Comparison of Daily Menstrual Symptoms of COVID-19 Positive and Non-COVID-19 Positive Women During Menstruation

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Abstract

Objective: This study was conducted to determine the symptoms experienced by women who were COVID-19 positive during menstruation and to compare them with women who were not COVID-19 positive.

Methods: According to the power analysis, the sample size of the study was determined as 69 women in the COVID-19 positive case group and 200 women in the control group without COVID-19. The study was conducted between March and May 2022 in Family Health Centers affiliated to Malatya Provincial Health Directorate. "Descriptive Characteristics Questionnaire" and "Daily Menstrual Symptoms Assessment Scale" were used to collect the data of the study.

Results: There was a statistically significant difference between the case and control groups in terms of mean scores of hopelessness, depression, lack of activity, introversion, tension, easy anger, tendency to argue, abdominal distension, facial/ankle/wrist distension, hip/abdominal pain, back pain, fatigue, breast swelling-sensitivity and headache symptoms (p<0.05). It was determined that women who were COVID-19 positive experienced these symptoms more intensely than women who were not positive.

Conclusion: The intensity of daily menstrual symptoms is higher in women who are COVID-19 positive during menstruation than in women without COVID-19. In challenging times such as a pandemic, it is recommended that public health nurses monitor women's health status and support their systems to cope with menstrual symptoms.

Keywords: COVID-19, Menstruation, Women's Health

Öz

Menstrasyon Döneminde COVID-19 Pozitif Olan ve Olmayan Kadınların Günlük Menstrual Semptomlarının Karşılaştırılması

Amaç: Bu çalışma menstrüel dönemde COVID-19 pozitif olan kadınların yaşadıkları semptomları belirlemek ve COVID-19 pozitif olmayan kadınlarla karşılaştırılmasını yapmak amacıyla yapılmıştır.

Yöntem: Araştırmanın örneklem büyüklüğü güç analizine göre; COVID-19 pozitif olan vaka grubunda 69 kadın ve COVID-19 olmayan kontrol grubunda 200 kadın olarak belirlendi. Araştırma Mart- Mayıs 2022 tarihlerinde, Malatya İl Sağlık Müdürlüğüne bağlı Aile Sağlığı Merkezlerinde yapılmıştır. Araştırmanın verilerini toplamak için "Tanımlayıcı Özellikler Anketi" ve "Günlük Adet Semptomları Değerlendirme Ölçeği" kullanılmıştır.

Bulgular: Ümitsizlik, depresyon, aktivite yetersizliği, içe kapanma, gerginlik, kolay öfkelenme, tartışmaya yatkınlık, karında şişkinlik, yüz/el-ayak bileklerinde şişkinlik, kalça-karında ağrı, sırt ağrısı, yorgunluk, memede şişlik-hassasiyet ve baş ağrısı semptomları puan ortalamaları açısından vaka ve kontrol grupları arasında istatistiksel olarak anlamlı farklılık olduğu görüldü (p<0,05). COVID-19 pozitif olan kadınların bu semptomları, pozitif olmayan kadınlara göre daha yoğun yaşadıkları belirlendi.

Sonuç: Adet döneminde COVID-19 pozitif olan kadınlarda günlük menstrüasyon belirtilerinin yoğunluğu COVID-19 olmayan kadınlara göre daha fazladır. Pandemi gibi zorlu süreçlerde; halk sağlığı hemşiresi tarafından kadınların sağlık durumlarının takip edilmesi ve mensturasyon dönemi semptomlarıyla başa çıkma sistemlerinin desteklenmesi önerilir.

Anahtar Kelimeler: COVID-19, Kadın Sağlığı, Menstruasyon

INTRODUCTION

The COVID-19 pandemic was declared a global pandemic by the World Health Organization in March 2020, inviting all countries to take urgent and aggressive measures to prevent the spread of the disease. This Pandemic precaution package announced has brought more stringent and widespread stay-at-home obligations over time. This has brought not only concerns about the risk of infection and death in all countries of the world, but also the closure of many businesses and economic losses (Nguyen et al., 2021).

