



Evaluation Of the Relationship Between Drug Use and Dysmenorrhea

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ABSTRACT

Introduction: Dysmenorrhea is the most common symptom among all menstrual problems. It is expected that women will use drugs in the premenstrual and menstrual days to alleviate their symptoms. The aim of this study was to investigate the relationship between drug use and primary dysmenorrhea among students living in the dormitory of Shahid Beheshti University in Tehran, Iran.

Materials and Methods: This descriptive study was conducted on 260 female students, who were living in the dormitory of Shahid Beheshti University in 2020 and consuming drugs, using the assist-who questionnaire. Dysmenorrhea pain was measured based on VAS questionnaire. The results were analyzed using SPSS software version 22.

Results: Among 260 female students, 15 (5.76%) reported no pain, 46 (17.69%) reported low pain, 120 (46.51%) reported moderate pain and 79 (30.38%) reported severe pain. Also, 65% of participants reported smoking. Analyzes showed that there was no relationship between drug use and pain. Also, according to the analysis, the amount of pain decreased significantly with age.

Conclusion: A large percentage of girls reported moderate to severe dysmenorrhea pain. Given the high prevalence of dysmenorrhea and the high consumption of drugs among girls to reduce these pains, it is felt that dysmenorrhea is a high priority for women's health and a well-written program should be developed to control this problem.

KEYWORDS:

Dysmenorrhea, Drug use, Menstruation

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INTRODUCTION

Menstruation indicates the health of the reproductive and endocrine systems. Although menstruation is a natural phenomenon, even a small change in the order of the menstrual cycle or blood flow during cycles can interfere with the comfort and daily life of women [1, 2]. The word dysmenorrhea has Latin roots meaning heavy menstrual flow [3] and refers to a periodic pain that is directly related to the menstrual cycle. Dysmenorrhea is a cramping pain in the pelvic area that shoots into the lower back and inner thigh, which begins immediately after menstruation and lasts for 1-3 days. The biochemical mechanism of primary dysmenorrhea is reported as high levels of uterine prostaglandins, blood arginine, vasopressin, and estradiol in the late stages of the cycle [4]. Over the past few decades, the incidence of

dysmenorrhea among women has been increasing yearly [5]. In Iran, the frequency of this problem has been reported to be between 70 and 90 percent in various studies [6, 7]. The problem has been associated with high levels of disability, with most people taking painkillers or bed rest to cope with the pain. Considering female students suffering from moderate to severe dysmenorrhea, it is still a public health problem, which can have a negative impact on HRQoL (quality of life), social interactions, work, and mental health [8].

The effect of menstrual symptoms on education has been significant, with about one in five women reporting absenteeism from the classroom or workplace and reporting a 40% reduction in performance in classes (such as concentration and ability for exams). This indicates that girls and young women experience significant losses in their education due to dysmenorrhea [9]. The medical and social effects of primary

dysmenorrhea affect not only the individual but also his or her family, and the lost working hours of women due to dysmenorrhea have been reported to be economically significant [10]. In the United States, about 600 million working hours are lost because of this problem. Therefore, dysmenorrhea has a negative impact on the personal lives of young adults and their academic and social performance [11]. Extensive research has been done on the effects of the menstrual cycle and addictive behaviors. The theory suggests that addictive behaviors may increase during the menstruation and pre-menstruation period. Simultaneously with the theory of self-medication, this theory is reinforced, which in fact coincides with the negative emotions associated with the follicular and luteal phases [12]. It is expected that women will smoke more during the premenstrual and menstrual days to alleviate their symptoms, and there is strong evidence of the use of nicotine during the menstruation and pre-menstruation period. An increase in alcohol consumption has also been shown during this period [10].

Therefore, according to the above, it is highly important to study the relationship between drug use and primary dysmenorrhea among students. The aim of this study was to investigate the relationship between the use of different drugs and primary dysmenorrhea among students.

MATERIALS AND METHODS

Study method and study population

The present research is a descriptive cross-sectional study and the study population included female students living in the dormitory of Shahid Beheshti University in 2020.

Sampling and volume of the study population

In this study, the field sampling method was implemented. According to the formula for determining the sample size to estimate a ratio and according to the articles, the sample size was calculated to be 160 for drug use and 260 for dysmenorrhea, and for the sample size of the present study, the larger amount, which was 260, was selected.

Inclusion and exclusion criteria

Inclusion criteria were the satisfaction of students to participate in the research and the use of at least one of the drugs surveyed in the ASSIST-WHO Drug Use Questionnaire. Exclusion criteria were dissatisfaction and lack of complete

answers to the questions in the questionnaire.

