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Research Article

PREVALENCE, IMPACT AND MANAGEMENT PRACTICES **OF DYSMENORRHEA AMONG FEMALE STUDENTS AT GOVERNMENTAL SECONDARY SCHOOLS IN** JEDDAH, SAUDI ARABIA, 2018

Mashael Yahya Alsamti¹, Iman Mohamed Wahby²

¹ Family Medicine Resident, Joint Program of Family Medicine, Jeddah, Saudi Arabia ²Associate Professor of Community Medicine, Faculty of Medicine, King Abdul Aziz University Jeddah Saudi Arabia

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Article Received: April 2019	Accepted: May 2019	Published: June 2019			
Abstract:					
Background: Primary dysmenorrhea is the	most common gynecological com	plaint among female adolescents.			
This condition can cause significant disrupt	ions in the quality of life and dail	y activities of students. In Jeddah,			
no current studies have explored the misuse	e of over-the-counter medications	to manage dysmenorrhea among			
female students in secondary schools.					
Subjects and Methods: In this cross-sectio	nal study, 400 governmental sec	ondary school female students in			
Jeddah, Saudi Arabia, were interviewed fro	m October 2018 to February 201	19 using interviewer-administered			
questionnaire. Descriptive and analytical st	atistics were used to describe an	nd assess the association between			
variables.					
Main Results: Results revealed that 84.5	% of students had dysmenorrhe	ea whereas 56.3% of them had			
experienced ≥ 2 impacts, having the limited	daily activity (9.4%) and emotio	nal instability (6.5%) as the most			
common reported effects. More than two thi	rd (74.5%) of the students used n	non-pharmacological management			
as a primary option. Paracetamol (63.6%) a	and NSAIDs (19.1%) were the mo	ost commonly used medications to			
manage dysmenorrhea. Logistic regression	n showed that the level of acti	wity was the main predictor of			
aysmenorrnea (OR= 7.09, P=0.08/1).	and the state are also defended				
Conclusion and Recommendations: Over	all, this study revealed that the	here was a high prevalence of			
dysmenorrhea, and there was inadequate level of awareness among students about the possible side effects					
and advertional program to improve their l	medication, implying that student	is musi be exposed to health cure			
studies and evidence based findings are need	ded to validate the effectiveness of	f physical activity in managing the			
dysmanorrhad	ieu io vultuure the effectiveness of	physical activity in managing the			
aysmenormea. Kov Words: Dysmenorrhea Provalence Impact Management Practice Menstrual problem Medication					
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Corresponding author:		OR code			
Dr. Mashael Yahya Alsamti,		QICCODE			
Family Medicine Resident					
Joint Program of Family Medicine, J	Ieddah, Saudi Arabia	200 A R			

Email: mashaelalsamti@hotmail.com



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INTRODUCTION:

Dysmenorrhea is the most common gynecological complaint among adolescent females (1, 2). It is defined as the cramping pain in the lower abdomen occurring at the onset of menstruation in the absence of any identifiable pelvic disease" ⁽¹⁾. This condition has been associated with systemic symptoms of nausea, vomiting, diarrhea, fatigue, fever, headache or lightheadedness (3, 4). Primary type of dysmenorrhea usually presents during adolescence whereas it generally does not occur until ovulatory menstrual cycles are established which usually begins six to 12 months after menarche ^(3, 5). The pain is thought to result from uterine contractions and ischemia, an episode probably mediated by prostaglandins ^(1, 3, 5). It may occur with menses or precede menses by 1 to 3 days. Pain tends to peak 24 hours after onset of menses and subside after 2 to 3 days ⁽⁵⁾. Its prevalence among females ranges from 47 to 90%, depending on the studied age group, and occurs up to 94% in female adolescents worldwide (6-12). The secondary type is the dysmenorrhea occurring during the first one or two cycles after menarche, late onset of dysmenorrhea after 25 years of age or after a history without previous pain with menstruation, little or no response to therapy with non- steroidal anti-inflammatory drugs (NSAIDs), oral contraceptives, or both ⁽¹⁾.

