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Abdel-Hady El-Gilany

Community Medicine Department Faculty of Medicine and Students' University Hospital, Mansoura University, Egypt.

Karima Badawi

Community Medicine Department Faculty of Medicine and Students' University Hospital, Mansoura University, Egypt.

Sanaa El-Fedawy

Community Medicine Department Faculty of Medicine and Students' University Hospital, Mansoura University, Egypt.

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EPIDEMIOLOGY OF DYSMENORRHEA AMONG ADOLESCENT STUDENTS IN MANSOURA, EGYPT

By

Abdel-Hady El-Gilany, Karima A. Badawi*
and Sanaa El-Fedawy*

From

*Community Medicine Department, Faculty of Medicine
and Students' University Hospital*, Mansoura University, Egypt.*

ABSTRACT

This work was carried out on adolescent female students in Mansoura to study the prevalence, determinants, impacts as well as treatment practices of dysmenorrhea. A total of 664 female students were selected by cluster sampling techniques from public general and technical secondary schools of urban and rural areas. Data was collected through an anonymous selfadministered questionnaire during the class time.

Twenty-two (3.3%) of students never menstruated. The median age of menarche was 13 years. About three-fourths of students experienced dysmenorrhea. Dysmenorrhea was mild, moderate and severe in 55.35%, 29.9% and 14.8% of cases, respectively. Fatigue, headache, backache and dizziness were the commonest

associated symptoms (70.8%, 62%, 56.8% and 30.1%; respectively). Analgesic/NSAID/antispasmodic were the treatment taken by 34.7% of cases. No limitation of activities was reported by 47.4% of dysmenorrhic students. Limitation of activities (daily home chores, going out of home, participation in social events, sports participation, class concentration, home work tasks and school attendance) were significantly more reported by students with severe dysmenorrhea. On logistic regression analysis the significant predictors of dysmenorrhea were the older age of students, irregular cycles, heavy bleeding and long cycles.

Conclusion: Dysmenorrhea is highly prevalent among adolescents and has limitation on school attendance, social, academic, sports and

home activities.

Most adolescents, even with severe dysmenorrhea, do not seek medical advice. School health care providers should screen routinely for dysmenorrhea and offer treatment. As dysmenorrhea reportedly affects school performance and attendance, school authority may have a vested interest in providing health education on this topic to their students.

INTRODUCTION

Dysmenorrhea or painful menstruation is defined as a severe, painful cramping sensation in the lower abdomen. In addition there may also be headache, dizziness, diarrhea, a bloating feeling, nausea and vomiting, backache and leg pains. Primary dysmenorrhea occurs in the absence of recognizable pelvic pathology and commonly begins when ovulatory menstrual cycle starts. The pain starts a few hours before menstruation and lasts for up to 72 hours. It is usually most severe in the first day of menstruation and gradually diminishes. It is almost always first occurs in women younger than 20 years. It is caused by increased endometrial prostaglandin production. Secondary dysmenor-

rhea, on the other hand, is associated with pelvic conditions or pathology that causes pelvic pain in conjunction with menses. It usually appears later in reproductive life and can occur with anovulatory cycles. It often lasts for 5 to 7 days each month, and progressively increases in severity (1-4).

Dysmenorrhea has negative effect on women's lives. It may be so severe to confine the women to bed. During adolescence, dysmenorrhea leads to high rates of school absence and activity nonparticipation. Mild to moderate cases can usually be treated by explanation and paracetamol (1,2,5).

Population studies on dysmenorrhea are scarce for Egyptian women and practically non-existent for adolescent girls. So this work aims to estimate the prevalence of dysmenorrhea and to study its determinants, impacts as well as treatment practices among adolescent students in Mansoura, Egypt.

POPULATION AND METHODS

This study was carried out during the period from November, 2001 to April 2002 in Mansoura, Egypt. A cross-sectional survey was carried out. The target population was secon-

dary school female students enrolled in governmental schools. Approval of the local Directorate of education was obtained. Eastern and Western educational zones as well as rural sector were represented. Both general and technical secondary schools were represented. One general secondary school was randomly selected from each of the Eastern and Western educational zones as well as one school from the rural sector. One technical commercial school and one nursing school were selected from Mansoura City. This distribution represents different social strata as well as urban and rural sectors of the community. From each selected school, one class (cluster) from different grades was randomly selected. A total of 15 classes were studied. Five classes from each grade. A total of 694 students were registered in the chosen classes. Of these 664 (95.7%) students participated in the study. Others were either absent (3.6%) or refused to complete the questionnaire (0.7%).

