

# Exploring dysmenorrhoea and menstrual experiences among Lebanese female adolescents

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## استكشاف عُسر الحيض والمعاناة من الدورة الشهرية بين المراهقات اللبنانيات

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**الخلاصة:** إن الدراسات شحيحة حول المعاناة من الدورة الشهرية وآثارها على جودة الحياة بين النساء في البلدان النامية. وتهدف هذه الدراسة إلى تقييم معدل انتشار عُسر الحيض بين المراهقات في مدينة صيدا وضواحيها، في لبنان، ولاستكشاف العلاقة المحتملة بينه وبين المعاناة من الدورة الشهرية. وقد صممت الدراسة لتكون مستعرضة، وضمت 389 من طالبات المدارس اللاتي تجاوزن مرحلة بدء الحيض، وكانت أعمارهن تتراوح بين 13 و19 عاماً، بعد أن تم اختيارهن بطريقة الاعتيان العشوائي العنقودي. ومن بين هؤلاء الطالبات كان 161 طالبة (41.4%) يضطرنّ إلى الغياب بانتظام، أو في بعض الأحيان، عن المدرسة بسبب مشكلات الدورة الشهرية، وكان 289 طالبة (74.3%) يعانين من عسر الحيض. ومع ذلك فإن 7.3% من الطالبات فقط استسّرّن طبيياً حول عسر الحيض، وكان ثلاث أرباع هؤلاء الطالبات (75.2%) لديهن درجات قياس تشير إلى معاناة سلبية من الحيض استناداً إلى استمارة السلوك والمعاناة من الدورة الشهرية. أما العوامل المنبئة التي يُعتدّ بها لعسر الحيض فكانت المعاناة السلبية من الدورة الشهرية، وصغر عمر الطالبة، وطول فترة النزف، وطول فترة الدورة الشهرية. والحاجة ماثلة لبرامج أفضل حول التثقيف في الصحة الإنجابية مع التركيز على الدورة الشهرية.

**ABSTRACT** Data on menstrual experiences and their impact on quality of life among women in developing countries are scant. The aim of this study was to assess the prevalence of dysmenorrhoea among adolescent girls in Sidon city and suburbs, Lebanon, and to explore its possible relationship with menstrual experience. In a cross-sectional design, 389 post-menarcheal schoolgirls aged 13–19 years were selected using a cluster random sampling method. Of these 161 (41.4%) were regularly or sometimes absent from school due to menstrual problems and 289 (74.3%) experienced dysmenorrhoea. Nevertheless only 7.3% of the girls had consulted a physician about dysmenorrhoea. Three-quarters of these young women (75.2%) had scores indicating negative menstrual experience based on the Menstrual Experience and Behavior Questionnaire. Significant predictors of dysmenorrhoea were negative menstrual experience, younger age of girl, longer duration of bleeding and longer cycle length. Better reproductive health educational programmes focusing on menstruation are needed for female adolescents.

## Étude de la dysménorrhée et du vécu des menstruations chez des adolescentes libanaises

**RÉSUMÉ** Les données sur le vécu des menstruations des femmes dans les pays en développement et son impact sur leur qualité de vie sont rares. L'objectif de la présente étude était d'évaluer la prévalence de la dysménorrhée chez des adolescentes à Saïda et sa banlieue (Liban) et d'examiner un lien potentiel avec le vécu des menstruations. Une étude transversale a été menée auprès de 389 adolescentes réglées, âgées de 13 à 19 ans et sélectionnées par échantillonnage aléatoire en grappes. Parmi celles-ci, 161 (41,4 %) s'absentaient régulièrement ou occasionnellement de l'école en raison de troubles menstruels et 289 (74,3 %) souffraient de dysménorrhée. Toutefois, seules 7,3 % des filles avaient consulté un médecin au sujet de la dysménorrhée. Les trois quarts de ces jeunes filles (75,2 %) ont obtenu des scores indiquant un vécu négatif des menstruations selon le *Menstrual Experience and Behavior Questionnaire*. Parmi les facteurs prédictifs importants de dysménorrhée, on peut citer un vécu négatif des menstruations, la jeunesse, une longue durée de saignements et un long cycle. De meilleurs programmes d'éducation en santé génésique axés sur les menstruations sont nécessaires pour les adolescentes.