Several risk factors are associated with dysmenorrhea such as early age of menarche, long period or heavy menstrual flow, smoking, obesity, family history of dysmenorrhea, lack of exercise and anxiety about menses ^(5, 13).

Primary dysmenorrhea increases during adolescence and reaches to its highest in 20-24 years and decreases progressively thereafter, and can cause significant disruptions in the daily activities, quality of life, social and academic performance of students ^(8-10, 12). In fact, this condition is one of the reasons for visits to primary

health care centers, and it occurs up to 74.4% among female secondary students in Kingdom of Saudi Arabia (KSA) ⁽⁶⁾. However, limited studies are conducted addressing the impact and management practice of dysmenorrhea among students in this country. Also, there are no current studies that explored the misuse of over-the-counter medications for dysmenorrhea among adolescent females in Jeddah.

The study aims to evaluate the prevalence, impact and management practice of dysmenorrhea among female secondary students at governmental secondary schools in Jeddah, 2018.

SUBJECTS AND METHODS:

Study Design and Setting: This is a cross-sectional study that was conducted at governmental secondary schools during the academic year 2018-2019 in Jeddah, KSA.

Population of the study and sampling: The governmental female secondary students are considered to be the population for this study. The average prevalence of dysmenorrhea is reported to be 60.9% ^(6, 7, 10, 11, 14), and the population frame of study is around 64926 students ⁽¹⁵⁾. Based on this information, the sample size is calculated using Rao soft calculator, considering the confidence level at 95% and allowable error of 0.05. The sample size is accounted as 360 students and inflated by 10% to 400 students to cover any uncompleted data. A multistage probability sampling method was applied [Figure 1]. Saudi and non-Saudi female students in governmental secondary school is considered the inclusion criteria, while the exclusion measure is set as married (or have been married), had primary amenorrhea, abdominal operation and chronic illness (history of blood disorders, thyroid disease, any pelvic pathology) and on medication (anticoagulants, oral contraceptive pill, intrauterine device) students.



Figure 1. Flowchart of sampling procedure.

Tool of the study: Slight modification and validation by three consultants are done to the adopted questionnaires (8, 10, 12, 16) prior to its administration. The data are collected by subjecting the three-part interviewer-administered questionnaires to the participants between October 2018 and February 2019. Its three main parts cover socio-demographic and menstrual the characteristics, impact of menstrual pain and the type of treatment used of females-under-study. In this questionnaire, regular exercise is defined as \geq 30 minutes of physical activity on \geq 5 days a week (17). Physical activity is graded as light (<3 Metabolic equivalent or METS), moderate (between 3 and <6 METS) and vigorous (≥ 6 METS). Considering other characteristics, regular menstruation is defined as a cycle repeated once every 21-35 days with duration 3-7 days (18, 19). The amount of menstrual bleeding is measured in points using pictorial blood scoring chart system whereas the amount of bleeding is calculated from the last menses, having a score of 100 or greater is classified as menorrhagia ⁽²⁰⁾. The severity of dysmenorrhea, scored on the 01-10 visual analog scale (VAS), is categorized as mild (1-3), moderate (4-6) and severe (7-10). Premenstrual syndrome (PMS) is defined as presence of at least 1 of the affective or somatic symptoms during the 5 days before menses for at least 3 menstrual cycles, end within 4 days after menses start, in the absence of any pharmacologic therapy, or interfere with some normal activities (21).

The questionnaire, written in English language, are filled out by the students on a classroom or computer lab via personal interview set up for the average time of 25 minutes.

Data Entry and Analysis: The gathered data are analyzed using SPSS software statistical program version 22. Univariate (descriptive) analysis is done for categorical data which are presented as frequency (percentage), while continuous data are presented as mean and standard deviation. Bivariate analysis is done using Chi-square at P<0.05 level of significance. Lastly, multivariate analysis is employed through step-wise regression analysis to determine the predictors of dysmenorrhea.

