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ORIGINAL ARTICLE

The Effect of Primary Dysmenorrhea on Perceived Stress and Women's Health: One Year Into the Pandemic

Primer Dismenorenin Algılanan Stres ve Kadın Sağlığı Üzerindeki Etkisi: Pandeminin Bir Yılı

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Abstract

Objective: This study, was conducted to examine the effect of primary dysmenorrhea on perceived stress and women's health in one year into the pandemic.

Method: This study was conducted as a descriptive, comparative, and cross-sectional study type epidemiological study between 25 May-31 July 2020. The study group consists of a total of 906 women, including the group with primary dysmenorrhea (n=418) and the group without primary dysmenorrhea (n=488). Research data, were collected using the "introductory information form", "perceived stress scale", and the "women's health questionnaire".

Results: A significant difference was defined between the groups in terms of mean scores according to depression (p<0.001), somatic symptoms (p<0.001), somatopsychic (p<0.001), somatic-cognitive (p<0.001), gastrointestinal (p<0.001), self-esteem (p=0.002), anxiety (p<0.001) and interest-desire (p<0.001). It was determined that women with primary dysmenorrhea experience more depression, somatic, somatopsychic, somatic-cognitive, gastrointestinal, self-esteem, anxiety and interest-desire problems. Negative spousal relationships and premenstrual syndrome are among the reasons for experiencing primary dysmenorrhea.

Conclusion: In our research, it was determined that women with primary dysmenorrhea experience more physiological and psychological problems, and it is thought that measures to be taken to improve the negative consequences of problems such as primary dysmenorrhea, which affect women's health in many ways in situations such as pandemics, are important.

Keywords: Menstruation, women's health, stress, dysmenorrhea

Öz

Amaç: Bu çalışma, pandeminin bir yılında primer dismenorenin algılanan stres ve kadın sağlığı üzerindeki etkisini incelemek amacıyla yürütüldü.

Yöntem: Bu çalışma 25 Mayıs-1 Temmuz 2020 tarihleri arasında tanımlayıcı, karşılaştırmalı ve kesitsel çalışma tipinde epidemiyolojik bir çalışma olarak yürütülmüştür. Çalışma grubu, bir primer dismenoresi olan grup (n=418) ve bir primer dismenoresi olmayan grup (n=488) olmak üzere toplam 906 kadından oluşmaktadır. araştırma verileri "tanımlayıcı bilgi formu", "algılanan stres ölçeği" ve "kadın sağlığı anketi" kullanılarak toplanmıştır.

Bulgular: Gruplar arasında depresyon (p<0,001), somatik semptomlar (p<0,001), somatopsişik (p<0,001), somatik-bilişsel (p<0,001), gastrointestinal (p<0,001), benlik saygısı (p=0,002), anksiyete (p<0,001) ve ilgi-istek (p<0,001) puan ortalamaları açısından anlamlı fark tespit edilmiştir. Primer dismenoresi olan kadınların daha fazla depresyon, somatik, somatopsişik, somatik-bilişsel, gastrointestinal, benlik saygısı, anksiyete ve ilgi-istek sorunları yaşadıkları belirlenmiştir. Olumsuz eş ilişkileri ve premenstrüel sendrom primer dismenore yaşama nedenleri arasındadır.

Sonuç: Araştırmamızda primer dismenoresi olan kadınların daha fazla fizyolojik ve psikolojik sorun yaşadıkları belirlenmiş olup, pandemi gibi durumlarda kadın sağlığını birçok yönden etkileyen primer dismenore gibi sorunların olumsuz sonuçlarını iyileştirmeye yönelik alınacak önlemlerin önemli olduğu düşünülmektedir.