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## Introduction

Menstruation is a natural phenomenon which is an important indicator of women's health [1–3], reflecting as it does their endocrine function [4]. However, data on experiences of menstruation and its impact on the health status, quality of life and social integration among women in developing countries are scant [5]. Dysmenorrhoea, for example, is a common problem, yet it remains poorly understood and is rarely taken into consideration when assessing adolescents' health and life experiences [1]. Pain or cramping sensations in the lower abdomen may be accompanied by headaches, dizziness, diarrhoea, a bloated feeling, nausea and vomiting, backache and leg pains [2,5–8]. These symptoms are reported to be the most common reasons for adolescents visiting a gynaecologist [2,4,5]. The high prevalence of dysmenorrhoea among adolescents (50%–70%) [6,8–10], especially in the first years of their reproductive life [2,6], influences their daily activities and can lead to high rates of school absenteeism [2,4–6,10,11], and is thus a major public health problem [12].

Attitudes to menstruation are also poorly understood. Anxiety, fear, anger, confusion, shame, disgust and even depression are frequently reported by girls during their first menstrual experiences [1]. Previous research findings have suggested a significant relation between menstrual experiences and sociocultural aspects, such as ethnical background, urbanization, education and occupation, among others [13]. In addition, perpetuations of cultural menstrual taboos and messages, such as menstruation as a shameful and dirty situation or as something intimidating, may have direct or indirect negative inferences on the beliefs of girls at menarche and therefore on their future menstrual experiences [1].

To the best of our knowledge, studies on dysmenorrhoea and menstrual experiences in Lebanese adolescent girls are scarce [9]. The aims of this study were to assess the prevalence of dysmenorrhoea among schoolgirls in Sidon city and its suburbs and to explore the relationship between menstrual experiences and dysmenorrhoea.

## Methods

### Study design and sample

This was a descriptive, cross-sectional study. A cluster random sampling technique was used to select the schools; all the students within the selected schools were recruited. First, a list of all the schools in Sidon city, Lebanon, and its suburbs was obtained from the Ministry of Education and Higher Education, Centre for Educational Research and Development. Inclusion criteria for the schools were being a high school and providing education in English language (16 schools,  $n = 2792$  schoolgirls). Five schools that could not afford the administrative requirements of the study in terms of time, procedures and personnel needed to address the study's objectives were excluded. Of the 11 eligible schools a cluster random sampling technique was used to select 5 English-education high schools. Secondly, all post-menarcheal schoolgirls in grades 8 to 12 (age 13–19 years) in the 5 selected schools were included in this study ( $n = 435$  schoolgirls). Women who were married or engaged were excluded to avoid confounding factors due to sexual relationships. There were 36 girls who did not meet the inclusion criteria and 9 refused to participate and so a total number of 389 girls participated, completed the questionnaire and were included in the final analysis of this study, yielding a response rate of 97.7%.

## Data collection

### Field procedures

The study protocol was examined and approved by the ethical review board of the Lebanese Ministry of Education. An envelope including a covering letter, an information leaflet containing the purpose of the study and a consent form were given to all students and their parents before conducting the study. Participants knew the purpose of the study and were assured of confidentiality. They were also reassured of their right to withdraw from the study at any time without any consequence and that the data would be used solely for the purpose of academic research.

The study took place over a period from February 2010 to March 2010. During this process, a female teacher was present in schools in an effort to maintain the confidentiality of the collected data. On average the students needed 25 minutes to complete the questionnaire.

### Study instrument

The schoolgirls answered a self-administered, structured questionnaire including sociodemographic data (age, nationality, religion, age of menarche, school grade, position in the family, parents' educational level and family monthly income) as well as the Menstrual Experience and Behavior Questionnaire (MEBQ) designed by McPherson and Korfine [1]. The MEBQ is a validated scale with a Cronbach alpha of 0.87. The questionnaire was printed and distributed in its original English language version. With permission from the original developer of the questionnaire 4 questions related to sexual behaviour were deleted (Q14, Q18, Q19, Q20) in order to adapt the questionnaire to the Lebanese cultural preferences. Furthermore, we reorganized 3 questions concerning the duration of cycles, duration of menses and physical aspects

of periods, based on the result of 2 pretests done among 33 schoolgirls. Two parts from the MEBQ were used in the questionnaire:

- Menstrual cycle characteristics. Five questions covered topics including: the characteristics of a "usual" menstrual period in terms of regularity, duration and heaviness, the pain experienced with menstruation and frequency and quality of menstrual periods.
- Menstrual experience. According to the original authors of the scale [1], 6 questions were used to assess how adolescents currently experience their menstrual cycles and their bodies. Each question has a negative or positive response, with negative terms coded 0 and positive terms coded 1. The scores on the 6 items were added to give a total score (between 0–6) for each girl and the mean total score was calculated for the sample. For each girl the mean score on the 6 items formed a composite score (between 0–1) where 1 reflected more positive overall experiences. The cut-off point of 0.5 in this composite score was used to divide the schoolgirls into 2 groups: negative menstrual experience (score 0–0.5) and positive menstrual experience (score > 0.5–1).

