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Original Article

Relationship Between General Health and Dysmenorrhea in Students at Shahrekord University in 2018

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Abstract

Background and aims: Dysmenorrhea is one of the most common problems that women experience. Dysmenorrhea brings about psychological problems for women and adversely affects their performance. Therefore, providing, maintaining, and promoting the health of women is an important goal. The present study was conducted to determine the relationship between general health and Dysmenorrhea in students of Shahrekord University in 2018.

Methods: In the present cross-sectional study, 245 female students were selected by random cluster sampling method from Shahrekord University in 2018. Data were collected using the GHQ28, visual analogue scale (VAS), and a reliable and valid questionnaire designed by the researchers to determine menstrual pattern. Data were analyzed using descriptive statistics, chi-square test, and independent samples *t* test.

Results: The mean age at menarche was 13.5 years. Dysmenorrhea was observed in 82.8% of students. The severity of pain was measured by the VAS scale, indicating that 22.3% of the participants had severe menstrual pain. The prevalence of dysmenorrhea in participants with a family history of Dysmenorrhea was greater and statistically significant. The result of the *t*-test showed that there is a relationship between dysmenorrhea and the general health of the participants (P=0.036). There was also a significant relationship between menstrual cycle regularity and physical characteristics of the participants (P=0.019). Significant relationships were also found regarding the interval between menstrual cycles and physical symptoms (P=0.026), and depression and general health (P=0.0001).

Conclusion: Due to the importance of dysmenorrhea and its high prevalence among female students, it is important to provide education and control on this disorder to improve the quality of life of women. It is also beneficial to create counseling centers to raise awareness of the psychological health of female students suffering from dysmenorrhea.

Keywords: General health, Dysmenorrhea, Student

Introduction

The history of pain is as old as the history of human. It is considered a health issue and therefore, pain must be alleviated for moral reasons and for the physiological and psychological benefits of the person.[1,2] Dysmenorrhea is one of the most common gynecological disorders, affecting about 50% of women and disrupting the daily activity of 10% of women.[1-7] The global prevalence of dysmenorrhea varies from 15.8% to 89.5%, with the highest prevalence among adolescents, ranging from 10 to 20%.[3] The prevalence of primary dysmenorrhea in Iran in 2004 was determined to be between 74% and 85.5% in young girls.[7] Clinically, dysmenorrhea is categorized as primary and secondary. Primary dysmenorrhea is the pain that occurs in the absence of pelvic inflammatory diseases and an increase in the synthesis of prostaglandins that are secreted from the endometrium during the menses. Secondary dysmenorrhea is attributed to dysmenorrhea due to pelvic pathology.[1-16]

In primary dysmenorrhea, the pain begins with the start of bleeding and lasts 12-72 hours. The pain is mostly felt in the lower abdomen in the form of muscle cramps and variable severity,[1-3,10-14] and in certain cases, it is accompanied by nausea, vomiting, soreness, and headache. The pain is usually in sync with ovulation cycles and starts within six months to one year after the menarche and then can increase.[1-7] Primary dysmenorrhea impacts women economically and socially across the world and is considered a major reason for absenteeism in schools and workplace.[1-8,15] Menstrual pain is subject to several factors

including menstrual cycle characteristics, marital status and birth, lack of social support, nutrition, smoking, physique, daily activities, and family history. In addition, psychological factors such as emotions, anxiety, and stress affect dysmenorrhea.[16]

Research shows that dysmenorrhea is more common in girls with unstable emotional and psychological states and causes an unpleasant feeling.[3] In a study conducted by Jalili et al, the prevalence of dysmenorrhea was reported to be 79.9% among the participants, who also reported similar conditions in their sisters and mothers. In addition, 74.8% of the participants believed that their pain had limited their daily activity.[17] In a study on 19-year-old Swedish women, Andersch and Milsom reported a prevalence of 72% for menstrual pain, of whom 15% reported that their daily activities were impaired by the pain and that the pain would not decrease by pain killers.[18] The high prevalence of dysmenorrhea, the side effects of medication, and also the consequential economic and social problems associated with dysmenorrhea warrant a solution.[1] Because the physical and psychological well-being of students affects their performance, universities should provide the necessary measures to address this problem.[19] Given that dysmenorrhea is one of the factors affecting the quality of life and social activities of young women, in this study, we tried to investigate the relationship between general health and dysmenorrhea among female students at Shahrekord University.

