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Menstruation myths scale: A scale development study

Şeyma Kilci Erciyas[1] | Ebru Cirban Ekrem[2] | Şirin Çetin[3]

[1]Department of Nursing, Faculty of Health Sciences, Amasya University, Amasya, Turkey

[2]Department of Nursing, Faculty of Health Sciences, Bartin University, Bartin, Turkey

[3]Department of Basic Medical Sciences, Faculty of Medicine, Department of Biostatistics, Amasya University, Amasya, Turkey

Correspondence
Şeyma Kilci Erciyas, Faculty of Health Sciences, Amasya University, Amasya/Turkey.
Email: seymakilciksk@gmail.com

Abstract

Objective: The aim of this study was to develop a scale of menstruation myths.

Methods: The current research was conducted using a methodologic approach with a sample of 330 women who met the inclusion criteria. The scope, structural validity, and internal consistency of the scale were tested.

Results: As a result of the analyses, it was determined that the scale consisted of 18 items and three factors that explain approximately 57% of the total variance. The Cronbach α value of the scale was 0.86 in the first factor, 0.82 in the second factor, 0.83 in the third factor, and 0.91 in total.

Conclusion: The Menstruation Myths Scale was found to be a valid and reliable measuring tool for reproductive-aged women in Turkish society. It is recommended that the scale be tested with women of different ages, populations, and countries. Additionally, it is believed that the scale can be used to determine myths about menstruation among men.

KEYWORDS
menstrual cycle, menstruation, myths, scale, woman

1 | INTRODUCTION

Menstruation is the cyclical shedding of the endometrium, regulated by hormonal action of the hypothalamic–pituitary axis.[1] It is a normal physiological process that marks the beginning of reproduction. Girls who complete their childhood in good health begin their menstrual cycle. Physiological, physical, and environmental factors determine the onset of the menstrual cycle. For example, a girl who is taller and heavier than her age may start her menstrual cycle earlier than others.[2,3] In a study by Kanellakis et al.,[2] an increase of approximately 0.5 kg was observed during the menstrual cycle of women, mostly on menstrual days, due to extracellular fluid retention. This shows that physical parameters such as height and weight are related to the menstrual cycle.[2] In addition, in Turkey, the lack of regular reproductive health education from childhood means that fundamental topics, such as the anatomy of the genital system and the physiology of menstruation, are not taught as separate education but are instead integrated into school lessons. However, this information is often insufficient.[4] Lack of accurate and adequate information about menstruation in women often causes various problems by creating unnecessary restrictions on women's normal daily activities. In addition, women's lack of knowledge and awareness about menstruation also causes poor hygiene practices and reproductive tract infections.[5]

Menstruation practices remain overshadowed by myths and sociocultural constraints.[6–8] Superstitions, taboos, and cultural practices that replace correct knowledge and practices are referred to as myths.[9] Menstruation myths, which exist in many societies, affect the emotional state, mentality, and lifestyle, and, most importantly, the health of girls and women.[10] Sociocultural taboos and false beliefs regarding menstruation are further compounded by the fact that women's knowledge and understanding

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of menstruation and reproductive health are low.[11,12] When mothers decide to provide information to their daughters, it is often about how to follow rituals and restrictions during menstruation. In this case, women remain unaware of the biological realities of menstruation or the necessary good hygienic practices. Instead, they pass on cultural taboos and restrictions that must be followed.[7]

Menstruation education is an essential part of health education. It is known that attitudes towards menstruation and practices acquired during menarche (menstruation for the first time) continue throughout life.[5] Studies have shown that women have misinformation about the physiological changes during menstrual periods, and most of the information is obtained from their mothers, television, friends, and teachers.[13] Many cultures hold the belief that women and girls should avoid certain foods and drinks, such as sour or cold foods and cold beverages, during menstruation. However, from a medical perspective, there are no restrictions on what menstruating individuals can or should consume. Such dietary limitations can reduce nutrient intake and potentially pose health risks.[14] In a study conducted to assess menstrual knowledge and beliefs among Lebanese adolescents, it was concluded that 35.5% of the participants changed their eating habits and 22% did not drink cold drinks.[15] In the same study, it was reported that 67% of women did not take a shower in the first 3 days of menstruation, and 16.5% did not take a shower at all during their menstrual days. The myths women believe about menstruation can be particularly concerning in terms of reproductive health. The aim of this study is to develop a scale to determine the myths about the menstrual period specific to Turkish women.

