

# Patterns of Dysmenorrhea and Self-management Strategies among University Students

IFFAT IMRAN<sup>1</sup><sup>1</sup>Assistant Professor of Obstetrics & Gynaecology, College of Medicine, Taif University, KSA  
Correspondence to: Iffat Imran, Email: [iffatimran720@gmail.com](mailto:iffatimran720@gmail.com), Cell: 00966-582340867

## ABSTRACT

**Objective:** To explore the frequency of dysmenorrhea, its characteristics and impact on university students' education and their coping behaviours.

**Study Design:** Descriptive cross-sectional study.

**Place and Duration of Study:** The Main Campus, AlHawiyya Taif University, Saudi Arabia from 1<sup>st</sup> October 2020 to 31<sup>st</sup> December 2020.

**Methodology:** Three hundred and eighty university students were enrolled. Data was collected via a self-reported electronic questionnaire. The required information was grouped into three sections, section A about socio-demographic data, section B about details of dysmenorrhea like onset, duration, severity, presentation, and its effect on their studies, and section C about their coping strategies of dysmenorrhea were recorded. The pain severity was scored on a Visual Analogue Scale (VAS).

**Results:** The frequency of dysmenorrhea was 72%. Low backache 55.7% and nervousness 47.2% were the most frequent somatic and affective symptoms, respectively. Duration and severity had a significant association while BMI had no association with dysmenorrhea. Most students used a combination of treatment methods. Abstinence and academic activities affecting due to dysmenorrhea were found positive association.

**Conclusion** Dysmenorrhea is a highly prevalent health issue negatively affecting students' academic performance. Strategies should be planned at an institutional level to increase awareness about its pathophysiology and management to improve students' behaviour.

**Keywords:** Dysmenorrhea, University students, Self-medication, Analgesia

## INTRODUCTION

A common gynaecological problem, dysmenorrhea refers to the pain and discomfort associated with menstrual flow.<sup>1</sup> Most women experience dysmenorrhea with varying degrees of severity. According to literature, 50-87 % of females suffer from dysmenorrhea worldwide.<sup>2,3</sup> Usually this presents as cramping pain in the lower abdomen and is sometimes accompanied by headache, dizziness, diarrhoea, bloated feeling, nausea, vomiting, backache, and leg pains.<sup>4</sup> Dysmenorrhea may be either primary or secondary.<sup>5</sup> Primary or spasmodic dysmenorrhea is caused by excessive secretion of prostaglandins and uterine over-activity, specifically normal pelvic anatomy.<sup>6</sup> This usually starts one day before menstruation and settles by 1-2 days.<sup>7</sup> The secondary or congestive dysmenorrhea, is due to some underlying organic pathology like endometriosis, adenomyosis, pelvic inflammatory disease, endometrial pathology, etc.<sup>8</sup> Considering dysmenorrhea is a physiological phenomenon, most females try to manage for themselves. Physical measures like rest, exercises, and specific posture or non-pharmacological methods like the application of hot packs and drinking hot fluids are quite preferred self-care strategies, and only a few go for pharmacological treatment.<sup>9</sup> The anti-spasmodic medicines and analgesics are freely available around the counter and taken by most of them.<sup>10</sup> Majority of the female population relies on these self-management measures and avoids medical consultation.

Dysmenorrhea is quite a common morbidity, underpinning poor physical health and mental well-being. Among the young age group, this is a major cause of abstinence, loss of active participation in daily activities, and poor academic performance among university students.<sup>11</sup> Dysmenorrhea is a frequent cause of abstinence from universities, around 50% of girls are absent one day per cycle while 5-14% report even more.<sup>5</sup> Despite the high prevalence globally, this issue is quite ignored.<sup>12</sup> Taif is the 6<sup>th</sup> most populated area of KSA with an estimated population of 695,000. The population mostly consists of native tribes and cultural values and customs have a high impact on daily living. Taif University is a renowned teaching institute representative of the young population of this area. The current study aimed to assess the characteristics of dysmenorrhea and self-care strategies of Taif University, Saudi Arabia students.