The difficulties of the pandemic, the social and economic crises caused by the social isolation measures have affected the lives of women more. Women had difficulties in meeting their health care needs and accessing resources, and most importantly, they were more exposed to violence. The responsibility of having all family members at home and meeting their needs have left women with physical, mental and social health problems (UNFPA, 2021; UN, 2021; WHO, 2022).

Intense fears, uncertainty and anxieties on social media about the pandemic have caused a global secondary mental health crisis with the disruption of daily routines and habits in people (Marroquin et al., 2020; Salari et al., 2020; Tulll et al., 2020; Torales et al., 2020). More stress, anxiety disorders, insomnia, depression and suicide reported in America during quarantine period (Marroquin et al., 2020; Tulll et al., 2020; Salari et al., 2020; Torales et al., 2020; Park et al., 2020; Huang & Zhao, 2020). Despite the social support and coping resources provided to people, depression and anxiety disorders could not be reduced during the quarantine period (Gao et al., 2020; Hossain et al., 2020). The prevalence of anxiety and depression disorders caused by biological and social determinants of health in women is very high (Verma et al., 2011; McLean et al., 2011; Albert, 2015). Intense mental difficulties experienced during the pandemic period affected the hormonal cycle of women, especially in the reproductive period, and caused menstrual cycle changes (Nguyen et al., 2021).

The menstrual cycle is susceptible to disruptions from anxiety, insomnia, and depression. Women experiencing such intense mood disorders or facing acute life stressors have menstrual cycle irregularities such as amenorrhea, changes in menstrual and premenstrual symptoms (Willis et al., 2019; Gellersen & Brosen, 2014; Jang, 2019). The high level of stress experienced during the COVID-19 pandemic is likely to change menstrual cycle patterns and symptomology after hypothalamic-pituitary-gonadal impact (Ozimek et al., 2019).

In the literature, retrospective survey studies were conducted to evaluate the menstrual cycle and perceived stress level before and during the pandemic. There are also studies evaluating the effects of the COVID-19 vaccine on the menstrual cycle (Nguyen et al., 2021; Ozimek et al., 2019; Edelman et al., 2022; Li et al., 2021). However, there is no study in the literature evaluating menstrual symptoms in women who are positive for COVID-19 during their menstrual period. In this study, it was planned to determine the symptoms experienced by women who are positive for COVID-19 during their menstrual period and to compare them with healthy women.

Research question

Is the intensity of Daily Menstrual Symptoms in women who are positive for COVID-19 during their menstrual period expected to be higher than women who are negative for COVID-19?

METHOD

Type of Research

The research was conducted as a case-control.

Population and Sample of the Research

The COVID-19 positive Case group of the study consists of women aged 18-49 who were diagnosed with COVID-19 in the COVID-19 call center affiliated to Malatya Provincial Health Directorate Public Health Services.

The COVID-19 negative Control group of the study consisted of women between the ages of 18-49 registered in two family health centers affiliated to Malatya Provincial Health Directorate. With the power analysis performed to determine the sample of the study, 69 women were in the COVID-19 positive group and 200 women were in the COVID-19 negative group, with an error level of 0.05, a confidence interval of 0.95, an effect size of 0.6, and an ability to represent the population of 0.95. has created. Women in the COVID-19 positive and COVID-19 negative groups were selected using the improbable sampling method.

Inclusion Criteria

For the Case Group:
- Volunteering to participate in the research
- Being in the 18-49 age group
- Being COVID-19 positive
- Being on days 1-5 of the menstrual cycle

For the Control Group:
- Volunteering to participate in the research
- Being in the 18-49 age group
- Being COVID-19 negative and not having had it before
- Being on days 1-5 of the menstrual cycle

Descriptive Characteristics Survey

It consists of 10 questions that include the sociodemographic characteristics of women and the characteristics of the menstrual period.

Daily Menstrual Symptom Rating Scale

It was developed by Taylor (1979) to assess the symptoms and intensity of symptoms occurring during menstruation. It was validated in Turkish by Oskay et al. (2008). The scale, which evaluates the intensity of 17 symptoms during the menstrual period, is scored between 0 and 5 points. A higher score indicates an increased intensity of symptoms. The Cronbach's Alpha value of the scale is 0.88 (Oskay et al., 2008). In this study, the Cronbach's Alpha value was found to be 0.86.