Materials and Methods

The present study was cross-sectional in design, which was conducted in October 2018. The population of the study included female students enrolled at Shahrekord University. Cluster sampling method was used to select 245 students using the following sample size estimation equation with a confidence interval of 95%.

$$N = \left(Z_{1-\alpha/2}\right)^2 S^2 / d^2 = 1/96^2 \; 4^2 \Big/ \left(\frac{1}{8} \times 4\right)^2$$

The investigation among students required ethical permission that had already been approved by the Ethics Committee of Shahrekord University of Medical Sciences. The clusters in the study included all the academic departments (agriculture, natural resources, geoscience, natural science, engineering, and literature) and were randomly selected. Next, female students were randomly selected from those clusters for the required sample size estimated above. A consent form was obtained from the students and they were informed about the research purpose and assured of the anonymity of their responses. The inclusion criteria included having Iranian nationality, having secondary dysmenorrhea, having an experience of a trauma or highly stressful event in the past 6 months, taking medication for mental health, having mental problems in the past year, and having enrolled at Shahrekord University. Exclusion criteria included unwillingness to participate, incomplete questionnaires, and physical unfitness to respond to the questionnaires.

The data were collected using a questionnaire with three sections. The first section asked about demographic information (e.g., age, education, marital status, residence). The second section included items constructed by the researcher and determined menstrual pattern and characteristics, such as menstrual cycle (regular or irregular), cycle length (based on days), duration of menstrual bleeding (measured in days), suffering from dysmenorrhea, age at menarche, history of dysmenorrhea in family, and the severity of pain.

The validity of the instrument was verified using content validity reviewed and approved by subject matter experts. Flagged items were revised. The internal reliability of the instrument was 0.70 (Cronbach alpha). The severity of pain was measured using the visual analogue scale (VAS), which is a standard and reliable instrument.[20-24] VAS measures pain on a 0-10 scale, where zero indicates no pain, 1-3 indicates mild pain, 4-7 indicates moderate pain, and 8-10 indicates extreme pain.[25] The third section of the questionnaire included items from the GHQ-28 general health questionnaire. GHQ was first developed by Goldberg in 1972 to diagnose physical symptoms (items 1 through 7), mental symptoms such as depression, stress, and sleep disorder (items 8 through 14), social functioning in different contexts (items 15 through 21), and depression (items 22 through 28).[26,27] Items were scored on a four-point ordinal Likert scale (never, typically, often, more often). A sum score of 6 and higher in each section and a sum score of 22 and higher in total were considered symptomatic. The internal consistency of this questionnaire was reported to be 0.85 by Noorbala et al.[28] The reliability of the scale was further verified by Mirkamali et al[29] and Montazeri et al.[30]

Data were analyzed using SPSS version 22.0. Data analyses included descriptive statistics, chi-square test, and *t* test at the significance level of 0.05.

Results

The mean age of participants in the study was 20.76± 9.74 years. Of 245 participants, 84.9% were unmarried. Education levels included undergraduate (90.2%) and graduate (2%) level enrollment. In terms of residence, 87.3% lived in urban areas. The mean (and standard deviation) age at menarche was 13.5±1. The distribution of the severity of pain included 22.3% severe pain, 45.5% moderate pain, and 32.2% mild pain, indicating that most of the females (45.5%) had moderate pain (Figure 1).