Pilot Study: A pilot study is conducted from 10% of total sample who were subsequently excluded from the final result of the study. Further modifications are observed before the actual data collection.

Ethical Considerations: This study has ethical approval from research ethics committee of ministry of education and joint program of family medicine. Informed writing consent is obtained from all participants with confidentiality.

RESULTS

In this cross-sectional study, 400 female secondary have answered the interviewerstudents administered questionnaires. All of the secondary school female participants were roughly 16 years old age, had BMI of 22 and were 12 years old at menarche on the average [Table 1]. As shown in [Table 2], nearly half of the respondents were Saudi (48.5%), while other respondents were of non-Saudi nationality (51.5%) in which 44.7% of them were Yamani. Majority of the participants were living with both parents (88.8%) their overall academic grade based on the previous year were high which ranges from 90-100% (60.8%). In the area of medicine, most who responded were medically free from chronic diseases (87.0%) and had no history of regular medications use (91.0%). Multivitamins was the medication used by more than one-third (37.8%) in 9.0% with history of medications. Majority of the female students (53.3%) had an experienced regular physical activity, out of which more than half had practiced a moderate level of activity (71.4%).

Table 1. Anthropometric measures and age atmenarche among the studied population (n=400)

Parameters	Mean ± SD
Age (Years)	16.7 ± 1.16
BMI	22.2 ± 13.25
Age at menarche (Years)	12.9 ± 1.27

In terms of menstruation characteristics, more than three fourths of students (85.3%) were reported that they had a regular menstrual cycle (21-35 days) in which the duration of menstrual flow largely ranges from 3-7 days (64.5%) [Table 3]. Most of the respondents also considered their degree of bleeding to be normal (84.0%). In relation to premenstrual syndrome, majority reported to not experience its symptoms (59%), while among the 41% who felt it, the factor with highest percentage was angry outbursts (12.5%), followed by breast tenderness or swelling (10.3%). More than half of the students (58%) had no family history of dysmenorrhea, however most of them (84.5%) reported that they had painful menses. More than two thirds (69.3%) of the respondents had experienced a continuous type of pain. The onset of pain during menses occurred for the majority of students (63.7%) at first 2 days of menses, wherein the majority (84.7%) had experienced the pain at normal duration (3 days or less). About one third (32.7%) of them reported that the pain is evident in the lower abdomen, and (31.9%) back and lower abdomen combined. From the intensity scale, the

pain score of the participants was assessed in which 43.4% were experiencing moderate pain, 37.2% severe pain and 19.5% mild pain.

In describing the impact and management practice of the respondents towards dysmenorrhea, more than two of impacts (emotional instability, decreased social activities, limited daily activity, absenteeism from school) were experienced by the majority of them (56.3%), wherein the two most common reported specific impacts were the limited daily activity (9.4%) and emotional instability (6.5%) [Table 4]. Regarding management practice, most of the participants (89.2%) experienced managing dysmenorrhea. For Non-pharmacological management, about one half of the participants (52.1%) were practicing more than two home remedies, whereas drinking hot liquids (18.6%) was the most common management used followed by resting (4.2%); and hot application (2.7%). However, majority (82.1%) had experienced incomplete relief under all of the illustrated nonpharmacological managements. In terms of pharmacological practice, results revealed that Paracetamol (63.6%) was the medicine used by the majority of students, followed by NSAIDs (19.1%), antispasmodic (7.4%) and other medicines (1.2%), out of which 40% had reported that they were using paracetamol once a day to relieve the menstrual pain. Fifty percent of the students were using NSAIDs and 47.6% were using antispasmodic when only needed (PRN). These drugs were mostly taken through oral administration (93.8%) and mostly ingested upon occurrence of menses (92.6%). Similar to the non-pharmacological practice, more than half of the respondents (66.7%) experienced incomplete relief had under pharmacological management. Considering the use of the aforementioned medicines, more than half (55.6%) had responded that they were not aware of the possible side effects.