2 | MATERIALS AND METHODS

The research was conducted methodologically. This study was conducted with women of reproductive age between the ages of 18–49 years. In scale studies, it is recommended that the number of samples be 5–10 times the number of items in the scale.[16,17] Therefore, 330 women who met the inclusion criteria for the scale, consisting of 33 items, were included in the sample. The inclusion criteria of the study were: (1) female sex, (2) age 18–49 years, (3) being literate, and (4) not having a disability. The research was completed with 330 women.

The data of the research were collected online (from social media groups such as Twitter, Instagram, Facebook, and WhatsApp) through self-reporting with the snowball sampling method, between July and August 2023, with a data collection form prepared on the website www.survey.com. The reason for collecting the data online was to allow participants to answer the questions that best expressed themselves without any pressure. The snowball sampling method involves starting with one participant and then reaching out to other participants through that person. Participants were informed about the research at the beginning of the data collection form, and their written consent to participate in the research was obtained. It took participants an average of 10 min to fill out the data collection form. The study data were collected using the Individual Information Form and Menstruation Myths Scale (MMS).

The Individual Information Form consists of questions such as women's age, height, weight, education level, mother's education level, employment status, menstrual status, information about the menstrual period, age of first menstruation, hygienic products used, and frequency of changing hygienic products.

The MMS was prepared for the data collection process by applying the scale development process. Below are the myths related to menstruation that formed the item pool.[16–18]

1. Women who have their tubes tied experience a decrease in menstrual flow.
2. Using an IUD (intrauterine device) reduces menstrual flow.
3. Using birth control pills reduces menstrual flow.
4. Using tampons during menstruation is unhealthy.
5. Using a menstrual cup during menstruation is unhealthy.
6. It is not possible to get pregnant during menstruation.
7. Having sexual intercourse during menstruation is not appropriate.
8. Cleaning body hairs (armpits, legs, vaginal area, etc.) during the menstrual period is not appropriate.
9. Cutting nails during the menstrual period is not appropriate.
10. Cutting hair during the menstrual period is not appropriate
11. Taking a shower with hot water during menstruation reduces/stops menstrual bleeding.
12. Taking a shower with cold water during menstruation reduces/stops menstrual bleeding.
13. To reduce odor during menstruation, the vaginal area (vulva) should be cleaned with scented genital hygiene products.
14. It is sufficient to change sanitary pads twice a day during menstruation.
15. The inside of the vagina (vulva) should be washed during menstruation.
16. Bathing is not recommended during the menstrual period.
17. Breastfeeding is not allowed during the menstrual period.
18. Taking painkillers during menstruation causes a decrease or cessation of menstrual bleeding.
19. Consuming dairy products such as cheese and yogurt cause delays or stops menstruation.
20. Consuming hot foods/drinks reduces/stops menstrual bleeding.
21. Consuming cold foods/drinks reduces/stops menstrual bleeding.
22. Even if a tampon or menstrual cup is used during menstruation, swimming in the sea is not allowed.
23. Exercising (walking, pilates, fitness, etc.) during menstruation increases menstrual pain.
24. Topics related to menstruation should not be discussed in public settings where everyone can hear.
25. Hygienic products (pads, tampons, etc.) should be concealed to prevent others from seeing them.
26. Women cannot enter places such as mosques, shrines, temples, etc. during menstruation.

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27. Women should sleep in separate rooms from their spouses during the menstrual period.
28. Women should sleep in separate beds from their spouses during the menstrual period.
29. Menstrual pain decreases after giving birth.
30. Menstrual pain decreases after the first sexual intercourse.
31. Menstrual bleeding should last exactly 1 week.
32. Women are considered unclean during their menstrual periods.
33. Menstrual blood is considered unclean.

2.1 | Literature review and item pool creation

The item pool of the scale was created as a result of reviewing the relevant literature.[7,13,14] Qualitative and quantitative studies that examined women's knowledge, experience, and attitudes regarding the menstrual cycle were reviewed. Based on the research reviewed, an item pool consisting of 27 items was created. Karakoç and Dönmez[18] recommend that the items be created in line with the rules of grammar, convey the desired concept, be a simple and understandable expression, convey a single judgment or thought rather than multiple judgments, and use the present time period expression. Accordingly, the scale items were created taking into account the suggested features. The five-point Likert scale was used as it is a frequently preferred and easy-to-perform scoring method: strongly disagree = 1, disagree = 2, undecided = 3, agree = 4, strongly agree = 5. In this study, Classical Test Theory (CTT) was utilized, assuming equal intervals between points. This approach was chosen because CTT can produce more effective and efficient results compared with Item Response Theory (IRT) in certain scenarios. For shorter tests, CTT is often better at accurately detecting individual differences than IRT. Moreover, CTT is simpler and mathematically less complex than IRT. Therefore, it is shown in the literature that CTT is more suitable, particularly for localized and smaller-scale applications such as medical education.[19] CTT has also been shown to result in less bias and smaller mean squared errors in cases of missing data. This is particularly true when the missing data are random.[20] For these reasons, the CTT framework was used in our study. There are no inverse items with a negative meaning in the scale.