Procedure

The study was performed after informing the participants about the procedure of research, and obtaining written consent, and filling out the consent form by the participants in the study. Then, the cases completed the standard vas questionnaire for evaluation of primary dysmenorrhea pain and were interviewed in person using alcohol, smoking, and substance involvement screening tests [13].

The ASSIST questionnaire was used to obtain information on the duration of consumption, substance use, and associated problems in the last 3 months. The alcohol, smoking, and substance involvement screening test was also started in the form of a face-to-face interview, after explaining the process to the participant.

STATISTICAL ANALYSIS

SPSS software version 22 was used for data analysis. To describe the results, agreement tables and frequency tables in addition to pie charts, bar charts, and other appropriate charts were used. For this purpose, qualitative data were compared by Fisher exact test or chi-square test. Quantitative data were analyzed from the perspective of assuming equal variance for different groups of variables by Levene's test, then were compared by t-test and ANOVA. Welch's ANOVA test was also used for statistical data that did not follow the hypothesis of equality of variance.

RESULTS

Demographic characteristics of the participants

260 female medical students living in the dormitory of Shahid Beheshti University were included in the study. The mean age of participants was 23.16 years (range:17 to 42 years) with a standard deviation of 4.31 years. 31% of the participants were married and 68% of the participants were single. The average BMI was 24.59 with a standard deviation of 14.64. The mean pain was 6.10 with a standard deviation of 2.37 and ranged from 1 to 10. 5.76% of the participants reported no pain, 17.69% reported low pain, 46.15% reported moderate pain, and 38.30% of cases reported severe pain. The frequency of dysmenorrhea was determined to be 76.53%, considering moderate and severe pain as dysmenorrhea.

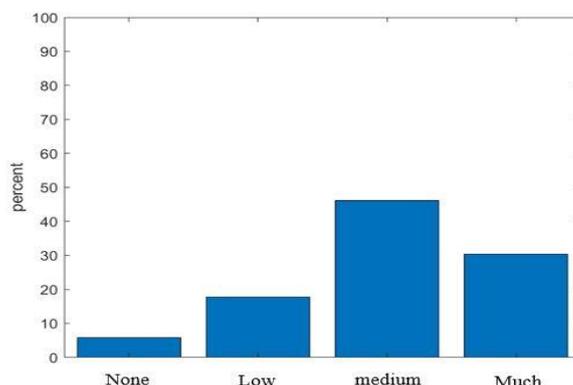


Fig.1: Distribution of dysmenorrhea pain by pain intensity

Table 1: Demographic characteristics of female students living in the dormitory

Variable	Groups	Frequency(%)
Age	Under 20	68 (26.15)
	20-25	142 (54.61)
	25-30	30 (11.53)
	Over 30	20 (7.69)
BMI	Underweight	35 (13.46)
	Normal	150 (57.69)
	Overweight	53 (20.38)
	Obese	22 (8.46)
Pain intensity	No pain	15 (5.76)
	Low pain	46 (17.69)
	Moderate pain	120 (46.15)
	Severe pain	70 (30.38)
Marital status	Single	178 (68.46)
	Married	82 (31.54)
Smoking	Low use (0-10)	117 (69.23)
	Moderate use (11-19)	36 (21.3)
	High use (20 and more)	16 (9.46)
Opioid use	Low use (0-10)	39 (88.63)
	Moderate use (11-19)	3 (6.81)
	High use (20 and more)	2 (4.54)
Cannabis use	Low use (0-10)	29 (74.3)
	Moderate use (11-19)	8 (20.5)
	High use (20 and more)	2 (5.12)
Amphetamine stimulants	Low use (0-10)	16 (100)
	Moderate use (11-19)	0
	High use (20 and more)	0
Sedatives or sleeping pills	Low use (0-10)	78 (76.47)
	Moderate use (11-19)	15 (14.7)
	High use (20 and more)	9 (8.8)
Alcohol consumption	Low use (0-10)	83 (79.8)
	Moderate use (11-19)	17 (16.34)
	High use (20 and more)	4 (3.84)
Inhalants	Low use (0-10)	12 (100)
	Moderate use (11-19)	0
	High use (20 and more)	0
Hallucinogens	Low use (0-10)	1 (100)
	Moderate use (11-19)	0
	High use (20 and more)	0
Cocain	Low use (0-10)	1 (100)
	Moderate use (11-19)	0
	High use (20 and more)	0

65% of participants reported smoking, 16.92% reported opioid use, 40% reported alcohol consumption 39.23% reported taking sedatives or sleeping pills, and 15% reported using cannabis (Figure 2).

