



A Cross-sectional Study of Primary Dysmenorrhea among Students at a University: Prevalence, Impact and of Associated Symptoms

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Author's contribution

This whole work was carried out by the author ZR.

Original Research Article

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ABSTRACT

Aims: To evaluate the prevalence of primary dysmenorrhea and its severity among female university students in Iran; its associated symptoms; its impact on academic performance and social activities.

Study Design: This is a cross – sectional descriptive study.

Place and Duration of Study: This study carried out from May to July 2012 in the Islamic Azad university, branch of Rasht in Iran.

Methodology: A cross – sectional survey of 600 students conducted by questionnaire. The questionnaire consisted of three parts that included demographic characteristics; menstrual history; and impact of dysmenorrhea on academic performance and social activities. A visual analogue scale (VAS) was used to assess the severity of dysmenorrhea. Data were analyzed using the chi-square test by SPSS.

Results: The results showed that the prevalence of dysmenorrhea was 73.2% and there were significant differences between pain intensity and associated symptoms ($P < 0.05$). Among participants, 69.7% expressed that dysmenorrhea had an adverse effect on their academic performance. Also, more than 60% of participants reported that their social activities and relationships with family were affected by dysmenorrhea. Statistically significant correlation was observed between pain duration, its severity, and social activities ($P < 0.0001$).

Conclusion: Dysmenorrhea is highly prevalent among female university students and is

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related to absenteeism and limitations in social and academic performance. Therefore, it is necessary that educational programs about its effective methods can help alleviate the discomfort during menses.

Keywords: Dysmenorrhea; academic performance; associated symptoms.

1. INTRODUCTION

Dysmenorrhea is defined as painful menstruation that experienced as uterine pain or cramps in the lower abdomen, occurring just before and/or during menstruation, with variations among different females [1,2].

The majority of dysmenorrhea in adolescents and young adults is primary (or functional), is associated with a normal ovulatory cycle and with no pelvic pathology, and has a clear physiologic etiology [2,3].

Depending on the measurement methods, 20% to 90% of adolescent girls report experiencing dysmenorrhea, which may also be associated with nausea, vomiting, diarrhea, headache, fatigue, dizziness [4,5,6], irritability, nervousness, depression, bloating and an urge to urinate [1]. The cause of pain at, or around, the time of menses is believed to be due to the production of prostaglandins in the endometrium [7]. Non steroidal anti – Inflammatory drugs [8], oral contraceptive pills, mirena, depo – provera [9], acupressure [10], yoga, [11] relaxation [12] and herbal therapies [13] are treatments for dysmenorrhea.

Most females experience some degree of pain and discomfort during menstrual period [14,15], which can impact on their daily activities, and disturb their productivity at home or at their work place [16].

Dysmenorrhea can cause disability (loss of function and activity) and handicap (altered social roles), which impairs quality of life [6]. It not only causes discomfort in approximately one – fifth of the female population, but also causes many social, physical, psychologic and economic problems for women all around the world. Primary dysmenorrhea is considered the main cause of absence from school, among young female students [17].

In a study from Mexico has shown that 65% of women interviewed recounted limitation in daily activities and 42% reported absenteeism also in other studies, 64% women had reported low centralization in class and among those with dysmenorrhoea 1.5 times as many subjects reported depression as those without this problem.

The effect of dysmenorrhea and its severity on academic performance and social activities has not been studied in detail in Iran. Therefore, this survey aimed to evaluate the prevalence of dysmenorrhea and its severity among female university students in Iran and its impact on academic performance, social activities; and its associated symptoms.

2. MATERIALS AND METHODS

This is a cross – sectional descriptive study carried out from May to July 2012 in the Islamic Azad University, branch of Rasht in Iran. In this survey we defined primary dysmenorrhea as cramping pain in the absence of any identifiable pelvic disease in the past six months.

Inclusion criteria were: Nulligravida, having regular menstrual cycles, with no medical history of other gynecological diseases. To do this study, 820 female students were selected by a simple randomized method to represent all of the classes in the university.