2.2 | Content validity

The content validity ratio (CVR) and content validity index (CVI) of the scale items were calculated using the Davis technique. For this technique, the suitability of all items is evaluated using the following scale: "not appropriate (1)," "must be seriously reviewed (2)," "should be lightly reviewed (3)," and "appropriate (4)." The CVR for each item is determined by dividing the number of experts who rated the item as "3 (should be lightly reviewed)" or "4 (appropriate)" by the total number of experts who rated the item. The CVI is calculated by dividing the sum of the CVRs for all items by the number of items. CVR and CVI are required to be >0.80.[18] In the study, the item pool of the MMS was evaluated by 10 experts from the fields of women's health nursing, public health nursing, mental health nursing, child health and diseases nursing, and midwifery. The experts were asked to rate each item on the Davis rating scale. Based on the expert ratings, the MMS item pool was revised to include 33 items. The CVI for the revised MMS was calculated as 0.90, indicating that the scale has good content validity.

2.3 | Pretesting

After obtaining expert opinions, the scale was applied to a small group who met the inclusion criteria. It is recommended that the pretesting be applied to 10–15 participants.[21] After expert opinions were received, the preliminary application of the MMS, which was increased to 33 items, was performed with 10 women to estimate the understandability of the items, the applicability of the scale, and the total response time. In the preliminary application, women were asked whether the scale items were clear and understandable and whether there were any items they had difficulty in understanding. The average completion time of the questionnaire was estimated from the time women filled out the questionnaire. The preliminary application data were not included in the sample group. No changes were made to the MMS items after the preapplication.

2.4 | Statistical analysis

Validity and reliability analyses of the scale were evaluated using IBM SPSS version 22.0 and AMOS 25.0 software packages. Factor analysis (explanatory and confirmatory) was conducted for construct validity. Explanatory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed on the same data set. EFA and CFA are important strategies to increase the validity and reliability of the analyses. EFA was used to define the subdimensions, and CFA was used to verify the EFA. Principal component analysis (PCA) and varimax orthogonal rotation methods were used for EFA in the research. Chi-square divided by degrees of freedom, Tucker-Lewis index (TLI), incremental fit index (IFI), comparative fit index (CFI), root mean square error of approximation (RMSEA), goodness of-fit index (GFI), and adjusted GFI (AGFI) were used to evaluate the CFA. For the reliability of the scale in the study, item–total score correlation coefficient and Cronbach α internal consistency coefficient were used to evaluate its internal consistency. The results obtained were evaluated at 95% confidence intervals and a significance level of $P < 0.050$.

2.5 | Ethical aspect

Permission was obtained from the Bartın University Social and Human Sciences ethics committee (date: 7 December 2023, decision

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No: 2023-SBB-0414). In addition, approval was granted by the ethics committee of the institution to which one of the researchers is affiliated, and written consent from the participants was obtained before the study began.

3 | RESULTS

The average age of the study participants was 27.61 ± 8.34 years (minimum, maximum: 18, 48 years); the average height was 162.71 ± 7.90 cm and the average weight was 63.24 ± 13.24 kg. The majority of women (58%) had a bachelor's degree. When the education level of the women's mothers was examined, it was found that the majority (60%) were primary/secondary school graduates. Additionally, 46.6% of women were employed. A total of 95% of the women were currently menstruating and the majority (77%) received education about menstruation. It was found that women mostly use sanitary pads (85%) during their menstrual periods. A total of 38.9% of women strongly agreed (five points) with the myth "Women should sleep in separate rooms from their spouses during the menstrual period" (myth number 27). Additionally, the myths that participants most agreed (four points) with, in order, were: 38% agreed with "Bathing is not recommended during the menstrual period" (myth number 16), 32.3% agreed with "Women should sleep in separate rooms from their spouses during the menstrual period" (myth number 27), 32% agreed with "Cleaning body hairs (armpits, legs, vaginal area, etc.) during the menstrual period is not appropriate" (myth number 8), and 31.4% agreed with "Women cannot enter places such as mosques, shrines, temples, etc. during menstruation" (myth number 26) (Table 1).

