ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

Awareness About the Effects of Access to Information, Diet and Exercise on Primary Dysmenorrhea: A Descriptive Study in Türkiye

Bilgilendirmeye Erişim, Beslenme ve Egzersizin Primer Dismenore Üzerindeki Etkileri Hakkında Farkındalık: Türkiye'de Yapılan Tanımlayıcı Çalışma

İnci KAYIN[a], Buse Aleyna USTA[b], Yasemin ÇOŞKUN[b], Bülent EDİZ[c]

[a]İstinye University Faculty of Pharmacy, Department of Basic Pharmaceutical Sciences, Department of Analytical Chemistry, İstanbul, Türkiye
[b]İstinye University Faculty of Pharmacy, İstanbul, Türkiye
[c]İstinye University Faculty of Medicine, Department of Biostatistics and Medical Informatics, İstanbul, Türkiye

ABSTRACT Objective: The aim of this study was to examine the awareness of the effects of access to information about menstruation, exercise, and diet on primary dysmenorrhea in women aged 18 to 26 years. **Material and Methods:** The study followed a descriptive research design where data was gathered in Türkiye using a Google Form questionnaire. The questionnaire consisted of 4 sections and 21 questions. Data was collected during the period from October to December 2023 and statistical analysis was conducted. **Results:** A total of 370 women responded to the questionnaires with a mean age of 20.82±1.96. Only 12.20% of the participants reported that they were doing regular exercise and 18.60% paid attention to their dietary habits during menstruation. The majority of the women consumed tea for relieving menstrual pain (65.30%). A statistically significant relationship was found between women who received information about menstruation and those who were engaged in regular exercise (X^2=12.73, df=2, p=0.002). Similarly, there was a statistically significant relationship (X^2=8.5, df=2, p=0.014) between those who received information about menstruation and those who paid attention to their diet (p<0.05). **Conclusion:** The current study revealed that awareness among the participants was low about the role of exercise and diet in managing primary dysmenorrhea. On the other hand the participants who received information about menstruation did regular exercise and cared about their diet. This indicates the need to receive information about benefits of regular exercise and diet during menstruation from all health professionals, including pharmacists.

Keywords: Dysmenorrhea; exercise; diet, food and nutrition; awareness; access to information

ÖZET Amaç: Bu çalışmanın amacı 18-26 yaş arasındaki kadınlarda menstrüasyon bilgisine erişim, egzersiz ve beslenmenin primer dismenore üzerindeki etkilerine ilişkin farkındalığı incelemektir. **Gereç ve Yöntemler:** Araştırma, veri toplamak için Google Anket Formunun kullanıldığı Türkiye'de yapılmış olan tanımlayıcı bir çalışmadır. Anket 4 bölüm ve 21 sorudan oluşmuştur. Veriler Ekim-Aralık 2023 döneminde toplandı ve analiz IBM SPSS v26 istatistiksel yazılım platformu kullanılarak gerçekleştirildi. **Bulgular:** Ankete toplam 370 kadın katılmış olup, yaş ortalamaları 20,82±1,96'dır. Katılımcıların sadece %12,20'si menstrüasyon döneminde düzenli egzersiz yaptığını, %18,60'ı ise beslenme alışkanlıklarına dikkat ettiğini bildirdi. Kadınların %65,30'u adet ağrısını hafifletmek için çay tükettiğini iletti. Menstrüasyon hakkında bilgi almış olan kadınlar ile düzenli egzersiz yapan kadınlar arasında (X^2=12,73, df=2, p=0,002) istatistiksel açıdan anlamlı bir ilişki bulundu. (p<0,05). Benzer şekilde, menstrüasyon hakkında bilgi alanlar ile diyetlerine dikkat edenler arasında da (X^2=8,51, df=2, p=0,014) anlamlı bir ilişki olduğu görüldü. (p<0,05). **Sonuç:** Mevcut çalışma, katılımcıların egzersiz ve diyetin primer dismenoreyi yönetmedeki rolü hakkındaki farkındalıklarının düşük olduğunu ortaya koymuştur. Öte yandan, menstrüasyon hakkında bilgi almış olan kadınlar düzenli egzersiz yapmış ve diyetlerine dikkat etmiştir. Bu durum, eczacılar da dâhil olmak üzere tüm sağlık çalışanlarından menstrüasyon döneminde egzersiz ve beslenmenin faydaları hakkında bilgilendirme yapılmasının gerekliliğini göstermiştir.