600 participants who suffered from primary dysmenorrhea, were chosen for this study by history taking and each student was given a questionnaire to complete. The questionnaire consisted of three parts that included demographic characteristics; menstrual history; and impact of dysmenorrhea on academic performance and social activities. The participants had 30 minutes to complete the questionnaire voluntarily. Background information about the respondents included: age, marriage, age of menarche, interval of menstruation, duration of menstruation flow, family history of dysmenorrhea, pain severity, duration of pain, region of pain, its associated symptoms and impact on academic performance, social activities and relationships with their family and friends.

A family history of dysmenorrhea was defined as positive if a first degree relative (mother, grandmother or sister) had a history of dysmenorrhea.

To detect the severity of dysmenorrhea, we used a visual analogue scale (VAS) [18]. Scores from the VAS were categorized based on a scale of 1 to 10 (1-3 mild; 4-7 moderate; 8-10 severe).

2.1 Data Analysis

The data on the variable and the results of statistical tests were interpreted using SPSS. Data were analyzed by chi-square test. ($P < 0.05$ was considered significant statistical difference).

3. RESULTS AND DISCUSSION

In this study; the mean age of the participants was 22.3 years (range, 18-37 years) and the majority of participants (74.3%) menarche was 13-14 years. The majority of the participants were single (85.7%). 20.3% were paramedical students and 79.7% non-medical students. Interval of menstrual cycle from 21 to 35 days was reported by 82.3% of the students; the menstrual duration taking less than 7 days was reported by 81.7% and family history of dysmenorrhea was reported by 75.5%. Table 1 summarizes the characteristics of dysmenorrhea obtained from 600 female students. The majority of the participants (40.0%) had experienced dysmenorrhea during four years or more and 60.5% of participants had experienced it every month. We found that menstrual pain primarily began at the onset of menstrual flow (52.3%), and mostly lasted for one to three days (51.3%).

The pain location was mostly in the lower abdomen (55.2%), lumbar region (34.8%) and inguinal region (10%).

Dysmenorrhea is a worldwide problem that female adolescents experience and its prevalence ranges from 52.9 to 85% in different countries [19,20]. It is known that cultural influences, such as women's status in her community and her stage in life, lifestyle, religion, education, and employment can play a role in the presence or severity of dysmenorrhea [21]. The present study found a high prevalence of dysmenorrhea 73.2% among university students in Iran which is in accordance with other studies. A previous study conducted in Iran indicated that the prevalence of dysmenorrhea among school students was 71% [22]. In

the present study, 32.3%, 52.8% and 14.8% participants were suffering from severe, moderate and mild grades of dysmenorrhea respectively. Other studies reported that the prevalence of severe dysmenorrhea is between 10% and 27% [21,23,24,25].

The symptoms commonly associated with dysmenorrhea are accompanied by: headache, fatigue, fainting, dizziness, diarrhea, nausea, vomiting and irritability [5,26,27]. In our study, participants had such symptoms as fatigue (17.9%), irritability (17.6%), breast tenderness (9.8%), headache (7.9%), loss of appetite (7.7%), nausea (7.2%), dizziness (7.1%), decrease in concentration (6.4%), polyuria (4.4%), diarrhea (4.2%), fainting (4%), insomnia (3.7%) and vomiting (2.7%). These symptoms were also reported in similar populations [28,29].

As shown in Table 1, on the distribution of symptoms associated with dysmenorrhea, 77% of participants showed more than one symptom. Among these participants the following symptoms: fatigue (17.9%) and nervousness (17.9%) were the most reported symptoms.

Table 1. Characteristics of Dysmenorrhea in Female Adolescents

Variable	n	%
• Duration of experiencing dysmenorrhea		
less than 1 year	72	12.0
1-3 years	100	16.7
4 years or more	240	40.0
Not recalled	188	31.3
• Onset of dysmenorrhea		
one day prior to menstrual flow	169	28.2
more than 2 days before menstrual flow	117	19.5
• Duration of pain		
< 1 day	231	38.5
1 – 3 day	308	51.3
≥ 4 day	23	3.8
uncertain	38	6.3
• Pain severity		
mild (1-3)	89	14.8
moderate (4-7)	317	52.8
severe (8-10)	194	32.3
• Region of pain		
lower abdomen	497	55.2
Inguinal region	90	10
Lumbar region	374	34.8
• Symptoms associated with menstrual pain*		
Headache	169	7.9
Dizziness	152	7.1
Fainting	84	4
Diarrhea	90	4.2
Nausea	154	7.2
Vomiting	45	2.1
Decrease in concentration	137	6.4
fatigue	381	17.9
Insomnia	79	3.7
loss of appetite	161	7.7
Breast tenderness	2.9	9.8
Polyuria	91	4.4
irritability	372	17.6

