Prevalence of Dysmenorrhea and Its Sequel among Medical Students in a Malaysian University

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ABSTRACT

Introduction: Dysmenorrhea is a common gynecological problem among women of reproductive age group which can have an impact on professional and psycho-social life.
Objectives: To estimate the prevalence of dysmenorrhea, its sequels and factors influencing among the medical students in MAHSA University. To study the effect of dysmenorrhea on the personal and professional lives of students.
Materials and Methods: This is a cross sectional study carried out on 215 female medical students of MAHSA University in Malaysia. The study was conducted in the faculty of medicine, MAHSA university, Kuala Lumpur. The data was collected in a span of three months from March to May

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2012. Data was collected by interview and clinical examination method using pretested structured proforma designed by the researcher. Measurement of body mass index (BMI) and fat percentage were done by using a digital scale.

Analysis: Data were analyzed into frequency percentage distribution and regression analysis was worked out for statistical significant association.

Results: The study showed that 78% complained of dysmenorrhea among which 52% was of moderate severity. The mean age group of the students with dysmenorrhea was 21.4±2.2 years and the mean age of menarche was 12.2±2 years. The 59% of the participants were Indians, 17.1% Malays, 16.6% Chinese and 7.1% others respectively. Among the students who had dysmenorrhea, 92.2% frequently consumed fast food and 61.7% students exercised on an average of 2 times a week. It was observed that among the students with dysmenorrhea 58.1% had normal BMI and obesity was seen in 9% of the students. Sixty-four percent of those who had dysmenorrhea did not take any medication. At the level of multivariable analysis using multiple binary logistic regression, race (Malay), interference with social life and family history of dysmenorrhea were significantly associated with dysmenorrhea adjusted for study year, premenstrual syndrome and number of pads (p value <0.05).

Conclusion: Dysmenorrhea is highly prevalent among female medical students and is associated with Malay population, family history of dysmenorrhea and interference in their social life.

1. INTRODUCTION

Dysmenorrhoea is a Greek word which means difficult monthly flow [1]. It is one of the common problems encountered by women of reproductive age group. Primary dysmenorrhoea is seen in women with normal pelvic anatomy. It is characterised by crampy pelvic pain beginning before or at the onset of menstruation. Secondary dysmenorrhoea is seen secondary to any pelvic pathology. Dysmenorrhoea is thought to be caused by the release of prostaglandins which causes uterine contractions and hence leads to pain. Vasopressin also is said to play a role in the occurrence of dysmenorrhoea [2]. In Malaysia, the national population and family planning development board initiated a national body in 1994 on adolescent reproductive health. They found that education regarding reproductive physiology is lacking among the adolescent females [3].

Prevalence of dysmenorrhoea among the adolescent population ranges from 20 to 90 per cent [4-6]. It has been found to be a leading cause of absenteeism among school and college going girls [7]. This condition may not be a life threatening problem but it negatively affects the quality of life of females and poses a threat to their productivity [8]. Early menarche, long and heavy menstrual flow, positive family history of dysmenorrhea, obesity and lack of physical activity are found to be some factors associated with dysmenorrhea [2]. Studies have proved that dysmenorrhea is interrupting the educational and social life of girls in the adolescent age group.

Due to this absenteeism and perceived quality of life losses are prevalent among adolescent girls [9]. Several studies have found a positive association of primary dysmenorrhea with duration of menstrual flow, younger age at menarche, and increased BMI [10]. Although dysmenorrhea is a common gynecological problem in young females but there are limited studies in this subject especially in Malaysia. It is unclear the extent to which young girls are incapacitated each month due to the severity of dysmenorrhea. Hence, this raises a need to evaluate the menstrual characteristics and prevalence of dysmenorrhea to provide evidences of the severity of the problem [11]. Medical students represent a population with better knowledge and exposure to other forms of chronic suffering, which possibly results in different pain perception and subsequent decisions on coping approaches [12]. Not many studies have been conducted in Malaysia on the prevalence of dysmenorrhea among medical students, hence this study was planned.