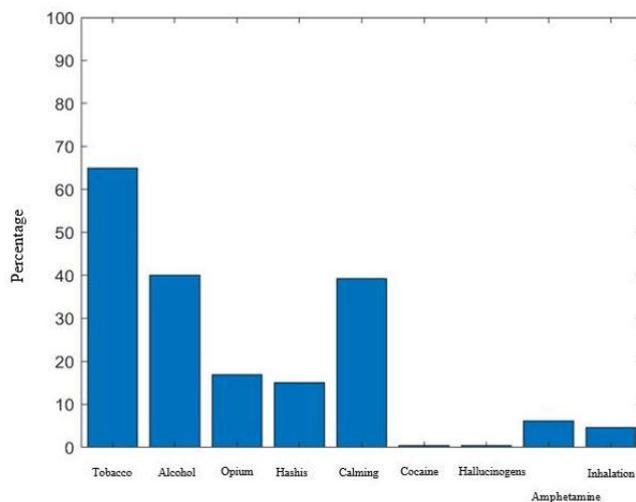


Fig.2: Distribution of drug use by type of substance

Analytical statistics

In the study of the relationship between smoking and

dysmenorrhea, as mentioned in Table 2, it was found that smoking did not have a significant effect on dysmenorrhea (F = 1.39, p-value = 0.25).

Table 2: One-way ANOVA of smoking and dysmenorrhea

Source of variance	Sum of squares	d.f.	Mean squares	F	Prob>F
Between groups	14,393	2	7,19666	1,39	0,2508
Error	856,553	166	5,15996		
Total	870,947	168			

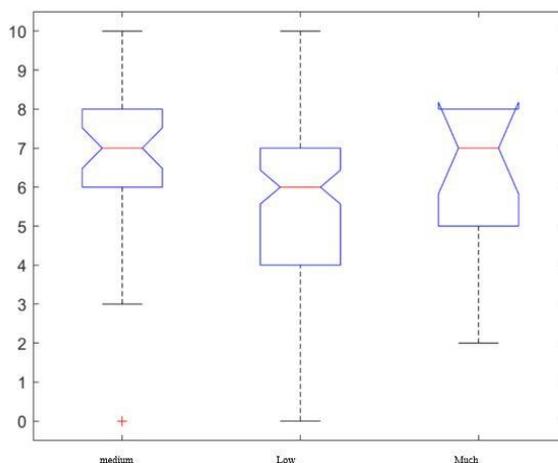


Fig.3: Comparison of three smoking groups in terms of dysmenorrhea pain. Results are reported as Mean ± SD.

The results of Welch's ANOVA on the obtained data showed that there is no significant relationship between the two factors of

alcohol consumption and the amount of dysmenorrhea pain (F = 1.52, P-value = 0.08).

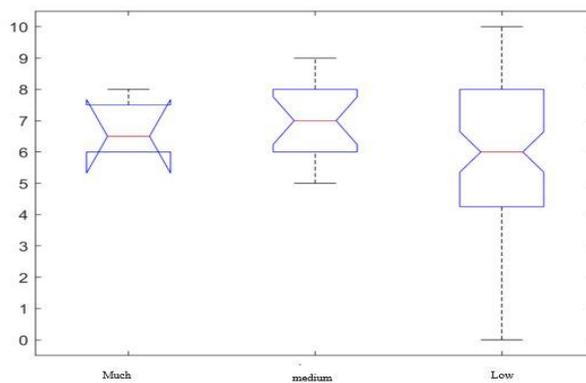


Fig.4: Comparison of three groups of alcohol consumption in terms of dysmenorrhea pain. Results are reported as Mean ± SD.

Evaluation of the relationship between opioid use and relationship between opioid use and dysmenorrhea (F = 1.23, dysmenorrhea demonstrated there was no significant P-value = 0.30).

