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Original Article

Obstetrics and Gynaecology Section

Self-medication Behaviour in Dysmenorrhoea Management among Medical and Pharmacy Students: A Cross-sectional Study from Saudi Arabia

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ABSTRACT

Introduction: Dysmenorrhoea among young women is a prevalent health condition, which causes physical discomfort, a feeling of frustration, a decline in academic performance and withdrawal from social activities such as sports.

Aim: To investigate Self-Medication (SM) practices among medical and pharmacy students for the management of dysmenorrhoea.

Materials and Methods: The present cross-sectional study was conducted at Qassim University, Unaizah, Saudi Arabia, among 237 female students enrolled in medical and pharmacy schools. The study duration was three months, from January 2019 to March 2019. Data were collected using a structured, validated questionnaire with two sections: the first focused on sociodemographic details, menstrual history, and symptoms; the second on treatment approaches and healthcare-seeking behaviours. The researchers distributed the questionnaire to be completed within a one-week period; however, to increase the response rate, an additional week was added to the study duration, enabling a more thorough data collection. Data was analysed using IBM Statistical Package for the Social Sciences (SPSS) Statistics version 21 (IBM Corp., Armonk, NY, USA).

Results: The majority of participants 141 (59.5%) were aged between 21 and 23 years. The most common symptom of dysmenorrhoea was contractions in the uterus, 182 (76.8%), while Ibuprofen 88 (37.1%) was among the most frequent self-prescribed medications for dysmenorrhoea. Degree of pain was significantly associated with activity level ($p<0.001$), mood disturbance ($p=0.017$), and absence from classes ($p<0.001$). The association with the number of days of menstruation was not statistically significant ($p=0.057$).

Conclusion: Dysmenorrhoea leads young female healthcare students to frequently engage in SM practices utilising a combination of modern medications and herbal medicines.

Keywords: Analgesic use, Menstrual pain, Questionnaire, Self-medication, Survey

INTRODUCTION

SM refers to the management of common health issues by using medicines that are specifically formulated and labelled for use without medical supervision, and which are recognised as safe and effective for such purpose [1]. The World Health Organisation (WHO) defined SM as "The selection and use of medicines by individuals to treat self-recognised illnesses or symptoms" [2].

SM manifests through purchasing Over-The-Counter (OTC) medications, using leftover prescriptions, or distributing drugs to others [3]. Sources of SM often include family, friends, pharmacists, or advertisements [4]. Modern SM reflects an individual's willingness to participate independently in their healthcare by making informed decisions regarding preventive and therapeutic measures. However, significant issues include unnecessary resource expenditure and increased pathogen resistance. These practices can lead to serious health risks, such as adverse reactions and extended illness. Ultimately, while SM demonstrates patient autonomy, it requires careful management to avoid compromising long-term health outcomes and medical efficacy [5].

Dysmenorrhoea is a common condition characterised by severe, crampy lower abdominal pain that occurs periodically during menstruation. It is a leading health issue among adolescent and young adult women, impacting their daily lives, causing frequent absences from educational settings such as college, and influencing their social interactions due to associated mood disturbances [6]. It can be classified into primary or secondary dysmenorrhoea. Primary dysmenorrhoea is a condition marked by painful menstrual cramps but no visible pelvic pathology. However, secondary dysmenorrhoea, in contrast, is characterised by visible pelvic pathology that causes painful menstrual cramps [7]. Many women never seek medical attention for dysmenorrhoea. However, those who go with SM generally opt for pain relievers and antispasmodics. Alternatively, home remedies such as direct heat application, herbal remedies, and rest or sleep are common and effective strategies [8]. SM practices for minor illness among medical students in Saudi Arabia are common, where 89.6% reported using non-opioid analgesics for pain management [9].

SM is more prevalent among students aged 20-29 with medical backgrounds, likely due to their pharmaceutical knowledge [10,11]. However, SM carries risks of overdose and drug interactions. As no specific data exists regarding SM for dysmenorrhoea among Saudi females, the present study assesses SM practices for primary dysmenorrhoea among medical and pharmacy students at Qassim University's Unaizah campus to better understand these behaviours in a high-risk academic population.

MATERIALS AND METHODS

The present cross-sectional study was conducted at pharmacy and medicine colleges of Qassim University, Unaizah, Saudi Arabia, from January 2019-March 2019. The current study was conducted as an extension of a research project described previously [9] under the same ethical approval granted by the Committee of Research Ethics at Qassim University, Saudi Arabia (reference number 04-04-2018), however, it utilises a distinct dataset specifically targeting analgesic use for dysmenorrhoea, which has not been previously analysed or published.