Data Collection

Data were collected between March – May 2022. The data of the research has been converted into an online form. The data of the Case group was obtained from the COVID-19 call center, which is affiliated to the Malatya Provincial Health Directorate Public Health Services; Women in the 18-49 age group who were diagnosed with COVID-19 positive were called one by one and questioned whether they were on the 1-5th day of the menstrual cycle. A short informative message describing the purpose of the study was sent to the women who were in the menstrual period, and after the consent of the individuals was obtained, the survey link of the research was sent to their phones (online), and they were asked to fill out the survey form.

The data in the Control group of the study were registered to İpek and Başharık Family Health Center and were not diagnosed with active COVID-19 before or at the moment, and women between the ages of 18-49 were called one by one and questioned whether they were on the 1-5th day of the menstrual cycle.

A short informative message describing the purpose of the study was sent to the women who were in the menstrual period, and after the consent of the individuals was obtained, the survey link of the research was sent to their phones (online), and they were asked to fill out the survey form. The implementation time of the data collection tools took approximately 10-15 minutes.

Variables of the Study

Dependent variables of the study

* Daily Menstrual Symptoms Evaluation Scale

Independent variables of the research

* Introductory characteristics of women (age, marital status, education level, etc.).

Ethical Aspect of Research

In order to carry out the research, approval from Research and Publication Ethics Committee of Inonu University (2022/3157) and legal permission from the institutions where the research would be conducted were obtained. The women were informed about the purpose of the study and their verbal consent was obtained. It was stated that women could withdraw from the study at any time.

Evaluation of Data

The 21.0 package program was used in the analysis of the data (SPSS). Women's socio-demographic characteristics were expressed as number, percentage distribution, mean, standard deviation values. Independent Samples t-test and x2 test were used in the study. The Cronbach α reliability coefficient was used to determine the internal consistency of the Daily Menstrual Symptom Assessment scale.

Limitations of the Study

One of the limitations of the research is that data collection forms were sent to participants only via a link to their smartphones, so the results do not reflect the views of women who do not use smartphones.

RESULTS

In terms of individual characteristics and menstrual period characteristics, it was determined that there was no statistically significant difference between the women in the case and control groups, and the women in both groups showed similar distributions (p>0.05). However, it was determined that the case group was significantly different from the control group in terms of daily analgesic use (Table 1).

The mean scores of "Hopelessness, Depression, Lack of Activity, Withdrawal, Tension, Anger, Tendency to Argue, Bloating in the Abdomen, Swelling in the Face/Hand-Ankles, Pain in the Hip-Abdominal, Backache, Fatigue, Breast Swelling-Tenderness and Headache" There was a statistically significant difference between the case and control groups (p<0.05). It was determined that women who were positive for COVID-19 in the menstrual period (case group) experienced these symptoms more intensely than women in the normal menstrual period (control group) (p<0.05). It was determined that the mean scores of control group regarding the symptoms of "Being Cheerful, Friendly, Being Energetic" were significantly higher than the case group (p<0.05). It was observed that the most experienced symptoms in both groups were fatigue, headache and tension, respectively (Table 2).

Table 1. Comparison of women in COVID-19 patients and healthy women group

Characteristics	Case Group n=69		Control Group n=200		Test
	n	%	n	%	
Marital status					
Married	37	53.6	123	61.5	x^2=1.321
Single / Divorced	32	46.4	77	38.5	p=0.157
Education level					
Not literate	5	7.2	17	8.5	x^2=4.645
Literate	2	2.9	15	7.5	p=0.326
Primary school	13	18.8	53	26.5	
High school	27	39.1	61	30.5	
University	22	31.9	54	27.0	
Working status					
Working	16	23.2	39	19.5	x^2=0.429
Not working	53	76.8	161	80.5	p=0.311
Family income					
Low	3	4.3	4	2.0	x^2=4.959
Middle	52	75.4	129	64.5	p=0.084
High	14	20.3	67	33.5	
Daily use of analgesics					
Yes	29	42.0	32	16.0	x^2=19.822
No	40	58.0	168	64.0	**p=0.000**
X± SD					
Age	31.66±10.75		33.08±8.06		t=-1.151 p=0.251
Menarche age	13.42±1.41		13.30±1.13		t=.682 p=0.496
Which day of your period	3.08±0.96		3.13±0.75		t=-.380 p=0.705
Menstrual bleeding period	5.95±2.51		4.86±2.57		t= − .387 p=0.699