Table 3: One-way ANOVA of opioid use and dysmenorrhea

Source of variance	Sum of squares	d.f.	Mean squares	F	Prob>F
Between groups	8,268	2	4,134,3	1,23	0,3024
Error	137,641	41	3,3571		
Total	145,909	43			

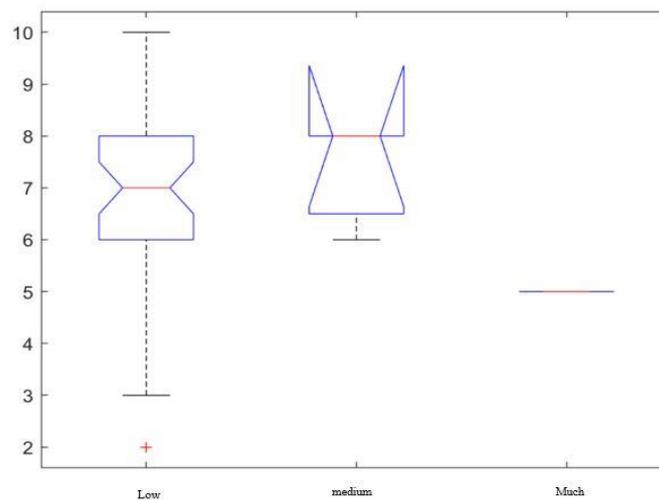


Fig.5: Comparison of three opioid groups in terms of dysmenorrhea pain. Results are reported as Mean ± SD.

Also, statistical analysis of data obtained from the study of the relationship between cannabis and dysmenorrhea showed that there is no significant relationship between cannabis use and dysmenorrhea (P-value = 0.82).

Table 4: One-way ANOVA of cannabis use and dysmenorrhea

Source of variance	Sum of squares	d.f.	Mean squares	F	Prob>F
Between groups	1,48	2	0,74005	0,19	0,8285
Error	140,828	36	3,91188		
Total	142,308	38			

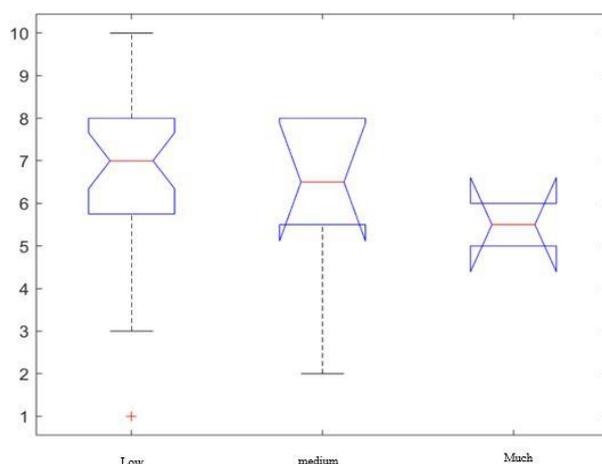


Fig.6: Comparison of three cannabis use groups in terms of dysmenorrhea pain. Results are reported as Mean ± SD.

The evaluation also showed that there is no significant relationship between the use of sedatives and dysmenorrhea (P-value = 0.98).

Table 5: One-way ANOVA of sedative use or and dysmenorrhea

Source of variance	Sum of squares	d.f.	Mean squares	F	Prob>F
Between groups	0,141	2	0,07041	0,02	0,9847
Error	451,271	99	4,55829		
Total	451,412	101			

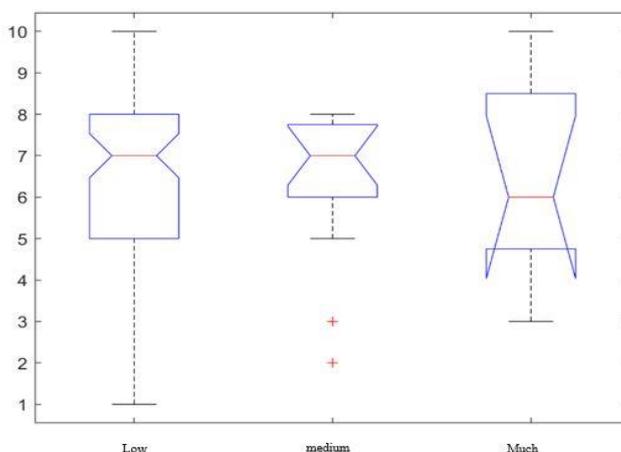


Fig.7: Comparison of three groups of sedative use in terms of dysmenorrhea pain. Results are reported as Mean ± SD.

In order to perform one-way analysis of variance, Levene's test was first performed on the data of the dependent variable, i.e., age, and value of 0.17 was obtained, which is greater than 0.05; thus, the null hypothesis, i.e., equality of variances, could not be rejected and one-way ANOVA could be

performed.

One-way analysis of variance to determine the relationship between age and dysmenorrhea demonstrated that there is a significant relationship between at least one age group and dysmenorrhea (F = 4.31, P-value = 0.005).

