

Prevalence of Primary Dysmenorrhea in Pharma Students: A Cross-Sectional Study

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Abstract

Original Research Article

Objective: To study the prevalence of primary dysmenorrhea in young girls from the pharma profession and to evaluate associated clinical markers and management of dysmenorrhea. **Methodology:** In this cross-sectional study, data was collected among 145 female (18–23 years) on age at menarche, presence, and absence of dysmenorrhea, dysmenorrhea duration, menstrual symptoms, family history, menses irregularities, menstrual history, medication behavior were collected using a structured questionnaire through Google form. **Results:** Out of 137 selected data the prevalence of Dysmenorrhea was reported 82% (112), from that 73% were frequent, 72% were shorter duration, and 69% at the lower abdomen and 62% had the moderate intensity of dysmenorrhea pain. The pain-related menstrual symptoms percentages were higher in the dysmenorrhea participants altered appetite, nausea, and vomiting behaviors also higher. Almost 66% are taking bed rest, 50% are home remedies or ayurvedic medications, 23% are taking self-medication, 20% are taking medication prescribed by the doctor, and 9% undergoing hospitalization during dysmenorrhea. **Conclusion:** Dysmenorrhea is found to be highly prevalent among college going girls. Irritability, leg cramps, tiredness, back pain, and abdominal pain are the most prevalent menstrual symptoms. Nonpharmacological management like bed rest, heating pads/hot baths, and home remedies/ayurvedic medications are the most preferred medical management.

Keywords: Primary dysmenorrhea, prevalence, menstrual symptoms, Pharma students, Medical management.

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INTRODUCTION

Dysmenorrhea is painful menstruation that usually arises before or during menstruation, or both. It is associated with severe painful cramping sensation at the lower abdomen often accompanied by other symptoms, such as sweating, headaches, nausea, vomiting, diarrhea, and tremulousness [1]. Two classes of dysmenorrhea are primary dysmenorrhea (PD) and secondary dysmenorrhea. Primary dysmenorrhea is a menstrual pain without any clear gynecological origin. On the other hand, secondary dysmenorrhea is caused by apparent underlying pelvic pathology and could occur years after menarche. The major symptoms of PD are mainly due to the imbalanced and elevated prostaglandins and the levels of their metabolites in the uterus [2, 3].

The prevalence of PD estimates ranges from 25 to 90% among women of reproductive age [4], and 5-20% of female adolescents experience severe PD that

prevents them from participating in their usual activities [5]. Studies from India reported the prevalence range between 50 to 87.8% [6]. In the United States, the economic burden of dysmenorrhea has been estimated to be 600 million work hours or 2 billion dollars [7]. In Japan, it has been reported that the total healthcare cost for patients with primary dysmenorrhea is 2.2 times higher than the healthcare cost for females with no dysmenorrhea after adjusting for baseline characteristics [8].

Even though primary dysmenorrhea (PD) is not a life-threatening condition, but it can cause a considerable burden on the quality of life of female adolescents or women [9, 10]. Previous studies showed that dysmenorrhea negatively impacts the affected women's quality of life such as their relationships with family members and friends, school, or work performance in addition to social and recreational activities. It has been also reported that women with

dysmenorrhea tend to have a higher sensitivity to pain in general even at the time when they have no menstrual pain [11]. Furthermore, dysmenorrhea is deemed to have significant economic consequences [12]. Hence the objective of this study was to ascertain the prevalence of dysmenorrhea along with menstrual symptoms and its treatment approaches in young pharmacy college girls.

METHODOLOGY

Study design and study participants

This study was a cross-sectional study conducted by the department of pharmacology, Swamy Vivekanandha College of Pharmacy, Tiruchengode, Namakkal, Tamil Nadu, India for a period of April-2020 to June-2020. The study proposal was reviewed and cleared by the Institutional Review Board (IRB) of the institution.

Totally 145 girls aged between 18-23 years studying pharmacy course, who were voluntarily agreed to participate in the study was included in this study. Among that 137 participant data were included based on inclusion and exclusion criteria.

Data Collection

Written informed consent was obtained from all the girls before the commencement of the study. A questionnaire regarding the menstruation cycle and the associated symptoms were prepared in Google form and circulated through individual e-mail. Before circulating the questionnaire a brief orientation was given through video conferencing (Google meet) in the local language to all the participants. Privacy and confidentiality were maintained throughout the study.