Sample size: A total of 478 female students (246 pharmacy students and 232 medical students), including those in internship programs, were approached to participate in the present study. Regarding sampling, a total-population invitation approach was adopted; all eligible students were invited to participate, with no formal sample-size calculation.

Inclusion and Exclusion criteria: Female undergraduate students who were enrolled in pharmacy and medicine programs, including interns at Unaizah Colleges, Qassim, Saudi Arabia (N=478) were eligible to participate. Students from disciplines other than these two disciplines were excluded.

Study Procedure

The study tool used in the present study was a self-administered questionnaire developed to align with the study's objective and informed by a literature search of relevant studies [12-14]. Since English is the medium of teaching for the study participants, the questionnaire was designed and administered in English. Before the study commenced, the questionnaire was piloted among 10 female students (five from each college) to assess item reliability, yielding a Cronbach's alpha of 0.76. Participants who piloted the questionnaire were excluded from the final analysis. Additionally, a group of three research experts (senior pharmacists and a medical doctor) assessed the questionnaire for content validity. Data from piloting and expert comments were considered and necessary amendments were made to the questionnaire. The questionnaire was divided into two sections. Section-A comprised questions on sociodemographic information, menstrual history, and symptoms of dysmenorrhoea, as well as their effects on daily life and social activities, whereas Section-B (Likert scale and structured response items) covered the treatment approaches used by participants and their healthcare-seeking behaviours to alleviate dysmenorrhoea. Diagnosis of dysmenorrhoea in the present study was made based on self-reported symptoms of painful menstrual cramps.

The data was collected by researchers who distributed the final version of the questionnaire to the students after obtaining their consent to participate in the study. Following a one-week interval, the completed questionnaires were gathered. To increase the response rate, an extra week was added to the study duration, enabling a more thorough data collection.

STATISTICAL ANALYSIS

Data were analysed using IBM SPSS Statistics version 21 (IBM Corp., Armonk, NY, USA). Descriptive statistics were expressed as frequencies and percentages. The chi-square test was applied to assess associations between categorical variables. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 237 responses were received, yielding a response rate of 49.6%. Female students from both colleges, were 88 (37.1%)from the medicine college and 149 (62.9%) from the pharmacy college, completed the survey. In terms of age, the majority of participants, 141 (59.5%) were between 21 and 23 [Table/Fig-1].

Regarding regularity, 180 (75.9%) reported regular cycles, while 57 (24.1%) experienced irregularities. Menstrual duration for the majority was 4-6 days (56.1%), followed by 7-9 days (39.7%), with few reporting 1-3 days (2.5%) or over nine days (1.7%).

Subjective pain assessment revealed that 46.8% experienced moderate pain and 31.2% reported severe pain. This condition notably impacted daily activities, with 116 (48.9%) respondents confirming absences from classes [Table/Fig-2].

Common symptoms of primary dysmenorrhoea, as detailed in [Table/Fig-3], included uterine contractions (76.8%), back pain (73.4%), sluggishness (59.5%), and breast tenderness (40.1%).

Variables		n (%)
College	Unaizah College of Medicine (UCM)	88 (37.1)
	Unaizah College of Pharmacy (UCP)	149 (62.9)
Age (years)	18-20	88 (37.1)
	21-23	141 (59.5)
	24-26	7 (3.0)
	>26	1 (0.4)
Social status	Single	232 (97.9)
	Married	5 (2.1)
Occupational status	Working	5 (2.1)
	Not working	232 (97.9)

[Table/Fig-1]: Demographic characteristics of the participants (N=237)

Variables		n (%)
Degree of pain	Mild	48 (20.3)
	Moderate	111 (46.8)
	Severe	74 (31.2)
	No pain	4 (1.7)
Onset of pain	Before menstruation	101 (42.6)
	With first days of menstruation	132 (55.7)
	In middle days of menstruation	3 (1.3)
	In the last days	1 (0.4)
Performance of daily activities	Mild decrease	74 (31.2)
	Moderate decrease	107 (45.1)
	Severe decrease	39 (16.5)
	No change	17 (7.2)
Effect of the pain on daily activity and academic achievement	Yes	80 (33.8)
	Sometimes	99 (41.8)
	Rare	34 (14.3)
	Never	24 (10.1)
Effect of dysmenorrhoea on absence	Yes	116 (48.9)
	No	121 (51.1)
Number of pain days associated with dysmenorrhoea	1 day	53 (22.4)
	2 days	93 (39.2)
	3 days	59 (24.9)
	4 days	25 (10.5)
	Every day	5 (2.1)
	No pain	2 (0.8)
Mood disturbance associated with dysmenorrhoea	Before menstruation	155 (65.4)
	With first days of menstruation	36 (15.2)
	Sometimes	32 (13.5)
	Never	14 (5.9)

[Table/Fig-2]: History of menstrual cycle of participants (N=237).

