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ORIGINAL RESEARCH

Recognizing the usage of analgesics among Saudi women with primary dysmenorrhea

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Abstract

Primary dysmenorrhea (PD) is defined as the pain that occurs during the menstrual cycle (MC) in the absence of a distinguishable reason. The purpose of this study was to investigate the application of analgesics during dysmenorrhea among Saudi women. This was a cross-sectional study that was carried out by distributing an electronic questionnaire to selected subjects between June 2022 and January 2023. The questionnaire consisted of three sections including 25 questions relating to subject demographics, the characteristics of dysmenorrhea, and the use of analgesics. In total, 1011 females were involved in this study, with a mean age of 23.5 ± 12.8 years. We found that a family history of dysmenorrhea was not associated with PD. In total, 37.9% of subjects reported that the pain began before MC while 58.1% of subjects reported that pain began during their cycle. In addition, 68.5% of females stated that the pain associated with dysmenorrhea affected their daily activities. Analysis showed that 76.2% of females used analgesics for dysmenorrhea while 23.8% did not use any analgesics. The majority of users reported taking Paracetamol, followed by Ibuprofen, and Diclofenac, while 9% used other drugs or herbs. With regards to the timing of analgesic administration, 89.7% of subjects stated that they used analgesics as needed, whereas 10.3% reported using analgesics before the pain began. Furthermore, 66.9% of subjects reported using analgesics after meals whereas 22.5% reported using analgesics before meals. However, 20% of subjects used analgesics after consulting healthcare personnel, including doctor/pharmacists. Our anlaysis revealed that females exhibited reluctance in pursuing medical assistance and preferred to consult family members, friends and internet resources, thus resulting in a lower efficacy of the analgesic drugs taken.

Keywords

Dysmenorrhea; Analgesics; Quality of life; Women

1. Introduction

Dysmenorrhea is a painful uterine cramp that commonly affects women of reproductive age. Such pain occurs throughout the menstrual cycle (MC) is the most common reason for pelvic pain in females [1, 2]. Dysmenorrhea is classified into primary dysmenorrhea (PD) and secondary dysmenorrhea (SD). SD presents with the deterioration of progressive pain, atypical uterine blood loss and dyspareunia. PD is described by painful contractions in the lower abdomen, that begin just prior to or at menses and may last for three days. The international prevalence of PD varies from 45% to 95% among women of reproductive age [3]. This difference in rate may be caused by differences in the assessment of PD, the designated population, age clusters, ethnicity and pain perception [4]. Previous evidence suggested that the risk of PD was increased by certain factors, including smoking, early menarche, asymmetrical MC, a long MC duration, heavy menstrual bleeding, and a family history of dysmenorrhea [5, 6]. However, the risk and severity of dysmenorrhea can be reduced by vaginal child delivery and exercise [7].

The pathophysiology of primary dysmenorrhea is associated with the cyclooxygenase pathway which induces increases in the levels of prostanoids, mainly prostaglandins (PGs). The increased levels of PGs induces uterine contractions which limit blood flow and cause anaerobic metabolites that trigger pain receptors [8].

PD is the foremost cause for the short-term non-attendance of females from school or work, thus exerting a significant influence on their quality of life (QOF); this also creates a significant burden on health care expenditure [9]. In addition, numerous women do not consult with a doctor; therefore, the precise influence of PD on daily activity remains largely unknown [10].

Collective decision making is an efficient strategy with which to manage PD effectively and maximize the

compliance and satisfaction of patients [11]. PD can be treated by numerous methods, including pharmacological, non-pharmacological and surgical approaches. Effective empiric therapy and non-steroidal anti-inflammatory drugs (NSAID) represents the first line of treatment. In women who require contraception, the use of oral contraceptives (OCP) is recommended [12]. Unconventional management strategies, include topical heat, lifestyle adjustment, transcutaneous electrical nerve motivation, dietary additions, acupuncture and acupressure [13].

The efficacy of typical management strategies using NSAIDs and OCP is acceptable. Nevertheless, failure may occur in 20% to 25% of patients; there is also a risk of drug-associated adverse effects. Only 6% of adolescents obtain medicinal instruction to treat PD whereas 70% practice self-management [7]. A previous systematic Cochrane review compared 20 different NSAIDs to determine whether NSAIDs are effective and safe for the treatment of PD. This review concluded that NSAIDs represent an effective treatment method, although women need to be aware of the adverse effects associated with this treatment [14].

In the Kingdom of Saudi Arabia (KSA), a small-scale cross-sectional study supported by the College of Health Sciences at King Khalid University revealed that around 70% of the study participants experienced dysmenorrhea which was associated with lower back pain, nausea, bloating and dizziness. This research also investigated the prevalence of NSAIDs and the use of herbal medication but did not investigate the rationale for preferring one treatment over another [15]. Another cross-sectional study investigated the self-management attitudes for PD between female students in the Asir region in KSA. The study concluded that community pharmacists are the most available healthcare practitioners and that collaboration between educational institutions and community pharmacies could play an indispensable role in promoting self-care practices among young women with PD [4]. irrational drug use remains a serious problem that can cause distress in public health [16].