3.1 | Validity

Scale validity is calculated as content, criterion, and structural validity.[22] In the content validity stage, it examines whether each item is sufficient in terms of content and expression. The most commonly used method for determining content validity is to obtain expert opinion. Factor analysis is used most often to examine structural validity. In this study, the validity of the scale was tested for content and structure. Expert opinions were obtained for content validity, and EFA and CFA were performed to determine structural validity. PCA, EFA, and CFA are important statistical techniques used to understand and validate the structures within data sets. These analyses are indispensable, especially in scale development, model validation, and understanding data structures. Each of these analyses serves different purposes and is preferred in specific situations. In our study, CFA was used to test the validity of the model. EFA was used in the study, particularly during the phase of exploring the structure of the scale. PCA, on the other hand, was used to reduce the number of variables in the data set. Additionally, PCA and EFA were used to explore the factor structure in the data set, while CFA was used to test the accuracy of this structure. In the study, the EFA and CFA values of MMS were calculated using the entire data set without dividing it.

3.2 | Structural validity

Before factor analysis, item–total correlations of the draft scale were calculated (Table 2).

3.3 | Explanatory factor analysis

The adequacy of the research data was determined by the Kaiser-Meyer-Olkin (KMO) test. The value obtained from the KMO test was interpreted as perfect if it approaches 1, very good if it is in the 0.80s, moderate if it is in the 0.70s and 0.60s, poor if it is in the 0.50s, and unacceptable if it is <0.50.[23] Before factor analysis, it was determined whether the data in the study were suitable for multivariate statistical analysis through KMO sample adequacy and Bartlett sphericity test. The statistical results of the KMO sampling adequacy determined that the inter-item correlations were suitable for factor analysis (KMO = 0.84). A KMO value >0.90 indicates perfect adequacy, while a KMO value <0.50 suggests that factor analysis should not be continued.[16,24] The result was excellent as the KMO value in the study was 0.84. A high KMO value indicates that the sample size is sufficient for factor analysis. Furthermore, since *P* values were <0.001 and <0.05, the result of the Bartlett test was accepted and there were high correlations between the parameters. This significance shows that the matrix consisting of relationships between variables was suitable for factor analysis. The cognate values of the scale items varied between 0.36 and 0.80.

PCA and varimax orthogonal rotation methods were applied to investigate the factors of the draft scale developed. As a result of varimax orthogonal rotation analysis, it was determined that the scale had three subfactors. The factors are as follows:

- Factor 1 (items 13, 14, 15, 17, 22, 23, 5, 4, and 18).
- Factor 2 (items 10, 9, 6, 2, 7, and 1).
- Factor 3 (24–26, and) (Table 3).

The results of the factor analysis regarding item loadings are presented in Table 3. It was found that MMS had three subfactors and the loading of each factor was >0.30. Item loadings of the entire scale varied between 0.52 and 0.84. The item loadings were in the ranges of 0.52–0.84 in the first factor, 0.59–0.75 in the second factor, and 0.76–0.85 in the third factor.

The results of the EFA of the MMS are presented in Table 4. After the items in the factors were identified, they needed to be labeled. Therefore, the first factor was named "Practices During Menstruation," the second factor was named "Beliefs About the Menstrual Period," and the third factor was named "Personal Hygiene Practices During the Menstruation Period." Initially, when calculating the Cronbach α, items 16, 28, and 31 were excluded from the study because their values were low when looking at the corrected item–total correlation values. In addition, items that were not collected under any factor in the rotated component matrix or that overlapped in two different factors (items 3, 8, 11, 12, 19, 20, 21, 27, 29, 30, 32, and 33) were removed from

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TABLE 1 Women's beliefs in myths about menstruation ($N = 334$).