Anahtar Kelimeler: Dismenore; egzersiz; diyet, besin ve beslenme; farkındalık; bilgiye erişim

Correspondence: İnci KAYIN
İstinye University Faculty of Pharmacy, Department of Basic Pharmaceutical Sciences, Department of Analytical Chemistry, İstanbul, Türkiye
E-mail: inci.kayin@istinye.edu.tr

Dysmenorrhea is a very common gynecologic disorder defined as painful menstrual cramps of uterine origin.[1] It is a disease that interrupts the daily life of many women from adolescence onwards and reduces their quality of life. In their study, Gagua et al. reported that approximately 1% of women of reproductive age lost 1-3 days of active working hours per month, and furthermore, approximately 14% of female students missed school days due to painful uterine contractions.[2]

There are 2 types of dysmenorrhea which are primary dysmenorrhea and secondary dysmenorrhea. There is no underlying pathology in primary dysmenorrhea, while secondary dysmenorrhea is due to an organic pathology.[3] Primary dysmenorrhea is the most common form of dysmenorrhea and usually occurs 1-2 days before the onset of menstrual bleeding, persisting for 72 hours. Painful cramps may be accompanied by many physical symptoms such as headache, dizziness, diarrhea, constipation and sweating during primary dysmenorrhea.[1]

Although the cause of primary dysmenorrhea is not fully understood, prostaglandin levels are found to be higher in women with dysmenorrhea.[4,5] Fajrin et al. have reported a correlation between the VAS values, which show the degree of pain, and prostaglandin levels. They indicated that higher VAS values are correlated with higher prostaglandin levels.[6]

Nonsteroidal anti-inflammatory drugs (NSAIDs) are often used in the treatment of primary dysmenorrhea because they inhibit prostaglandin production. They are recommended to be used just before the onset of menstruation and for the next few days after.[7] In addition to NSAIDs, hormonal contraceptive drugs and acetaminophen are also prescribed for primary dysmenorrhea. Acetaminophen shows lower efficacy compared to other medical treatments.[1] NSAIDs and hormonal contraceptives have many side effects. Long-term use of NSAIDs adversely affects the kidneys, liver and circulatory system.[8] Patients who are scared of the side effects of medical treatment or who do not want to use drugs choose alternative therapies. Furthermore, some studies show that lifestyle changes, such as regular exercise and control over diet, can have positive effects on primary dysmenorrhea.[3,9]

The study by Dina Abadi et al. showed that diet and exercise had an effect on primary dysmenorrhea and furthermore exercise acted as a non-specific analgesia, reducing stress and improving mood. In this way, it provided prevention and regression of primary dysmenorrhea. Optimal diet which means eating high-fiber and magnesium-rich foods. Reduced or suppressed prostaglandin synthesis and also had an effect on primary dysmenorrhea. Limiting the consumption of meat, dairy products. And salty food as well as increasing the consumption of fish, eggs, vegetables and fruits reduce the frequency of painful menstruation.[10]

Women hear information about menstruation from family, friends and teachers starting at a young age. However, the most accurate information about menstruation can be provided by health professionals such as doctors, nurses, midwives and pharmacists.[11] The information provided by health professionals about menstruation which emphasizes the role of exercise and diet in addition to medical treatment has shown to have, positive effects in women with primary dysmenorrhea.[12]

The aim of the study was to examine the awareness of the effects of access to information, exercise, and diet on primary dysmenorrhea in women aged between 18-26 years. The study is unique as to the best of our knowledge, it is the first national study done in Türkiye investigating the awareness about the effects of access to information, diet and exercise on primary dysmenorrhea from the pharmacists' perspective. It also complements the available findings in the literature.

MATERIAL AND METHODS

The research is a descriptive one which was conducted in Türkiye. Google form (Google, USA) was used for data collection. Survey questions were prepared by the researchers, referring to similar studies in the field.[13-16] The questionnaire was sent to the participants online via Google Forms. 413 women filled out the questionnaire. The questionnaires which had participants who did not meet the inclusion criteria were excluded from the sample group and the study sample was 370 participants. Informed e-consent was

obtained from the participants before starting the survey.