Even though PD is a regular gynecological complaint, it has received only very limited attention in the Middle East, and is usually neglected. The increased prevalence of this condition and the minimal awareness of menstrual disorders and its management, there is a clear need for further investigations in this field of research. Dysmenorrheic females are not equipped with adequate facts and are therefore poorly informed. Therefore, in this study, we aimed to gain an overview of the prevalence of PD along with associated risk factors, concomitant symptoms, the influence on everyday activities, and the management practices available in the KSA. Our findings provide important guidelines for dysmenorrheic females with regards to the appropriate use of treatments.

2. Materials and methods

A cross-sectional survey study was preformed using an electronic questionnaire targeting Saudi females with dysmenorrhea from June 2022 to January 2023. The inclusion criteria included Saudi females who agreed to participate, female in the reproductive-age aged $\leq$20, age 20–40, $\geq$40 years, suffering from primary dysmenorrhea. Exclusion criteria included mental disorders, breastfeeding, expecting to get pregnant, being pregnant right now, or having a chance of getting pregnant (positive human chorionic gonadotropin test), non-menstruating females and female diagnosed with secondary dysmenorrhea due to pelvic pathology, such as uterine fibroids, adenomyosis, endometriosis or pelvic inflammatory diseases.

2.1 Questionnaire design

To create the electronic questionnaire, we evaluated previously published studies identified by an electronic search on PubMed was. Because Arabic is the primary language in KSA, the questionnaire was created in Arabic. The validity of the questionnaire content was performed by the preceptors in the College of Clinical Pharmacy at King Faisal University. The final version of the questionnaire was divided into three sections consisting of 26 questions. The first section collected information relating to the demographics of the responders, including age, educational level and marital status. The subsequent segment evaluated the characteristics of dysmenorrhea in the female responder including family history, the effect of pain in daily activity, diet and the duration of pain. The final section featured knowledge and awareness of the responder with regards to analgesics. The online questionnaire was uploaded using social media platforms until reaching the required sample size.

2.2 Sample size calculation

The sample size was determined from the following formula that is commonly used for cross-sectional studies [17] in which n is the sample size, Z is the Z value for 95% confidence limits ($\alpha = 0.05$), p is the predictable prevalence of dysmenorrhea (80%), and d is the anticipated accuracy (4%). Thus, the estimated sample size was 680.

$$n = \frac{Z^2 P\ (1-P)}{d^2}$$

2.3 Statistical analysis

The data were collected, examined and entered into Statistical Package for Social Sciences (SPSS) version 21 (IBM® SPSS® Statistics, Armonk, NY, USA). All of the statistical techniques utilized were two-tailed, with significance determined by a p value ≤ 0.05 and an alpha level of 0.05. Descriptive analysis was performed by describing the frequency distribution and percentages of study variables, including personnel data, the family history of dysmenorrhea, the clinical features of dysmenorrhea pain, and patterns in the use of analgesics. The frequency of analgesic use and associated side effects were then plotted. Factors associated with the use of analgesics during dysmenorrhea and the association between the patterns of analgesic use and side effects were tested by Pearson's Chi-squared test and the exact probability test for small frequency distributions.

3. Results

3.1 Demographics and characteristics of participants

Table 1 presents the basic sociodemographic characteristics of the respondents. In total, 1011 females were included with an age range of 15 to over 40 years with a mean age of 23.5 ± 12.8 years. A total of 795 (78.6%) subjects were single. As for educational level, 784 (77.5%) were university graduates, 174 (17.2%) had a secondary level of education, and only 18 (1.8%) received education below secondary level. A total of 277 (27.4%) females worked in the healthcare field. With regards to a family history of dysmenorrhea, 224 (22.2%) females reported a history among their cousins, 78 (7.7%) among their mothers/grandmothers, and 73 (7.2%) among their relatives; 605 (59.8%) had no family history of dysmenorrhea (Table 1).

TABLE 1. Personal features of the females who participated in the current study.

Personal data	No	%
Age in years		
<20	421	41.6%
21–30	423	41.8%
31–40	95	9.4%
>40	72	7.1%
Marital status		
Single	795	78.6%
Married	216	21.4%
Educational level		
Below secondary	18	1.8%
Secondary	174	17.2%
University	784	77.5%
Post-graduate	35	3.5%
Health care staff		
Yes	277	27.4%
No	734	72.6%
Personal/family history of dysmenorrhea		
None	605	59.8%
My daughter	26	2.6%
My cousin	224	22.2%
My mother/grand mother	78	7.7%
Relatives	73	7.2%
Friends/others	5	0.5%

3.2 The clinical features of dysmenorrhea

The dysmenorrhea-related features of the respondents are presented in Table 2. A total of 693 (68.5%) females reported that dysmenorrhea pain affected their daily activities. In addition, 525 (51.9%) subjects said that their pain was different when they followed a healthy or unhealthy diet. With regards to the timing of pain, 383 (37.9%) females responded that their pain began prior to the menstrual cycle (MC), 587 (58.1%) during the cycle, and 41 (4.1%) after the MC. With regards to the duration of pain, the pain lasted for a few hours in 196 (19.4%) females, for 1 day in 214 females (21.2%), for 2 days in 295 (29.2%) females and 81 (8%) of females reported that pain lasted for the duration of the MC. In total, 277 (27.4%) females reported that they consulted a doctor due to pain (Table 2).

TABLE 2. The features of dysmenorrhea among the study participants.