Family history of dysmenorrhea was reported by 57.1% (140) of the participants. A significant relationship was found between a positive family history of dysmenorrhea

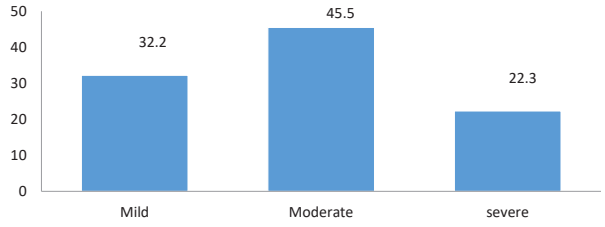

Figure 1. Distribution of Dysmenorrhea of Female Students at Shahrekord University in 2018.

and suffering from dysmenorrhea (*P*<0.000). The majority of the students had regular menstruation (64.1%), with a menstrual cycle of 21 to 42 days (mean of 27.3 days) and duration of menstrual flow of 3-7 days (mean of 5.3 days) (Table 1). Based on the subscale scores, the general health of most students was at an acceptable level with a mean score of 26.85±17.83. Table 2 shows the mean and standard deviation of the different aspects of health. The mean score on social functioning (8.29±3.3) was higher compared to other aspects, implying that participants had more problems in this area.

There was a significant relationship between menstrual regularity and physical characteristics of the participants (*P*=0.019). Significant relationships were also found between menstrual cycle interval and physical symptoms (*P*=0.026) and depression and general health (*P*=0.0001) (Table 3). Furthermore, the result of the *t* test showed that there is a relationship between dysmenorrhea and the general health of the participants (*P*=0.036).

Discussion

One cause for mental pressures in women is menstrual cycles. Dysmenorrhea can cause significant socio-economic and psychological problems.[15] According to research, the prevalence of dysmenorrhea is on the rise in recent years due to environmental and genetic factors.[8] The mean age at menarche in our study was 13.5±1 years. In a study on Iranian girls' sports teams, the mean age at menarche was found to be 13.18±0.06 years.[31] Singh et al and Ortiz et al found similar findings in India and Mexico, respectively.[20,32] The mean age at menarche differs in different geographical regions due to genetic, geographical, and nutritional factors. Scientists believe that the age at menarche has decreased.[33]

The results of the present study show that 82.8% of female students have suffered dysmenorrhea. The results of a study by Unsal et al showed a prevalence rate of 72.7% for dysmenorrhea[34] and Seven et al showed that 84.9% of the students had experienced dysmenorrhea.[35] Those results are similar to the ones in our study. However, in a study on the prevalence of dysmenorrhea in Canada among 2721 women aged 18 years and older conducted by Burnett et al,[36] a prevalence of 60% was reported, which is lower than our result. Therefore, we can conclude that the prevalence of dysmenorrhea is higher in our population than in other populations. Menstrual patterns may be different in different geographic regions.

The distribution of the severity of pain shows that 22.3% of respondents had severe pain, 45.5% of them faced moderate pain, and 32.2% experienced mild pain. A study conducted in Pakistan showed distributions of 8.05% severe pain, 32.21% moderate pain, and 59.7% mild pain in a sample of medical students.[37] The study on young girls by Haidari et al[8] showed that 26.04% of the participants experienced severe pain, 45.61% had moderate pain, and 28.35% reported mild pain.

Although no significant relationship was found between marital status and the severity of pain, the results show that 57.2% of unmarried participants and 45.9% of married participants had experienced dysmenorrhea. Therefore, we can conclude that dysmenorrhea has a higher rate in

Table 1. Frequency Distribution of Students of Shahrekord University Based on Their Menstrual Cycle in 1396

Menstrual Characteristics		No.	%
Duration of *menstrual bleeding* (days)	Hypomenorrhea (<3 days)	4	1.7
	Normal (3-7 days)	212	86.5
	Hypermenorrhea (>7 days)	29	11.8
Menstrual cycle (days)	Polymenorrhea (<21 days)	35	14.3
	Normal (21-42 days)	201	82
	Oligomenorrhea (>42 days)	9	3.7
Menstrual cycle regularity	Regular	157	64.1
	Irregularity	88	35.9

Table 2. Mean Score and Standard Deviation of Different Aspects of General Health in Students

General Health Dimension	Mean ± SD
Physical symptoms	7.76±10.7
Anxiety and sleep disorder	6.08±4.3
Social functioning	8.29±3.3
Depression	4.71±4.6