The inclusion criteria were as follows:

■ Experiencing pain radiating to the lower abdomen, lower back and legs just before or at the onset of menstrual bleed.

■ The pain should subside within 1-2 days.

■ Aged between 18-26 years old.

Exclusion criteria were as follows:

■ Being younger than 18 years old or older than 26 years old.

■ Being pregnant.

■ Having given birth before.

■ Not consenting to the informed consent form.

■ Having a diagnosis of cancer.

■ Filling out the questionnaire incompletely or incorrectly.

The questionnaire consisted 4 sections and 21 questions. The introductory section of the questionnaire included descriptive information inquiring the age, height, weight, education and income levels of the participants. Other sections of the questionnaire included access to information about menstruation, and questions related to exercise and diet. The answers to the questions were in mixed formats, and both a double dichotomous scale and a Likert scale were used. The questionnaire also included the visual analog scale (VAS).

VAS is an anonymous scale used to convert some values that cannot be measured numerically into numerical form. Since pain is a variable that cannot be measured, the VAS scale was used.[17] Participants were asked to rate pain from 0 (no pain) to 10 (unbearable pain). Accordingly, while "0" indicates no pain, the average VAS value of 1-4 indicates mild pain, 5-6 indicates moderate pain, and 7-10 indicates severe pain.[17,18] The participants were asked to give information about their perceived pain strength during menstruation.

Content validation was conducted with 6 participants in an online focus group. The participants were taken one by one to the online meeting and feedback was requested from them about the questions asked.

All of these stages were recorded. The questions were reorganized after the pre-test study considering the comments.

During the survey planning, statistical calculations were performed to determine the number of participants to whom the survey would be administered. The sample size was calculated with the simple random sampling formula.[19]

Before starting the survey, all participants. Provided e-consent.

Ethics committee permission (no: 22-63) was obtained from İstinye University Human Research Ethics Committee on May 17, 2022. The study was conducted in accordance with the principles of the Declaration of Helsinki and was not conducted within any institution.

STATISTICAL ANALYSIS

IBM SPSS v26 (IBM, USA) statistical software platform was used to analyze the data. Descriptive statistics were calculated giving average and standard deviation (SD) values. Pearson correlation was used for the relationship between continuous variables; Pearson chi-square test and Fisher's exact test were used for the comparison of categorical variables. $p < 0.05$ was taken as the level of statistical significance. Shapiro-Wilk normality test was used for checking normal distribution.

RESULTS

Descriptive data about the participants are shown in Table 1. The continuous variables followed normal distribution. The average age±SD of the participants was 20.82±1.96, and the average±SD body mass index (BMI) was 21.42±3.44. 74% of participants had VAS values>5, with the average VAS value being 6.26. Fifty percent of the participants reported an income between 1,000 and 3,000 TL. Moreover, 74.6% of the participants held a bachelor's degree. There was no statistically significant correlation between VAS values, age (r=-0.06; p=0.228), and BMI (r=-0.00; p=0.950).

Table 2 shows the information received by the participants about menstruation and from whom they have received this information, whether they experi-

TABLE 1: Descriptive data			
		X±SD	Minimum-maximum
Age (years)		20.82±1.96	18-26
Height (cm)		164.97±5.55	150-179
Weight (kg)		58.34±10.05	40-105
BMI (kg/m²)		21.42±3.44	15.24-36.73
VAS Values	Greater than 5	7.64±1.28	6-10
	Less than or equal to 5	3.48±1.51	0-5
	All values	6.26±2.39	0-10

SD: Standard deviation

TABLE 2: Information about menstruation		
		n (%)
I received information about menstruation.	Yes	224 (60.50%)
	No	146 (39.50%)
If received, from whom information was received[a]	Family/friends	123(27.28%)
	Health professionals	98 (21.72%)
	Teacher	112 (24.90%)
	Internet	97 (21.50%)
	Other	21 (4.60%)
I have pain during every cycle.	Yes	257 (69.50%)
	No	113 (30.50%)
Pain impacts my daily work.	Yes	150 (40.50%)
	No	60 (16.20%)
	Partially	160 (43.20%)

[a]More than one option is marked; Percentages are given according to total n. n: Sample

enced pain during every menstrual period, the effect of pain on daily work. 60.50% of participants said that they have received information about menstruation. Participants who received information about menstruation said that they received it from family/friends primarily followed by teachers and health professionals.