Dysmenorrhea data	Count	Column N %
Does the pain affect you in performing your daily activities?		
Yes	693	68.5%
No	318	31.5%
Is the pain different when you follow a healthy or unhealthy diet?		
Yes	525	51.9%
No	486	48.1%
When does the pain begin?		
Before menstruation	383	37.9%
During menstruation	587	58.1%
After menstruation	41	4.1%
Duration of the pain		
Few hours	196	19.4%
1 day	214	21.2%
2 days	295	29.2%
3–4 days	225	22.3%
Till end of period	81	8.0%
Did you need to go to the doctor due to pain?		
Yes	277	27.4%
No	734	72.6%

3.3 The use of analgesics during dysmenorrhea among Saudi women

With regards to the prevalence of analgesic use during dysmenorrhea among Saudi women, we found that 770 (76.2%) of females used analgesics during dysmenorrhea while 241 (23.8%) did not use any analgesics (Fig. 1).

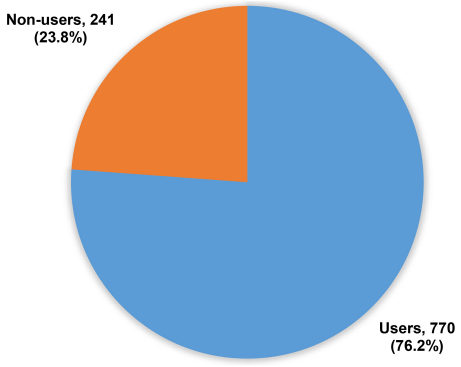

FIGURE 1. The prevalence of analgesic use during dysmenorrhea among Saudi women.

With regards to the use of analgesics, most subjects reported using Paracetamol (56.6%), followed by Ibuprofen (26.4%) and Diclofenac (8.1%); 9% used other drugs/herbs. A total of 691 (89.7%) subjects reported using analgesics with pain whereas only 79 (10.3%) of subjects reported the use of analgesics before the pain began. With regards to the timing of analgesic intake with meals, 515 (66.9%) of females reported using analgesics prior to meals whereas (22.5%) reported they took analgesics before meals. In addition, 249 (32.3%) females reported that they had analgesics recommended by their family and/or friends while 154 (20%) subjects reported that they took analgesics following doctor/pharmacist recommendation; 329 (42.7%) subjects took analgesics on their own accord. In total, 663 (86.1%) subjects took 1–2 analgesic tablets per day while 89 (11.6%) took 3–4 tablets per day. A total of 142 (18.4%) subjects reported taking a second dose within 5–6 hours of the previous dose while 416 (54%) of subjects left more than a 12 hours interval between two successive doses. A total of 505 (65.8%) subjects reported that they used analgesics for 1–2 days, 83 (10.8%) used analgesics for more than 2 days, and 120 (15.6%) only used analgesics during pain attacks; 60 (7.8%) of subjects used analgesics according to physician recommendations. If the pain was not relieved, 475 (61.7%) of Saudi women reported that they used another analgesic, whereas only 202 (26.2%) of females consulted another hospital and/or physician; 47 (6.1%) of subjects used hot fluid and/or hot foments and rest while 46 (6%) of subjects did nothing but wait for the pain to subside (Table 3).

TABLE 3. Pattern of analgesic use during dysmenorrhea among Saudi women.

Pattern of use	No	%
Type of used analgesics		
Paracetamol (500 mg)	436	56.6%
Ibuprofen (400 mg)	203	26.4%
Diclofenac (50 mg)	62	8.1%
Others	69	9.0%
Time at which analgesics were taken		
Before pain	79	10.3%
With pain	691	89.7%
Analgesics intake is		
Before meal	196	25.5%
After meal	515	66.9%
With meal	59	7.7%
Who advised you to have analgesics?		
None	329	42.7%
Family/friend	249	32.3%
Physician/pharmacist	154	20.0%
Social/mass media	38	4.9%
Do you take more than one painkiller pill a day?		
Yes	372	48.3%
No	398	51.7%
Number of analgesics pills/day		
1–2 pills	663	86.1%
3–4 pills	89	11.6%
5–6 pills	15	1.9%
>6 pills	3	0.4%
Duration between 2 analgesics doses		
1–2 hours	43	5.6%
3–4 hours	95	12.3%
5–6 hours	142	18.4%
6–12 hours	74	9.6%
>12 hours	416	54.0%
Duration of using analgesics		
1–2 days	505	65.8%
>2 days	83	10.8%
Only during pain	120	15.6%
According to physician prescription	60	7.8%
Have you tried other methods other than medication to relieve pain?		
Yes	675	87.7%
No	95	12.3%
What do you do if the pain does not go away?		
Use another analgesic/increase the dose	475	61.7%
Go to hospital/physician	202	26.2%
Had hot fluid/hot foments and rest	47	6.1%
Nothing/just wait	46	6.0%

3.4 Side effects associated with analgesic use during dysmenorrhea among Saudi women

The most reported side effect of analgesics use included heart burn (12.3%), menstrual disturbance (10.8%), abdominal pain (8.8%), and nausea and vomiting (1%); 65.3% reported no complications at all (Fig. 2).