Anahtar Kelimeler: Menstrüasyon, kadın sağlığı, stres, dismenore

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Introduction

Dysmenorrhoea can occur in two forms: primary and secondary dysmenorrhoea. Secondary dysmenorrhoea is usually caused by gynaecological problems such as endometriosis, chronic pelvic inflammation, uterine fibroids and changes in the morphology and function of the reproductive organs (1,2). In primary dysmenorrhea, there is no underlying pelvic pathology (3). Primary dysmenorrhea is seen due to excessive or abnormal uterine contractions (2,4). Pain usually begins a few hours before or after menstrual bleeding, peaks between 48-72 hours and lasts up to 3 days. Pain usually occurs in the suprapubic region, radiating to both thighs and/or the lumbosacral region. Sometimes nausea, vomiting, diarrhoea and headache accompany the pain (5). Primary dysmenorrhea is reported in the literature as one of the most common gynecological problems in women of reproductive age (3,6,7). Dysmenorrhea can negatively impact daily life activities, cause poor sleep quality, and negatively impact an individual's mental health (2). Psychological problems such as depression, anxiety, and stress may have a bidirectional relationship with dysmenorrhea (2). Recently, it has been reported that conditions such as depression, anxiety and stress are risk factors for primary dysmenorrhea (8,9). Therefore, it is important to determine the factors that affect the aggravation of dysmenorrhea (2).

Pandemics negatively affect human mental health due to loneliness, social isolation, fear of catching the virus, economic hardship and uncertainty about the future (10). The coronavirus disease-2019 (COVID-19) pandemic is reported to be significantly associated with symptoms of stress, anxiety, depression, and post-traumatic stress (11,12). It is reported that stressful periods and psychological distress may affect women's menstrual health due to the inhibitory effect of stress on the hypothalamic pituitary gonadal axis (13). There is growing evidence that COVID-19 may affect the menstrual cycle (10,14-16) and menstrual abnormalities after vaccination (17-19). In fact, there is study result reporting that the COVID-19 pandemic has caused an increase in the severity of dysmenorrhea in women (20). Whereas, especially in the period when vaccines were not implemented, no studies have been found on how the COVID-19 virus itself affects women experiencing primary dysmenorrhea in terms of perceived stress and women's health. Despite its prevalence and social importance, there are still gaps in knowledge about primary dysmenorrhea. This study, was conducted to examine the effect of primary dysmenorrhea on perceived stress and women's health in one year into the pandemic. In this regard, it is thought that it will make a important contribution to the literature.

Main Points

- Problems such as primary dysmenorrhea, which affect women's health in many ways, can lead to more negative outcomes, especially in adverse situations such as pandemics.
- The findings of this study showed that it was determined that women with primary dysmenorrhea experience more depression, somatic, somatopsychic, somatic-cognitive, gastrointestinal, self-esteem, anxiety and interest-desire problems.
- Therefore, it can be recommended that health professionals take into account the effects of primary dysmenorrhea on women's health when providing care to women.

Material and Method

Design

This study was conducted as a descriptive, cross-sectional and comparative study.

Participants

The universe of the research consisted of women between the ages of 18-65 and members of social media groups between "25 May-31 July 2020". The study consisted of a total of 906 women, including a group with primary dysmenorrhea (n=418) and a group without primary dysmenorrhea (n=488). In the power analysis conducted to determine the adequacy of the number of research samples, it was determined that the research sample had a power of 0.92. Menstruation sub-dimension of Women's Health Questionnaire (WHQ) (21) was used to determine whether she had dysmenorrhea. Inclusion criteria for the study were as follows: having menstrual cycle, being older than 18 years, speaking Turkish, living in Turkey, and volunteering to participate in the study. Pregnant, puerperal, or menopausal women were not included.

Data Collection Tools

Research data were collected using the "Introductory Information Form", "The Perceived Stress Scale (PSS)" and "The WHQ".

Introductory Information Form: Form consisted of questions regarding the age, educational status, employment status, marital status, socio-economic status and changes after COVID-19 infection.

The PSS: It was developed by Cohen et al. (22) and adapted into Turkish by Eskin et al. (23) in order to measure how stressful some situations in an individual's life are perceived. The scale consists of 14 five-point Likert type questions. A high score indicates that the individual has an excessive stress perception (23). The Cronbach alpha value of the scale was reported to be 0.84 (23). In this study, it was found to be 0.86.

WHQ: Questionnaire is developed by Hunter in 1992 (24), which was adapted to Turkish by Çetinay and Gülseren (21). Its validity and reliability have also been demonstrated. The WHQ was developed to identify and monitor the physical and mental symptoms of women's health between the ages of "18-65" years. WHQ has a 4-point Likert feature and consists of 36 questions and 10 sub-dimensions.