Table 5 shows that the combination of more than two impacts was considered to be the highest percentage felt by the students as a result of experiencing mild (39.4%), moderate (51.7%) and severe (70.6%) degree of pain. The pain scores and the impacts were all statistically significant (P = 0.01).

Multivariable logistic regression revealed that the level of activity was the first most powerful predictor of dysmenorrhea [Table 6]. Students who had light physical activity had more than seven-fold excess risk for dysmenorrhea than those who had moderate & vigorous physical activity (OR= 7.69 at 95% CI= 0.7 to 79.5). The 2^{nd} predictor was having a history of chronic diseases with (OR = 3.33 at 95% CI=1 to 11.1), followed by the

Mashael Yahya Alsamti et al

Variable	Frequency	%
Nationality		
Saudi	194	48.5
Non-Saudi	206	51.5
Non-Saudi Nationality		
Yamani	92	44.7
Egyptian	12	5.8
Other	102	49.5
Living		
With both parent	355	88.8
With mother	32	8.0
With father	10	2.5
Other	3	0.8
History of chronic diseases		
Yes	52	13.0
No	348	87.0
History of medications		
Yes	36	9.0
No	364	91.0
Type of medications		
Multivitamins	14	37.8
Other	23	62.2
Regular physical activity		
Yes	213	53.3
No	187	46.8
Level of activity		
light	42	19.7
Moderate	152	71.4
vigorous	19	8.9
Student's overall grade		
100-90%	243	60.8
89-75%	134	33.5
74-60%	21	5.3
49-0%	2	0.5

Table 2. Socio-demographic characteristics among the studied population (n=400)

presence of PMS as the 3^{rd} predictor. It is noted that there is a likelihood of 2.47 chance that dysmenorrhea exist with the increasing occurrence of PMS at 95% CI (1.33 - 4.6). The 4th predictor was the presence of family history of dysmenorrhea wherein there is a likelihood of dysmenorrhea to occur at 2.87 chance (95% CI: 1.5 - 5.4). Finally, the least powerful predictors were spicy food intake, academic year level; and nationality. About one and half excess risk of dysmenorrhea for those who intake spicy food frequently, who were Saudi nationality; and those who were in the 2^{nd} academic year (OR= 1.46, 1.43, 1.41 respectively).

DISCUSSION

The prevalence, impact and management practices of dysmenorrhea among the female governmental secondary students in Jeddah was evaluated in this study. Overall, this study revealed that there was a high prevalence (84.5%, n=338) of dysmenorrhea among the female students of governmental

higher compared to the similar studies conducted within Saudi Arabia such as the prevalence (60.9%) of dysmenorrhea among the female medical students at King Abdulaziz University in Jeddah, 2014 (10), and among University students (70.6%) in Abha, 2017 (22). This result is also found to be twice the percentage prevalence (35%) of dysmenorrhea (severe type) among the participants at Dammam University 2014 (7). However, a comparatively higher prevalence (92%) among the nursing students of Princess Nourah University in Rivadh, 2016⁽¹¹⁾ and nursing students (96.3%) in Al Khobar City, 2015 (16) were reported with respect to the observed prevalence in the current study. Moreover, the current findings were compared to Arab countries other than the Kingdom of Saudi Arabia. The observed prevalence of dysmenorrhea was consistent to the study conducted by Kamel and co-workers among the physical therapy students from Cairo University, Egypt 2016⁽¹²⁾ in which the percentage was found to be 84.01. Comparable prevalence of primary dysmenorrhea was also found in the studies of Al-Kindi and Al-Bulushi in Oman, 2011 (94%) and Al-Asadi and Abdul-Qadir in Iraq, 2013 (89.4%) (14, 23). However, with respect to the prevalence of the current study, a lower prevalence was previously reported in the dysmenorrhea study of Gebeyu and co-workers in Ethiopia, 2016 (8) (77.6%). Studied showed that the observed wide variation of the prevalence of dysmenorrhea can be attributed to the ethnic and socio-cultural factors, geographical location, method of collecting data, group selection and the absence of a universally accepted definition of dysmenorrhea and severity grading system (12, 14, 23).