Variables	n (%)
Breast tenderness	95 (40.1)
Headache	65 (27.4)
Nausea	83 (35.0)
Uterine contraction	182 (76.8)
Sluggishness	141 (59.5)
Muscle pain	109 (46.0)
Back pain	174 (73.4)

[Table/Fig-3]: Most common symptoms associated with dysmenorrhoea of participants (N=237).

As presented in [Table/Fig-4] the association between the severity of pain experienced by participants with dysmenorrhoea and their activity rate, mood disturbance, number of menstruation days, and

absence rate. Statistically significant associations were observed for activity, mood disturbance and class absence, whereas the association with number of menstruation days did not reach the threshold of significance (p=0.057).

Self-Medication (SM) Practices among the Participants to Cope with Symptoms of Primary Dysmenorrhoea

Overall, 203 (85.7%) of the participants self-prescribed with either non-pharmacological or pharmacological methods.

The three most frequent non-pharmacological methods used by participants to cope with primary dysmenorrhoea (PD) symptoms were applying a heat pad and using traditional methods, each reported by 153 (31.1%), and taking rest, reported by 151 (30.7%) [Table/Fig-5].

DISCUSSION

The majority of the respondents reported having a moderate to severe level of pain associated with dysmenorrhoea. A study conducted by Al-Dabal BK et al., showed that 35% of students experienced severe dysmenorrhoea, and nearly 21% had moderate to severe Premenstrual Syndrome (PMS). These conditions caused significant academic disruption, with 43% of participants missing at least one day of college. Fifty seven percent (57%) of students used analgesics to treat their pain to manage these symptoms [15]. Previous research revealed that the prevalence of severe dysmenorrhoeal discomfort ranges from 0.9% in Korea to 59.8% in Bangladesh [16].

In a study by Udayar SE et al., Association between factors such as prolonged menstrual duration {Adjusted Odds Ratio (AOR),

Variables	Degree of pain	Mild	Moderate	Severe	No change	Total	p-value (Chi-square test)
Activity	Mild	24	11	3	10	48	<0.001
	Moderate	34	63	10	4	111	
	Severe	15	32	26	1	74	
	No pain	1	1	0	2	4	
Mood disturbance		Before menstruation	Day 1 of menstruation	Some times	Never		
	Mild	28	6	10	4	48	0.017
	Moderate	75	18	12	6	111	
	Severe	51	11	10	2	74	
	No pain	1	1	0	2	4	
Number of menstruation days		1-3	4-6	7-9	>9		
	Mild	1	25	22	0	48	0.057
	Moderate	1	63	46	1	111	
	Severe	3	42	26	3	74	
	No pain	1	3	0	0	4	
Absence from class		Yes		No		Total	
	Mild	5		43		48	<0.001
	Moderate	55		56		111	
	Severe	56		18		74	
	No pain	0		4		4	

[Table/Fig-4]: Association between degree of pain and activity rate, degree of pain and mood disturbance, degree of pain and number of menstruation days for dysmenorrhoea.

College	Heat pad	Exercise	Yoga	Sleep/Rest	Traditional methods
Unaizah College of Medicine (UCM)	55 (35.9%)	11 (45.8%)	5 (45.5%)	60 (39.7%)	56 (36.6%)
Unaizah College of Pharmacy (UCP)	98 (64.1%)	13 (54.2%)	6 (54.5%)	91 (60.3%)	97 (63.4%)
Total=492	153 (31.1%)	24 (4.9%)	11 (2.2%)	151 (30.7%)	153 (31.1%)

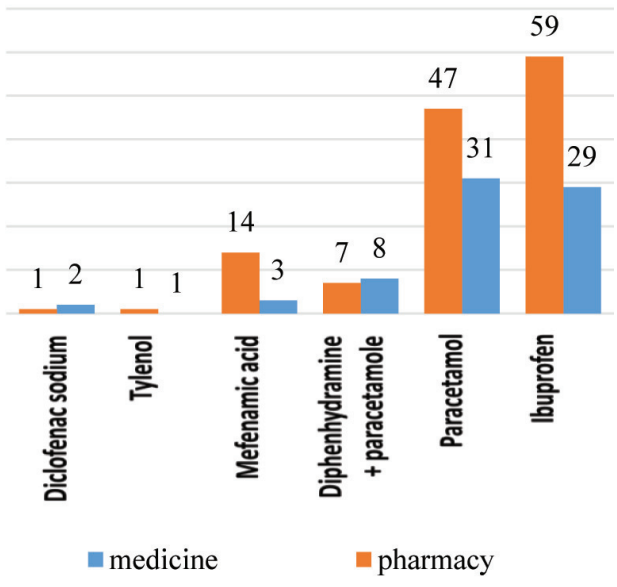
[Table/Fig-5]: Non pharmacologic ways to cope with primary dysmenorrhoea symptoms.
Percentages are column-wise and sum to 100% for each method
The total exceeds 237 because participants could select multiple non-pharmacological options, resulting in overlapping responses.