The WHQ sub-dimensions include anxiety-depression (2, 3, 4, 5, 11 and 12), somatic symptoms (1, 19, 27, 28, 29 and 35), somatopsychic (7, 9, 14, 15 and 18), somatic-cognitive (30, 33, 34 and 36), gastrointestinal (6, 16, 17, 22 and 23), self-esteem (21, 24, 25 and 32), anxiety (13 and 20), interest-desire (8 and 10), sexual satisfaction (31) and menstruation (26). Because the WHQ can be applied to every woman between the ages

of "18 and 65", including those who are sexually active and postmenopausal, sub-dimensions are calculated separately. The scale shows that as the mean score of the measurement tool without a cut-off point increases for each subdimension, physical and mental problems increase (21). The Cronbach alpha value of the scale was reported to be 0.84 (21). In this study, it was found to be 0.94.

Data Collection

The survey form of the study, shared with the participants through the online survey system that allows web-based answering, and was collected based on self-report. The participants' answers were transferred to the "The IBM SPSS Statistics for package software (Version 21.0)" for evaluation.

Statistical Analysis

The "IBM SPSS Statistics for package software (Version 21.0)" was used in the analysis of the data. "Descriptive statistics", "chi-squared test" to compare the percentage data between groups, "t-test" and "logistic regression analysis" to determine the factors affecting menstrual problems were performed. Also, statistical significance was considered to be $p<0.05$.

Ethic

This study was confirmed by the ethics committee of the Atatürk University Faculty of Health Sciences Ethics Committee (no: 16, date: May 21, 2020). Participants filled out the questionnaire after reading and approving the informed consent form.

Results

It was determined that 75.8% of the group with primary dysmenorrhea was aged between 20 and 34 years, that 80.6% had an education level of university or higher, 63.6% were not working, 58.1% were single, 89.7% of them had no chronic disease, 13.9% of them had two pregnancies and 15.6% gave birth once (Table 1).

On the other hand, it was determined that 82.8% of the group without primary dysmenorrhea was aged 20 to 34 years, that 80.5% had an education level of university or higher, 68.2% were not working, 73.2% were single. It was determined that 89.1% had no chronic disease, 10.2% had a once pregnancy and 11.3% gave birth once (Table 1).

When the group with primary dysmenorrhea and group without primary dysmenorrhea were compared in terms of socio-demographic characteristics, there was a statistically significant difference in terms of age ($p=0.004$), marital status ($p<0.001$) and pregnancy and number of births ($p<0.001$) (Table 1).

Information on the comparison of the scale mean scores of the with primary dysmenorrhea and without primary dysmenorrhea groups in the study is given in Table 2. The average perceived stress score was 41.50±8.04 in the group with primary dysmenorrhea and 43.21±7.24 in the group without primary dysmenorrhea, a difference that was statistically significant.

The mean scores of WHQ sub-dimensions such as depression ($p<0.001$), somatic symptoms ($p<0.001$), somatopsychic ($p<0.001$), somatic-cognitive ($p=0.001$), gastrointestinal ($p<0.001$), self-esteem ($p=0.002$), anxiety ($p<0.001$) and interest-desire ($p<0.001$) differed significantly between the two groups (Table 2).

In the logistic regression analysis results to examine the factors associated with primary dysmenorrhea that affect menstrual problems, menstrual problems were affected 0.39 times ($p=0.048$) in those who have a negative relationship with their partner and 3.51 times ($p=0.004$) in those who have premenstrual syndrome (Table 3).

Discussion

The findings of the study examining the effect of primary dysmenorrhoea on perceived stress and women's health were discussed with the results of the literature in the first year of the pandemic. In our study, it was found that somatopsychic symptom, anxiety, stress and depression levels were higher in women experiencing primary dysmenorrhea. Dysmenorrhoea, which is one of the leading menstrual symptoms, not only impairs quality of life and social activities, but also causes problems such as anxiety and depression, causing negative effects on mood (2). Alateeq et al. (25) found in their study that students with severe dysmenorrhea had a higher risk of depression than other students. While women experiencing menstrual pain every month may increase their risk of experiencing depression, anxiety or stress, it is stated that having these psychological disorders may also increase the severity of menstrual pain (26). The COVID-19 pandemic has triggered mental health-related problems associated with stress to mental and physical functioning (27,28). Our research finding is compatible with the literature and it is thought that women who experience primary dysmenorrhea may be more negatively affected in terms of somatopsychic symptoms, anxiety, stress and depression, especially during negative life periods such as pandemics that cause significant stress.