### Statistical analysis

Data are presented in tables reporting frequencies and means and standard deviation (SD) as appropriate. The chi-squared test was used to perform bivariate comparisons between the prevalence of dysmenorrhoea and the different sociodemographic characteristics, menstrual characteristics and menstrual experience. Factors affecting the prevalence of dysmenorrhoea were entered into a multivariate logistic regression analysis in order to explore predictor factors of dysmenorrhoea. The sample size recruited in this study was sufficient to detect a difference in the duration of bleeding

of 0.17 between the 2 study groups (dysmenorrhoea versus no dysmenorrhoea) with  $\alpha = 0.05$  and power > 0.90.

SPSS software, version 16.0 was used for data analysis.  $P < 0.05$  was considered as statistically significant.

## Results

### Demographic and menstruation characteristics

A total of 389 schoolgirls completed the questionnaire. The participants' demographic data are presented in Table 1. The mean age of menarche was 12.5 (SD 1.0) years (range 9–15 years), with 85.9% of girls experiencing menarche between ages 11–13 years.

The mean cycle length was 26.4 days and the average duration of menses was 6 days. Duration of menses was  $\leq 6$  days for 44.7% and  $\geq 7$  days for 55.3%. One-third of the respondents (35.2%) reported having irregular menstrual cycles (Table 2) and 27.0% that the amount of blood flow was heavy.

A total of 161 girls (41.4%) had sometimes or regularly missed days from schools in the previous year due to menstruation; 12.3% regularly missed school on the first day of their period and 4.9% on the first 2 days of their period (Table 2). Only 29 schoolgirls (7.5%) stated that they had consulted a physician for menstrual disorders (3.6%), genital infection (2.1%) or ovarian cyst (1.8%).

Dysmenorrhoea was reported by 289 (74.3%) of the participants with premenstrual symptoms including abdominal pain (37.0%), headaches (22.8%), breast swelling (34.6%), back pain (19.4%), leg pain (15.6%), breast pain (6.6%), general body aches (22.8%), mood changes (80.7%) and/or irritability (72.0%). Of these, only 21 girls (7.3%) had consulted a physician about dysmenorrhoea. The great

majority of girls who missed schools days because of menstruation suffered from menstrual pain (87.5% of those who missed 1 day per month and 84.2% of those who missed 2 days per month) (Table 2).

### Experiences of menstruation

The mean total score on the MEBQ for all participants was 1.93 (SD 1.0), on a scale of 0–6). Of the 389 girls who answered the MEBQ, 287 (73.8%) had negative menstrual experience scores (Table 2).

Among 389 schoolgirls who described their menstruation, 97.0% used negative words like "disgusting" (30.5%), "painful" (9.1%), "bad" (8.8%), "I hate it" (5%), "It's hard" (3.9%), "depressing" (3.8%), "[like a] disease" (3.4%), "tiring" (3.4%), "I wish I never had it" (0.9%), "ridiculous" (0.9%), "[like a] virus", "terrible", "embarrassing" (0.6%) and others (0.3%).

### Associations of demographic/ menstruation characteristics with dysmenorrhoea

Table 2 shows the chi-squared analysis of the association between the girls' demographic/menstruation characteristics and presence of dysmenorrhoea. Dysmenorrhoea was significantly associated with missing school days ( $P = 0.03$ ) and with negative menstrual experience scores ( $P < 0.001$ ) (Table 2). There were also significant relationships between dysmenorrhoea and younger age ( $P < 0.001$ ), longer cycle length ( $P < 0.001$ ), duration of menses ( $P < 0.001$ ) and suffering mood changes ( $P < 0.001$ ). However, there were no significant associations between dysmenorrhoea and schoolgirls' family income, cycle regularity or extent of menstrual flow.