## MATERIALS AND METHODS

This descriptive cross-sectional prospective study was conducted at Taif University, KSA from 1<sup>st</sup> October 2020 to 31<sup>st</sup> December 2020. After institutional approval, four colleges were chosen randomly: College of Science, College of Design & Home Economics, College of Sharia & Regulation, and College of Community. Purposely, the College of Medicine was excluded, considering their students have more awareness of pharmacological measures. All willing students aged 18 to 25 were invited to participate. Students with a personal or family history of ovarian or uterine disorders, students with chronic ailments, and on certain medications were excluded. Initially, 528 female students were contacted, among them, 380 students with a positive history of dysmenorrhea were included.

An electronic questionnaire, comprising an introduction to the study and informed consent, was used to collect the data. The questionnaire had three sections. The first section was related to socio-demographic data, including age, marital status, and BMI. The second section was about the characteristics of dysmenorrhea including onset, duration, symptoms, severity, and impact on academic activities. A 'visual analogue pain scale' (VAPS) was used to measure the severity of menstrual pain to facilitate the varying severity over different menstrual cycles.<sup>13</sup> The participants were asked to rate the degree of pain by marking the number from 1-10. The score on the VAPS was classified into mild, moderate, and severe dysmenorrhea according to the marked number, denoting mild from 1-3 points, moderate from 4 and 7, and severe from 8-10 points. The third section was about their perceptions and care-seeking behaviours to manage dysmenorrhea. The data was analyzed using SPSS-23.

## RESULTS

The mean age of the students was 20.93 years. The participants' demographic details and dysmenorrhea features are mentioned in Table 1. The onset of dysmenorrhea had no significant association, but the duration of dysmenorrhea had a significant association with it (P-value .000). 127 students (33.4%) experienced dysmenorrhea lasting for the day of menstruation only, 204 students (53.9 %) for 2-3 days while 49 students (12.9%) experienced discomfort for 4-5 days or more, the mean duration was 1.79 days with 95% CI (1.73, 1.86). The severity of dysmenorrhea also showed a significant association (P.005). 57

students (15%) reported mild discomfort, 247 students (65%) moderate while 76 students (20%) marked severe dysmenorrhea on a VAPS.

Table 1: Demographic and dysmenorrhea characteristics of the participants (n=380)

Variable	No.	%
<b>College of participants</b>		
College of Science	122	32.1
College of Sharia & Regulations	131	34.5
Community College	73	19.2
College of Designs & Home economics	54	14.2
<b>Marital status</b>		
Single	340	89.5
Married	40	10.5
<b>Age (years)</b>		
<20	76	20
20-23	276	72.6
>24	28	7.4
<b>Onset (days)</b>		
One day prior to flow	180	47.3
On the same day of flow	200	52.7
<b>Duration (days)</b>		
One day	127	33.4
2-3 days	204	53.9
4-5 days & more	49	12.9
<b>Severity</b>		
Mild	194	51.0
Moderate	137	36.0
Severe	49	13.0
<b>Effect on academics</b>		
Yes	151	39.7
No	229	60.3
<b>Body Mass Index</b>		
Under wt. (<18.5)	65	17.1
Normal wt. (18.5-24.5)	172	45.3
Over wt. (24.5-29.9)	82	21.6
Obesity (>30)	61	16.1
<b>Abstinence</b>		
1 day	249	65.5
2-3 days	68	17.9
4-5 days	44	11.6
>5 days	19	5.0

Table 2: Frequency of dysmenorrhea symptoms (n=380)

Symptoms	No.	%	Std. Dev.
<b>Physical Symptoms:</b>			
Low backache	209	55.7	.497
Nausea	167	43.9	.497
Fatigue	155	41.3	.493
Leg Aches	142	37.9	.486
Abdominal cramps	100	26.3	.441
Weakness	134	35.7	.480
Flushing	50	13.3	.340
Headache	115	30.3	.460
Vomiting	94	24.7	.432
Diarrhoea	44	11.7	.322
<b>Psychological Symptoms</b>			
Nervousness	177	47.2	.500
Depression	139	37.1	.484
Dizziness	129	34.4	.476
Irritability	63	16.8	.374
Insomnia	117	31.2	.469
<b>Academic Performance:</b>			
Effect on academic activity	149	39.7	.490