Study Parameters

Information regarding current age, education, anthropometric data (height, weight) was recorded. BMI was then calculated by the formula: Weight (kg)/Height (meter). Asian criteria for BMI have been taken in analysis: <18, 18–22.99, and >23 were taken as cut off for underweight, normal, and overweight, respectively [13]. Data on age at menarche, presence, and absence of dysmenorrhea, duration of dysmenorrhea, details of pain (onset, location, type, duration, etc), family history, menses irregularities,

menstrual history, and other associated symptoms were collected using the standardized questionnaire. The severity of pain was noted on a 3 point scale as mild, moderate, or severe.

The dysmenorrhea associated symptoms were back pain, abdominal pain, headaches, leg cramps, painful/tender breast, acne, tiredness, anger, mood swing, insomnia, altered appetite, nausea/vomiting, or diarrhea. Also, primary dysmenorrhea management techniques were collected.

Inclusion Criteria

- Purposeful sampling was adopted to select unmarried girls; also those who volunteered to give complete and correct information were included in the study.
- Participants who have answered all the relevant questioners were included.

Exclusion Criteria

Data with the inappropriate answer and missing information were excluded

Data Analysis

The details were entered into a Microsoft Excel spreadsheet (version 2007) and data was analyzed using SPSS V.17 statistical package to determine to mean and percentages.

RESULTS

In this study out of 145 collected data 137 were included for analysis based on inclusion and exclusion criteria. Demographic information provides that out of 137 participants 67% of participants were aged 18-20 years and 37% were 21-23 years. About 35% of participants are overweight, 47% are normal in weight. 96% of the participants are undergraduate students, 66% were day scholar, 77% were resident in the nuclear family, 83% were non-vegetarian in food habit, Almost 90% of them have attained menarche between 12-15 years of age. Totally 45% of study participants had a familial history of menstrual pain (Table 1). Baseline characters of both dysmenorrhea and nondysmenorrhea participants did not have many deviations in the demographic characteristics (Table-2).

Table-1: Demographic information about the study participants (n=137)

Information		N	Percentage
Age	18-20	86	63
	21-23	51	37
BMI	<18 (Under weight)	25	18
	18-22.9 (Normal)	64	47
	>23 (Over weight)	48	35
Education	Undergraduate	132	96
	Postgraduate	05	04
Residence	Hosteller	47	34
	Day scholar	90	66
Type of Family	Nuclear	105	77
	Joint	32	23
Food Habits	Non-Vegetarian	113	83
	Vegetarian	24	18
Menarche age (Year)	7-11	09	07
	12-15	123	90
	>15	05	03
Family history of menstrual pain	Yes	61	45
	No	76	56

Table-2: Baseline characters associated with the dysmenorrhea of the study participants

Baseline characters		Dysmenorrhea Present (112)	Dysmenorrhea absent (25)
Age	18-20	70 (63)	16 (64)
	21-23	42 (37)	09 (36)
BMI	<18 (Under weight)	20 (18)	05 (20)
	18-22.9 (Normal)	54 (48)	10 (40)
	>23 (Over weight)	38 (34)	10 (40)
Education	Undergraduate	109 (97)	23 (92)
	Postgraduate	03 (3)	02 (8)
Residence	Hosteller	74 (66)	13 (52)
	Day scholar	38 (34)	12 (48)
Type of Family	Nuclear	86 (77)	19 (76)
	Joint	26 (23)	06 (24)
Food Habits	Non-Vegetarian	91 (81)	22 (88)
	Vegetarian	21 (19)	03 (12)
Menarche age (Year)	7-11	23 (21)	-
	12-15	83 (74)	22 (88)
	>15	06 (5)	03 (12)
Family history of menstrual pain	Yes	50 (45)	13 (52)
	No	62 (55)	12 (48)

Total population n=137

The occurrence of dysmenorrhea and associated features among the selected participants were shown in Table-3. About 112 (82%) of study participants are had pain during menstruation, out of

that 73% of participants had frequently every month experienced menstrual pain almost 1-2 days duration at the lower abdomen of 69% with 62% of moderate pain intensity.