The study found that women experiencing primary dysmenorrhea had a higher risk of experiencing somatic symptoms and gastrointestinal problems. Zuckerman et al. (29) found a relationship between dysmenorrhea and somatic symptoms. It is also known that many healthy women may experience gastrointestinal symptoms such as nausea, abdominal bloating and pain on the first day of menstruation (30). For these reasons, it seems likely that the risk of experiencing somatic symptoms and gastrointestinal problems is especially high in women experiencing primary dysmenorrhea.

It has been found that women experiencing primary dysmenorrhea have higher somatic-cognitive symptoms. No similar study results have been found in the literature

that can compare our study results, especially including the pandemic period. However, in addition to mood symptoms, cognitive symptoms are also among the diagnostic criteria for premenstrual dysphoric disorder (31). Additionally, the importance of evaluation and intervention for cognitive impairment in these women is emphasized (32). Based on these results, the necessity of cognitive evaluation of women experiencing primary dysmenorrhea comes to the fore.

The study found that women without partner support had more menstrual problems. Social support contributes positively to the psychological health of the individual by meeting his/her emotional and physical needs (33). In addition, positive social relationships can be a promoting in physical and psychological health against stressful situations. It is thought that psychological and social factors interact with biological processes in dysmenorrhea (34). Eser and Kaya (35), found that the level of social support is among the factors affecting dysmenorrhea. In this context, it is important to consider modifiable factors such as social support in detail in order to the development of biopsychosocial interventions in dysmenorrhea.

It has been determined that primary dysmenorrhea is more common in women who experience premenstrual syndrome. There is literature information that supports this that there is a relationship between factors such as age at menarche,

Table 1.
Comparison of Group with Primary Dysmenorrhea and Group without Primary Dysmenorrhea in Terms of Socio-demographic Characteristics

Socio-demographic characteristics	**The group with primary dysmenorrhea n (%)**	**The group without primary dysmenorrhea n (%)**	**Significance value**
18-19 20-34 35-44 45 and above	22 (5.3) 317 (75.8) 68 (16.3) 11 (2.6)	30 (6.1) 404 (82.8) 51 (10.5) 3 (0.6)	χ^2=13.400 **p=0.004**
Age group			
Level of education			
Primary school Middle school High school University and above	12 (2.9) 10 (2.4) 59 (14.1) 337 (80.6)	8 (1.6) 10 (2.0) 77 (15.8) 393 (80.5)	χ^2=2.082 p=0.556
Working status			
Working Not working	152 (36.4) 266 (63.6)	155(31.8) 333 (68.2)	χ^2=2.128 p=0.145
Marital status			
Married Single	175 (41.9) 243 (58.1)	131 (26.8) 357 (73.2)	χ^2=22.714 **p=0.000**
The impact of COVID-19 on income perception			
Increased Decreased Not changed	10 (2.4) 165 (39.5) 243 (58.1)	18 (3.7) 213 (43.6) 257 (52.7)	χ^2=3.385 p=0.184
Having chronic illness			
Yes No	43 (10.3) 375 (89.7)	53 (10.9) 435 (89.1)	χ^2=0.078 p=0.780
Number of pregnancies (case "n=154"; control "n=115")			
1 2 3 and above	57 (13.6) 58 (13.9) 39 (9.3)	50 (10.2) 35 (7.2) 30 (6.1)	χ^2=20.687 **p=0.000**
Number of births (case "n=150"; control "n=111")			
1 2 3 and above	65 (15.6) 61 (14.6) 24 (5.7)	55 (11.3) 40 (8.2) 16 (3.3)	χ^2=19.930 **p=0.000**

COVID-19=Coronavirus disease-2019

Table 2.
Comparison of Group with Primary Dysmenorrhea and Group without Primary Dysmenorrhea in Terms of Perceived Stress and WHQ Sub-dimensions Scores