40.50% of the participants stated that they could not do their daily work due to menstrual pain while 16.20% were not affected, and 43.20% were partially affected.

Table 3 shows the feedback of the participants about exercise. Only 18.40% of the participant said that they did regular exercise. The most preferred exercise, chosen by 40.88% of participants, was walking or running. The percentage of participants who did exercise during menstruation was 12.20%. 75%

of the participants who received information about menstruation did exercise regularly. Among those who did exercise regularly, only 28.6% believed that regular exercise relieved their pain. Statistically significant relationship was found between those who received information about menstruation and those who did exercise regularly (X^2=12.73, df=2, p=0.002).

Table 4 shows the answers of the participants to the questions about diet. Although 30.80% paid attention to diet in general, only 18.60% of them paid attention during menstruation. Still 23.50% thought that diet needed to be considered as relieving pain during menstruation. Statistically a significant relationship was found between those who have received

TABLE 3: Distribution of exercise data		
		n (%)
I exercise regularly.	Yes	68 (18.40%)
	No	134 (36.20%)
	Partially	168 (45.40%)
Type of exercise(s)[a]	Walking/running	186 (40.88%)
	Yoga/pilates	96 (21.11%)
	Cardio	72 (15.82%)
	Weight	77 (16.92%)
	Other	24 (5.27%)
I exercise during menstruation.	Yes	45 (12.20%)
	No	233 (63%)
	Partially	92 (24.90%)
I think that exercise relieves pain.	Yes	106 (28.60%)
	No	171 (46.20%)
	Partially	93 (25.10%)

[a]More than one option is marked. Percentages are given according to total n. n: Sample

TABLE 4: Distribution of nutrition data		
		n (%)
I pay attention to my diet	Yes	114 (30.80%)
	No	82 (22.20%)
	Partially	174 (47%)
I pay attention to my diet during my menstruation	Yes	69 (18.60%)
	No	220 (59.50%)
	Partially	81 (21.90%)
I think that diet relieves menstrual pain	Yes	87 (23.50%)
	No	211 (57%)
	Partially	72 (19.50%)

n: Sample

TABLE 5: Distribution of herbal teas consumed to relieve menstrual pain[a]	
	n (%)
I don't consume.	161 (34.70%)
Fennel tea	72 (15.52%)
Chamomile tea	120 (25.87%)
Ginger tea	24 (5.17%)
Mint tea	33 (7.11%)
Sage tea	14 (3.01%)
Green tea	15 (3.23%)
Other	25 (5.39%)

[a]More than one option is marked. Percentages are given according to total n. n: Sample

TABLE 6: Distribution of foods avoided during menstruation[a]	
	n (%)
None	235 (48.95%)
Coffee	49 (10.21%)
Tea	14 (2.91%)
Artificial sugar	30 (6.25%)
Milk and dairy products	42 (8.75%)
Meat and meat products	12 (2.50%)
Salt	35 (7.30%)
Spices	54 (11.25%)
Other	9 (1.88%)

[a]More than one option is marked. Percentages are given according to total n. n: Sample

information about menstruation and those who paid attention to their diet. (X^2=8.51, df=2, p=0.014)

Table 5 shows the participants' consumption of herbal teas to relieve menstrual pain. 65.30% of the participants consumed tea among which chamomile tea, fennel tea and mint tea were the most commonly used ones by 25.87%, 15.52% and 7.11% respectively.

Table 6 shows that 48.95% of the participants did not avoid eating any food during menstruation while the food which was not preferred to be eaten was spices by 11.25% followed by coffee by 10.21%, milk and dairy products by 8.75% and salt by 7.30%.

DISCUSSION

In line with previous studies, it can be inferred that young women experiencing dysmenorrhea typically endure moderate pain, ranging from 5 to 7 on the VAS.[20] The present study corroborates this finding,

with the average VAS value among participants recorded as 6.26.

Takata et al. found that women with severe dysmenorrhea may have either high or normal BMI values.[21] In their study, Erdogan et al. did not identify a statistical relationship between primary dysmenorrhea and BMI. However, they observed a negative correlation between menstrual pain and BMI in young girls with primary dysmenorrhea.[22] In the present study findings, no significant difference was detected between BMI and VAS values.