The results of multiple logistic regression with dysmenorrhoea as the dependent variable show that the risk of dysmenorrhoea was significantly higher in girls having a negative

**Table 1 Demographic information of participants (n = 389)**

Variable	No.	%
<b>Age (years)</b>		
Mean (SD)	15.8 (1.4)	
<b>Nationality</b>		
Lebanese	341	87.7
Palestinian	48	12.3
<b>Years since menarche (n = 387)<sup>a</sup></b>		
1	4	1.0
2	26	6.7
3	58	14.9
4	81	20.8
5	82	21.1
6	74	19.0
7	38	9.8
8	20	5.1
9	4	1.0
Data unclear	2	0.5
<b>School grade</b>		
8th	91	23.4
9th	91	23.4
10th	105	27.0
11th	57	14.7
12th	45	11.6
<b>Father's education</b>		
Primary	65	16.7
Elementary	104	26.7
Secondary	87	22.4
University	133	34.4
<b>Mother's education</b>		
Primary	35	9.0
Elementary	103	26.5
Secondary	120	30.8
University	131	33.6
<b>Monthly family income (US\$)</b>		
< 1000	59	15.2
1000–2000	145	37.3
2000–3000	101	26.0
> 3000	84	21.6

<sup>a</sup>Variable derived from subtracting the current age of schoolgirls and their age at menarche.  
SD = standard deviation.

menstrual experience score (OR = 9.99; 95% CI: 4.29–23.3), younger age of girl (OR = 2.18; 95% CI: 0.91–5.21) and longer duration of bleeding (OR = 4.15; 95% CI: 1.61–10.7) or longer cycles (OR = 3.10; 95% CI: 1.27–7.54) (Table 3).

## Discussion

Menarche is the hallmark maturational event of a woman's childhood transition to adulthood [14], but dysmenorrhoea can diminish psychosocial and cognitive development

during adolescence [11] and influence body image and female sexual identity [14].

Similar to other countries in the world [8,15], the mean onset of menarche of Lebanese girls is declining, and the mean age at menarche in the present study is lower than that identified in southern Lebanese women in 1996 [13.6 (SD 1.7) years] [16]. The findings are also similar to those reported in another recent study in Lebanon [12.3 (SD 0.9) years] [17], as well as in the Islamic Republic of Iran [12.3 (SD 1.1) years] [18], Saudi Arabia [12.0 (SD 1) years] [19], Taiwan [12.3 (SD 1.1) years] [7], Hong Kong [12.3 (SD 1.1) years] [20] and Malaysia [12.3 (SD 1.1) years] [21].

The irregularity of cycles occurring in 35.2% of the sample is similar to the results of an Egyptian study (33.2%) [5] but is higher of the results of a Nigerian study (9%) [22].

The prevalence of dysmenorrhoea (74.3%) among schoolgirls in this study is similar to results of other studies (ranging from 67.7% to 76.0%) [1,2,5,8,14,19,23,24], but higher than results from Nigeria and Taiwan (60.0% and 60.5% respectively) [6,25].

Furthermore, dysmenorrhoea is a leading cause of short-term school absenteeism among young women. As many as 41.4% of girls in this study regularly or sometimes missed days from school and 4.9% regularly missed 2 days each month (i.e. up to 24 days per school year) because of their menstrual period. Most of these girls suffered from dysmenorrhoea. This percentage is lower than that found in Saudi Arabian adolescents (61.7%) [21] and higher than those found in various other researches (ranging from 12.5% to 25.8%) [2,6,7,9,10,24].

The literature contains a large number of findings about menstruation as a negative psychological experience and as a time when women must cope with considerable psychological and

**Table 2 Prevalence and determinants of dysmenorrhoea among adolescent women in Sidon city, Lebanon (n = 389)**

Variable	Total	Dysmenorrhoea				P-value
		Yes	%	No	%	
<b>Age (years)</b>						0.023
13-15	150	121	80.7	29	19.3	
16-19	239	168	70.3	71	29.7	
<b>Monthly family income (US\$)</b>						0.27
< 1000	59	38	64.4	21	35.6	
1000-2000	145	111	76.6	34	23.4	
2000-3000	101	78	77.2	23	22.8	
> 3000	84	62	73.8	22	26.2	
<b>Length of menstrual cycle (days)</b>						0.328
≤ 28	167	132	79.0	35	21.0	
≥ 29	71	52	73.2	19	26.8	
<b>Regularity of menstrual cycle</b>						0.590
Regular	252	185	73.4	67	26.6	
Irregular	137	104	75.9	33	24.1	
<b>Extent of menstrual flow</b>						0.159
Heavy	105	84	80.0	21	20.0	
Moderate	176	131	74.4	45	25.6	
Light	108	74	68.5	34	31.5	
<b>Duration of menses (days)</b>						< 0.001
≤ 6	174	149	85.6	25	14.4	
≥ 7	215	140	65.1	75	34.9	
<b>School absenteeism due to menstruation</b>						0.031
Regularly (1st day of period)	48	42	87.5	6	12.5	
Regularly (1st and 2nd days of period)	19	16	84.2	3	15.8	
Sometimes	94	73	77.7	21	22.3	
Never	228	158	69.3	70	30.7	
<b>Mood changes at menstruation</b>						< 0.001
Yes	314	246	78.3	68	21.7	
No	75	43	57.3	32	42.7	
<b>Menstrual experience<sup>a</sup></b>						< 0.001
Negative	287	255	88.2	32	32.1	
Positive	102	34	11.8	68	68.0	