secondary schools in Jeddah which was relatively

In assessing the impact of painful menstruation among the secondary level students, it was found out that more than two of impacts in this study had experienced by the majority of them, having the limited daily activity and emotional instability as the two most common reported effects. Ibrahim and colleagues (10) reported emotional instability and absenteeism as primary impacts of dysmenorrhea among female medical students in Jeddah 2014. Also, the limited daily activity (52.6%) effect is consistent with the reported common impact of menstruation by El Karout study in Jeddah, 2015 (16). In comparison to other studies, the participants also indicated that their daily activities were commonly affected by dysmenorrhea for the 99% respondents in Oman (2011), 73.5% in Iraq (2013), 40.9% in Egypt (2016), and 79.9% in Ethiopia (2016) ^(8, 12, 23).

Variable	Frequency	Percent %
Menstrual interval		
Regular (21-35 days)	341	85.3
Irregular (<21or>35 days)	59	14.8
Length of menstrual flow (days)		
<3 days	25	6.3
3-7 days	258	64.5
>7 days	117	29.3
Degree of bleeding		
Normal	336	84.0
Heavy (Menorrhagia)	64	16.0
Premenstrual syndrome symptoms		
Abdominal bloating	7	1.8
Breast tenderness or swelling	41	10.3
Joint or muscle pain	3	0.8
weight gain	3	0.8
Headache	10	2.5
angry outbursts	50	12.5
Anxiety	1	0.3
Depression	4	1.0
Irritability	2	0.5
No symptoms	234	58.5
two symptoms	37	9.3
>2 symptoms	8	2.0
Presence of premenstrual syndrome		
Yes	164	41.0
No	236	59.0
Family history of dysmenorrhea		
Yes	168	42.0
No	232	58.0
Dysmenorrhea		
Yes	338	84.5
No	62	15.5
Onset of pain during menses (days)		
within 3 days before menses begins	96	28.3
1st 2 days of menses	216	63.7
Other	27	8.0
Duration of pain (days)		
Normal (3 days or less)	287	84.7
Abnormal (> 3 days)	52	15.3
Pattern		
continuous	235	69.3
Intermittent	104	30.7
Location		
Lower abdomen	111	32.7
Abdomen extended to thighs	73	21.5
Back	25	7.4
Back extended to anus	20	5.9
Lower abdomen and back	108	31.9
Other	2	0.6
Pain Score		
Mild (1-3)	66	19.5
Moderate (4-6)	147	43.4
severe (7-10)	126	37.2

Table 3. Menstrual characteristic	s among the studied	population (n=400).
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Variable	Frequency	%
Impact (effect of painful menstruation)		
Emotional instability	22	6.5
Assignments	1	0.3
Decreased social activities	7	2.1
Limited daily activity	32	9.4
Absenteeism from school	10	2.9
sleep disturbance	5	1.5
Nothing	27	8.0
2 Effects	43	12.7
>2 Effects	191	56.3
Other	1	0.3
Non pharmacological	143	42.1
Pharmacological	50	42.1
Both of them	110	32 /
Nothing	37	10.9
Type of Non-pharmacological Management		10.9
Drink hot liquids	49	18.6
Rest (decrease daily active work)	11	4.2
Hot application	7	2.7
Walking	2	0.8
Two managements	57	21.7
> 2 managements	137	52.1
Degree of relief (non-pharmacological Management)		
No relief	12	4.6
Incomplete relief	216	82.1
complete relief	35	13.3
Type of pharmacological Management		
Paracetamol	103	63.6
NSAIDs	31	19.1
Antispasmodic	12	/.4 8.6
2 types Other	14	8.0 1.2
Frequency of paracatamol (par day)	<u> </u>	1.2
Once/day	46	40.0
2 times/day	23	20.0
3-4 times/day	6	5 2
PRN	40	34.8
Frequency of NSAIDs (per day)		0.110
Once/day	10	26.3
2 times/day	8	21.1
3-4 times/day	1	2.6
PRN	19	50.0
Frequency of antispasmodic (per day)		
Once/day	6	28.6
2 times/day	4	19.0
3-4 times/day	1	4.8
PRN	10	47.6
Route of administration		
Oral	152	93.8
Injection	4	2.5
BOIN Initiation of medication (down)	0	5./
7 days prior to manage	5	2 1
2 2 days before menses	Э л	3.1 2.5
2-3 days before menses	4	2.3 02.6
At menses Other	150	92.0 1 Q
	J	1.7

