



CLINICAL ARTICLE

Dysmenorrhea in a multiethnic population of adolescent Asian girls

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ABSTRACT

Objective: To determine the prevalence of dysmenorrhea, its impact, and the treatment-seeking behavior of adolescent Asian girls. **Method:** A cross-sectional study with 1092 girls from 15 public secondary schools and 3 ethnic groups in the Federal Territory of Kuala Lumpur, Malaysia. **Results:** Overall, 74.5% of the girls who had reached menarche had dysmenorrhea; 51.7% of these girls reported that it affected their concentration in class; 50.2% that it restricted their social activities; 21.5% that it caused them to miss school; and 12.0% that it caused poor school performance. Ethnicity and form at school were significantly associated with the poor concentration, absenteeism, and restriction of social and recreational activities attributed to dysmenorrhea. Only 12.0% had consulted a physician, and 53.3% did nothing about their conditions. There were ethnic differences in the prevalence, impact, and management of dysmenorrhea. **Conclusion:** There is a need for culture-specific education regarding menstruation-related conditions in the school curriculum. © 2009 International Federation of Gynecology and Obstetrics. Published by Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Dysmenorrhea is one of the most common gynecologic complaints in adolescent girls seen in primary care [1]. Across the United States, the prevalence of dysmenorrhea varies widely, ranging from more than half to more than 90% of menstruating adolescents [1–3]. Somewhat lower rates (84.2%) have been reported for Asia, with 84.2% for Southeast Asia (Thailand) [4], 68.7% for Eastern Asia [5], 74.8% for the Middle East [6], and 54.0% for Southern Asia [7]. The prevalence reported for Malaysia is 69.4% [8].

Dysmenorrhea is the primary cause of short-term absences from school [3,4,9–11] and has led to high rates of nonparticipation in social activities [3,4,9,11]. In addition, dysmenorrhea hinders the girls' ability to concentrate on their studies, affects their academic performance, and has significant consequences for both the individual and society [11]. Despite its high prevalence and associated negative effects, many women do not seek medical care for this condition [12]. Reported reasons for not seeking medical care are the perception that painful periods are part of a woman's experience, not knowing that menstrual pain can be relieved [13], and a lack of family support [5].

The aim of the present study was to explore the attitudes and problems related to menstruation, premenstrual syndrome, and dysmenorrhea among adolescent girls in Malaysia attending public secondary schools. The article presents our findings on dysmenorrhea,

its personal and social impact, and the treatment-seeking behavior of these adolescents.

2. Participants and methods

The school principals of the 94 public secondary schools in the Federal Territory of Kuala Lumpur were sent information about the study, along with a copy of the approval letter from the Ministry of Education of Malaysia, to seek their permission to allow girls in forms 1 through 6 to participate. One class per form was randomly selected from each participating school. The girls and their parents or caregivers were then asked for consent. The participating girls were asked to answer a semistructured questionnaire about menstruation, premenstrual syndrome, and dysmenorrhea. The questions concerning dysmenorrhea assessed each participant's attitudes toward this condition, its impact on her performance at school and her social activities, and whether she has sought information and treatment. The questions were adapted from previous studies [4–6,10,12] and face-validated by a panel of experts. The questionnaire was available in 2 languages, Malay (the national language of Malaysia) and English, and the suitability of the Malay version was verified by back translation at the Malaysia Institute of Language and Literature. The study was approved by the Ministry of Education Malaysia and the Medical Ethics Committee of University Malaya Medical Center, Kuala Lumpur, Malaysia.

Data were analysed using the SPSS package for Windows, version 17.0 (SPSS, Chicago, IL, USA). $P < 0.05$ was considered significant. Data analysis consisted in calculating descriptive statistics for the demographic variables as well as the frequency of concordant answers to each question. We performed multivariate logistic regression to identify predictors of the personal and social impact of dysmenorrhea (such as

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poor concentration, absenteeism, restriction of activities, and low grades). Goodness of fit was assessed by the Hosmer-Lemeshow test.

3. Results

Only 15 of the 94 public secondary schools agreed to participate. Two were girls-only schools, 13 were coeducational, and all were multiethnic and multireligious. A total of 1092 girls answered the questionnaire. Their mean \pm SD age was 15.19 ± 1.39 years (range, 13–19 years). Most (56.3%) were Chinese, followed by Malays (31.7%), and Indians (11.2%). Their sociodemographic characteristics are shown in Table 1.

More students (59%) from the lower secondary levels participated, as the school principals thought the upper secondary students (those in forms 5 and 6) needed to concentrate on preparing for the *Sijil Pelajaran Malaysia* examination (the Malaysian Certificate of Education) or the *Sijil Tinggi Persekolahan Malaysia* examination (the Malaysian Higher School Certificate of Education, which allows students to enter the university). Only 2% of the responses were from sixth-form students, as most of the participating schools did not have this form. The participants lived in households with a mean and median income of 3242 and 2000 Malaysian ringgits (MYR), respectively (1 US Dollar = 3.6 MYR). All but 16 girls reported to have reached menarche (a response to this question was missing for 1 girl). The mean age at menarche was 12.18 ± 1.07 years.