Table 6: One-way ANOVA of age groups and dysmenorrhea relationship

Source of variance	Sum of squares	d.f.	Mean squares	F	Prob>F
BETWEEN GROUPS	70,08	3,233596	4,31	0,0055	
ERROR	1388,91	256	5,4254		
TOTAL	1458,98	259			

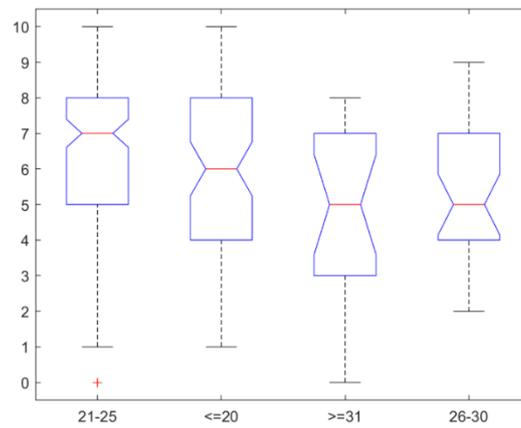


Fig.8: Comparison of 4 age groups in terms of dysmenorrhea pain. Results are reported as Mean ± SD.

Therefore, the t-test was used to determine which groups have a significant relationship with dysmenorrhea. The t-test showed a significant relationship between the amount of pain with the age group under 25 years and over 25 years so that with increasing age, the amount of pain decreased

significantly. (P-value = 9.1774e-04)

The mean pain level under the age of 25 years was 6.34 with a standard deviation of 2.33 and in the age group of over 25 years, 5.1 years with a standard deviation of 2.28 (Figure 9).

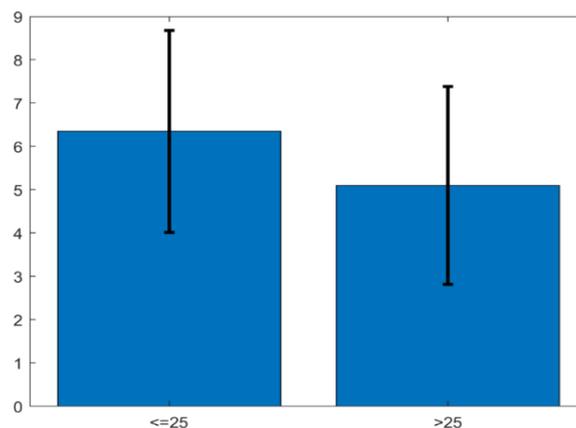


Fig.9: Comparison of two age groups in terms of pain.

In examining the relationship between BMI and dysmenorrhea, Levene's test was performed to examine the equality of variances. Considering the P-value of 0.89, one-way analysis of variance was performed on the data.

According to Table 7, the summary of one-way ANOVA shows that there is no significant relationship between any of the BMI groups and dysmenorrhea (P-value = 0.209).

Table 7: One-way ANOVA of the relationship between BMI and dysmenorrhea

Source of variance	Sum of squares	d.f.	Mean squares	F	Prob>F
Between Groups	25,52	3	8,50771	1,52	0,2099
Error	1433,46	256	5,59946		
Total	1451,98	259			

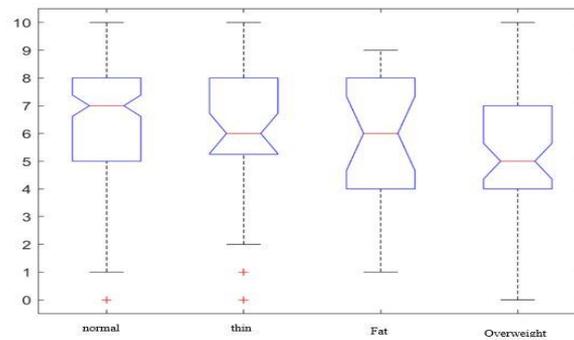


Fig.10: Comparison of different BMI groups in terms of dysmenorrhea pain. Results are reported as Mean \pm SD.

On the other hand, in examining the relationship between marital status and dysmenorrhea, Levene's test was initially performed (P-value = 0.85). Then, the T-test was used to analyze the data, and the results demonstrated that there is no significant relationship between marital status and dysmenorrhea (P-value = 0.41).

DISCUSSION

Dysmenorrhea (painful menstruation) is a common gynecological disorder that affects 50% of women who have menstrual periods. Primary dysmenorrhea is defined as menstrual cramps in the absence of provable pelvic disease. This disorder is most common in young women, but it may remain until the age of 40 [14].

