) attitude change after menstrual cup use, (3) use experiences, and (4) environmental awareness.

Theme 1: Initial thoughts and concerns

Most participants expressed initial concern and fear regarding menstrual cup use. The most frequently reported concerns were fear of leakage, risk of infection, difficulty with insertion and removal, and hygiene concerns. Although the introduction notes that beliefs about virginity can act as a barrier to menstrual cup use, none of the unmarried participants in the qualitative sample (categorized as “other” marital status) raised virginity or hymen related concerns as a reason for their initial hesitation; their concerns centered instead on leakage, hygiene, and insertion difficulty. This may reflect the educated, predominantly older sample and should be interpreted with caution, as the small number of unmarried participants limits any conclusion about this culturally sensitive barrier.

“I was always afraid, what if it overflows, because I have heavy flow, and I was worried about causing an infection.” (P4)

“Inserting something into the vagina scared me; I thought it wouldn't be hygienic.” (P8)

Theme 2: Attitude change after use

After the educational program, positive attitude changes were observed in the majority of participants. Participants reported that practicing, recognizing the environmentally friendly and economic features, and observing ease of use positively influenced their perceptions.

“Its long term use, being environmentally friendly and economical, and allowing more comfortable movement changed my thoughts positively.” (P3)

“After receiving the education, I realized how easy it actually was; I saw that my prejudices were unfounded.” (P10)

Theme 3: Use experiences

Participants reported experiencing both ease and difficulties during the use process. Among the ease factors, the absence of odor, elimination of the need to carry pads, and extended wear time were prominent. Difficulties included insertion challenges, discomfort with genital contact, and uncertainty about correct placement, particularly during the initial period.

“I had difficulty inserting and removing it at first, but then you get used to it.” (P6)

“The worry of carrying pads was gone; I could be comfortable for a long time, especially nighttime use was very practical.” (P1)

Theme 4: Environmental awareness

Menstrual cup use was found to increase participants' environmental awareness. Participants expressed that they became aware of the environmental harm caused by disposable products and felt they were making a sustainable choice.

“Before using the menstrual cup, the pads I left in nature each cycle bothered me conscientiously.” (P2)

“Whenever I think about the pads I threw away, I realize how much harm I was doing to nature; the menstrual cup eased my conscience in that regard.” (P5)

Discussion

In this study, the finding that all participants using menstrual cups reported the elimination of odor problems and increased hygiene perception indicates that menstrual cups provide a more comfortable hygiene product during menstruation. Several studies worldwide demonstrate parallel findings. Menstrual cup leakage risk has been found to be equivalent to or lower than that of tampons and pads, and their extended wear time means they do not disrupt daily life (van Eijk et al., 2019). Moreover, the risk of toxic shock syndrome associated with menstrual cup use has been reported to be lower than that of tampon use (Phillips-Howard et al., 2016; van Eijk et al., 2019). In Nepal, menstrual cup use was rapidly adopted among female students, with 60% continuing regular use for six months (Oster & Thornton, 2009). In the United States, menstrual cups evaluated over three menstrual cycles were preferred by 84% of participants over pads and tampons, and were found to be safe and feasible due to extended protection time, leakage prevention, activity compatibility, and low toxic shock risk (Shihata & Brody, 2014). Some users also reported reduced menstrual pain after using menstrual cups (Tokay Argan et al., 2023). Additionally, the intravaginal positioning of cups contributes to preventing the odor and discomfort commonly experienced with pad use (North & Oldham, 2011). Within the limits of this single group design, these findings suggest that menstrual cups may represent a feasible and acceptable alternative that reduces the physical burden of menstruation, rather than establishing them as a definitively effective health intervention.

The significant decrease in MIS total scores from pretest to posttest indicates that menstrual cup use effectively reduced the perceived impact of menstruation on participants' daily lives. The greater reduction observed in the physical impact subscale compared to the psychosocial subscale suggests that menstrual cups primarily alleviate the physical burden of menstruation. This finding is consistent with the large scale study by Schoep et al. (2019) involving 42,879 women, which found that menstrual symptoms significantly restricted daily

living activities. Leon-Larios et al. (2024) also reported that menstrual pain and symptoms negatively affected daily activities and work absenteeism. Harvey et al. (2025) emphasized that menstruation is one of the most important factors restricting physical activity. Several mechanisms may explain why the physical impact decreased more than the psychosocial impact. Physically, the cup directly addresses tangible, short term sources of burden leakage anxiety, odor, frequent changing, and the need to carry supplies so improvements are felt within one or two cycles. Psychosocial dimensions such as embarrassment, concealment, and self-confidence are shaped by long standing cultural attitudes toward menstruation and the body and are therefore less likely to shift over a short two-cycle period. In the Turkish sociocultural context, where menstruation is often treated as a private matter and direct genital contact may be perceived as taboo, the act of inserting and removing a cup can itself generate initial discomfort; this may have tempered psychosocial gains even as physical comfort improved. At the same time, the educated profile of the sample may have facilitated acceptance: higher education is associated with greater health literacy and openness to novel, sustainable products, which likely supported the rapid attitude change observed after the brief educational intervention and may limit generalizability to less educated groups. The low internal consistency of the psychosocial subscale at pretest (Cronbach's $\alpha = 0.615$) is also relevant here: because reliability below 0.70 attenuates the ability to detect true change, the more modest psychosocial improvement should be interpreted with caution, as it may partly reflect measurement limitations rather than a genuinely smaller effect. The Cronbach's α value of 0.615 for the psychosocial impact subscale in the pretest indicates that the internal consistency of this subscale fell below the accepted threshold of 0.70. This may be attributable to the small sample size, and future studies with larger samples are recommended to reevaluate the psychometric properties of this subscale.

