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PREVALENCE, RISK FACTORS AND MANAGEMENT PRACTICE OF DYSMENORRHEA AMONG FEMALES OF WESTERN SAUDI ARABIA; A CROSS-SECTIONAL STUDY

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Abstract:
Background: Dysmenorrhea has a negative impact on the quality of life of affected females. For example, dysmenorrhea might negatively affect relationships, academic and professional performance, and social and recreational activities. The study aim to find the prevalence, types, predisposing factors and management options of dysmenorrhea in the western area of Saudi Arabia.
Methods: This was a cross sectional community based study, conducted in Western area of Saudi Arabia on 476 females aged 10-52 years, during the period from 1 March to 31 June 2018. Data was collected using a pre-designed online self-administered questionnaire included the relevant questions to collect data about socio-demographic characteristics and special habits of the participants, menstrual cycle related data and data related to menstrual pain, how to deal with menstrual pain and using drugs for menstrual pain.
Results: Our study reported the prevalence of dysmenorrhea was 83.6%; 59.3% was moderate pain, 29.1% severe and only 10.6% mild. The majority were non-smokers 80.6% (p=0.888).). About half (53.5%) of dysmenorrhea cases was suffering from continuous stress (p=0.325). From dysmenorrhea cases, 70.8% had regular menstruation and 29.1% had irregular menstruations, 41.2% had menarche at 13-14 years old and only 1.7% had menarche at ≥ 17 years olds.
Conclusion: A high prevalence of dysmenorrhea was detected among female in the western area of Saudi Arabia. Advanced large-scale researches, health education programs, and health promotion are recommended.
Keywords: *Dysmenorrhea, Prevalence, Determinants, Outcome*

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INTRODUCTION:

Dysmenorrhea refers in imitation of the occurrence about bitter menstrual cramps over uterine origin. It is a frequent gynecological condition with considerable morbidity. The etiology of fundamental dysmenorrhea has been the source of debate [1].

Dysmenorrhea or painful menstruation is defined as a serious, excruciating, cramping sensation in the lower abdomen that is often accompanied by different indications such as vomiting, diarrhea headaches, nausea, sweating , and tremulousness, all occurring just before or during the menses [2]. There are two types of dysmenorrhea: Primary dysmenorrhea and Secondary dysmenorrhea. Primary dysmenorrhea is common menstrual cramps that are recurrent furthermore, are not because of different diseases. Pain usually begins when menstrual bleeding starts. It is felt in the lower abdomen, back, or thighs. Pain can range from mild to severe and can last 12 to 72 hours. Common menstrual cramps usually turn out to be less painful as a woman ages and may stop entirely when a woman gives birth [3].

On the other hand, secondary dysmenorrhea is pain that is caused by a disorder in the woman's reproductive organs, such as endometriosis, adenomyosis, uterine fibroids, or infection. Pain from secondary dysmenorrhea usually begins earlier in the menstrual cycle and lasts longer than common menstrual cramps. The pain is not typically accompanied by nausea, vomiting, fatigue, or diarrhea [4].

The prevalence of dysmenorrhea announced in the literature varies substantially, a greater prevalence was generally observed in young women, with estimates ranging from 67% to 90% for those aged 17–24 years [5,6]. An ongoing extensive Australian investigation of senior secondary school young women found that a higher extent (93%) of adolescents reported menstrual pain [7]. The examinations in adult women are less consistent in reporting prevalence of dysmenorrhea and often focus on a specific group, with rates varying from 15% to 75% [5]. Extreme pain sufficient to limit daily activities is significantly less normal, affecting approximately 7%–15% of women [5] although a study of adolescents and young adults aged 26 years or less reported that 41% of the participants had limitations in their daily activities due to dysmenorrhea [8]. This study was carried out aimed to find the prevalence, types, predisposing factors and management options of dysmenorrhea in the western area of Saudi Arabia.