Table 4. Impact and management of dysmenorrhea among studied population (n=400)
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Degree of relief (pharmacological Management)			
No relief	4	2.5	
Incomplete relief	108	66.7	
complete relief	50	30.9	
knowledge on the side effects of the drug used			
Yes	72	44.4	
No	90	55.6	

Table 5. Distribution of impact of dysmenorrhea according to severity of pain among the studied population.

	Pain Score						
Impact	Mild (1-3) (66)		Moderate (4-6) (147)		Severe (7-10) (126)		P *
	NO.	%	NO.	%	NO.	%	-
Emotional instability	3	4.5%	9	6.1%	10	7.9%	
Assignments	1	1.5%	0	0.0%	0	0.0%	
Decreased social activities	2	3.0%	4	2.7%	1	0.8%	
Limited daily activity	9	13.6%	16	10.9%	7	5.6%	
Absenteeism from school	0	0.0%	6	4.1%	4	3.2%	0.01**
sleep disturbance	2	3.0%	2	1.4%	1	0.8%	
Nothing	13	19.7%	11	7.5%	3	2.4%	
2 Effects	10	15.2%	22	15.0%	11	8.7%	
>2 Effects	26	39.4%	76	51.7%	89	70.6%	
Other	0	0.0%	1	0.7%	0	0.0%	

** Based on independent One-way ANOVA test

In terms of management practice, Paracetamol (63.6%) was the medicine used by the majority of students under the pharmacological management. This is consistent with the work of Al-Kindi and Al-Bulushi in Oman 2011 (14) wherein paracetamol (16%) was one of the commonly used drugs. Aside from Paracetamol, nearly one fourth (19.1%) of the students were using NSAIDs in the current study. The reported percentage is in agreement with the result of other published works. In other Saudi Arabian studies, more than half of the respondents (56.9%) were reported to use analgesics in the study of Al-Dabal and co-workers at Dammam University 2014 (7), and 64.7% among female participants at Abha university, 2017 have indicated to use NSAIDs in managing dysmenorrhea (22). The result concerning the pharmacological practice of students in this study were also compared to the other studies conducted in other Arab countries. Kamel and co-workers study in Egypt 2016 (12) reported that more than half (62.4%) of the participants used NSAIDs in managing dysmenorrhea. Similarly, Geyebu and colleagues study in Ethiopia 2016 (8) reported Ibuprofen (12.6%) and diclofenac (6.9%) as the most commonly used medications to manage dysmenorrhea. Current findings showed that the most common mode of ingestion was via oral administration and mostly taken once menses occur. Gebeyu and co-workers study in Ethiopia, 2016 $^{(8)}$ also reported that the majority (82.3%) of

*Statistically significant

students in their study took their medications at the time of menses (75.9%). However, more than half (55.6%) of students in the current study had responded that they were not aware of the possible side effects with regular used of medications. Possible side effects could be acquired in mild or severe degree and could affect the health of the students. This implies that students should be informed through any educational-related programs regarding this matter.