3.5 Factors associated with analgesic use during dysmenorrhea

In total, 85.7% of females who used analgesics reported experiencing pain that affected their daily activities; this compared to 14.3% of females who did not use analgesics but still reported effects on their daily activities; there was a significant difference in this respect ($p = 0.001$). Furthermore, 82.1% of females with variable pain used analgesics; this compared to 69.8% of those who did not ($p = 0.001$). Similarly, analgesics were used by 80.2% of those who experienced pain during MC; this compared to 56.1% of those who experienced pain after the cycle ($p = 0.001$). Analgesics were also used by 85.3% of females who experienced pain for 3–4 days; this compared to 60.7% of those who only experienced pain for only a few hours ($p = 0.001$). In addition, 92.8% of females who needed to go to the doctor due to pain took analgesics; this compared to 69.9% of females who did not take analgesics ($p = 0.001$) (Table 4).

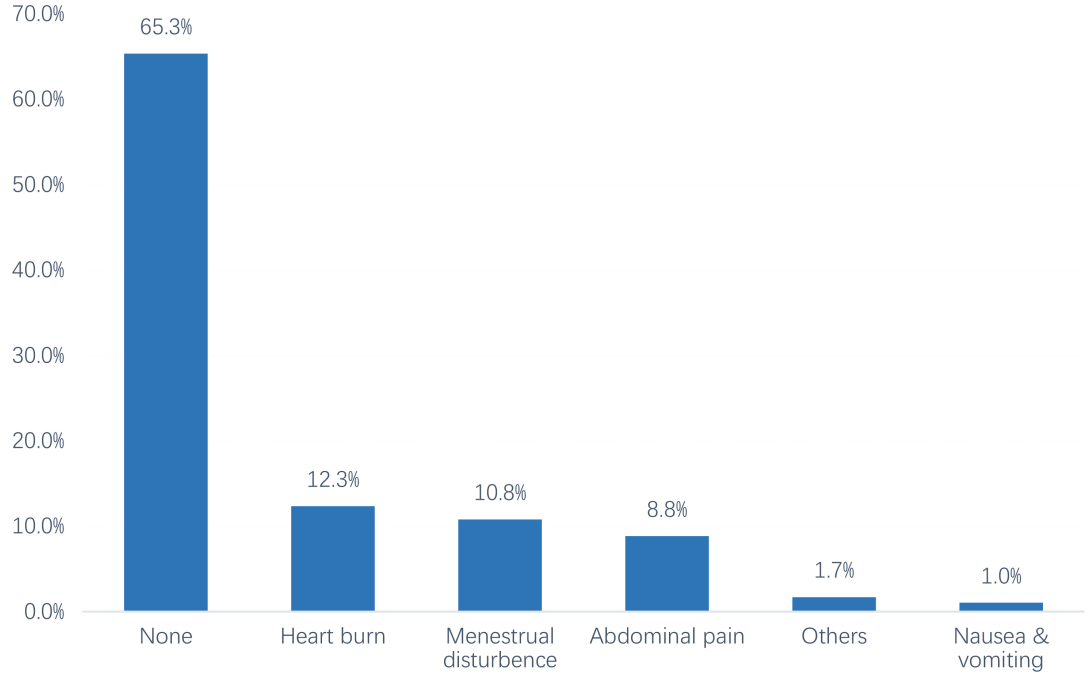

FIGURE 2. Side effects associated with analgesic use during dysmenorrhea among Saudi women.

3.6 The association between the pattern of analgesic use and side effects among study users during dysmenorrhea

Only the duration between analgesic doses and the duration of using analgesics showed a significant relationship. Side effects were reported by 51.2% of females who took analgesics every 2 hours; this compared to 33.4% of females who left a 12 hours interval or more before taking more analgesics (p = 0.048). Furthermore, 49.4% of females who used analgesics for two days or more experienced side effects; this compared to 34.1% in those who used analgesics for one day, and 27.5% of those who used analgesics during pain attack only (p = 0.013) (Table 5).

4. Discussion

In this study, we highlight a relatively elevated prevalence of PD, the most common gynecological condition, among Saudi women. In Arab nations, the stated prevalence rate of dysmenorrhea was reported to be 85.9% [18], 88% [19] and 80% [7] in Iraq, Syria and Lebanon respectively. National Saudi studies reported an incidence of 60.9–89.7% amongst university students in the KSA [20, 21]. Another cross-sectional survey showed that the prevalence of PD reached 92.3% in Saudi women [22]. Another study reported that the prevalence of PD was 80.9% among medical female students in the KSA [20].

In the current study, family history had showed no significant influence. These outcomes are inconsistent with earlier studies which showed that the prevalence of dysmenorrhea was greater among women who had a family history of PD in KSA [23, 24]. This deviation in the prevalence rates of PD might relate to variation in PD assessment procedures, the designated population, age clusters, ethnicity and pain sensitivity variances.

Dysmenorrhea may exert significant effects on health, psychological status and the daily actions of females, thus disrupting their QOL as well as their productivity. An earlier study showed that PD is one of the main reasons of absenteeism from school or work, causing a loss of 600 million hours per year in the USA alone [25]. In the current study, 68.5% females reported that dysmenorrhea pain affected their daily activities. Similarly, earlier studies showed that PD disturbed the daily activities of 87.9% of Turkish female university students [26]. In Saudi Arabia, an earlier study examined the effect of PD on the QOL amongst female medical students in the KSA. These authors concluded that PD exerted a substantial influence on academic performance since PD was associated with a negative impact on attendance, concentration, the period of study and class contribution [27]. Similarly, previous studies revealed that a range of daily activities were influenced by PD, including homework, daily activities, attention, attendance and academic achievement [28, 29].