The distribution of reasons for selecting herbal remedies was analysed among those who practiced herb-based SM [Table/Fig-6]. Within the Medicine group, 54/88 students (61.4%) provided reasons for their selection. Among the total 203 responses recorded across all groups, the most frequently reported factor was, advice from friends and relatives were 87 (42.9%).

Among the pharmacological management, many students resorted to self-prescribing various OTC medications to cope with dysmenorrhoea symptoms. Among these choices, a significant proportion opted for ibuprofen 88 (43.3%), followed by paracetamol 78 (38.4%), whereas diclofenac sodium and Tylenol were the least frequently self-prescribed. Furthermore, female pharmacy students were more likely to use pharmacological therapies, particularly ibuprofen, followed by paracetamol, than female medical students [Table/Fig-7].

Reasons	Medicine (n=54*)	Pharmacy (n=149)	n (%)
Effective	10	29	39 (19.2%)
Safe with fewer side-effects	11	32	43 (21.2%)
I believe in traditional methods	1	8	9 (4.4%)
Easy to obtain	4	12	16 (7.9%)
Cheaper	1	2	3 (1.5%)
Unsure as to the reason why	2	4	6 (3.0%)
Advice from friends and relatives	25	62	87 (42.9%)
Total	54	149	203 (100%)

[Table/Fig-6]: The primary reasons for engaging in Self-Medication (SM) with herbs.
*Note: n=54 represents the participants within the Medicine group who reported herbal use; students who did not use herbal remedies were excluded from this table.



[Table/Fig-7]: The most common types of pharmacological therapies used by the participants.

3.4 (95%CI, 1.49-7.81)}, those having moderate {AOR, 5.78(95% Confidence Interval (CI), 1.96-17.02)} to severe menstrual bleeding {AOR, 5.1 (95% CI, 1.78-14.08)}, family history {AOR, 3.5 (95%CI, 2.30-5.54)} and somatic symptoms {AOR, 2.03 (95%CI, 1.33-3.08} were statistically significant [17].

In a study by Ortiz MI out of 1539 female students across six health disciplines, the dysmenorrhoea prevalence was 64%. Pain severity was mild in 36.1%, moderate in 43.8%, and severe in 20.1%, with higher intensity in nursing students. Dysmenorrhoea limited daily activities in 65% and caused school absenteeism in 42.1% of affected students. Only 25.9% sought medical consultation, while 61.7% practiced SM, mainly using OTC analgesics and Nonsteroidal Anti-Inflammatory Drugs (NSAIDs). Both prescribed and self-medicated treatments provided mostly partial relief, with complete symptom resolution reported in a minority [18].

In a systematic review, 947 articles were screened with 24 studies (12,526 participants) included Self-care for dysmenorrhoea was reported by 55% of young women (95% CI 34.1-74.3). Both pharmaceutical (48%, 95% CI 40.0-57.0) and non-pharmaceutical (51.8%, 95% CI 31.3-71.7) methods were commonly used. Paracetamol was the most frequently used analgesic (28.7%, 95% CI 19.6-39.9) [19].

In a cross-sectional observational study, 224 women participated, using an ad-hoc self-report questionnaire about menstrual pain and self-care and including sociodemographic and gynaecological variables. Some 76.8% of participants consumed analgesics and the majority self-medicated with NSAIDs without consulting a health professional [20]. A key strength of the present study is its focus on medical and pharmacy students, who are critical stakeholders in patient care and the rational use of drugs.

Limitation(s)

The data were collected in 2019 and may not fully reflect current SM practices due to changes in access to medicines and regulatory policies over time. The cross-sectional design only captures a snapshot of behaviour at one specific time. Additionally, the findings are limited to comparable populations, thereby restricting their broader applicability.

CONCLUSION(S)

Healthcare students frequently managed symptoms of dysmenorrhoea, primarily uterine contractions and lower back pain, through various self-management strategies. They commonly used OTC pain relievers such as ibuprofen and paracetamol, as well as herbal remedies.

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