Myth number	Strongly disagree, *n* (%)	Disagree, *n* (%)	Undecided, *n* (%)	Agree, *n* (%)	Strongly agree, *n* (%)
1	122 (36.5)	68 (20.4)	48 (14.4)	75 (22.5)	21 (6.3)
2	206 (61.7)	85 (25.4)	17 (5.1)	21 (6.3)	5 (1.5)
3	108 (32.3)	157 (47.0)	35 (10.5)	29 (8.7)	5 (1.5)
4	79 (23.7)	86 (25.7)	150 (44.9)	16 (4.8)	3 (0.9)
5	56 (16.8)	73 (21.9)	170 (50.9)	31 (9.3)	4 (1.2)
6	235 (70.4)	81 (24.3)	9 (2.7)	4 (1.2)	5 (1.5)
7	232 (69.5)	83 (24.9)	10 (3.0)	3 (0.9)	6 (1.8)
8	48 (14.4)	65 (19.5)	74 (22.2)	107 (32.0)	40 (12.0)
9	137 (41.0)	105 (31.4)	24 (7.2)	54 (16.2)	14 (4.2)
10	124 (37.1)	108 (32.3)	45 (13.5)	49 (14.7)	8 (2.4)
11	113 (33.8)	147 (44.0)	37 (11.1)	32 (9.6)	5 (1.5)
12	38 (11.4)	80 (24.0)	103 (30.8)	76 (22.8)	37 (11.1)
13	121 (36.2)	161 (48.2)	40 (12.0)	9 (2.7)	3 (0.9)
14	119 (35.6)	164 (49.1)	40 (12.0)	8 (2.4)	3 (0.9)
15	106 (31.7)	151 (45.2)	66 (19.8)	8 (2.4)	3 (0.9)
16	32 (9.6)	75 (22.5)	73 (21.9)	127 (38.0)	27 (8.1)
17	187 (56.0)	99 (29.6)	45 (13.5)	1 (0.3)	2 (0.6)
18	197 (59.0)	112 (33.5)	12 (3.6)	11 (3.3)	2 (0.6)
19	125 (37.4)	102 (30.5)	52 (15.6)	42 (12.6)	13 (3.9)
20	104 (31.1)	151 (45.2)	40 (12.0)	33 (9.9)	6 (1.8)
21	123 (36.8)	122 (36.5)	47 (14.1)	35 (10.5)	7 (2.1)
22	52 (15.6)	149 (44.6)	100 (29.9)	28 (8.4)	5 (1.5)
23	67 (20.1)	156 (46.7)	62 (18.6)	42 (12.6)	7 (2.1)
24	110 (32.9)	131 (39.2)	44 (13.2)	35 (10.5)	14 (4.2)
25	102 (30.5)	132 (39.5)	43 (12.9)	44 (13.2)	13 (3.9)
26	54 (16.2)	95 (28.4)	48 (14.4)	105 (31.4)	32 (9.6)
27	15 (4.5)	36 (10.8)	45 (13.5)	108 (32.3)	130 (38.9)
28	25 (7.5)	78 (23.4)	100 (29.9)	87 (26.0)	44 (13.2)
29	35 (10.5)	84 (25.1)	146 (43.7)	53 (15.9)	16 (4.8)
30	33 (9.9)	94 (28.1)	109 (32.6)	78 (23.4)	20 (6.0)
31	25 (7.5)	100 (29.9)	136 (40.7)	55 (16.5)	18 (5.4)
32	36 (10.8)	115 (34.4)	148 (44.3)	29 (8.7)	6 (1.8)
33	35 (10.5)	82 (24.6)	185 (55.4)	21 (6.3)	11 (3.3)

the scale as the first step. Table 4 shows that the initial eigenvalues of the items in the scale were >1. It was found that the remaining 18 items in the scale were grouped under three subfactors and accounted for 57% of the total variance of the scale.

3.4 | Confirmatory factor analysis

To ensure the goodness-of-fit and structural validity of the three-factor structure obtained by EFA, CFA was performed and the results given below were obtained. For CFA, $P < 0.001$ was considered statistically significant. CFA is given in Table 5 and the SD value was calculated as 2.26. Based on this, it was found that the model had a good fit. The RMSEA value of the model was calculated as 0.06. An RMSEA value <0.08 indicates that it has an acceptable fit (Brown, 2006).[17] Accordingly, the model showed a good fit. The GFI value of the model was examined and found to be 0.91. GFI >0.95 indicates excellent fit, and >0.90 indicates good fit. When the CFI, TLI, and IFI fit values of the model were examined, CFI was calculated as 0.95, IFI was calculated as 0.95, and TLI was calculated as 0.94. Values of CFI, TLI, and IFI >0.95 indicate a perfect fit, while values >0.90 indicate a good fit. In this regard, it was found that CFI and IFI values were excellent and TLI showed a good fit. Since the model was statistically significant and met the model goodness-of-fit, structural validity was established. Thus, the relevant scale can be used as a guide scale since its validity and reliability have been proven (Table 6).