In this study, the majority of participants were satisfied with menstrual cup use and wished to continue using them. The overall satisfaction rate of 85.3% indicates that menstrual cups are an acceptable and sustainable hygiene product. Similar studies have also reported high satisfaction among women using menstrual cups, with satisfaction increasing over time (Cheng et al., 1995; Dündar & Özsoy, 2020; North & Oldham, 2011; Singh et al., 2022). In the systematic review and meta-analysis by van Eijk et al. (2019), 13 studies on menstrual cup use were reviewed, and approximately 70% of participants wished to continue use. In a cross sectional study including Iranian women with regular menstrual cycles who had used menstrual cups for at least three months, 98.6% recommended the product to other women (Gharacheh et al., 2021). In a study examining Turkish women's views on menstrual cups, negative evaluations were more prevalent among women who had not previously used the product; however, the opinions of women who experienced the product largely shifted positively after use (Tokay Argan et al., 2023). Similarly, in our study, participants reported high satisfaction rates despite carrying initial concerns and prejudices, supporting these findings.

One notable finding in this study was that more than half of the participants reported difficulty with menstrual cup insertion and removal. This is one of the most commonly reported issues regarding menstrual cup use. The literature also indicates that

insertion and removal difficulties are common during initial use but decrease with experience. In the study by Donoso et al. (2019), 23% of women experienced difficulty during the first cycle, but over 90% learned to use the cup and recommended it to others after the third use. In an Australian study, the rate of inability to remove the cup on the first attempt was 45%, and the rate of seeking assistance was 17%, with these difficulties decreasing in subsequent cycles (Hennegan et al., 2025). Studies conducted in Türkiye similarly identified insertion-removal difficulty, leakage risk, and correct product selection as the main problems related to menstrual cup use (Tokay Argan et al., 2023), with 42.9% of users experiencing difficulty (Balkan & Genç Koyucu, 2024). In our study, despite initial difficulties, participants adapted over time, demonstrating that education and practical applications play a critical role in menstrual cup adoption.

Conclusion and Recommendations

Menstrual cup use was evaluated by women as a hygienic, economical, and environmentally friendly alternative. Despite initial concerns, high satisfaction rates were achieved after use. Difficulties in insertion and removal can be overcome through education and practical applications. Increasing awareness education is recommended to promote menstrual cup adoption.

The findings of this study highlight several important implications. First, nurses and midwives should integrate menstrual cup education into routine reproductive health counseling to provide women with comprehensive information about all available menstrual hygiene options. Second, structured educational programs that include practical demonstration and hands on experience can significantly reduce initial barriers to menstrual cup adoption, such as fear, anxiety, and insertion difficulties. Third, healthcare professionals should recognize their pivotal role in promoting sustainable menstrual hygiene management and can advocate for environmentally responsible alternatives. Community health nurses and midwives can organize awareness campaigns in universities, workplaces, and primary care settings to reach broader populations. Finally, future research should examine the longterm effects of menstrual cup education interventions using larger, more diverse samples and controlled study designs.

Limitations

This study has several limitations. First, it was conducted at a single university with a relatively small sample ($n = 34$), limiting the generalizability of findings. Second, the predominantly married, highly educated, and high income sample created a homogeneous sample structure; results may differ among women with different sociodemographic characteristics. Third, the study did not include a control group; therefore, it cannot be definitively determined whether the observed changes were attributable solely to the intervention or to other time related factors. Fourth, participants were volunteers, so self selection and a favorable baseline intention to try menstrual cups may have inflated satisfaction and continuation rates. Fifth, the cups were provided free of charge, which may have further increased acceptability relative to real world conditions in which women bear the cost. Sixth, because participants knew they were taking part in a menstrual cup study and received support throughout, the results may be subject to demand characteristics and social-desirability bias,

particularly in the self reported satisfaction and interview data. Seventh, the follow up was short (two cycles), so longer term adherence, satisfaction, and discontinuation could not be assessed. Finally, the menstrual cup use satisfaction form was a researcher developed structured questionnaire with limited psychometric evidence beyond content validity, which constrains the strength of the satisfaction findings.

Ethics Committee Approval

Ethics committee approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Amasya University (Board Decision No: E-76988455-050.04-310040) on January 15, 2026.

Informed Consent

Written informed consent was obtained from all participants prior to participation.

Peer-Review

Externally peer-reviewed.

Author Contributions

Ş.K.E.: Study Design, Data Collection, Literature Search, Data Analysis, Drafting Manuscript, Critical Revision, Project Administration.

Y.B.: Data Collection, Project Administration.

İ.T.: Literature Search, Drafting Manuscript.

Conflict of Interest

There is no conflict of interest.

Sources of Funding

This study was supported by the Republic of Türkiye Ministry of Youth and Sports within the scope of the 5th term of the University Student Communities Cooperation and Support Program (ÜNİDES-5), under the project titled "Bir Döngü Bir Ses" ("One Cycle, One Voice").

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