The participants' presentation of dysmenorrhea with their 95% CI and P-values are shown in Tables 2-3. The frequently encountered physical symptoms were low backache 55.7% (SD±.497), nausea 43.9% (SD±.497), fatigue 41.3% (SD±.493), leg aches 37.9% (SD±.486), and abdominal cramps 26.3% (SD ±.441). Among these low backache, nausea and abdominal cramps showed significant associations with dysmenorrhea (p<.05). The participants reported a variety of psychological

symptoms. Nervousness 47.2% (SD±.500) was the commonest, followed by depression 37.1% (SD±.484) and dizziness 34.4% (SD±.476); but none showed any significant association with dysmenorrhea (p >.05).

All participants admitted the use of some sort of self-care. The most frequent method was physical 22.3% (95% CI; 18,27), followed by herbal/non-pharmacological 18.16% (95% CI; 14,22) and the least used method was the pharmacological one 16.57% (95% CI; 13,20); 42.9% (95% CI; 37,47) students used different measures in combinations. 149 students' (39.7%) documented their academic performance affected by dysmenorrhea and 22% reported abstinence, both having a significant association with dysmenorrhea (p<0.05) (Table 4).

Table 3: Dysmenorrhea association with independent variables (n=380)

Variables	Mean	95% Confidence interval		P value
		Lower	Upper	
Age	20.93	20.77	21.11	.190
Marital status	1.10	1.07	1.13	.666
Body Mass Index	2.38	2.27	2.47	.049
Family H/O Dysmenorrhea	1.46	1.41	1.51	.000
Onset (days)	1.53	1.48	1.51	.909
Duration (days)	1.79	1.73	1.86	.000
Effect on academic activity	1.60	1.55	1.65	.000
Abstinence	1.56	1.48	1.66	.000
Pain severity	2.26	1	3	.005
Low backache	1.45	1.39	1.50	.002
Nausea	1.56	1.51	1.61	.002
Fatigue	1.59	1.54	1.64	.062
Abdominal cramps	1.74	1.69	1.78	.000
Weakness	1.65	1.60	1.69	.010
Flushing	1.87	1.83	1.91	.003
Headache	1.70	1.65	1.75	.123
Nervousness	1.53	1.48	1.59	.100
Depression	1.63	1.58	1.68	.513
Dizziness	1.66	1.61	1.71	.000
Irritability	1.83	1.79	1.87	.165
Insomnia	1.69	1.65	1.74	.548

Table 4: Dysmenorrhea severity and self-care strategies statistics (n=380)

Category	No.	%	95% CI		Std. Dev.
			Lower	Upper	
<b>Dysmenorrhea Severity</b>					
Mild	194	51.0	11.6	18.7	.651
Moderate	137	36.0	60.3	69.7	
Severe	49	13.0	15.8	23.7	
<b>Self-management strategies</b>					
Pharmacological	63	16.57	13	20	.372
Herbal/Non-Pharmacological	69	18.16	14	22	.386
Physical	85	22.37	18	27	.417
Combination	163	42.9	37	47	.495

## DISCUSSION

The economy and development of a country are directly related to the potential of its young population and females are the backbone of every nation. Dysmenorrhea is a universal health issue affecting the physical and psychological well-being of females cyclically. Similar is the impact of dysmenorrhea on university students, hampering their attendance, attention, and performance in academics.

In the present study, the frequency of dysmenorrhea is 72%, which is compatible with similar studies done internationally, 71.8% in Ethiopia, and 70.2% in India; but contradicting another study done at Cairo University, Egypt reporting 84%.<sup>13-15</sup> Compared with recent similar studies done in other regions of KSA, almost similar results are found, 70.6% in Abha university, and 60.9% in Jeddah university study.<sup>16,17</sup> The observed variation in prevalence can be related firstly to the subjective perception of pain solely as there are no objective criteria for the diagnosis of dysmenorrhea.