As shown in Table 2, on the relationship between pain intensity and symptoms associated with dysmenorrhea, there were significant differences between pain intensity and the following symptoms: headache, dizziness, fainting, diarrhea, nausea, vomiting, decrease in concentration, insomnia, loss of appetite, breast tenderness, polyuria and irritability ($P < 0.05$). But there were no significant difference between pain intensity and fatigue. Some of these symptoms (such as diarrhea) can be explained by levels of prostaglandins during menstruation [27].

Table 2. Relationship between pain intensity and symptoms associated with dysmenorrhea

pain Intensity symptoms	Mild (1-3)		Moderate (4-7)		Severe (8-10)		P-value
	n	(%)	n	(%)	n	(%)	
Headache	12	(7.1)	89	(52.7)	68	(40.2)	0.001
Dizziness	16	(10.5)	68	(44.7)	68	(44.7)	0.001
Fainting	6	(7.0)	36	(41.9)	44	(51.2)	0.000
Diarrhea	14	(15.6)	36	(40.0)	40	(44.4)	0.017
Nausea	9	(5.8)	64	(41.6)	81	(52.6)	0.000
Vomiting	1	(2.2)	18	(40.0)	26	(57.8)	0.000
Decrease in concentration	16	(11.7)	58	(42.3)	63	(46.0)	0.001
Fatigue	52	(13.6)	202	(53.0)	127	(33.3)	0.517
Insomnia	5	(6.3)	42	(53.2)	32	(40.5)	0.042
Loss of appetite	13	(8.1)	74	(46.0)	74	(46.0)	0.000
Breast tenderness	20	(9.6)	109	(52.2)	80	(38.3)	0.009
Polyuria	6	(6.6)	43	(47.3)	42	(46.2)	0.003
irritability	40	(10.8)	195	(52.4)	137	(36.8)	0.000

Table 3 shows significant differences between pain intensity, collage-performance and social relationships ($P < 0/0001$). Such that the adverse effects of dysmenorrhea on collage performance and social relationships is increased with increasing pain intensity and duration.

Among participants, 69.7% expressed that dysmenorrhea had an adverse effect on their academic performance. Also, 50.3% reported absence from college, 72.7% decrease of concentration and 54.3% inability to answer the questions in exams. More than 60% of participants expressed that their relationships with family and friends were affected by dysmenorrhea. Activities affected by dysmenorrhea included inability to leave home (43.2%), not being able to get along in party (49.3%) and having problems with their family and friends (49.8%). Eryilmaz et al. [29] reported that dysmenorrhea had negative relationships with their families and friends also negatively affected their school performance.

In Table 4, we show the effect of pain duration on education and relationships with family. There were significant differences between pain duration and collage performance, absenteeism ($P < 0.0001$), decrease of concentration ($P = 0.001$), social relationships ($P = 0.031$), inability to get long in party ($P < 0.0001$) and problems with their family ($P = 0.004$). But, there were no significant differences between pain duration with to answer the questions ($P = 0.183$) and to leave home ($P = 0.525$).

Dysmenorrhea is the leading cause of short-time school absenteeism. It is associated with a negative impact on social, academic and sports activities of many female adolescents [26]. Singh et al showed that 67.8% of subjects with dysmenorrhea could not do social withdrawal from friends, marketing, gathering, sports and academic activities during menses and reported that the ability to perform work was affected up to 52% in female adolescents [30].

In present study, more than half (50.3%) of participants reported dysmenorrhea negatively affected on academic performance. 50.3% of participants reported absence from college, 72.7% of these reported decrease of concentration and 54.3% of these were unable to answer the question in exams. The adverse effects of dysmenorrhea are increased with increasing of pain intensity and duration. Absenteeism from college due to severe pain was 48%, while it was 7.3% with mild pain. Other studies also reported similar effects on academic activities [21,26,29,30].