Participants and methods:

This was a cross sectional community-based study, conducted in Western area of Saudi Arabia on 476 females aged 10-52 years, during the period from 1 March to 31 June 2018. The sample size was calculated using the sample size equation: $n=z^2 p(1-p)/e^2$, considering target population more than 1000, and study power 95%. Systematic random sampling technique was followed.

Data collection: data was collected using a pre-designed online questionnaire, which was distributed among the targeted population. It was self-administered by participants after a brief introduction or explanation of the idea of the research. The questionnaire included the relevant questions to collect data about:

- Socio-demographic characteristics and special habits of the participants.
- Menstrual cycle related data.
- Data related to menstrual pain, how to deal with menstrual pain and using drugs for menstrual pain.

Statistical analysis:

Data was analyzed using IBM SPSS Statistics for Windows version 20.0. Qualitative data was expressed as number and percentage. Chi-Square test was used for comparison between qualitative variables. A 5% level was chosen as a level of significance in all statistical tests used in the study.

Ethical considerations:

Participants were informed that participation is completely voluntary and data collectors introduced and explained the research to participants. No names were recorded on the questionnaires and all questionnaires kept safe.

RESULTS:

From the tables it is clear that, the distribution of the studied females by socio-demographic variables and special habits. Most (27.1%) of the studied females aged 30-39 years, 48.4% were married, 82.4% have university or more education. 70 % drinking tea or coffee repeatedly and 52.5% suffering from continuous stress. Our study reported the prevalence of dysmenorrhea was 83.6%. Regarding to pain severity our study reported 59.3% was moderate pain, 29.1% severe and only 10.6% mild. According to relation between dysmenorrhea and smoking our study reported, the majority were non-smoking 80.6%, only 10.8% were smokers with no significant correlations (p=0.888). As regards relations between dysmenorrhea and stress, our study reported that, 52.5% of

dysmenorrhea cases was suffering from continuous stress and 46.4% had no stress and there was no significant relation (p=0.325). According to menstrual cycle regularity, our study reported from females with dysmenorrhea 70.8% had regular menstruation and 29.1% had irregular menstruations. Regarding to age of menarche this study reported, from females with dysmenorrhea 41.2% had menarche at 13-14 years old and only 1.7% had menarche at $\geq$ 17 years olds.

Table (1): Distribution of the studied females by sociodemographic variables and special habits (No.=476).

Characteristics	Summary statistics
Age	
≤ 12 years	4 (0.8 %)
13-15 years	4 (0.8 %)
16 -18 years	44 (9.2%)
19- 23 years	90 (18.9 %)
24-29 years	94 (19.7%)
30 -39 years	129 (27.1%)
40- 49 years	84 (17.6 %)
≥ 50 years	27 (5.7%)
Marital status	
Widow	4 (0.8 %)
Single	219 (46 %)
Married	230 (48.4%)
Divorced	23 (4.8%)
Education	
Primary	4 (0.8 %)
Secondary	71 (14.9 %)
Intermediate education	9 (1.9%)
University	392 (82.4%)
Father education	
Primary	45 (9.5 %)
Secondary	96 (20.1%)
University	243 (51.1%)
Non-educated	32 (6.7%)
Intermediate education	60 (12.6 %)
Mother education	
Primary	70 (14.7%)
Secondary	80 (16.8 %)
University	213 (44.7%)
Non-educated	62 (13%)
Intermediate education	51 (10.7 %)
Drinking tea or coffee repeatedly	
No	143 (30 %)
Yes	333 (70 %)
Suffering from continuous stress	
No	226 (47.5%)
Yes	250 (52.5%)
Smoking	
Sometimes	41(8.6%)
No	385 (80.9%)
Yes	50 (10.5%)

Residence	
Rural	7 (1.5%)
Urban	457 (96%)
Area of the city's suburbs	12 (2.5%)
Type of residence	
With family	453 (95.2%)
Individual accommodation	22 (4.6 %)
Separate villa	1 (0.2%)

Table (2): Distribution of the studied females by menstrual cycle related data (No.=476).