Table 3. Relationship between General Health Dimensions and Menstrual Variables

Menstrual Variables	General Health Dimensions			
	Symptoms of Social Functioning *P* Value	Symptoms of Depression *P* Value	Anxiety Symptoms and Sleep Disorders *P* Value	Physical Symptoms *P* Value
Menstrual irregularity	0.924	0.066	0.101	0.019*
Menstrual interval	0.144	0.000*	0.120	0.026*

single women. This result is in line with that of a study by Sharifan et al.[1]

Regarding the menstrual irregularity, 64.1% of the students showed a regular menstrual pattern. In a study by Basirat and Haji Ahmadi,[11] 54.4% of high school students reported regular menstruation. The higher percentage of regular menstruation in our sample could be due to the higher age of the participants because in the first 2 years from the onset of menarche, irregular menstruation is more frequent because of an under-developed hypothalamus-hypophysis axis.[4]

In the present study, 13.5% of the subjects had abnormal menstrual bleeding (less than 3 and more than 7 days), while in a study by Kordi et al[33] on female students in Mashhad, the rate was 31.1%, which could be due to the younger age of the participants. In our study, the frequency of polymenorrhea was 14.3% and that of oligomenorrhea was 3.7%, which were similar to the results obtained by Noroozi et al,[38] which showed frequencies of 11.4% and 12.5% for polymenorrhea and oligomenorrhea, respectively.

A family history of dysmenorrhea was reported by 57.1%. The results showed a statistically significant relationship between a positive family history of dysmenorrhea and the occurrence of dysmenorrhea among students (P=0.0001). Unsal et al[34] also concluded that dysmenorrhea was more prevalent in women who had a positive family history of dysmenorrhea.

A highlight of our study is the investigation of the relationship between dysmenorrhea and general health dimensions. Although there has been a previous study on the relationship between dysmenorrhea and stress, our study is the first in Iran to investigate the relationship between dysmenorrhea and different dimensions of general health in women. The result shows a statistically significant relationship (P=0.036), indicating that women with poorer general health have a higher degree of dysmenorrhea. Westling et al[39] found that psychological factors affect the occurrence of primary dysmenorrhea.

In this study, we found a statistically significant relationship between anxiety and sleep disorder dimensions of general health and dysmenorrhea (P=0.018). A comparable study is that of Nazarpour, in which physical well-being significantly correlated with the severity of menstrual pain.[5] In addition, different studies found that female students complained more about physical discomfort, compulsiveness, depression, anxiety during menstruation, and menstrual irregularity. Their results support our findings. However, in that study, only the mean score of physical symptoms was higher during menstruation, which differs from our findings.[40-42]

Although we did not find a significant relationship between depression and the regularity of menstruation, other previous study (Akdeniz and Karadağ[43]) has shown that there is a significant relationship between psychological complaints and the regularity of menstruation. This difference in menstrual patterns may be different in different geographic regions.

Nohara et al conducted a study in 2011 on the regularity of menstruation and dysmenorrhea problems in which they found that 17.1% of the participants had experienced an irregular menstrual cycle.[46] In addition, different researchers found a significant relationship between dysmenorrhea and stress.[44,45] Stress was a significant factor in the relationship between irregular menstruation and dysmenorrhea.[46] In addition, a significant relationship was found between stressful situations and dysmenorrhea (P<0.000) in studies conducted by Akhavanakbari & Ahangar Davoudi[4] and Abadi-Bavil et al.[9]

Conclusion

Given that the high prevalence of dysmenorrhea can disrupt everyday life activities, it is very important to provide education on how to control the severity of dysmenorrhea and improve the quality of life of women. In addition, because there is a relationship between dysmenorrhea and general health, we recommend health policymakers provide improved counseling centers to enhance the mental health of students suffering from dysmenorrhea.

Conflict of Interest Disclosures

None.

Ethical Approval

This research project was approved by the Ethics Committee of Shahrekord University of Medical Sciences (IR.SKUMS.REC.1396.14).

Authors' Contributions

ZK, LR, AS, and ML conceived and designed the study. Data analysis was performed by ML. Preparation of the first draft of the manuscript was done by ZK, LR, AS, and ML, and also all authors reviewed and revised the manuscript. In addition, all authors approve the final draft of the manuscript.

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