Table 3. The effect of pain severity on education and social relationships

Pain severity	Mild (1-3)	moderate (4-7)	Severe (8-10)	P-value
• Absenteeism	7.3%	44.7%	48.0%	P<0.0001
• Effects on school performance	8.9%	50.0%	41.1%	
• Lack of focus on the exams	11.2%	48.4%	40.4%	
• Not being able to answer the questions in exams	11.3%	44.8%	43.9%	
• Effects on relationships with family and friends	9.8%	52.8%	37.4%	P =0.004
• Not being able to leave home	8.5%	47.5%	44.0%	
• Not being able to get long in party	7.4%	48.0%	44.6%	
• Had problems with their family and friends	10.7%	52.2%	37.1%	

Table 4. The effect of pain duration on education and social relationships of adolescents

Pain duration	< 1 day	1-3days	≥ 4day	uncertain	P-Value
• Absenteeism	29.5%	60.9%	5.0%	4.6%	P<0.0001
• Effects on collage performance	31.8%	58.4%	4.3%	5.5%	P=0.001
• Lack of focus on the exams	34.6%	55.5%	4.6%	5.3%	P=0.183
• Not being able to answer the questions in exams	36.5%	54.9%	3.7%	4.9%	P=0.031
• Effects on relationships with family and friends	34.1%	55.6%	4.3%	6.0%	P=0.525
• Not being able to leave home	35.1%	54.4%	3.9%	6.6%	P<0.0001
• Not being able to get long in party	27.7%	60.5%	6.1%	5.7%	P=0.004
• Had problems with their family and friends	32.1%	56.5%	5.4%	6.0%	

4. CONCLUSION

In our study, more than 60% of subjects reported that dysmenorrhea adversely affected their social activities and relationships with family or friends. Also, dysmenorrhea is significantly related to limitations in society and having problems with family or friends.

The prevalence of dysmenorrhea among students is high. It is a major problem representing the leading cause of college absenteeism, social attitudes towards family and friends. Dysmenorrhea also adversely affects the mood and thereby attitudes in the family and

among friends. Therefore, health education is needed to prevent unnecessary suffering and interruptions in their education.

Our study suggests that developing educational programs and information about its effective methods can help alleviate the discomfort during menses. Therefore, it may have a positive effect on quality of life, educational success and social activities.

ETHICAL APPROVAL

This survey was conducted with approval from ethical committee of the Islamic Azad University and the consent form was signed by the participants. The participants were informed about the study before the questionnaire was administered. They were also informed of their right to withdraw from the study at any time and for confidentiality were instructed not to write their names on the questionnaire.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Tangchia K, Titapant V, Bariboonhivunsarn D. Dysmenorrhea in Thai adolescents, prevalence, impact and knowledge of treatment. *J Med Assoc Thai.* 2004;87(3):69-73.
2. Klein JR, Litt IF. Epidemiology of adolescent dysmenorrhea. *Pediatrics.* 1981;68:54-63.
3. Alvin PE, Litt IF. Current status of etiology and management of dysmenorrhea in adolescents. *Pediatrics* 1982;70:516-525.
4. Adeyemi S, Adekanle DA. Management of dysmenorrhea among medical students. *Int j Gynecol obstet.* 2007;7(1).
5. Harel Z. Dysmenorrhea in adolescents and young adults: Etiology and management. *J Pediatr Adolesc Gynecol.* 2006;19(15):363-371.
6. Latthe P, Mignini L, Gray R et al. Factors predisposing women to chronic pelvic pain: systematic review. *BMJ.* 2006;332(7544):749-755.
7. Coco AS. Primary dysmenorrhea. *Am Fam physician.* 1999;60:489.
8. Major banks J, Proctor ML, Farguhar C. Non steroidal anti – inflammatory drugs for primary dysmenorrhea. *Cochrane Database syst Rev;* 2003. CD001751.
9. Hemdrix SL, Alexander NJ. Primary dysmenorrhea treatment with a desogestrel – containing low – dose oral contraceptive. *Contraception.* 2002;66:393.
10. Taylor D, Miaskowski C, Kohn J. A randomized clinical trial of the effectiveness of an acupuncture device for managing symptoms of dysmenorrhea. *J Altern complement Med.* 2002;8:357.
11. Rakhshae Z. Effect of three yoga poses (cobra, cat, and fish poses) in women with primary dysmenorrhea: A randomized clinical trial. *J Pediatr Adolesc Gynecol.* 2011;24:192-196.
12. Ben – Menachem M. Treatment of dysmenorrhea: A relaxation therapy program. *Int J Gynaecol obstet.* 1980;17:340.
13. Kotani N, Oyamat, Sakai,1, et al. Analgesic effect of a herbal medicine for treatment of primary dysmenorrhea: a double- blind study. *Am J chin Med.* 1997;25:205.
14. Beek JS. Puberty and dysmenorrhea treatment. *Novices Gynecology.* Philadelphia: Williams and Wilkins. 1996;771.