The main objective of PD management is to offer dysmenorrheic women with satisfactory pain relief that allows them to achieve their usual activities, enhances the QOL and reduces absenteeism [1, 30]. The first-line treatments suggested are NSAIDs and OCP, as these methods can prevent the synthesis of prostaglandins which are directly linked to menstrual pain [13]. Irrational medication handling may have deleterious consequences, including inadequate treatment, the risk of adverse events, a higher possibility of drug interactions, excessive costs, as well as economic burden [16].

Acetaminophen is a rational pain-relieving drug for dysmenorrheic women who do not require contraception and are unable to endure NSAIDs [31]. On the other hand, numerous reports have revealed that acetaminophen has inferior efficiency when related to NSAIDs and OCP; thus, acetaminophen

TABLE 4. Factors associated with analgesic use during dysmenorrhea among Saudi women.

Factors	Do you use analgesics?				*p*-value
	Yes		No		
	No	%	No	%	
Age in years					
<20	313	74.3%	108	25.7%	0.524
21–30	330	78.0%	93	22.0%	
31–40	70	73.7%	25	26.3%	
>40	57	79.2%	15	20.8%	
Marital status					
Single	613	77.1%	182	22.9%	0.176
Married	157	72.7%	59	27.3%	
Educational level					
Below secondary	13	72.2%	5	27.8%	0.302$
Secondary	124	71.3%	50	28.7%	
University	604	77.0%	180	23.0%	
Post-graduate	29	82.9%	6	17.1%	
Health care staff					
Yes	218	78.7%	59	21.3%	0.245
No	552	75.2%	182	24.8%	
Does the pain affect you in performing your daily activities?					
Yes	594	85.7%	99	14.3%	0.001*
No	176	55.3%	142	44.7%	
Is the pain different when you follow a healthy or unhealthy diet?					
Yes	431	82.1%	94	17.9%	0.001*
No	339	69.8%	147	30.2%	
When does the pain begin?					
Before menstruation	276	72.1%	107	27.9%	0.001*
During menstruation	471	80.2%	116	19.8%	
After menstruation	23	56.1%	18	43.9%	
Duration of the pain					
Few hours	119	60.7%	77	39.3%	0.001*
1 day	170	79.4%	44	20.6%	
2 days	222	75.3%	73	24.7%	
3–4 days	192	85.3%	33	14.7%	
Till end of period	67	82.7%	14	17.3%	
Did you need to go to the doctor due to pain?					
Yes	257	92.8%	20	7.2%	0.001*
No	513	69.9%	221	30.1%	

*p: Pearson's Chi-squared test; $: Exact probability test, *: $p < 0.05$ (significant).*

TABLE 5. The association between the pattern of analgesic use and side effects among users during dysmenorrhea.

Analgesics use	Have you experienced any side effects related to the analgesic?				*p*-value
	Yes		No		
	No	%	No	%	
Type of used analgesics					
Paracetamol	138	31.7%	298	68.3%	0.108
Brufen	78	38.4%	125	61.6%	
Diclofenac	28	45.2%	34	54.8%	
Others	23	33.3%	46	66.7%	
Time of having analgesics					
Before pain	23	29.1%	56	70.9%	0.273
With pain	244	35.3%	447	64.7%	
Analgesics intake is					
Before meal	66	33.7%	130	66.3%	0.430
After meal	176	34.2%	339	65.8%	
With meal	25	42.4%	34	57.6%	
Number of analgesics pills/day					
1–2 pills	222	33.5%	441	66.5%	0.281$
3–4 pills	37	41.6%	52	58.4%	
5–6 pills	6	40.0%	9	60.0%	
>6 pills	2	66.7%	1	33.3%	
Duration between 2 analgesics doses					
1–2 hours	22	51.2%	21	48.8%	0.048*
3–4 hours	36	37.9%	59	62.1%	
5–6 hours	42	29.6%	100	70.4%	
6–12 hours	28	37.8%	46	62.2%	
>12 hours	139	33.4%	277	66.6%	
Duration of using analgesics					
1–2 days	172	34.1%	333	65.9%	0.013*
>2 days	41	49.4%	42	50.6%	
Only during pain	33	27.5%	87	72.5%	
According to physician prescription	21	35.0%	39	65.0%	

*p: Pearson's Chi-squared test, $: Exact probability test, *: $p < 0.05$ (significant).*

is favored merely for mild-to-moderate dysmenorrheic pain [25, 32]. NSAIDs are the cornerstone for dysmenorrhea management as they prevent the release of Cyclooxygenase (COX) enzyme which inhibits the synthesis of prostaglandins [33, 34]. Consequently, NSAIDs are suggested as the first-line therapy for females who prefer to use analgesics or when contraceptives are contraindicated [35, 36]. However, there is no superiority of a specific NSAID over the other [37].