In coordination with the school authority, the female investigators spent about 45 to 60 minutes in each class. The students were briefed about the study, encouraged to participate and motivated to express their experienc-

es. It was emphasized that all data collected was strictly confidential. Students were requested to complete the self-administered questionnaire to reveal their family background, age at menarche, duration and amount of bleeding, cycle length, pain during menstruation (dysmenorrhea) during the last three months, its severity (whether mild, moderate or severe; from the subjective point of view), its duration, any associated symptoms, its impact on daily living activities as well as treatment taken, if any. Dysmenorrhea was defined as lower abdominal pain associated with menstrual periods. The social score was calculated according to Fahmy and El-Sherbiny (6).

Data was analyzed using SPSS (Statistical package for social sciences) version 9. The Chi-squared test was used as a test of significance. Significant factors affecting prevalence of dysmenorrhea on univariate analysis, were entered into multivariate logistic regression analysis. $P \leq 0.05$ was considered to be statistically significant.

RESULTS

Table (1) shows that 98% of students are Moslems, more than half of them (53.2%) were of urban resi-

dence, 55% were of low or very low social classes. Their age ranged from 14 to 18 years. The majority of them (96.7%) ever menstruated. The mean and median ages at menarche were 12.9 and 13 years, respectively.

The overall prevalence of dysmenorrhea was 74.6%. Dysmenorrhea is significantly more frequent among students of rural residence, among those from low and very low social classes, those of older ages, those with irregular cycles, students with heavy bleeding, those with long duration of bleeding and those with long cycles (table 2). On logistic regression analysis, the significant determinants of dysmenorrhea are age (students of 16 and 17 years were 2.2 and 6.6 times more likely to have dysmenorrhea than those age 14 years, respectively), cycle regularity (students with regular cycles are 0.54 times less likely to have dysmenorrhea), menstrual flow (students with average and heavy bleeding are 3.7 and 6.6 times more likely to have dysmenorrhea than those with drops of blood, respectively) and cycle length (students with long cycle are about 1.5 times more likely to have dysmenorrhea compared to those with short cycles) (table 3).

Table (4) reveals that dysmenorrhea was mild in majority of cases (55.3%) and the severe forms accounted for 14.8%. In 64.9% of cases the duration of pain was less than 24 hours. In 23.8% of cases there is no associated symptoms. The most frequent symptoms associated with dysmenorrhea are fatigue (70.8%), headache (62%), backache (56.8%), dizziness (30.1%) and anorexia/vomiting (13.8%). About half of dysmenorrhic girls do not take any medication. Herbs/home remedies and analgesics/NSAID/antispasmodic were taken by 36.7% and 34.7% of cases, respectively. These drugs are mostly self-prescribed as only 13 students (2.7%) consulted a physician or pharmacist.

Table (5) shows the impact of dysmenorrhea on daily activities. No limitations were reported by 47.4%. The limited activities are (in order): daily home activities (68.4%), going out of home (41.5%), participation in social activities (39%), sports participation (34.4%), homework tasks (24.4%) and lastly school attendance (20.3%). These limitations are significantly more frequent among students with severe dysmenorrhea.

Table (1): Sociodemographic characteristics of studied adolescents.

	Number	%
Total	664	100
Residence: Urban	353	53.2
Rural	311	46.8
Family social class:		
High	175	26.4
Middle	124	18.7
Low & very low	365	55.0
Religion: Moslem	651	98.0
Christian	13	2.0
Age: 14-	109	16.4
15-	217	32.7
16-	240	36.1
17+	98	14.8
Minimum - Maximum	14 - 18	
Mean \pm SD	15.5 \pm 0.99	
Ever menstruating:		
Yes	642	96.7
No	22	3.3
Age at menarche #:		
<12	47	7.1
12-	178	26.8
13-	244	36.7
14+	173	26.1
Minimum - Maximum	10 - 16	
Mean \pm SD	12.9 \pm 1.03	
Median	13.0	

#Among ever menstruating adolescents
SD = Standard deviation

Table (2): Prevalence of dysmenorrhea among ever-menstruating adolescents and its determinants.