	The group with primary dysmenorrhea (mean ± SD)	The group without primary dysmenorrhea (mean ± SD)	t	p
Perceived stress	41.50±8.04	43.21±7.24	-3.355	**0.001**
Depression	9.53±4.51	7.95±4.22	5.418	**0.000**
Somatic symptoms	12.20±3.40	10.24±3.61	8.361	**0.000**
Somatopsychic	7.84±3.47	6.38±3.14	6.587	**0.000**
Somatic-cognitive	7.85±2.39	6.99±2.23	3.204	**0.001**
Gastrointestinal	11.11±3.32	9.34±3.71	7.573	**0.000**
Self-esteem	7.12±2.66	6.57±2.62	3.126	**0.002**
Anxiety	4.06±1.45	3.60±1.59	4.478	**0.000**
Interest-desire	4.41±1.45	4.05±1.48	3.703	**0.000**
Sexual satisfaction	1.55±0.93	1.40±0.83	1.521	0.129

WHQ=Women's health questionnaire

Table 3.
Factors Associated with Primary Dysmenorrhea (Logistic Regression Results)

Factors	β	SE	Wald	p	Exp(B)
Age group	1.197	0.839	2.032	0.154	3.309
Level of education	0.171	0.585	0.085	0.771	1.186
Working status	-1.833	1.024	3.201	0.074	0.160
Marital status	-0.399	0.303	1.735	0.188	0.671
The impact of COVID-19 on income perception	0.186	0.432	0.185	0.667	1.204
Having chronic illness	0.144	0.240	0.360	0.548	1.155
Partner	-0.940	0.476	3.904	**0.048**	0.390
Stress and anxiety	0.264	0.163	2.623	0.105	1.302
Number of pregnancies	0.353	0.961	0.135	0.714	1.423
Number of births	-0.208	1.024	0.041	0.839	0.812
Staining	-0.556	0.468	1.408	0.235	0.574
Premenstrual syndrome	1.257	0.440	8.173	**0.004**	3.514
Infection	0.415	0.410	1.023	0.312	1.514
Constant	0.155	0.067	5.398	**0.020**	1.167

Model χ^2=106.723; p=0.000. R2=0.148
SE=standard error, COVID-19=coronavirus disease-2019

dysmenorrhea and menstrual cycle pattern, attitude towards menstruation, and premenstrual syndrome (36). In terms of women's health, it has been determined that one of the long-term symptoms of COVID-19 is changes/disruptions in women's menstrual cycle (37). There are significant changes in women's menstrual cycles compared to before the pandemic; it is stated that the most common deviations from normal are menorrhagia, dysmenorrhea and worsening of premenstrual symptoms, respectively. Our study results are consistent with the literature, and it is understood that it is important to evaluate reproductive health and the factors that may affect it in important situations that affect women's health, such as pandemics.

Study Limitations

This study's data were collected in a web-based manner due to the quarantine application. As such, lack of accuracy and consistency in the responses provided by women are limitations of the research. Results of this study can only be generalised to the sample group in the study, not all women.

Conclusion

Women's health is affected by physiological, psychological conditions and many factors. Problems such as primary dysmenorrhea, which already affects women's health in many ways, can lead to more negative consequences, especially in negative situations such as pandemics. The results of this study have been presented that women experiencing primary dysmenorrhea had higher levels of depression, somatic, somatopsychic, somatic-cognitive, gastrointestinal, self-esteem, anxiety and interest-desire problems. Negative spousal relationships and premenstrual syndrome are among the reasons for experiencing primary dysmenorrhea.

It is very important to evaluate the effects of situations such as pandemics on women's health and to take measures that can serve to improve these effects. Increasing the studies on the subject and considering the gender-specific effects of the pandemic process by health professionals will allow for better care. Future research can evaluate women's health with different parameters to analyse them during pandemics. We recommend that more comprehensive studies be conducted to reveal the effects of primary dysmenorrhea on women's health.

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Footnote

Ethics Committee Approval: This study was confirmed by the ethics committee of the Atatürk University Faculty of Health Sciences Ethics Committee (number: 16, date: May 21, 2020).

Informed Consent: All study participants provided informed consent before questionnaire administration.

Author Contributions: Concept - E.B., H.K.; Design - E.B., H.K., O.K., H.Ö.; Data Collection and/or Processing - E.B., H.K., O.K.; Analysis and/or Interpretation - E.B., H.K., O.K.; Literature Review - E.B., H.K., O.K., H.Ö.; Writing - E.B., H.K., O.K.

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