With regards to the timing of analgesic administration, around majority reported that they used analgesics with pain whereas 10.3% reported using analgesics before the pain began; this latter approach was associated with lower analgesic efficacy. The timing of NSAID administration is associated with efficiency. For optimum efficiency and safety, NSAIDs should be initiated one to two days prior to the predicted onset of menses, managed with meals to limit gastrointestinal adverse effects, with a regular dosing schedule, and sustained throughout the first two to three days of bleeding [13]. The initiation of NSAIDs should be initiated before the induction of the COX-2 cascade to obtain the widespread suppression of prostaglandin synthesis. Thus, the deferral of NSAIDs produces partial suppression only [38]. Females who are unresponsive to NSAIDs may be swapped to hormonal and/or non-pharmacological therapies [39]. Remarkably, in the current study, none of the dysmenorrheic females received OCP to accomplish pain relief although they are recommended as first-line therapy. This finding concurs with the restricted use of OCP for unmarried women in the

Middle East [40]. A previous study revealed that the majority of females take OCP for pregnancy prevention, and few use OCP for non-contraceptive causes, such as acne and PD [41].

With regards to the intake of analgesics with meals, our analysis showed that 66.9% of females reported using analgesics after meals whereas 22.5% used analgesics before meals. These reports are alarming since 22.5% of females are at a greater risk of developing adverse gastrointestinal effects. As few as 20% of the participants used analgesics after consulting healthcare personnel, including doctors and pharmacists. Therefore, with regards to management-seeking attitudes, this investigation was consistent with an earlier finding in which women displayed reluctance in pursuing medicinal instruction and preferred to ask family members, friends, and consult internet resources [42, 43]. The main reasons for such behavior were the normalization of menstrual pain and the preference for self-medication [44]. The majority of females considered that MC pain is a normal physiological state that ought to be tolerated. This false conception is generally imposed by family members, society and culture, thus causing females to seek self-care approaches rather than appropriate medicinal assistance.

The outcomes of the current study revealed that 61.7% of Saudi women expressed that they use another analgesic if pain is not relieved, whereas only 26.2% go to hospital or consult a physician.

Community pharmacists, being easily accessible healthcare providers, play an exceptional role in instructing PD females as well as adjusting their management approach. Pharmacists ought to guide dysmenorrheic females with the selection of appropriate analgesics and instruct them that they should be taken 1–2 days before the predicted onset of menses rather than on an as-needed basis to attain acceptable pain relief. Females should also be instructed to take NSAIDs every 6 to 8 h after meal intake, and not to exceed the recommended dose. Furthermore, pharmacists should counsel females with regards to the anticipated outcomes and side effects of the selected painkiller.

In addition, study recognized that drugs were superior to non-pharmacological procedures in reducing the pain score. Thus, consuming drugs for pain relief is considered a keystone in managing dysmenorrhea, whereas non-pharmacological procedures can be adopted as adjunctive therapy and for those who cannot tolerate analgesics.

This study had some limitations that needed to be considered. First, this was a cross-sectional investigation; thus, outcomes may not be generalized since the participants were limited to a specific region in the KSA. In addition, pain perception differs from one individual to another; therefore, it is not appropriate to compare our results regarding pain with those of other studies that used scales for measuring pain. Another limitation in the current study is the study did not use any established scale for dysmenorrhea such as WALLiDD scale [45].

5. Conclusions

PD is a largely ignored gynecological disorder characterized by menstrual pain related with several physical and psychological indicators that affect the daily activities of the female involved. PD is typically managed by NSAIDs and OCP in addition to other non-pharmacological therapies. Despite the adverse impact of PD, the majority of females do not pursue recognized healthcare assistance; rather, they perceive this as a normal physiological cycle. In the current study, most dysmenorrheic females received optium medications to manage their pain; nevertheless, the onset of drug initiation was delayed with respect to menstrual bleeding, and a sub-therapeutic dose was administered; subsequently, suboptimal effectiveness for pain relief was achieved. Moreover, none of the participants acknowledged using contraceptives which is probably due to the common perception in the Arab public that contraceptives are utilized only for contraception. Our conclusions revealed a clear absence of understanding of the optimal management of PD. Hence, instructive programs and interventions relating to PD, its modifiable risk factors, and self-management care, should be developed and applied to avoid the unnecessary pain and disturbances to daily activities. Moreover, there is an indispensable requirement for primary healthcare practitioners to provide counseling services relating to PD and to augment its management outcomes.

AVAILABILITY OF DATA AND MATERIALS

Date are available upon request.

AUTHOR CONTRIBUTIONS

FMA, WAA and NSY—conceptualization; software; formal analysis. FMA and WAA—methodology; writing-original draft preparation. NSY—supervision; writing-review and editing; funding acquisition. All authors have read and agreed to the published version of the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Institutional Review Board (IRB) of King Faisal University in the eastern region of Saudi Arabia (IRB approval number: KFU-REC-2022-DEC-ETHICS360). Informed consent was obtained from each participant prior to data collection.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

[1] Cortes H, Hernández-Parra H, Bernal-Chávez SA, Caballero-Florán IH, Aguilar-Vázquez R, Del Prado-Audelo ML, *et al*. Current status of the therapeutic approach for dysmenorrhea. Cellular and Molecular Biology. 2023; 69: 52–63.

[2] Ma H, Li LY, Zhang BY, Chen J, Yuan S, Wang GZ, *et al*. Research progress on pathogenesis and treatment of primary dysmenorrhea. Advances in Obstetrics and Gynecology Research. 2023; 1: 20–30.

[3] Gutman G, Nunez AT, Fisher M. Dysmenorrhea in adolescents. Current problems in pediatric and adolescent health care. 2022; 52: 101186.