15. Dagwood MY. Dysmenorrhea. J Reprod Med. 1995;30:154-167.
16. 16-Decherncy AH, Pernal ML. Treatment of dysmenorrhea, current obstetric and Gynecology diagnostic and treatment. Prentice Hall International; 1994;664-665.
17. Nafstad P, Stray – Pedersen B, Solvberg M et al. Menarche and menstruation problems among teenagers in oslo. Tidsskr Nor Laegeforen. 1995;115:604-606.
18. McCormack HM, Horne DJ, Sheather S. Clinical applications of visual analogue scales: A critical review. Psychol Med .1988;18:1007–19.
19. Balbi C, Musone R, Menditto A, et al. Influence of menstrual factors and dietary habits on menstrual pain in adolescence age. Eur J obstet Gynecol Reprod Biol 2000;91:143-148.
20. Hirata M, Kumabe k, Inoue Y. Relationship between the frequency of menstrual pain and body weight in female adolescents. Nippon Koshu Eisei zasshi [Jpn J publ Health]. 2002;49(6):516-524.
21. Ortiz MI, Rangel – Floves E, Carrillo – Alarcon C, et al. prevalence and impact of primary dysmenorrhea among Mexican high school students. International journal of Gynecology and obstetrics. 2009;107:240-243.
22. Poureslami M, Osati – Ashstiani F. Attitudes of femate adolexents about dysmenorrhea and menstrual hygiene in Tehran subur. Arch Iran Med. 2002;5:219.
23. Pedron – Nuevo N, Gonzalez – unzage LN, De celis – carrillo R, et al. Incidence of dysmenorrhea and associated symptoms in women age 12- 24 years. Gynecol obstet Mex. 1998;66:429-494.
24. Velasco – Rodriguez R, Mora – Brambila AB, Gonzalez – Ortega LE et al. Clinical characteristics and treatment of dysmenorrhea in nursing students. Rev Enferm IMMS 2006;14:29-34.
25. Nur N, Sumer H. prevalence of dysmenorrhea and related risk factors in adolescents. STED. 2008;17:27-30.
26. Banikarim C, Chacko MR, Kelder SH. prevalence and impact of dysmenorrhea on Hispanic female adolescents. Arch Pediatr Adolesc Med. 2000;154:1226-1229.
27. Rayan KJ, Berkowiz RS, Barbieri RL et al. Kistner's Gynecology & women's Health; 1999.
28. Ozerdogan N, Sayiner D, Ayranci U, et al. Prevalence and predictors of dysmenorrhea among students at a university in Turkey. International Journal of Gynecology and obstetrics. 2009;107:39-43.
29. Eryilmaz G, Ozdemir F, Pasinlioglu T. Dysmenorrhea prevalence among adolescents in Eastern Turkey: Its effects on school performance and relationships with family and friends. J pediater Adolesc Gynecol. 2010;23:267-272.
30. Singh A, Kiran D, Singh H et al. Prevalence and severity of dysmenorrhea: A problem Related to menstruation, among first and second year female medical students. Indian J physiol pharmacol. 2008;52:389.

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