	Total	Dysmenorrhea		Significance test
		Number	%	
Overall	642	479	74.6	
Residence: Urban	335	233	69.6	$\chi^2 = 9.5$, P=0.002
Rural	307	246	80.1	
Family social class:				$\chi^2 = 12.5$, P=0.002
High	163	107	65.6	
Middle	119	85	71.4	
Low & very low	360	287	79.7	
Age: 14-	97	60	61.9	$\chi^2 = 31.4$, P=0.000
15-	210	142	67.6	
16-	237	187	78.9	
17+	98	90	91.8	
Age at menarche:				$\chi^2 = 1.8$, P=0.6
<12	47	38	80.9	
12-	178	133	74.7	
13-	244	184	75.4	
14+	173	124	71.7	
Cycle regularity:				$\chi^2 = 18.1$, P=0.000
Regular	429	298	69.5	
Irregular	213	181	85.0	
Bleeding amount:				$\chi^2 = 25.6$, P=0.000
Drops	28	11	39.3	
Average	503	373	74.2	
Heavy	111	95	85.6	
Bleeding duration:				$\chi^2 = 6.8$, P=0.033
<4 days	63	40	63.5	
4&5 days	400	296	74.0	
6 days & more	179	143	79.9	
Cycle length:				$\chi^2 = 9.8$, P=0.002
<30 days	245	166	67.8	
30 days & more	397	313	78.8	

Table (3): Logistic regression analysis of factors affecting dysmenorrhea among ever menstruating adolescent students

Variables	β	P	OR (95%CI)
Age:			1 (r)
14-	-		
15-	0.28	0.3	1.32 (0.78 - 2.23)
16-	0.78	0.005	2.18 (1.27 - 3.72)
17+	1.89	0.000	6.59 (2.82 - 15.4)
Cycle regularity:			
Regular	-0.61	0.009	0.54 (0.34 - 0.86)
Irregular	-		1 (r)
Menstrual flow:			
Drops	-		1 (r)
Average	1.31	0.002	3.71 (1.63 - 8.47)
Heavy	1.88	0.0002	6.54 (2.47 - 17.29)
Cycle length:			
<30 days	-		1(r)
30 days & more	0.39	0.048	1.48 (1.004 - 2.19)
Constant		-0.61	
-2 log Likelihood		657.7	
Model χ^2		69.7, P=0.000	
Number		642	

OR = Odds ratio, CI = Confidence Interval, r = reference group.

Table (4): Clinical presentation and treatment of dysmenorrhea among the ever menstruating adolescent students

	Number	%
Total	479	74.6
Severity: Mild	265	55.3
Moderate	143	29.9
Severe	71	14.8
Duration of pain:		
<24 hours	311	64.9
24 - 48 hours	127	26.5
>48 hours	41	8.6
Associated symptoms *:		
None	114	23.8
Fatigue	339	70.8
Headache	297	62.0
Backache	272	56.8
Dizziness	144	30.1
Anorexia/ vomiting	66	13.8
Abdominal distension		
/Bloating	39	8.1
Diarrhea	18	3.8
Treatment *:		
None	237	49.5
Rest/relaxation	204	42.6
Herbs/home remedies	166	36.7
Analgesic/NSAIDs		
/antispasmodic®	176	34.7

* Figures are not additives.

® These were self-prescribed in 466 (97.3%) of cases.

NSAIDs= Non-Steroid Anti-Inflammatory Drugs

Table (5): Impact of dysmenorrhea on daily activities#.

Activity limitation	Mild N (%)	Moderate N (%)	Severe N (%)	Total N (%)	Significance
Total	265(100)	143(100)	71 (100)	479(100)	
No limitation	169(63.8)	56(39.2)	2(2.8)	227(47.4)	$\chi^2 = 88.99$, P=0.000
School attendance	13(4.9)	41(28.7)	43(60.6)	97(20.3)	$\chi^2 = 116.4$, P=0.000
Homework tasks	16(6.0)	38(26.6)	49(69.0)	103(21.5)	$\chi^2 = 134.7$, P=0.000
Class concentration	28(10.6)	32(22.4)	57(80.3)	117(24.4)	$\chi^2 = 147.9$, P=0.000
Sports participation	47(17.7)	49(34.3)	69(97.2)	165(34.4)	$\chi^2 = 156.5$, P=0.000
Participation in social events	51(19.2)	66(46.2)	70(98.6)	187(39.0)	$\chi^2 = 152.5$, P=0.000
Going out of home	60(22.6)	71(49.7)	68(95.8)	199(41.5)	$\chi^2 = 128.6$, P=0.000
Daily home chores	73(27.5)	72(50.3)	60(84.5)	205(42.8)	$\chi^2 = 78.96$, P=0.000

Figures are not additives.