<sup>a</sup>Based on mean scores on the Menstrual Experience and Behavior Questionnaire [1].

physical changes [1]. It is described as a traumatic experience for some women, which can even affect their future life prospects [11]. It has been found that women suffering from dysmenorrhoea are more predisposed to psychological disorders such as mood changes [1], depression, anxiety and somatization [9]. In this study 80.7% of girls reported suffering mood changes at menstruation. Dysmenorrhoea has previously been described

in negative terms among adolescents and is significantly associated with negative menstrual experiences [1]. In addition, many of the schoolgirls in our study reported that they experienced headaches, fatigue, back pain; vomiting, diarrhoea and dizziness during menstruation. These symptoms are commonly cited in the literature [8,19,21]. Given the frequency of these symptoms, health care providers should consider enquiring about

menstrual symptoms including dysmenorrhoea [8].

Despite the high proportions suffering from dysmenorrhoea, only 7.3% of girls in our study had sought medical advice. This figure is lower than those obtained in a Malaysian study (12.0%) [24], in Nigeria (17.9%) [26] and in the Islamic Republic of Iran (18%) [2], which suggests that culture may influence the experience and interpretation of symptoms such as pain and the ways

**Table 3 Multiple logistic regression analysis of predictive factors of dysmenorrhoea among adolescent women in Sidon city, Lebanon n = 389**

Variable	$\beta$	P-value	OR	95% CI
Age 13–15 vs 16–19 years	0.778	0.08	2.18	0.91–5.21
Duration of menses $\geq 7$ vs $\leq 6$ days	1.422	0.003	4.15	1.61–10.7
Length of cycle $\geq 29$ vs $\leq 28$ days	1.131	0.013	3.10	1.27–7.54
Menstrual experience negative vs positive	2.302	< 0.001	9.99	4.29–23.3

Model fit = 82.8%,  $-2 \log \text{likelihood} = 147.29$ ,  $\chi^2 = 54.691$ ,  $P < 0.001$ .  
OR = odds ratio; CI = confidence interval.

in which they are treated. Other studies have recommended that young women consult a specialist for pain relief and for managing dysmenorrhoeal symptoms [27].

This study provided some important indications of factors associated with dysmenorrhoea. We showed that the risk of dysmenorrhoea was significantly higher in girls in the early years of menarche, with prolonged cycles and heavy menstrual flow, as found in a study in Egypt [5], and in participants with negative menstrual experience scores, as shown also in Nigeria [26]. Furthermore, mood changes and school absenteeism were more common in those suffering from dysmenorrhoea.

The findings of the present study, derived from a small sample recruited in a local population within a particular cultural context, need to be substantiated with further studies using a large sample size drawn from different regions of Lebanon. Future researches should combine quantitative and

qualitative methods, within longitudinal experimental designs, in order to explore changes in the perimenarcheal phase, and the effects of educational programmes on dysmenorrhoea management.

Nevertheless, this study provided useful information about menstrual health care issues among Lebanese schoolgirls and warrants more attention in the public health agenda, thus helping health professionals to plan and develop strategies for improving reproductive health among adolescents.

## Conclusions

Menstrual pain and other adverse symptoms were common in our sample of Lebanese teenagers. Health professionals are invited to initiate appropriate steps to raise awareness in the community and to update school curricula by educating schoolgirls regarding this important health issue.

A high proportion of girls were absent from school and very few schoolgirls had sought medical help for dysmenorrhoea. Girls indicating moderate to severe pain in association with a high number of menstrual symptoms, school absence and interference with life activities should be effectively managed, or referred for further investigation, to minimize menstrual morbidity.

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