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TABLE 2 Item total score correlations of the draft scale.

Items	When the item is deleted, the scale average	Scale variance when item is deleted	Corrected item–total correlation	Multiple correlation coefficient of the remaining part after removing the item from the scale	Cronbach α coefficient when item is deleted
Item 1	74.53	259.78	0.48	0.43	0.90
Item 2	75.34	262.72	0.61	0.52	0.90
Item 3	74.94	264.25	0.55	0.40	0.90
Item 4	74.61	267.50	0.46	0.49	0.90
Item 5	74.38	268.80	0.42	0.48	0.90
Item 6	75.55	268.13	0.56	0.77	0.90
Item 7	75.54	269.42	0.49	0.74	0.90
Item 8	73.86	264.38	0.40	0.31	0.90
Item 9	74.83	258.69	0.56	0.61	0.90
Item 10	74.81	262.08	0.51	0.59	0.90
Item 11	74.93	266.58	0.46	0.31	0.90
Item 12	73.96	268.23	0.33	0.24	0.90
Item 13	75.11	266.17	0.59	0.75	0.90
Item 14	75.11	266.67	0.58	0.71	0.90
Item 15	74.99	266.30	0.56	0.64	0.90
Item 16	73.81	270.21	0.29	0.25	0.90
Item 17	75.35	268.47	0.52	0.49	0.90
Item 18	75.42	268.57	0.52	0.46	0.90
Item 19	74.80	264.64	0.43	0.45	0.90
Item 20	74.90	266.65	0.46	0.32	0.90
Item 21	74.90	263.39	0.52	0.51	0.90
Item 22	74.59	266.77	0.50	0.49	0.90
Item 23	74.64	266.83	0.44	0.45	0.90
Item 24	74.81	262.93	0.50	0.70	0.90
Item 25	74.74	260.49	0.56	0.72	0.90
Item 26	74.04	263.81	0.41	0.42	0.90
Item 27	73.03	268.07	0.34	0.35	0.90
Item 28	73.80	271.74	0.25	0.24	0.90
Item 29	74.15	266.38	0.46	0.55	0.90
Item 30	74.07	265.04	0.46	0.56	0.90
Item 31	74.12	275.53	0.18	0.23	0.90
Item 32	74.38	271.32	0.36	0.43	0.90
Item 33	74.27	267.85	0.48	0.44	0.90

3.5 | Results of reliability analysis

The reliability of the MMS was assessed using the Cronbach α coefficient. Cronbach α is a measure of internal consistency, which indicates how well the items of a scale measure the same underlying construct. A Cronbach α of ≥0.70 is generally considered to be acceptable.[22]

In the current study, the Cronbach α value was found to be 0.91 overall and this finding suggests that the reliability of the items in the scale is high. The Cronbach α value of the entire scale was 0.91, the first subfactor (Practices During the Menstruation) was 0.86, the second subfactor (Beliefs About the Menstrual Period) was 0.82, and the third subfactor (Personal Hygiene Practices During the Menstruation) was 0.83.

Considering the corrected item–total correlation values, item 16, item 28, and item 31 were removed from the study because their values were low. The above-mentioned items were removed and reanalyzed and the following results were obtained. The reliability coefficient Cronbach α increased from 0.90 to 0.91. Since this value was between $0.80 \leq \alpha < 1.00$, the scale is interpreted as highly reliable. The lowest score from the overall scale was 18 and the highest score was 90. The subscores for the three factors ranged from 9

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to 45 for factor 1, 6–30 for factor 2, and 3–15 for factor 3. An increase in the total score from the scale signifies that the myths about menstruation also increased. Factor 1, factor 2, and factor 3 were derived from the results.

4 | DISCUSSION

The present study constitutes the initial psychometric evaluation of the MMS. This study, conducted with 330 women, examined demographic characteristics, menstrual beliefs, and practices of Turkish individuals. The average age of participants was 27.6 years, with a majority holding a bachelor's degree (58%) and nearly half (47%) being employed. Most participants (95%) were currently menstruating, and 77% had received education about menstruation. Sanitary pads were the most commonly used menstrual product (85%). The study also explored menstrual myths, revealing that almost 39% of women strongly agreed that women should sleep separately from their spouses during menstruation, while other prevalent myths included restrictions on bathing (38%), body hair removal (32%), and entering religious spaces (31%). Menstruation is a natural biological process; however, cultural beliefs and taboos surrounding it continue to shape women's experiences and behaviors worldwide. Many women avoid discussions of menstruation in the presence of men. This aligns with findings from previous studies indicating that menstruation is often associated with shame, secrecy, and stigma.[25] Such taboos may contribute to limited menstrual health awareness and reinforce societal restrictions on women. In a study by Sakar et al.,[26] 42.5% of university students agreed that menstruation should be kept secret, reflecting a broader cultural perception of menstruation as something to be concealed. Furthermore, restrictions on religious and household activities during menstruation remain prevalent. The majority of women in a study by Dündar and Aksu adhered to the belief that they should not read the Koran during menstruation, and nearly half refrained from touching pickles, a common superstition in some cultures.[27] Similar findings have been reported in studies conducted in Turkey, Egypt, and South Asia, where menstrual taboos limit women's participation in religious and domestic activities.[25,28]