DISCUSSION

Over the past decade the field of population has undergone a paradigm shift, moving from a relatively singular focus on family planning to a broader focus on reproductive health. Menstrual problems are generally perceived as only minor health concerns and thus irrelevant to the public health agenda. Data on the frequency of menstrual dysfunction and its impact on health status, quality of life, and social integration among women in developing countries are certainly scant. The lack of data and the private nature of menstruation perpetuate the belief that menstrual com-

plaints do not warrant the public health community's attention (7,8).

Dysmenorrhea is the most common gynecologic disorders among female adolescents and is one of the most common gynecologic complaints in young women who present to clinicians today (3,9,10). Dysmenorrhea among adolescents is usually of the primary type (1-4, 11,12). To the best of the authors' knowledge, there are no studies on dysmenorrhea among adolescents in Egypt.

In this study 74.8% of adolescent girl students reported pain with men-

stration during the last three months. This prevalence is comparable to the previously reported prevalence in both developed and developing countries that ranged from 20% up to 93% in the same age group (2,3,5,7,13-19). However, the severity of dysmenorrhea varies greatly. In our study 55.3%, 29.9% and 14.8% of dysmenorrhic adolescents reported their pain as mild, moderate and severe, respectively. In other countries, severe dysmenorrhea was reported by 15% to 53% of adolescents (7,10,14,17,18,20). These differences in the degree of pain severity may be due to cultural differences in pain perception and variability in pain threshold. The correlation between ethnicity and pain perception was previously reported (10).

Duration of pain was less than 24 hours in 64.9% of cases and only 8.6% of adolescents reported pain that lasts for more than 24 hours. Banikarim et al (10) reported that 90% of adolescents have menstrual cramps for 48 hours or less. In 23% of cases, dysmenorrhea was not associated with other symptoms. The associated symptoms are fatigue, headache, backache, dizziness, anorexia/vomiting, abdominal pain/distension

and diarrhea. Most of the literature reported the same duration of pain and the same associated symptoms with different frequencies (2,3,10,13,15).

The logistic regression analysis showed that the prevalence of dysmenorrhea is significantly higher among adolescents aged 16 and 17 years compared to those of 14 years (OR=2.18 and 6.59, respectively). Regular cycles are 0.54 times less likely to be associated with dysmenorrhea. Average and heavy menstrual flows are 3.71 and 6.54 times more likely to have dysmenorrhea as compared to scanty flow, respectively. Also prolonged cycles (30 days or more) are associated with high risk of dysmenorrhea (OR=1.48). It was concluded that the risk of dysmenorrhea is higher in women with irregular, long and heavy menstrual flow as well as early age of menarche (2,14,16,21).

Treatment of dysmenorrhea should be directed at providing relief from the cramping pelvic pain and associated symptoms. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) and oral contraceptives are the most effective (7). However, the use of oral contraceptive by unmarried girls is culturally unacceptable in our tradi-

tional and conservative community. Both a low-fat vegetarian diet and fish oil supplements have been reported to reduce menstrual pain in some women (22,23).

In this study only 2.7% of adolescents consulted a physician or pharmacist. It was found that most adolescents with dysmenorrhea self-medicate with the over-the-counter preparation, few consulted health care providers (5,10).

In our study about half of adolescents with dysmenorrhea did not take any treatment. Rest/relaxation, herbal/home remedies and/or drugs are the lines of treatment in 42.6%, 36.7% and 34.7% of cases. The drugs included analgesics, NSAIDs and antispasmodics, mostly self-prescribed.

Banikarim et al [10] reported that treatment taken for dysmenorrhea included rest (58%), medications (52%), heating pad (26%), tea (20%), exercise (15%) and/or herbs (7%). It was reported that the most common medication used by dysmenorrhic women was analgesic (53%), followed by NSAIDs (42%) (17).

Although not life threatening, dys-

menorrhea can be particularly disruptive to a woman's daily life and productivity. In the absence of appropriate pain relief, women with severe dysmenorrhea may not be able to carry out their normal activities (7,8).