2. MATERIALS AND METHODS

This is a cross sectional study that was carried out on 215 female medical students. The study was conducted in the faculty of medicine, MAHSA University, Kuala Lumpur. The data was collected in a span of three months from March to May 2012. A total of 236 female students were studying in MBBS course and out of that 215 were enrolled by following Non probability convenient sampling method. The data was collected using a proforma designed by the

researchers that include personal profile of students, clinical information, risk factors and anthropometric data. The participants were briefed by the researcher about the study and those who had given their informed consent after checking the inclusion criteria had been interviewed. The body mass index (BMI) and fat percentage were measured in the human physiology lab using a body composition monitor with scale called Omron karada scan with the model number HBF-362 by omeron healthcare co. Ltd.

Inclusion criteria:

1. Female Medical students studying at MAHSA University
2. The students who had signed the informed consent.
3. Unmarried nulliparous healthy female students.
4. Students in the age group of 17-30 years.

The proforma included questions regarding age, race, food habits and exercise, severity of pain associated with menstruation, associated premenstrual symptoms, effects on the daily and social activities, family history of dysmenorrhea and obesity. The severity of pain was assessed using the 'verbal-multi-dimensional scoring system' [13].

Data were entered and analyzed using SPSS version 18 software. Descriptive statistics, univariate and multivariate binary logistic regression analysis were used to identify factors that were significantly associated with dysmenorrhea among the participants.

3. RESULTS

Out of the 215 students included in the study 167 (78%) of them had dysmenorrhea. The mean age of the students who had dysmenorrhea was 21.4±2.2 yrs. The mean age of menarche was 12.2±2 yrs. On analyzing the presence of dysmenorrhea among different races we found that Indians (59.3) encountered the problem more commonly followed by Malays (19.2%), Chinese (15%) and others (6.5%). As shown in Fig. 1, 52.10% of the students had moderate dysmenorrhea which comprised of half the study group.

As shown in Table 1 dysmenorrhea was common in students who consumed fast food, exercised, who had a family history of dysmenorrhea. It was noticed that in students who had a positive family history of dysmenorrhea, it was the mother who

had dysmenorrhea (57%) in most of the students. The common premenstrual symptoms encountered by the students were fatigue, mood swings and back ache. 64.6% of the students did not take any medications for their dysmenorrhea. Most of the students felt that dysmenorrhea did not affect their social or their professional life.
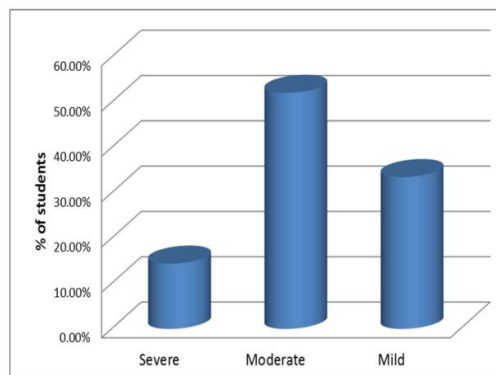

Fig. 1. severity of dysmenorrhea
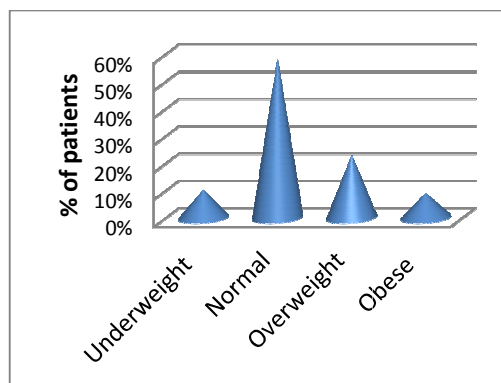
Fig. 2. BMI in patients with dysmenorrhoea

As shown in Fig. 2 most of the students had a normal BMI which includes 58.1% of the students.

4. DISCUSSION

The prevalence of dysmenorrhoea has been reported differently in different parts of the world. Globally, the prevalence rates have been reported to be as high as 90% and as low as 43% [14]. A study conducted by Mohite et al. [15] in India showed a prevalence rate of 22.4%. Sundell et al. [16], Robinson et al. [17] and Wilson et al. [18] reported the prevalence of 67%, 79.6% and 91% respectively In two studies conducted in Malaysia the prevalence rate was 58% and 69.4% respectively [7,19]. The prevalence rate in our study is close to the study conducted by Robinson et al. [20]. The

prevalence of primary dysmenorrhoea is said to be highest in the age group of 20-24 years and decreases progressively. In a study conducted in Malaysia among university students it was found