Impact on daily life is mentioned to be decreasing in women who experience pain during menstruation. In his study Demirci et al. found that dysmenorrhea significantly impacted the daily lives of most women and concluded that participants experienced absenteeism from work and school, as well as negative interpersonal communication.[13] Present study aligns with Demirci's findings.

The role of exercise on dysmenorrhea is studied in various studies. Izzo and Labriola conducted a study on the adolescent athletes and concluded that athletic activity of almost any type or level has a positive influence on the dysmenorrhoea symptom.[23] Bavil et al. mentioned that regular exercise can reduce stress in women and thus improve blood circulation and increase the amount of endorphins and neurotransmitters .They observed a 1% decrease in the incidence of primary dysmenorrhea for each unit increase in physical activity.[10] Ortiz et al. demonstrated that strengthening, stretching, muscle relaxation techniques, and regular running effectively reduced symptoms associated with primary dysmenorrhea.[24] Consistently, participants in our study believed that regular exercise would alleviated menstrual pain, which is in line with existing literature. Additionally, the most preferred exercise type among participants was walking or running, accounting for 40.88%.

Studies have shown that there is a significant relationship between diet and menstruation. Regular eating or skipping meal habits were examined by Gagua et al. and Jeon et al.[2,25] In these studies, it was found that irregular eating and skipping meal habits significantly increased the intensity of primary dys-

menorrhea. However, in our study, a minor group of participants who had previous information about menstruation said that that paying attention to diet had a positive effect on menstrual pain.

In her study, Demirci found that most of the women used chamomile tea among alternative treatment methods.[13] Duman et al. found that most of the women with dysmenorrhea consumed green tea, linden tea, black tea and chamomile tea during dysmenorrhea.[14] Gun et al. also found the use of chamomile tea, black tea and sage tea as favourable.[26] In our study, 56.50% of the participants consumed tea for menstrual pain. The order of herbal teas consumed to relieve menstrual pain was fennel tea, followed by chamomile tea, mint tea, sage tea and green tea. A significant association between sugar consumption and dysmenorrhea has been found in the literature.[2,15] Fujiwara et al, Shinde and Laddad found significantly higher levels of dysmenorrhea in subjects who consumed junk and processed foods compared to those who did not.[27,28] Ozerdoğan et al. found a higher prevalence of dysmenorrhea in women with moderate or excessive salt consumption compared to those with minimal salt consumption.[15] Some studies have found a significant relationship between caffeine consumption and dysmenorrhea.[29,30] Wang et al. found higher tea consumption among women with dysmenorrhea.[31] Some studies have found a positive association between dairy consumption and decreased menstrual pain.[32,33] In the survey findings, similar results were mentioned by the participants regarding the foods avoided during menstruation.

Dissemination of information about menstruation and dysmenorrhea is needed. Erenel et al. observed that those who received information about menstruation did not show behaviors such as exercising and paying attention to their diet.[16] In our study, only 18.89% of the participants who received information about menstruation exercised regularly and 12.20% paid attention to their diet. These findings support the need for giving information and training about the benefits of exercise and diet during menstruation.

LIMITATIONS

Since the study was conducted online, women who did not have internet access on their phones or were not familiar with using mobile devices could not be included. The option to select multiple responses in the survey also made interpretation difficult. Additionally, as the study had a small sample size, it may not accurately reflect the broader population. For more definitive conclusions, future studies should involve a larger sample size and include a control group.

CONCLUSION

It has already been indicated in various publications that exercise and healthy diet are beneficial for managing dysmenorrheal. Awareness among the participants was low about the role of exercise and diet in managing primary dysmenorrhea in this study. On the other hand the participants who received information about menstruation did regular exercise and cared about their diet. This indicates the need to incorporate diet and regular exercise information into menstrual educ.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: İnci Kayın, Buse Aleyna Usta, Yasemin Çoşkun; Design: İnci Kayın, Buse Aleyna Usta, Yasemin Çoşkun; Control/Supervision: İnci Kayın; Data Collection and/or Processing: Buse Aleyna Usta, Yasemin Çoşkun; Analysis and/or Interpretation: Buse Aleyna Usta, Yasemin Çoşkun, Bülent Ediz; Literature Review: İnci Kayın, Buse Aleyna Usta, Yasemin Çoşkun; Writing the Article: Buse Aleyna Usta, Yasemin Çoşkun; Critical Review: İnci Kayın, Bülent Ediz.

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