[4] Almanasef M, Alqarni H. Self-care strategies for the management of primary dysmenorrhea among young women in Asir region, Saudi Arabia: a cross-sectional study. European Review for Medical & Pharmacological Sciences. 2023; 27: 172–178.

[5] Al-Husban N, Odeh O, Dabit T, Masadeh A. The influence of lifestyle variables on primary dysmenorrhea: a cross-sectional study. International Journal of Women's Health. 2022; 14: 545–553.

[6] Fitrianingsih ADR, Santanu AM. Primary dysmenorrhea risk based on characteristics, dietary habits, and types of exercise. Jurnal Ilmu Kesehatan Masyarakat. 2021; 12: 21–37.

[7] Karout S, Soubra L, Rahme D, Karout L, Khojah HMJ, Itani R. Prevalence, risk factors, and management practices of primary dysmenorrhea among young females. BMC Women's Health. 2021; 21: 392.

[8] Kant A, Kannan J, Chandra S, Chandravati, kalra B, Mary H, *et al*. Unraveling prostaglandin and NLRP3 inflammasomemediated pathways of primary dysmenorrhea and the role of mefenamic acid and its combinations. Indian Journal of Clinical Practice. 2023; 33: 41–46.

[9] MacGregor B, Allaire C, Bedaiwy MA, Yong PJ, Bougie O. Disease burden of dysmenorrhea: impact on life course potential. International Journal of Women's Health. 2023; 15: 499–509.

[10] Tsonis O, Gkrozou F, Barmpalia Z, Makopoulou A, Siafaka V. Integrating lifestyle focused approaches into the management of primary dysmenorrhea: impact on quality of life. International Journal of Women's Health. 2021; 13: 327–336.

[11] Fuentes-Aparicio L, Cuenca-Martínez F, Muñoz-Gómez E, Mollà-Casanova S, Aguilar-Rodríguez M, Sempere-Rubio N. Effects of therapeutic exercise in primary dysmenorrhea: an umbrella & mapping review therapeutic exercise in primary dysmenorrhea. To be published in Pain Medicine. 2023. [Preprint].

[12] Choksey R, Mangal RK, Stead TS, Jones T, Flores R, Ganti L. Quantifying the impact of dysmenorrhea symptoms on quality-of-life and access to oral contraceptives by income. Health Psychology Research. 2023; 11: 74120.

[13] Itani R, Soubra L, Karout S, Rahme D, Karout L, Khojah HMJ. Primary dysmenorrhea: pathophysiology, diagnosis, and treatment updates. Korean Journal of Family Medicine. 2022; 43: 101–108.

[14] Marjoribanks J, Ayeleke RO, Farquhar C, Proctor M. Nonsteroidal anti-inflammatory drugs for dysmenorrhoea. Cochrane Database of Systematic Reviews. 2015; 2015: CD001751.

[15] Alsaleem M. Dysmenorrhea, associated symptoms, and management among students at King Khalid University, Saudi Arabia: an exploratory study. Journal of Family Medicine and Primary Care. 2018; 7: 769–774.

[16] Mannasaheb BA, Alajlan SA, Alshahrani JA, Othman N, Alolayan SO, Alamrah MS, *et al*. Prevalence, predictors and point of view toward self-medication among residents of Riyadh, Saudi Arabia: a cross-sectional study. Frontiers in Public Health. 2022; 10: 862301.

[17] Daniel WW, Cross CL. Biostatistics: a foundation for analysis in the health sciences. 11th edn. Wiley: Michigan. 2018.

[18] Hassan SA, Moussa BA. Prevalence of dysmenorrhea and its impact on daily activities among women in Babylon city. Medical Journal of Babylon. 2022; 19: 680–690.

[19] Kahal F, Alshayeb S, Torbey A, Al Helwani O, Kadri S, Helwani A, *et al*. The prevalence of menstrual disorders and their association with psychological stress in Syrian students enrolled at health-related schools: a cross-sectional study. To be published in International Journal of Gynecology & Obstetrics. 2023. [Preprint].

[20] Hashim RT, Alkhalifah SS, Alsalman AA, Alfaris DM, Alhussaini MA, Qasim RS, *et al*. Prevalence of primary dysmenorrhea and its effect on the quality of life amongst female medical students at King Saud University, Riyadh, Saudi Arabia. Saudi Medical Journal. 2020; 41: 283–289.

[21] Abdel-Salam DM, Alnuman RW, Alrwuaili RM, Alrwuaili GA, Alrwuaili EM. Epidemiological aspects of dysmenorrhea among female students at Jouf University, Saudi Arabia. Middle East Fertility Society Journal. 2018; 23: 435–439.

[22] Bakhsh H, Algenaimi E, Aldhuwayhi R, AboWadaan M. Prevalence of dysmenorrhea among reproductive age group in Saudi Women. BMC Women's Health. 2022; 22: 78.

[23] Ali A, Ali A, Alotaibi NS, Alsufyani MS, Alotaibi AJ, Almutairi MM, *et al*. Prevalence, impact, and management perception of dysmenorrhea among university students: a cross-sectional study. Brazilian Journal of Pharmaceutical Sciences. 2022; 58: e20458.

[24] Alhammadi MH, Albogmi AM, Alzahrani MK, Shalabi BH, Fatta FA, AlBasri SF. Menstrual cycle irregularity during examination among female medical students at King Abdulaziz University, Jeddah, Saudi Arabia. BMC Women's Health. 2022; 22: 367.