Table 1. Profile of study participants, factors and sequel of dysmenorrhea

Variable	Frequency (%)	Mean ±SD
Age (years)		21.34 (2.2)
Study year		
• Year 1	71 (42.5)	
• Year 2	58 (34.7)	
• Year 3	38 (22.8)	
Race		
• Indian	99 (59.3)	
• Malay	32 (19.2)	
• Chinese	25 (15.0)	
• Others	11 (6.5)	
Food habits		
• Vegetarian	12 (7.2)	
• Non-vegetarian	155 (92.8)	
Fast food consumption		
• Yes	154 (93.3)	
• No	11 (6.7)	
Fast food consumption times/week		1.92 (1.5)
Exercise		
• Yes	103 (61.7)	
• No	64 (38.3)	
Family history of obesity		
• Yes	34 (20.4)	
• No	133 (79.6)	
Dysmenorrhea grade		
• Severe	24 (14.4)	
• Moderate	87 (52.1)	
• Mild	56 (33.5)	
Family history of dysmenorrhea		
• Yes	144 (68.3)	
• No	53 (31.7)	
Family member with history of dysmenorrhea		
• Mother	65 (57.0)	
• Sister	34 (29.8)	
• Aunt	15 (13.2)	
Interference with social life		
• Yes	54 (32.3)	
• No	113 (67.7)	
Absent from college due to dysmenorrhea		
• Yes	38 (22.8)	
• No	129 (77.2)	
Premenstrual syndrome		
• Yes	153 (91.6)	
• No	14 (8.4)	
Premenstrual symptoms		
Backache	88 (53.7)	
Fatigue	92 (56.1)	
Breast tenderness	67 (40.9)	
Abdominal bloating	78 (47.6)	
Increase weight	24 (14.6)	
Headache	51 (31.1)	
Irritability	81 (49.4)	
Skin disorders	25 (15.2)	

Variable	Frequency (%)	Mean ±SD
Aggressiveness	45 (27.4)	
Depression	86 (52.4)	
GIT symptoms	44 (26.8)	
Loss of appetite	49 (29.9)	
Other symptoms (mainly increase appetite)	7 (6.6)	
Age of menarche (years)		12.25 (1.2)
Length of cycle (days)		31.99 (28.0)
Duration of bleeding (days)		5.61 (1.6)
Number of pads used/day		3.68 (1.4)
Weight (kg)		58.65 (12.9)
Height (cm)		159.25 (5.9)
BMI (kg/m^2)		23.12 (4.9)
BMI class		
• Underweight	17 (10.2)	
• Normal	97 (58.1)	
• Overweight	38 (22.8)	
• Obese	15 (9.0)	
Waist circumference (cm)		71.51 (15.6)
Body fat percent		32.09 (7.1)

that the mean age of the students with dysmenorrhoea were 21.6±1.25 years [19]. This finding is in concurrence with our study which showed a mean age of 21.4±2.2 years in patients having dysmenorrhea. When we compared the presence of dysmenorrhea among different races we found that Malays were significantly associated with dysmenorrhea (p value < 0.05) by 5.70 times compared to other races (adjusted OR 5.70). Interestingly other studies conducted in Malaysia showed the same results [7,19]. This reflects the ethnic distribution of Malaysia were Malays are the largest population. In our study we noticed that the mean age of menarche was 12.2±2 years. Whereas in a study conducted by Mohite et al. [15] in India showed the mean age as 14.1 years. This difference could be due to the ethnic differences between the two countries, because of which there is a difference in the food habits and lifestyle which in turn affects the age of menarche.

In our study there was a difference in the severity of the dysmenorrhea among the students, moderate pain was most frequently experienced. Unlike other studies where mild pain was common [21,22]. The difference in the severity of pain could be due to difference in the ethnicity and also the difference in the pain threshold among students. It was found that most of the students who had dysmenorrhea did not take any medications. Few of them who took medications resorted to NSAIDs, Ayurveda and Chinese medicine to relieve the pain. As the subjects under the study were medical students it explains the reason why most of them did not take any medications. This could be attributed to their

prior knowledge regarding dysmenorrhea and its management.