Characteristics	Summary statistics
Age at menarche	
≤ 10 days	41 (8.6 %)
11-12 days	171 (35.9%)
13 -14 days	206 (43.3%)
15- 16 days	49 (10.3 %)
≥ 17 days	9 (1.9%)
Is your menstrual cycle regular?	
No	132 (27.7%)
Yes	344 (72.3%)
Do you suffer from menstrual pain?	
No	78 (16.4%)
Yes	398 (83.6%)

Table (3): relation between dysmenorrhea and sociodemographic variables and special habits (No.=476)

Parameter	No dysmenorrhea (N= 78)	Dysmenorrhea (N= 398)	P-value
Age			
≤ 12 years	1 (25%)	3 (75%)	
13-15 years	0 (0.0%)	4 (100%)	
16 -18 years	5 (11.4%)	39 (88.6%)	
19- 23 years	9 (10%)	81 (90%)	
24-29 years	9 (10%)	85 (90.4%)	0.009
30 -39 years	23(17.8%)	106 (82.2%)	
40- 49 years	23(27.4%)	61 (72.6%)	
≥ 50 years	8 (29.6%)	19(70.4%)	
Marital status			
Widow	0 (0.0%)	4 (100%)	
Single	21 (9.6%)	198 (90.4%)	0.002
Married	52 (22.6%)	178 (77.4%)	
Divorced	5 (21.7%)	18 (78.3%)	
Education			
Primary	1 (25%)	3 (75%)	
Secondary	9 (12.7%)	62 (87.3%)	0.74
Intermediate education	1 (11.1%)	8 (88.9%)	
University	67 (17.1%)	325 (82.9%)	

	No dysmenorrhea	Dysmenorrhea	P-value
Father education			
Primary	12 (26.7%)	33 (73.3%)	
Secondary	14(14.6%)	82 (85.4%)	
University	36 (14.8%)	207 (85.2%)	0295
Non-educated	7 (21.9%)	25 (78.1%)	
Intermediate education	9 (15%)	51 (85%)	
Mother education			
Primary	12 (17.1%)	58 (82.9%)	
Secondary	9 (11.2%)	71(88.8%)	
University	36 (16.9%)	177 (83.1%)	0.631
Non-educated	13 (21%)	49 (79%)	
Intermediate education	8 (15.7%)	43 (84.3%)	
Smoking			
Sometimes	7 (17.1%)	34 (82.9%)	
No	64 (16.6%)	321 (83.4%)	0.888
Yes	7 (14%)	43 (86%)	
Drinking tea or coffee repeatedly			
No	24 (16.8%)	119 (83.2%)	0.878
Yes	54 (16.2%)	279 (83.8%)	
Suffering from continuous stress			
No	41 (18.1%)	185 (81.9%)	0.325
Yes	37(14.8%)	213 (85.2%)	
Residence			
Rural	3 (42.9%)	4 (82.9%)	
Urban	74 (16.2%)	383 (83.4%)	0.125
Area of the city's suburbs	1 (8.3%)	11 (91.7%)	
Type of residence			
With family	75 (16.6%)	378 (83.4%)	
Individual accommodation	3 (13.6%)	19 (86.4%)	0.849
Separate villa	0 (0.0%)	1 (100%)	

P-value is calculated by Chi-Square Test
P-value <0.05 is statistically significant

Table (4): relation between dysmenorrhea and data related to menstrual period (No.=476)

Parameter	No dysmenorrhea (N= 78)	Dysmenorrhea (N= 398)	P-value
Age at menarche			
≤ 10 days	6 (14.6%)	35 (85.4%)	
11-12 days	22 (12.9%)	149 (87.1%)	
13 -14 days	42 (20.4%)	164 (79.6%)	0.299
15- 16 days	6 (12.2%)	43 (87.8%)	
≥ 17 days	2 (22.2%)	7 (77.8%)	
Is your menstrual cycle regular?			
No	16 (12.1%)	116 (87.9%)	0.119
Yes	62 (18%)	282 (82%)	

P-value is calculated by Chi-Square Test

Table (5): Distribution of the studied females by data related to menstrual pain (No.=398).