In our study, 47.4% of dysmenorrhic students reported no limitation of daily activities. The most commonly limited activities due to dysmenorrhea are daily home activities (42.8%), going out of home (41.5%), participation in social events (39%), class concentration (24.4%), homework tasks (21.5%) and school attendance (20.3%). All these limitations are significantly more frequent among students with severe dysmenorrhea compared to those with mild or moderate pain. Banikarim et.al. (10) reported that activities limited by dysmenorrhea among adolescents include class concentration (59%), sports (51%), class participation (50%), socialization (46%), homework (35%), test-taking skills (36%) and grade (29%). In Morocco, menstrual pain often cited as the main single cause of school absenteeism among adolescent girls (16).

Reproductive health information and educational programs for adoles-

cents are emerging in many countries and could be an important means of providing information about treatment options for menstrual disorders (8). Young girls may be open than older women to discuss menstruation.

Introduction of a reproductive health component into health education program of schools will help in providing information, education and support to students regarding reproduction in general and menstrual problems in particular. It is essential to make treatment available for girls. Most girls may feel shameful and reluctant to report dysmenorrhea and do not seek medical advice. It is the role of school health care providers to ask and screen about dysmenorrhea and offer treatment if necessary.

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وبائية عسر الطمث بين الطالبات المراهقات فى المنصورة - مصر

د. عبد الهادى الجيلانى د. كريمة أبو المحاسن بدوى*

د سناء الفداوى*

قسم طب المجتمع - كلية الطب ومستشفى الطلبة الجامعى* - جامعة المنصورة

أجرى هذا البحث على الطالبات المراهقات فى المنصورة وذلك لدراسة معدل إنتشار عسر الطمث والعوامل المحددة له وأثاره السلبية وكذلك الممارسات العلاجية الخاصة به.

تم إختيار ٦٦٤ طالبة باستخدام العينة العنقودية من المدارس الثانوية العامة والفنية ممثلة لكل من الريف والحضر. وتم تجميع البيانات باستخدام إستبيان غير معرف ويستوفى ذاتياً.

وجد أن ٣٠.٣٪ من الطالبات لم يسبق لهن حدوث الطمث. وكان السن الوسيط لحدوث الطمث للمرة الأولى هو ١٣ سنة. وقد اشتكى حوالى ثلثى الطالبات من عسر الطمث. كان الألم المصاحب لعسر الطمث خفيف ومتوسط وشديد فى ٥٥.٣٪ و ٢٩.٩٪ و ١٤.٨٪ من الحالات على الترتيب.

أكثر الاعراض المصاحبة لعسر الطمث وهى الشعور بالتعب والصداع والام الظهر والدوخة (٧٠.٨٪ و ٦٢٪ و ٥٦.٨٪ و ٣٠.١٪ على الترتيب).

كانت المسكنات ومضادات الالتهاب غير الكورتوزينية ومضادات التقلصات هى العلاج فى ٣٤.٧٪ من الحالات. ولم يحدث تأثير سلبى لعسر الطمث عند ٤٧.٤٪ من الطالبات. وكانت التأثيرات السلبية (أعمال المنزل اليوميه والخروج من المنزل والمشاركة فى المناسبات الاجتماعية والمشاركة فى الرياضة والتركيز فى الفصل وعمل الواجبات المدرسية المنزلية والانتظام فى الدراسة) أكثر حدوثاً بين الطالبات اللاتى لديهن عسر طمث شديد. وباستخدام تحليل الانحدار اللوجستى وجد أن أهم العوامل المحددة لحدوث عسر الطمث هى السن الأكبر وعدم إنتظام الدورة وغزارة النزيف والدورات الطويلة.

ومن الدراسة نستخلص أن عسر الطمث واسع الانتشار بين المراهقات كما أنه يحد من الانتظام فى الدراسة ومن الأنشطة الاجتماعية والتعليمية والرياضية وأعمال المنزل. كما أن غالبية المراهقات بما فيهن ذوات عسر الطمث الشديد لا يلجأن الى الاستشارة الطبية. لذا يجب على مقدمى الرعاية الصحية المدرسية أن يتحروا عن عسر الطمث مع صرف العلاج اللازم. وبما أن عسر الطمث له تأثير سلبى على الانتظام والتحصيل الدراسى لذا يجب على المسئولين عن التعليم ان يقدموا التوعية الصحية للطالبات بهذا الخصوص.

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