In multivariable logistic regression analysis, the level of activity (light) was the most powerful predictor of dysmenorrhea (OR= 7.69), followed by presence of chronic diseases (OR= 3.33), PMS (OR=2.47), family history of dysmenorrhea (OR=2.87), frequent spicy food intake (OR= 1.46), Saudi nationality (OR=1.43); and academic year (OR= 1.41). This is consistent with the result of the similarly Saudi Arabian study of Al-Dabal and coworkers at Dammam University 2014 ⁽⁷⁾, regarding the premenstrual syndrome (OR= 1.6) and family history (OR= 1.5) to be one of the strongest predictors of dysmenorrhea. A study of Al-Asadi and Abdul-Qadir in Iraq (2013)⁽²³⁾ also described the family history of dysmenorrhea as significant predictor (OR = 4.1) associated with dysmenorrhea. This could be related to genetic factor or behavior that was learned from their mothers towards menses.

Variable	Sig.	OR*	95 % C.I.**
Academic year of secondary school			
1st year	0.804	0.92	0.5 to 1.8
2nd year	0.342	1.41*	0.7 to 2.9
3rd year			
Nationality			
Saudi	0.397	1.43*	0.7 to 2.2
Non-Saudi			
History of chronic diseases			
Yes	0.049	3.33*	1 to 11.1
No			
Level of physical activity			
light	0.087	7.69*	0.7 to 79.5
Moderate	1	1	0.3 to 3.7
Vigorous			
History of eating spicy food			
Yes	0.204	1.46*	0.8 to 2.6
No			
Length of menstrual flow (days)			
<3 days	0.00	0.2	0.07 to 0.57
3-7 days	0.03	0.4	0.22 to 0.94
>7 days			
Degree of bleeding			
Normal	0.03	0.32	0.11 to 0.91
Heavy (Menorrhagia)			
Presence of premenstrual syndrome			
Yes	0.004	2.47*	1.33 to 4.6
No			
Family history of dysmenorrhea			
Yes	0.001	2.87*	1.5 to 5.4
No			

 Table 6. Multivariable logistic regression of factors (socio-demographic and menstrual characteristics) affecting dysmenorrhea.

*OR = Odds Ratio; **C.I. = Confidence Interval

This study showed that there is no significant association between the length of menstrual flow and dysmenorrhea which actually disagrees with other studies. Santina and colleagues specifically mentioned in their study in Lebanon (2012) ⁽²⁴⁾ that longer duration of bleeding is a significant determinant (OR =4.15) of dysmenorrhea. Results of the current study also found that there is no significant association between heavy bleeding and dysmenorrhea, however reported as significant predictor (OR=1.94) in the published work of Ibrahim and colleagues in Jeddah (2014) ⁽¹⁰⁾.

CONCLUSION

Overall, this study revealed that there was a high prevalence of dysmenorrhea among the female students at governmental secondary schools in Jeddah, with many physical and emotional impacts. In logistic regression analysis, the main predictors for the occurrence of dysmenorrhea were light physical activity, presence of chronic diseases, PMS, family history of dysmenorrhea, frequent spicy food intake, nationality and academic year level. Majority of them were found to have a practice experience in both pharmacological and non-pharmacological managements. Paracetamol and NSAIDs were the drugs used by the majority of students. However, more than half of them were not aware of the possible side effects.

RECOMMENDATION

Knowing that majority of the participants were not aware of the possible side effects of medications that they used to deal with dysmenorrhea, an exposure to health care and educational program is highly suggested to improve their knowledge and proper handling practice on menstrual problems, especially dysmenorrhea, in a safer and effective way. Further studies and evidence-based findings are needed to validate the effectiveness of physical activity in managing the mentioned condition.

Conflict of interest: This was a self-funded research and author declares no conflict of interest.

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Captions to Illustrations

Figure 1. Flowchart of sampling procedure.