Secondly, different target populations are studied that have different cultural and nutritional statuses and health awareness, and facilities.

Body mass index is another well-documented factor associated with the severity of dysmenorrhea.<sup>11</sup> My study found no significant association with BMI. This finding is contradictory to a similar study performed by Mohapatra et al<sup>19</sup> who reported a positive relationship between low BMI and dysmenorrhea.<sup>19</sup> A local study was done on university students in Dammam KSA also reported a similar association.<sup>18</sup> The reason may be the characteristics of my sample population. Most of the students had normal BMI (45.3%); (21.6%) and (16.1%) were among the overweight and obese categories. Only 17.1 % were underweight.

My study concluded that 51% of students had mild discomfort, 36% of students had moderate while 13% of students experienced severe dysmenorrhea. A similar frequency of severe pain was reported, 35.2% in studies done in two other universities in KSA.<sup>15,18</sup> But there was a wide range found in other international studies varying from 0.9% reported from Korea to 59.8% reported from Bangladesh.<sup>20</sup> Again, body structure, BMI, physical activity level, dietary habits, and cultural background are the important influencing factors.

The spectrum of symptoms associated with dysmenorrhea in my study varied from symptoms related to GIT including nausea, abdominal cramps, vomiting and loose stools to the musculoskeletal system like body aches and leg pains and feelings of tiredness and dizziness. The most frequent physical symptom encountered was low backache (55.7%) and the psychological symptom reported was nervousness (47.2%). A similar presentation was observed in an Indian study reporting tiredness and back pain, an Egyptian study documented mood swings (84.8%) and dizziness (48.2%), and a Palestine study declared fatigue and emotional instability manifested as nervousness/irritability, the most frequent symptoms of dysmenorrhea.<sup>17,14,15</sup> Comparable findings were observed by studies done inside the KSA.<sup>16-18</sup> These differences may be explained by the subjective perception of symptoms. Dysmenorrhea presents with a spectrum of symptoms; environmental and cultural factors do play a role.<sup>16</sup>

The impact of dysmenorrhea on the education of university students was my other concern. Almost 50% of students admitted abstinence of 1-2 days from their college and reduced concentration during this phase. These results are in line with previous studies that focused on the educational performance of university students during dysmenorrhea, 54.5%, 60.4% and 51.4%.<sup>11,22,23</sup> Multiple factors can be involved like fear of aggravation of symptoms, inadequate knowledge about the disease pathogenesis, the stress of studies further ameliorating the symptoms, and long-distance from their homes.

The use of self-care for ameliorating the symptoms, 63% with mild, 76% with moderate, and 100% with severe dysmenorrhea were using some sort of self-management. The most common method used for relieving pain was pharmacological 66% (Paracetamol, NSAIDs, and anti-spasmodic medicines), then non-pharmacological/herbal including heat application, hot fluids, anise or other herbal teas 42% and the least used method was physical including exercise 25%. 42% reported the use of a combination of different measures either occasionally or always. Only 18% got some medical consultation during the past 2 years. Reviewing the trends elsewhere, university students in Ethiopia preferred home remedies (63.8%), in Cairo 62.4% used analgesics, in India, 90.5% preferred pharmacological measures i.e. Mefenamic acid, and in KSA studies 55.8% used non-steroidal anti-inflammatory drugs (NSAID).<sup>11,15,21,22</sup> Lack of knowledge about the disease pathology, feeling of shyness, peer influence, and inadequate access to medical facilities are important factors.<sup>24</sup> Therefore, the students keep on tolerating the symptoms or try to self-manage their pain symptomatically without seeking medical advice.<sup>16</sup>

## CONCLUSION

Dysmenorrhea was a frequent problem with a profound negative effect on their education like abstinence and poor satisfaction level in studies. Most students don't seek any medical advice and use analgesics and anti-spasmodic medicines available over the counter. Herbal drinks, hot pad application, and rest are the other preferred modalities.

I recommend the concerned authorities consider this health issue for improving students' understanding and behaviour. I also recommend conducting seminars/courses at the university to help the students to understand the basic physiology and management of primary dysmenorrhea.

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