Many religions impose some restrictions on menstruation. Almost all of the women in the study by Dündar and Aksu were aware of the religious taboos "Women must not read the Koran during menstruation" and "Women must not go to the mosque during menstruation."[27] In addition, three-fourths of the women did not read the Koran and did not go to the mosque during menstruation.[27] In a study on knowledge and practices regarding menstruation in Turkish university students by Sakar et al., 81.7% of the students believed that women must not read the Koran and that 94.6% believed that women must not go to the mosque.[26] Several studies from other countries revealed that the rate of the women not visiting religious buildings/places ranged from 17.8% to 88.6%.[29,30]

Validity and reliability analyses confirmed the robustness of the MMS. Factor analysis identified three subfactors: (1) practices during menstruation (consisting of nine items); (2) beliefs about the menstrual period (six items); and (3) personal hygiene practices during menstruation (three items) (Table 6). EFA and CFA supported the structural validity of the scale, with key fit indices (e.g., KMO = 0.84, RMSEA = 0.06, CFI = 0.95) indicating good model fit. The overall reliability of the scale was high (Cronbach $\alpha = 0.91$), confirming its consistency and suitability for future research. A Spanish-language instrument, the METCON scale (22-item version), assesses perceptions, false beliefs, gender stereotypes, fears, and taboos surrounding menstruation in studies on

TABLE 3 Factors and item load values after varimax orthogonal rotation.

	Rotated Components Matrix		
	Component		
	First factor	Second factor	Third factor
Item 13	0.84		
Item 14	0.81		
Item 15	0.80		
Item 17	0.65		
Item 22	0.58		
Item 23	0.57		
Item 5	0.55		
Item 4	0.55		
Item 18	0.52		
Item 10		0.75	
Item 9		0.73	
Item 6		0.73	
Item 2		0.70	
Item 7		0.70	
Item 1		0.59	
Item 24			0.85
Item 25			0.83
Item 26			0.76

TABLE 4 Total variance explained of the scale.

	Initial eigenvalues			Total of loaded frames		
Component	Total	Variance explained, %	Cumulative %	Total	Explained variance, %	Cumulative %
1	6.51	36.17	36.17	6.51	36.17	36.17
2	2.02	11.26	47.44	2.02	11.26	47.44
3	1.70	9.47	56.92	1.70	9.47	56.92

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TABLE 5 Menstruation Myths Scale CFA compliance indices.

Model fit criteria	Good fit	Acceptable fit	Model
CMIN/SD	$\chi^2/SD \leq 3$	$\chi^2/SD \leq 5$	2.26
TLI	$0.95 \leq TLI$	$0.90 \leq TLI$	0.94
IFI	$0.95 \leq IFI$	$0.90 \leq IFI$	0.95
CFI	$0.97 \leq CFI$	$0.95 \leq CFI$	0.95
RMSEA	$RMSEA \leq 0.05$	$RMSEA \leq 0.08$	0.06
GFI	$0.90 \leq GFI$	$0.85 \leq GFI$	0.91
AGFI	$0.90 \leq AGFI$	$0.85 \leq AGFI$	0.88

Abbreviations: AGFI, adjusted goodness-of-fit index; CFA, confirmatory factor analysis; CFI, comparative fit index; CMIN/SD, chi-square divided by degrees of freedom; GFI, goodness-of-fit index; IFI, incremental fit index; RMSEA, root mean square error of approximation; TLI, Tucker-Lewis index.

TABLE 6 Menstrual Myths Scale.