In a 2020 meta-analysis that was conducted by Lu-Lu Qin et al. on the relationship between smoking and the risk of dysmenorrhea, 24 studies, and 27,091 participants were investigated, and it was found that the probability of having dysmenorrhea in these cases was 1.45 times higher than non-consumers. According to the results, the risk was 1.5 times higher in active smokers and 1.31 times higher in those who have smoked in the past, in comparison with the individuals who have never smoked [15]. This study showed the harmful effects of smoking on women and stressed the need to prevent smoking in women. Also, Alaettin Unsal et al. conducted a cross-sectional descriptive study on 623 female students to evaluate the prevalence of dysmenorrhea and its relationship with their quality of life. The prevalence of dysmenorrhea was reported to be 72.7% in the statistical population and a positive correlation was reported between dysmenorrhea with caffeine consumption, menstrual period of more than 7 days, and positive family history. In this study, no association was found between the risk of dysmenorrhea and smoking [6]. In our study, only 5.67% of people reported no pain, 17.69% reported low pain and the rest reported high and moderate pain. Due to the fact that in most studies, low pain is not considered dysmenorrhea, in this study, the frequency of dysmenorrhea was 76.53%.

Hornsby et al. conducted a study to investigate the effects of smoking on menstrual disorders. The study used data from a previous cohort study on women aged 37 to 39 years. 83 women smokers and 275 non-smokers provided the data for analysis. According to the results of this study, smoking was associated

with a decrease in the bleeding period, an increase in daily bleeding, and an increase in dysmenorrhea [16]. While in our study it was shown that drug use and smoking have no significant relationship with increasing or decreasing the period of dysmenorrhea, which is different from Hornsby study. Also, in another study on the female students of Isfahan University of Medical Sciences, the opposite effect was shown, so that with an increase in smoking, the amount of pain decreased [9]. In a study by Tulai et al., which examined the prevalence of dysmenorrhea and the associated risk factors, there was no significant relationship between dysmenorrhea and smoking, which is consistent with the results of our study [17]. In a study by Harlow and Park, no significant association was found between smoking and dysmenorrhea, but among smokers who experienced pain, the pain was more likely to last for 2 days or more [18].

However, a study on female students in northern China found that with considering the age of onset of menstruation, there was a significant relationship between alcohol consumption and dysmenorrhea, so that in people who experienced their first menstruation over the age of 13, consumption of alcohol has a significant relationship with dysmenorrhea, i.e., with increasing alcohol consumption, the amount of dysmenorrhea pain increases [19]. However, in our study, no significant association was found between alcohol consumption and dysmenorrhea pain. In previous studies, contradictory and different results have been observed on the relationship between smoking and dysmenorrhea. In a study by Sundell et al., there was a significant relationship between smoking and dysmenorrhea pain, so that the amount of pain increases with increasing number of cigarettes per day [20]. In another study on the female students of Isfahan University of Medical Sciences, the opposite effect was shown, so that with an increase in smoking, the amount of pain decreased [9]. This difference between the obtained results and the previous findings can be due to the small number of questions in the questionnaire to assess smoking.

According to the results of this study, the frequency of dysmenorrhea was very high and a large percentage of girls reported moderate to high pain. In the present study, no significant relationship was found between the use of drugs and dysmenorrhea and the only significant relationship was between age and dysmenorrhea, so that with an increase in age, the amount of dysmenorrhea pain decreases. However,

due to the high prevalence of dysmenorrhea among women, dysmenorrhea must be considered a high priority for women's health, and a well-written program must be conducted to control it.

In the present study, due to the low sample size or in some cases, the absence of samples, for example in cases of high alcohol consumption, the obtained results can be inaccurate in examining the relationship between substance use and dysmenorrhea, which indicates the need to examine these cases in a larger sample size. Also, various factors affect dysmenorrhea, which indicates the need for examining this relationship in larger sample size and evaluating other risk factors for dysmenorrhea.

CONCLUSION

According to the results of this study, it was found that there is no significant relationship between the use of various substances (cigarettes, alcohol, cannabis, opioids, and sedatives) and dysmenorrhea, but considering the high negative impact of dysmenorrhea on the personal life, education, and work of women, there is a need for further public education in schools and universities, as well as by doctors. In addition, this issue becomes more important considering that it affects most girls at a younger age, i.e., girls at school and early university ages, since these years of life can form the basis of girls' academic and personal lives.

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