Characteristics	Summary statistics
Pain severity	
Mild	42 (10.6%)
Moderate	236 (59.3%)
Severe	116 (29.1 %)
No answer	4 (1%)
Time of pain onset	
More than three days in the menstrual period	19 (4.8%)
The first days of menstruation only	117 (29.4%)
A few hours before the flow of blood	42 (10.6 %)
A day or more Before menstruation	140 (35.2%)
From the first to the third day of menstruation	79 (19.8%)
No answer	1 (0.3%)
Pain duration	
One day	103 (25.9%)
Two days	169 (42.5%)
Three days	100 (25.1%)
≥ Four days	25 (6.4%)
No answer	1 (0.3%)
Have you ever visited the hospital because of menstrual pain?	
No	319 (80.2%)
Yes	77 (19.3%)
No answer	2 (0.5%)

Table (6): Distribution of the studied females by how to deal with menstrual pain (No.=398).

Characteristics	Summary statistics
Doctor consultation	
No	384 (96.5%)
Yes	14 (3.5%)
Drugs	
No	223 (56%)
Yes	175 (44%)
Physical exercises	
No	276(94.5%)
Yes	22 (5.5%)
Natural herbs	
No	218 (54.8%)
Yes	180 (45.2%)
Use a warm water bag	
No	227 (57%)
Yes	171 (43%)
Comfort at home	
No	236 (59.3%)
Yes	162 (40.7%)
Use no thing	
No	371 (93.2%)
Yes	27 (6.8 %)

Table (7): selection of medications among females using drugs for menstrual pain.

Parameters	Summary statistics
Selection of medications by personal experience	82 (32.5%)
Medications recommended by doctor, friends and pharmacists	1 (0.39%)
Popular medicines	3 (1.19%)
Medicines from the pharmacy without a prescription.	61 (24.2%)
Medicines are recommended by friends or family.	56 (22.2%)
Medications are recommended by a doctor.	42 (16.67%)
Analgesics of all kinds	7 (2.78%)

Table (8): Distribution of the studied females by whether they feel comfortable and improve after dealing with the pain (No.=398).

Parameters	Summary statistics
Sometimes agree	151 (37.9%)
Strongly agree	134 33.7 %)
Not sure	42 (10.6%)
Disagree	20 5(%)
No answer	51 (12.8%)

DISCUSSION:

Dysmenorrhea is the most common gynecological symptom among young women. It results in negative physical and psychological consequences. It has a negative impact on the quality of life of affected females. For example, dysmenorrhea might negatively affect relationships, academic and professional performance, and social and recreational activities [3].

This is a cross sectional study aimed to find the prevalence, types, predisposing factors and management options of dysmenorrhea in the western area of Saudi Arabia.

Our study reported the prevalence of dysmenorrhea was 83.6%. This was less than another study conducted at Jouf University among 366 females, which reported that nearly 88% of them had dysmenorrhea [9]. Another study conducted in Al Khobar city at Eastern province in Saudi Arabia, 96.3% of the participants had dysmenorrhea [10]. However, another study conducted in Arar city found that the prevalence of dysmenorrhea was 74.4% [11]. This was near to another study conducted in Egypt which reported prevalence by 74.8% [12]. Other studies were carried out in Egypt reported high prevalence rate of dysmenorrhea 94.4% [13], 92.9% [14] and 92% [15]. Other studies showed low prevalence rates of dysmenorrhea. In Jeddah another study conducted among 435 medical students, the prevalence of dysmenorrhea was 60.9% [16]. In Turkey another study reported, the prevalence of dysmenorrhea was 55.5% [17]. In Mexico, another study found that dysmenorrhea had a prevalence of 48.4% [18]. These variations may be due to differences between the target populations, lifestyle, or due absence of a standardized universally accepted method for defining dysmenorrheal.