[25] Sharghi M, Mansurkhani SM, Ashtary-Larky D, Kooti W, Niksefat M, Firoozbakht M, *et al*. An update and systematic review on the treatment of primary dysmenorrhea. JBRA Assisted Reproduction. 2019; 23: 51–57.

[26] Oksuz E, Sozen F, Kavas E, Arik EP, Akgun Y, Bingol P, *et al*. Usage of analgesics among young girls and dysmenorrhea. Konuralp Medical Journal. 2017; 9: 213–221.

[27] Ibrahim NK, AlGhamdi MS, Al-Shaibani AN, AlAmri FA, Alharbi HA, Al-Jadani AK, *et al*. Dysmenorrhea among female medical students in King Abdulaziz University: prevalence, predictors and outcome. Pakistan Journal of Medical Sciences. 2015; 31: 1312–1317.

[28] Donayeva A, Amanzholkyzy A, Nurgaliyeva R, Gubasheva G, Saparbayev S, Ayaganov D, *et al*. The impact of primary dysmenorrhea on the adolescents' activities and school attendance. Research Square. 2023. [Preprint].

[29] Wildayani D, Lestari W, Ningsih WL, Sujendri S. The relationship between physical activity level and dysmenorrhoea in young women. The Medical Journal of Malaysia. 2023; 78: 495–499.

[30] Durand H, Monahan K, McGuire BE. Prevalence and impact of dysmenorrhea among university students in Ireland. Pain Medicine. 2021; 22: 2835–2845.

[31] Zaman AY, Alameen AM, Alreefi MM, Kashkari ST, Alnajdi SA, Sharara AA, *et al*. Comparison of herbal medicines and pain relief medications in the treatment of primary dysmenorrhoea among female medical students at Taibah University. Journal of Taibah University Medical Sciences. 2023; 18: 455–460.

[32] Nie W, Xu P, Hao C, Chen Y, Yin Y, Wang L. Efficacy and safety of over-the-counter analgesics for primary dysmenorrhea: a network meta-analysis. Medicine. 2020; 99: e19881.

[33] Xuan Y, Zhang H, Liu D, Huang Y, Li L, Cao Q, *et al*. The efficacy and safety of simple-needling for the treatment of primary dysmenorrhea compared with ibuprofen: a systematic review and meta-analysis. Medicine. 2022; 101: e28919.

[34] Syed N, Waliwitiya T. Evaluating the effectiveness of NSAIDs and vasopressin receptor antagonists as primary dysmenorrhea treatments. The Meducator. 2022; 1: 17–19.

[35] Hewitt GD, Gerancher KR. ACOG committee opinion No. 760 summary: dysmenorrhea and endometriosis in the adolescent. Obstetrics and Gynecology. 2018; 132: 1517–1518.

[36] Dong Y, Li MJ, Hong YZ, Li WJ. Insight into dysmenorrhea research from 1992 to 2022: a bibliometric analysis. Journal of Pain Research. 2023; 16: 3591–3611.

[37] Proctor ML, Farquhar CM. Dysmenorrhoea. BMJ clinical evidence. 2007; 2007: 0813.

[38] Ribeiro H, Rodrigues I, Napoleão L, Lira L, Marques D, Veríssimo M, *et al*. Non-steroidal anti-inflammatory drugs (NSAIDs), pain and aging: adjusting prescription to patient features. Biomedicine & Pharmacotherapy. 2022; 150: 112958.

[39] Oladosu FA, Tu FF, Hellman KM. Nonsteroidal antiinflammatory drug

resistance in dysmenorrhea: epidemiology, causes, and treatment. American Journal of Obstetrics and Gynecology. 2018; 218: 390–400.

[40] Abdel-Salam DM, Albahlol IA, Almusayyab RB, Alruwaili NF, Aljared MY, Alruwaili MS, *et al*. Prevalence, correlates, and barriers of contraceptive use among women attending primary health centers in aljouf region, Saudi Arabia. International Journal of Environmental Research and Public Health. 2020; 17: 3552.

[41] Al-Husban N, Odeh O, Dabit T, Masadeh A. The influence of lifestyle variables on primary dysmenorrhea: a cross-sectional study. International journal of women's health. 2022; 14: 545–553.

[42] Al-Matouq S, Al-Mutairi H, Al-Mutairi O, Abdulaziz F, Al-Basri D, Al-Enzi M, *et al*. Dysmenorrhea among high-school students and its associated factors in Kuwait. BMC Pediatrics. 2019; 19: 80.

[43] Ameade EPK, Amalba A, Mohammed BS. Prevalence of dysmenorrhea among university students in Northern Ghana; its impact and management strategies. BMC Women's Health. 2018; 18: 39.

[44] Ramos-Pichardo JD, Ortega-Galán ÁM, Iglesias-López MT, Abreu-Sánchez A, Fernández-Martínez E. Why do some Spanish nursing students with menstrual pain fail to consult healthcare professionals? International Journal of Environmental Research and Public Health. 2020; 17: 8173.

[45] Teherán AA, Piñeros LG, Pulido F, Mejía Guatibonza MC. WaLIDD score, a new tool to diagnose dysmenorrhea and predict medical leave in university students. International Journal of Women's Health. 2018; 10: 35–45.

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