Table-3: Dysmenorrhea and associated features: occurrence of dysmenorrhea among the selected participants

Dysmenorrhea variables		N	%
Menstrual pain	Yes	112	82
	No	25	18
Frequency of Menstrual Pain	Most Frequently (Every month)	82	73
	Less Frequently (Once in 3 months)	23	21
	Rarely (Once in 6 months)	7	6
Length of menstrual pain (days)	1-2	81	72
	2-3	21	19
	Entire period	10	9
Pain location	Lower abdomen	77	69
	Lower back	20	18
	Side of abdomen	01	01
	Pain at a different location	14	13
Pain intensity	Mild	18	16
	Moderate	69	62
	Severe	25	22

Total population n=137

Results in Table-4 shown menstrual characteristics among the selected participants, there is no much deviation in the menstrual characteristics between the dysmenorrhea and nondysmenorrhea

participants. Menstrual flow during menstruation is slightly higher in the nondysmenorrhea participants as compared to the dysmenorrhea present participants.

Table-4: Menstrual characteristics among the selected participants

Menstrual Parameters		Dysmenorrhea Present (112)	Dysmenorrhea absent (25)
Frequency of Menstruation	Regular	91 (81)	20 (80)
	Irregular	21 (19)	05 (20)
Length of a Menstruation cycle (in days)	21-27	55 (49)	08 (32)
	28-35	42 (38)	14 (56)
	35-40	10 (9)	01 (4)
	>40	05 (4)	02 (8)
Menstrual flow duration during a menstrual cycle (in days)	1-3	32 (29)	07 (28)
	4-5	61 (55)	14 (56)
	5-7	17 (15)	03 (12)
	>7	02 (1)	01 (4)
Menstrual flow during menstrual Period	Mild	08 (7)	01 (4)
	Moderate	84 (75)	21 (84)
	Heavy	08 (7)	01 (4)
	Heavy with clots	12 (11)	02 (8)

Total population n=137

Results of Table-5 showed the distribution of menstrual symptoms and occurrence of dysmenorrhea among the study participants. The pain-related

menstrual symptoms percentages were higher in the dysmenorrhea participants, also altered appetite, nausea, and vomiting behaviors were higher.

Table-5: Distribution of the subjects according to the menstrual symptoms and occurrence of dysmenorrhea

Menstrual symptoms	Groups	
	Dysmenorrheic (112)	Nondysmenorrheic (25)
Back Pain	86 (77)	14 (56)
Abdomen Pain	107 (96)	09 (36)
Headaches	19 (17)	01 (4)
General pain	53 (47)	05 (20)
Leg cramps/cramps	70 (63)	16 (64)
Painful/tender breasts	19 (17)	04 (16)
Acne	62 (55)	11 (44)
Tiredness	104 (93)	19 (76)
Anger/short tempered/irritability	68 (61)	12 (48)
Mood swings/ Emotional disturbance	63 (56)	12 (48)
Insomnia	24 (21)	04 (16)
Altered Appetite	38 (34)	06 (24)
Nausea/Vomiting	27 (24)	01 (6)
Diarrhoea	15 (13)	03 (12)

Total population n=137

The menstrual pain management behaviors of the selected participants were shown in Figure-1, almost 66% are taking bed rest, 50% are home remedies or ayurvedic medications, 23% are taking self-medication,

20% are taking medication prescribed by the doctor, and 9% undergoing hospitalization during dysmenorrhea conditions.

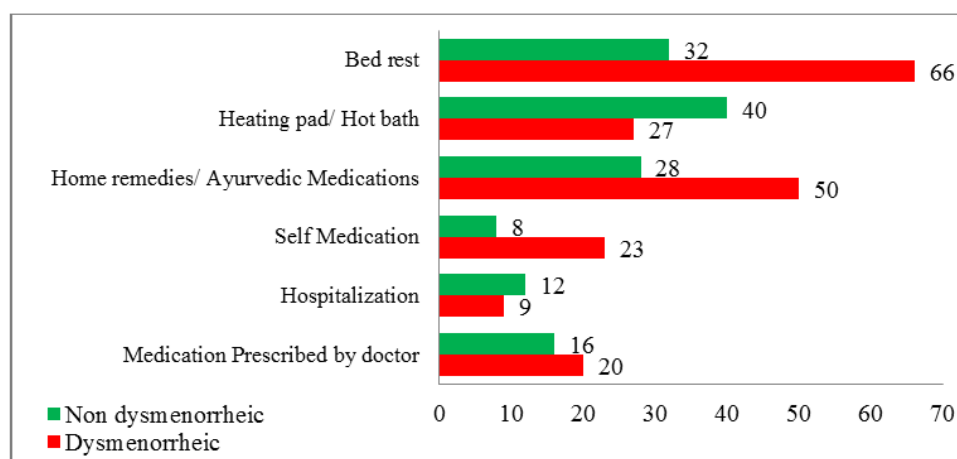


Fig-1: Menstrual pain management behaviors (%) of the selected participants (n=137)