x2:Chi-square test, t: Independent Samples t-test

Table 2. Comparison of the a Daily Menstrual Symptom Rating Scale Means of Women in the COVID-19 patients-healthy women

Daily Menstrual Symptom Rating Scale	Case Group n=69	Control Group n=200	Test (t)	Significance (p)
	Mean±SD	Mean±SD		
Hopelessness	3.97±1.43	1.04±1.40	14.878	**0.000**
Depression	4.21±1.34	1.53±1.67	12.026	**0.000**
Lack of initiative	4.02±1.31	1.87±1.60	10.029	**0.000**
Withdrawal	3.88±1.68	1.52±1.71	9.892	**0.000**
Tension	4.34±1.12	2.62±1.80	7.259	**0.005**
Irritability	4.26±1.19	2.73±1.80	6.557	**0.000**
Argumentativeness	3.30±1.62	2.49±1.80	3.291	**0.001**
Cheerfulness	2.03±1.66	3.04±4.82	4.213	**0.000**
Outgoingness	2.42±1.72	3.14±1.69	2.925	**0.004**
Energy	1.92±1.76	2.88±2.08	3.737	**0.000**
Breast swelling or tenderness	3.84±1.72	2.56±1.97	4.768	**0.000**
Abdominal swelling	3.76±2.01	2.56±1.97	4.450	**0.000**
Swelling of face, hands or ankles	2.46±2.01	1.82±1.96	2.329	**0.021**
Pelvic or abdominal pain	4.13±1.40	2.61±1.95	5.862	**0.000**
Backache	4.21±1.41	2.50±4.19	6.696	**0.000**
Headache	4.33±1.42	2.72±1.94	6.316	**0.000**
Tiredness	4.72±0.70	3.09±1.80	7.426	**0.000**

t: Independent Samples t-test

DISCUSSION

The results of this study, which was conducted to compare the Daily Menstrual Symptoms of women with COVID-19 positive in the menstrual period and healthy women, were weighed in terms of literature information.

Measures to reduce the COVID-19 outbreak, such as social distancing and quarantine practices, have had an impact on the health of women, particularly stress, anxiety and depression (Kwong et al., 2021). These stressful events may cause menstrual irregularities in women as a result of affecting the female reproductive physiology (Nagma et al., 2015; Guan et al., 2020; Zhou et al., 2020; Koyucu & Yalazı, 2021).

In the research; It was determined that women who were positive for COVID-19 used more painkillers during their menstrual period. Symptoms related to COVID-19 (headache, conjunctival hyperemia, nasal congestion, sore throat, increased secretion, sputum, weakness, hemoptysis, nausea-vomiting, diarrhea, abdominal pain, myalgia, rash, taste and smell disturbance) may increase severity of menstrual symptoms (Guan et al., 2020; Zhou et al., 2020).

A the study of it was determined that 44.6% of the students used analgesics to cope with premenstrual symptoms during the pandemic period. This shows us that premenstrual and menstrual symptoms are difficult, especially during the pandemic period. The fact that women are positive for COVID-19 during menstruation and the addition of COVID-19 complaints to this challenging process may cause (Koyucu & Yalazı, 2021).

In our study, it was determined that women who were positive for COVID-19 (case group) during the menstrual period experienced psychological symptoms such as Hopelessness, Depression, Lack of Activity, Introversion, Tension, Anger, Tendency to Argue more intensely than the control group. It was determined that the positive psychological symptom scores such as "Being Cheerful, Friendly, Being Energetic" in women who were positive for COVID-19 during the menstrual period were lower than those in the Healthy group. In addition, in our study, it was determined that women who were positive for COVID-19 in the menstrual period experienced physiological symptoms such as abdominal swelling, swelling in the face / Hand-Ankles, Hip-Abdominal Pain, Backache, Fatigue, Breast swelling-Tenderness and Headache more intensely than the Healthy group. These findings suggest that women who are positive for COVID-19 have more severe menstrual symptoms. In the study of Li et al (2021) on women undergoing COVID-19, temporary abnormal menstrual changes were observed in women. However, no effect on ovulation was detected.