Practices during the menstrual period
1 Consuming cold foods/drinks reduces/stops menstrual bleeding.
2 Consuming hot foods/drinks reduces/stops menstrual bleeding.
3 Consuming dairy products such as cheese and yogurt cause delays or stops menstruation.
4 Breastfeeding is not allowed during the menstrual period.
5 Taking a shower with cold water during menstruation reduces/stops menstrual bleeding.
6 Taking a shower with hot water during menstruation reduces/stops menstrual bleeding.
7 Menstrual pain decreases after giving birth.
8 Menstrual pain decreases after the first sexual intercourse.
9 Bathing is not recommended during the menstrual period.
Beliefs about the menstrual period
10 Topics related to menstruation should not be discussed in public settings where everyone can hear.
11 Hygienic products (pads, tampons, etc.) should be concealed to prevent others from seeing them.
12 Women should sleep in separate beds from their spouses during the menstrual period.
13 Women are considered unclean during their menstrual periods.
14 Women should sleep in separate rooms from their spouses during the menstrual period.
15 Menstrual blood is considered unclean
Personal hygiene practices during the menstrual period
16 Cutting hair during the menstrual period is not appropriate.
17 Cutting nails during the menstrual period is not appropriate.
18 Cleaning body hairs (armpits, legs, vaginal area, etc.) during the menstrual period is not appropriate.

nursing women. This scale was evaluated in a cohort of 401 female nursing university students (2016–2019) to assess psychometric properties, including internal consistency and structural validity. Regarding the scale's dimensions, those showing less favorable scores in relation to the scale's objectives were the subscales labeled "knowledge" and "taboo."[31] Since the study by Botello-Hermosa et al. was conducted in 2024 of nursing faculty students, an improvement in knowledge regarding menstruation can be expected, as these students are likely to have more information about reproductive health and menstruation due to their education. Additionally, menstrual myths are culture-specific and may vary among different societies. Even though some questions may be similar, their responses show variability between communities.

The MMS can be used as a tool to assess common myths surrounding the menstrual cycle and how these myths impact individuals' knowledge, attitudes, and behaviors. It can be particularly useful in health education, gender equality programs, raising awareness about women's health, and psychological research. Additionally, it can serve as a valuable tool for researchers interested in conducting comparative studies on the prevalence of menstruation-related myths among different cultures. The scale can be employed in educational and healthcare interventions to help correct misconceptions or beliefs based on myths about menstruation in various communities. This scale fills a significant gap in the literature, as there was previously no systematic tool to measure and assess menstruation-related myths and their psychological, sociocultural, and health impacts. While previous research has addressed myths about menstruation, there was a lack of a standardized instrument to measure and evaluate these beliefs in a broader context. The MMS not only addresses this gap but also helps healthcare professionals, educators, and researchers understand how myths shape women's health behaviors. Moreover, this scale can encourage further research on how menstruation-related myths may vary in different cultural contexts.

5 | LIMITATIONS

This study has some limitations. The research is based on self-reporting of women of reproductive age in Turkey. This suggests that the findings are only applicable to Turkish society and may limit the generalizability to other cultures or geographic regions. Since the study focused solely on female participants, there is no information provided regarding the accuracy or validity of the scale used to examine men's beliefs and myths about menstruation. One of the limitations of this research is that EFA and CFA were studied on the same data set.

6 | CONCLUSIONS

The MMS is a valid and reliable measurement tool to determine myths about menstruation among women in Turkey. MMS makes an important contribution to the literature by systematically measuring menstrual myths. It is recommended that the validity and reliability of the scale be evaluated with women living in different countries and with different cultural, ethnic, and geographical backgrounds. Furthermore, there is a suggestion to explore the applicability of the scale in determining menstrual myths among men and to conduct studies to ascertain whether it serves as a valid and reliable measurement tool in this context.

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AUTHOR CONTRIBUTIONS

All authors contributed to the study conception and design. All authors read and approved the final manuscript. Study conception and design: Ş.K.E. and E.C.E. Data collection: Ş.K.E., E.C.E. Data analysis and interpretation: Ş.Ç. and Ş.K.E. Drafting of the article: E.C.E. and Ş.K.E.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest has been declared by the authors.

DATA AVAILABILITY STATEMENT

SPSS DATABASE AVAILABLE.

CONSENT

The research was collected through a questionnaire prepared on an online platform. Participants marked a checkbox stating that they voluntarily agreed to participate in the study before viewing the questions.

ORCID

Şeyma Kilci Erciyas https://orcid.org/0000-0002-6282-8933
Ebru Cirban Ekrem https://orcid.org/0000-0003-4442-0675
Şirin Çetin https://orcid.org/0000-0001-9878-2554

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