DISCUSSION

Dysmenorrhea is the most common gynecologic complaint among adult females. The prevalence estimates range from 25 to 90% among women and adolescents [4]. Studies from India reported the prevalence range between 50 to 87.8% [14]. The results of our study also consistent with the previous studies, 82 % of our study participants are affected with dysmenorrhea.

Some of the previous studies have determined that the prevalence of dysmenorrhea decrease with increasing age thus indicating that primary dysmenorrhea peaks in late adolescence by 20s and then the incidence falls with increasing age [15]. The results of the present study also showed the highest numbers (63%) of girl students have dysmenorrhea at the age of 18- 20 years.

Several studies have shown a significant association between early age at menarche and dysmenorrhea; the underlying reason could be the fact that girls who attend menarche early have longer exposure to uterine prostaglandins leading to the higher prevalence of dysmenorrhea [16]. However, since the majority of girls were in the reference category of 12–15 years for the age of menarche, we found no difference in the age of menarche between the two groups (presence and absence of dysmenorrhea). Our data differ from other studies where the age of menarche is an important factor. But our findings are on par with results observed by Pawlowski *et al.*, & Kural *et al.*, who was did not find any difference in the ages of menarche between dysmenorrheic and non-dysmenorrheic girls [17, 18]. Similarly, linkages of BMI with dysmenorrhea were observed in a few studies [16]. Moreover, the present study findings are

contradictory with this and showed no association with BMI.

Different studies have recommended that dysmenorrhea is more prevalent in women with longer cycles. On the other hand, menstrual bleeding duration of 5 days and over was an important risk factor for dysmenorrhea [17]. We did not find the association between length of cycle, bleeding duration, and dysmenorrhea. Most studies reported that dysmenorrhea seems to be a familial problem [9]. Besides, the present study findings are contradictory with this, dysmenorrhea showed no association with familial history.

In the present study, 73% of dysmenorrheic girls reported having pain frequently. The distribution pattern of pain frequency reported by the study population was found to be similar to the report from Hong Kong [19]. A study from India indicated 34% of females experience dysmenorrhea more frequently (every month) [14]. In comparison to this study, we found a markedly higher occurrence (73%) of frequent dysmenorrhea. It is worthwhile to highlight that females with dysmenorrhea are more frequent, short duration (1-2 days), and the highest 69% of lower abdomen moderate intense (62%) dysmenorrheal pain.

Women of reproductive age experience symptoms during the late luteal phase of their menstrual cycle, and collectively these complaints are termed premenstrual symptoms and typically include both psychiatric and physical symptoms [20]. The present study reports the presence of premenstrual symptoms in the majority of girls despite the absence of dysmenorrhea. The most frequently occurring symptoms were irritability, leg cramps, back pain, and abdominal pain are higher in dysmenorrhea. An Indian study in 2012 also reported similar symptoms like irritability, breast pain, emotional disturbances, etc [14, 16].

It is worthwhile to comment that, despite the sufferings, only a small proportion of girls in our study had sought pharmacological management (20-23%) and 50-66% depending on nonpharmacological methods. Only 20% had sought medical advice and this suboptimal use of the medical advice has also been reported by others [21]. The barriers to seeking medical attention by dysmenorrheic females need exploration. Health education on puberty and menstruation must be regarded as inadequate for many young females in India and other nations. This ignorance might adversely affect the medical attention-seeking behavior of dysmenorrheic females.

There are certain limitations of this study firstly; it has been conducted in a single pharmacy college in a single district. And since the nature of data

was self-reporting, it may have resulted in under-reporting of the conditions in a few cases.

In conclusion, dysmenorrhea is found to be highly prevalent among college going girls. The majority of girls was suffering from pre-menstrual symptoms indicating the magnitude of the problem and thus, need an appropriate intervention through a lifestyle change.

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