Of the 1075 who had reached menarche, and were included in the analysis, 67.8% believed that dysmenorrhea was a normal part of the menstrual cycle; 11.3% that dysmenorrhea was an illness with no cure; 9.4% that dysmenorrhea caused infertility; and 8.8%, most of whom were Chinese, that washing one's hair on the first day of menstruation caused dysmenorrhea. Other reported causes for

dysmenorrhea, were drinking cold water or taking a cold bath during menstruation.

There were 801 girls who reported having dysmenorrhea, for a prevalence of 74.5%. Table 2 shows the characteristics of the girls with and without dysmenorrhea. Compared with girls from other ethnic groups, significantly fewer Chinese girls reported having experienced dysmenorrhea. The condition was significantly more prevalent among upper secondary school girls.

Of the girls reporting dysmenorrhea, 51.7% indicated that it affected their concentration in the classroom, and approximately half (50.2%) indicated that it restricted their social and recreational activities. While 21.5% considered dysmenorrhea to be a leading reason for them to miss school, 16.4% thought that it affected their school performance and caused them to receive lower grades. Multivariate analysis showed that the Malays and those in the upper secondary levels had significantly higher odds of experiencing poor concentration, missing school, and abstaining from social and recreational activities because of dysmenorrhea. Being in the upper secondary level and from a household with a low income were predictive of poor school performance or low school grades (Table 3). The results of the Hosmer-Lemeshow goodness-of-fit test did not reach significance, which indicates very good fit for the model.

The treatment-seeking behavior of the girls with dysmenorrhea is shown in Table 4. Only 12.0% of these girls had consulted a physician, and more than half (53.3%) had done nothing about their condition. The reported management of dysmenorrhea was mainly self-care, which included massage with an ointment, the use of an over-the-counter pain killer (paracetamol), herbal or traditional remedies, and using a hot pad. About 46.0% of the girls who reported taking over-the-counter pain killer for dysmenorrhea were Malays ($\chi^2 = 42.4$; $df = 3$; $P < 0.001$), while the Chinese girls (72.3%) preferred herbal or traditional remedies ($\chi^2 = 43.0$; $df = 3$; $P < 0.001$). The Chinese girls (42.7%) were also more likely to see a physician and take the physician's prescribed medication than were the Malay (39.6%) and the Indian (15.6%) girls ($\chi^2 = 5.3$; $df = 3$; $P < 0.02$).

Only 67.5% of the total number of participants had acquired information regarding dysmenorrhea. Most (53.3%) had acquired information from their mothers, followed by school friends (36.4%),

Table 1
Demographic characteristics of the 1092 original respondents.^a

Characteristic	No. (%)
Ethnicity ^b	
Malay	346 (31.7)
Chinese	615 (56.3)
Indian	122 (11.2)
Other	9 (0.8)
Religion	
Islam	352 (32.2)
Buddhist	539 (49.4)
Hindu	108 (9.9)
Christian	90 (8.2)
Other	3 (0.3)
Levels of education	
Lower secondary	
Form 1	159 (14.6)
Form 2	227 (20.8)
Form 3	258 (23.6)
Upper secondary	
Form 4	256 (23.4)
Form 5	170 (15.6)
Form 6	22 (2.0)
Mean household income, MYR ^{b,c}	
>4000	251 (24.1)
2000–4000	221 (22.3)
<2000	569 (54.7)
The parents are ^b	
Married	968 (88.8)
Divorced/separated	69 (6.3)
One or both deceased	53 (4.9)
Menarche ^b	
Yes	1075 (98.5)
No	16 (1.5)

^a The values are based on the participants' answers; they do not add up to 100% because they were rounded.

^b The number of responses was lower than the number of respondents.

^c 1 US Dollar = 3.6 Malaysian ringgits (MYR).

Table 2
Characteristics of 1075 menstruating girls with and without dysmenorrhea.^a

Characteristic	Dysmenorrhea		χ^2 (df)	P value
	Yes (n = 801)	No		
Ethnicity				
Malay	275 (79.7)	70 (20.3)	45.9 (3)	<0.001
Chinese	420 (69.8)	182 (30.2)		
Indian	98 (82.4)	21 (17.6)		
Other	8 (100.0)	0		
Levels of education				
Lower secondary	442 (70.2)	188 (29.8)	19.3 (1)	<0.001
Upper secondary	359 (80.9)	85 (19.1)		
Mean household income, MYR ^{b,c}				
>4000	186 (75.3)	61 (24.7)	2.2 (2)	0.70
2000–4000	171 (77.4)	50 (22.6)		
<2000	411 (73.1)	147 (26.3)		
The parents are ^b				
Married	710 (74.6)	242 (25.4)	3.0 (2)	0.75
Divorced/separated	47 (68.7)	21 (31.3)		
One or both deceased	41 (80.4)	10 (19.6)		
Smoking status ^b				
Yes	21 (91.3)	2 (8.7)	4.3 (1)	0.37
No	776 (74.1)	271 (25.9)		
Frequent exercise ^b				
Yes	464 (75.7)	149 (24.3)	5.0 (1)	0.29
No	334 (73.2)	122 (26.8)		

^a Values are given as number (percentage) unless otherwise indicated.

^b The number of responses was lower than the number of respondents.

^c 1 US Dollar = 3.6 Malaysian ringgits (MYR).

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