Regarding to pain severity our study reported 59.3% was moderate pain, 29.1% severe and only 10.6% mild. Another study reported, mild pain by 21.1%, moderate 41.4%, and severe=37.5% [11]. Another study found that from female with dysmenorrhea 35.8% were suffering from severe pain, 47.5% moderate and 13.2% mild [10]. Another study reported 34% of students with dysmenorrhea reported their pain as severe [9]. Which is higher than that reported in Egypt (14.8%) [12] and slightly lower than that reported in Saudi Arabia (38.6%) [16]. In Northwestern Ethiopia across sectional study reported, (35.2%) of participants with dysmenorrhea experienced moderate pain, 22.9% mild and 21.1% sever pain [19]. In Turkey another study reported that 89.4% of females with dysmenorrhea had Mild–moderate pain and only 10.65 had severe pain [20]. Another study reported, the majority (80.34%) of dysmenorrhic females reported having moderate/ severe pain and only 19.7% had mild pain [21]. These differences in the degree of pain severity may be linked to cultural variations in pain perception and variability in pain

threshold. Also, relation between ethnicity and pain perception has previously been shown [22]. Cigarette smoking is a demonstrated risk factor for dysmenorrhea [23]. According to relation between dysmenorrhea and smoking our study reported, the majority were non-smoking 80.6%, only 10.8% were smokers with no significant correlations (p=0.888).). In contrast to our result another study found a statistically significant association between the presence of dysmenorrhea and cigarette smoking (P < 0.001) [18]. Another study found that the prevalence of dysmenorrhea was significantly higher among smokers compared with nonsmokers (63.4% vs 52.6%; P < 0.05) [17]. Another study reported, Smokers had higher prevalence of dysmenorrhea (80%) compared to others however, no statistical significance differences were found (p>0.05) [16]. Some researchers have suggested that because nicotine is a vasoconstrictor it can result in reduced endometrial blood flow, which is common in women with dysmenorrhea [23]. As regards relations between dysmenorrhea and stress, our study reported that, 53.5% of dysmenorrhea cases was suffering from continuous stress and 46.4% had no stress and there was no significant relation (p=0.325). Another study reported, from females with dysmenorrhea 64.3% had stress and 48.3% had no stress with highly statistical significant difference was present (p < 0.01), therefor stress was one of the predictors of dysmenorrhea [16]. Several studies give an explanation for this association by relating stress with the cascade of neuro-endocrine responses [24]. Dorn, et al. [25] reported that emotional disturbance may cause menstrual cycle abnormalities, especially dysmenorrhea.

According to menstrual cycle regularity, our study reported from females with dysmenorrhea 70.8% had regular menstruation and 29.1% had irregular menstruations. This finding is in agreement with our results another study revealed that (76.6%) and (23.4%) participants had regular and irregular cycles, respectively [28].

While this finding was in disagreement with another study that reported the majority, 90.3% had irregular menstrual cycle and only 9.7% had regular cycle [6]. Another study found statistically significant correlations between dysmenorrhea and the irregular cycles [18].

Regarding to age of menarche this study reported, from females with dysmenorrhea 41.2% had menarche at 13-14 years old and only 1.7% had

menarche at ≥ 17 years olds. Another study found that dysmenorrhea was significantly more frequent among females with earlier age at menarche [9]. Another study reported, the age of menarche was <15 years in 61.9% and 53.1% was ≥ 15 years old [16]. Another study reported that the prevalence of dysmenorrhea was found to be higher in women whose age at menarche was 13 years or older [17]. However, another study found that dysmenorrhea was experienced more by respondents whose age at menarche was less than 13 years than when menarche occurred in later years (89.2% vs 80.1% - 85.7%; p = 0.178) [27]. However, these findings are inconsistent with the results of several other researchers who showed that women who underwent menarche at a younger age faced a higher risk for dysmenorrhea [26].

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