A the study of, in which they examined the premenstrual syndromes of students during the pandemic period, it was determined that 65% of the students experienced physical complaints and 22% had psychological complaints. In the same study, the mean Premenstrual Syndrome Scale total score of women was found to be 173.00±40.73, and severe PMS level was determined. These results show us the physical, mental, social, economic and sexual difficulties of the pandemic period (Koyucu & Yalazı, 2021).

In the study of Phelan et al., during the pandemic period; 53% of menstruating women reported worsening premenstrual symptoms, while 46% reported a general change in their menstrual cycle. In the study, 84% of women stated that they suffered from mental health problems during the menstruation period. Women stated that they experienced psychological symptoms such as anxiety, low mood, stress, low concentration, loneliness, alcohol use. In the same study, they stated that women's physiological symptoms such as sleep disorder, binge eating, pain increased compared to the pre-pandemic period (Phelan et al., 2021).

Nguyen et al. (2021) during the COVID-19 pandemic; conducted a study on well-educated women in developed countries using a mobile application program that tracks menstruation and ovulation. In the study, it was determined that the stress of women, which was 46% before COVID-19, increased by 61% during COVID-19.

In the study of Ozimek et al. (2021) it was found that premenstral symptoms increased, changes in menstrual cycle and perceived stress of women increased during the menstruation period of women during COVID-19 period. In the study of Yuksel and Ozgor (2020), women were found to have more common menstrual disorders during the pandemic than before. Rodríguez Quejada et al. (2022) reported changes in the menstrual cycles of women after the COVID-19 vaccine. It was determined that the menstrual frequency of women was infrequent 25% and frequent 31.53%, irregular 42.93%, prolonged menstrual period 26.08%, and volume 41.84% heavy. In the study of Demir et al. (2021), it was determined that the anxiety levels of women increased compared to pre-COVID-19, which increased the pain and menstrual period somatic complaints.

In the Aolymat (2021) study, unlike our research, it was determined that women's menstrual disorders decreased in the pandemic process compared to before. This study found that the incidence of menstrual abnormalities and genital tract infections in women decreased significantly during the COVID-19 related quarantine period. In addition, it was determined that pre-pandemic menstrual disorders and gynecological infections increased again after the curfew. It was also reported that the total duration of the curfew in Jordan, where the study was conducted, was

only a few continuous days. This difference in results can be attributed to differences in population demographics, sample size, study duration, or study design. These results confirm the hypothesis that the intensity of Daily Menstrual Symptoms is higher in women who are positive for COVID-19 in the menstrual period than in healthy women.

CONCLUSION AND RECOMMENDATIONS

In our study, the women who were positive for COVID-19 during the menstrual period had Hopelessness, Depression, Lack of Activity, Withdrawal, Tension, Anger, Tendency to Argue, Abdominal Swelling, Swelling in the Face/Hand-Ankles, Pain in the Hip-Abdominal, Back Pain, Fatigue. It was determined that negative symptoms such as breast swelling-Tenderness and Headache were experienced more intensely than the Healthy group.

In addition, in our study, it was determined that the positive psychological symptom scores such as "Being Cheerful, Friendly, Being Energetic" in women who were positive for COVID-19 during the menstrual period were lower than those in the Healthy group.

According to this; Public health nurses should give more importance to women's health in situations involving public health such as pandemics. Both physiology and social and spiritual roles and responsibilities of women can negatively affect their health. In this challenging process, public health nurses should take on protective and promoting roles for women's health.

In order to effectively cope with the symptoms during the menstrual period, it can be recommended to provide training to women, to provide information and to create behavioral changes (relaxation techniques, exercise, etc.) rather than drug treatment. Contribution to the literature can be made with studies with wider participation.

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