Table 2. Factors associated with dysmenorrhoea using simple binary logistic regression (n=215)

Variable	Crude OR (95% CI)	*p* value
Study year		
• Year 3	1	
• Year 1	1.73 (0.77, 3.87)	0.18
• Year 2	1.62 (0.71, 3.73)	0.25
Race		
• Others	1	
• Indian	1.48 (0.48, 4.53)	0.49
• Malay	3.08 (0.71, 13.31)	0.13
• Chinese	0.96 (0.27, 3.41)	0.95
Pre-menstrual syndrome		
• No	1	
• Yes	2.05 (0.78, 5.44)	0.15
Family history of dysmenorrheal		
• No	1	
• Yes	2.69 (1.37, 5.25)	0.004*
Interference with social life		
• No	1	
• Yes	2.00 (1.01, 5.5)	0.02*
Number of pads	1.27 (0.94, 1.72)	0.11

*p is significant at 95%CI
*As seen in Table 2, the statistically significant unadjusted associated factors with dysmenorrhea were study year (year 1), race (Malay), having pre-menstrual syndrome, family history of dysmenorrhea,interference with social life and number of pads (4 and more/day) (p value <0.25)

Studies have shown that a positive family history of dysmenorrhea is one of the common risk

factors for dysmenorrhea among young girls. Studies have also reported that daughters whose mothers experience dysmenorrhea have a higher chance of experiencing the same problem. The reason could be the similar life styles and dietary habits or risk of endometriosis [23-26]. This finding is in concurrence with our study were family history of dysmenorrhea was significantly associated with dysmenorrhea (p value <0.05) by 2.49 times compared with those who don't have family history (adjusted OR 2.49). Premenstrual syndrome (PMS) is one of the common complaints among adolescent girls the reason for which is unclear. In a study conducted in Pakistan it was found that 53% of women experienced PMS [27]. The common symptoms which they experienced were mood swings. This is in concurrence with our study where some of the common symptoms are mood swings, fatigue and backache. This could be due to the stressful life style of medical students and the back aches could be due to the long hours of standing during the day, for their practical classes.

Table 3. Factors associated with dysmenorrhea adjusted for study year, premenstrual syndrome and number of pads using multiple binary logistic regression (n=215)

Variable	B	Adjusted OR (95% CI)	*p* value
Race			
• Others		1	
• Indian	0.69	1.99 (0.57, 6.98)	0.28
• Malay	1.74	5.70 (1.13, 28.78)	< 0.05
• Chinese	0.33	1.39 (0.35, 5.55)	0.64
Interfere with social life			
• No		1	
• Yes	0.94	2.55 (0.99, 6.50)	<0.05
Family history of dysmenorrheal			
• No		1	
• Yes	0.91	2.49 (1.25, 4.95)	< 0.05

As shown in Table 3, at the level of multivariable analysis using multiple binary logistic regression, race (Malay), interference with social life and family history of dysmenorrhea were significantly associated with dysmenorrhea adjusted for study year, premenstrual syndrome and number of pads (p value <0.05)

As per the results obtained our study showed that dysmenorrhea interferes with social life significantly (p value < 0.05) by 2.55 times (adjusted OR 2.55). It was also noticed that most of the students did not have to absent themselves from college due to dysmenorrhea. This could be due to the fact that they were medical students and they were quite knowledgeable regarding dysmenorrhea and how to deal with the problem. This finding was quite paradoxical to others studies where the rate of absenteeism was very high. In many studies conducted among young females the absenteeism ranged from 34% to 50% which was quite high [13,16,5].

There are a few limitations in our study, the study was limited to just one medical school, hence we cannot comment on all the medical students in Malaysia. Nevertheless, dysmenorrhea is one of the important health issues which have to be addressed by heath workers as it can affect the quality of life in young girls. The information on the prevalence of dysmenorrhoea among adolescent female medical students is an important aspect of reproductive health. This knowledge would prevent unnecessary suffering and absenteeism of the students from college, by providing necessary counselling on the ways to handle regarding dysmenorrhoea.

5. CONCLUSION

We conclude that the prevalence of dysmenorrhea among medical students in our university was 78% which was high. The presence of dysmenorrhea was significantly associated with the Malay population, family history of dysmenorrhea and interference in their social life.

CONSENT

Informed consent has been taken from all the patients under the study.

ETHICAL APPROVAL

All authors hereby declare that the study has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

DISCLAIMER

This manuscript was presented in the conference.

Conference name: "Malaysian Society of Pharmacology and Physiology (MSPP)"

Conference link is: "https://www.researchgate.net/publication/281629330_Prevalence_of_dysmenorrhea_and_its_associated_factors_among_medical_students_in_a_Malaysian_university"
September 2013

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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