ORIGINAL ARTICLE

MENSTRUAL DISORDER AND QUALITY OF LIFE AMONG FEMALE COLLEGE ADOLESCENTS IN SELANGOR.

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Abstract

Background: Menstrual disorder is a womanhood problem around the world and negatively affects the quality of life. In females, common menstrual disorders are dysmenorrhoea, oligomenorrhoea and menorrhagia.
Methodology: A cross-sectional study was carried out among 294 female college adolescents aged 18 to 20 years in UKM, UM and UiTM. A set of questionnaires on demography, menstrual patterns and health-related quality of life was distributed online over a period of about 10 days in December 2019.
Results: A total of 294 questionnaires were analysed. The mean age of the participants was 18.36±0.64 years with a range of 18 to 20 years. Of all participants, 53% had dysmenorrhoea ranging from moderate to very severe while 16% had menorrhagia while 10% had oligomenorrhoea. Quality of life in females with menstrual disorders were poor (43.56 ± 6.31) compared to the normal females (46.67 ± 5.58) in physical and mental health with p-value <0.001.
Conclusion: This study found that dysmenorrhoea is most prevalent menstrual disorder in female college students aged 18 to 20 years. Furthermore, the quality of life in females with menstrual disorders were poor both physically and mentally.

Keywords: Menstrual disorder, Prevalence, Quality of life, Adolescents.

Introduction

Menstrual disorders are one of the most common problems for women that can affect the quality of life. It usually happens due to the relative immaturity of the hypothalamic-pituitary-ovary axis.[1] Adolescence is the time of life between puberty and psychophysical maturity when important endocrinological, metabolic, somatic and psychological changes occur in females. During this process, sequential phases mark the maturation and interaction of the complex endocrinological system comprising the hypothalamus, pituitary and ovarian gland. Healthy reproductive system is the expected outcome of this cycle.

Various studies have shown that menstrual disorder typically disrupts adolescents' self-esteem and educational, and social lives. This effect illness involves absenteeism, anxiety, depression, low self-esteem, decreased daily work and failure to communicate with friends, contributing to loss of quality of life among adolescents. Nahal et. al. (2015) found that globally, the major reason for time lost from work and school is dysmenorrhoea and menorrhagia. [2] Other than reducing quality of life, oligomenorrhoea may also lead to various complications such as infertility, pregnancy complications, cardiovascular disease and psychological disorders. [3]

Asyikin, et. al. (2015) have described the prevalence of menstrual problems among female adolescents in the north-eastern state Peninsular of Malaysia.[4] Some ASASIpintar female students frequently complain about their cramps in the lower abdomen, lower back pain, fatigue, headache, or even worse, fainting, while others, have no pain at all. A few of them could not participate in class or examination due to menstrual problems. This result in lower academic performance. Their daily productivities were also decreased due to emotional changes during menstrual period. Therefore, it is necessary to study whether menstrual disorders affect quality of life of female college adolescents and discuss various treatment options. Early

recognition, accurate diagnosis and appropriate management of bleeding disorders should improve not only the quality of care for affected women but also their Quality of Life (QOL). Increased awareness of the high prevalence of menstrual problems is essential for early diagnosis and provision of appropriate treatments without any delay. Accurate knowledge of the impact of menstrual disorders on health-related quality of life (HRQOL) and its adequate assessment help individualize treatment and assess the magnitude of changes in HRQOL.

This study was designed with the following objectives:

1. To determine the prevalence of menstrual disorders among female college adolescents in Selangor, Malaysia

2. To describe the quality of life scores among female college adolescents with menstrual problems in Selangor.

Materials and Methods

This is a descriptive cross-sectional study conducted using the online survey tool; google form. Participants of this study were 294 female college adolescents aged 18-20 from Universiti Kebangsaan Malaysia (UKM), Universiti Malaya (UM) and Universiti Teknologi MARA (UiTM). Female college adolescents aged 18 were randomly chosen from ASASIpintar program in UKM, Centre for Foundation Studies in UM and Foundation Centre in UiTM Dengkil Campus, while female college adolescents aged 19 and 20 were randomly chosen from various faculties in those universities.

Females aged between 18-20 years old in selected universities, who wish to participate in this study, and who have attained menarche were included.

Adolescents with an intellectual disability, those with inadequate reading skills or significant psychiatric problems were excluded. Female adolescents who were pregnant or previously pregnant were also excluded from this research as it would involve a different approach in their management. Adolescents who are unable to read the questionnaires due to language problems were also excluded.

The respondents were briefed on the nature of the study and their participation. Written informed consent was obtained in prescribed form before the questionnaire was administered. They were also informed that their response will remain confidential and their identities will not be revealed. The participants were asked to complete a set of questionnaires consisting of three parts which are:
1) Menorrhagia Questionnaire
2) Demography
3) SF-12

The Menorrhagia Questionnaire is a 15-item questionnaire designed by Ruta et. al. (1999). The items are similar to those asked during a gynaecology history for example duration of period, menstrual cycle, amount of menstrual flow and pain related to menstrual flow. [5] However, only 12 items were being used in the survey as the remaining items are more directed towards menorrhagia and its impact on the quality of life. The second part of the questionnaires is on demographic details regarding respondent's age, education level, ethnic group, height, weight and others. The third part of the questionnaires is SF-12v2 comprising a health-related quality-of-life questionnaire which are 12 items that measure eight health domains to assess physical and mental health. Physical health-related domains include General Health (GH), Physical Functioning (PF), Role Physical (RP), and Body Pain (BP). Mental health-related scales include Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH). The

instrument has been validated across a number of chronic diseases and conditions.

The female college adolescents were invited to complete the questionnaires online by using google form. The link was distributed on social media platforms. Researchers' acquaintances who studied in UKM, UiTM and UM were asked to share the link of the questionnaires to reach the widest possible respondents. On 20th December 2019, the link was posted on Twitter, Instagram and WhatsApp. In the post female college adolescents aged between 18 to 20 years old studied in UM, UKM and UiTM were encouraged to answer the questionnaires. Within the first 48 hours after the link was shared, over 100 respondents had answered the questionnaires and by the end of December there were 294 respondents after constantly sharing the questionnaire's link.

To analyze the results, the respondents were differentiated into 5 categories which are normal, menorrhagia and dysmenorrhoea, menorrhagia, dysmenorrhoea and lastly oligomenorrhoea. For females who had menorrhagia and dysmenorrhoea, they had heavy or very heavy flow with moderate to very severe pain during their menstrual periods while females who had menorrhagia only had heavy or very heavy flow with no pain or slight pain. For females with dysmenorrhoea they suffer from moderate to very severe pain during their menses while those with oligomenorrhoea had more than 35 days without menstruating. The frequencies and percentage of each item were analyzed and calculated for each item for demographic variables and the characteristics of menstruation. By using IBM SPSS Statistics 25, ANOVA test of significance were done where $p < 0.05$ was considered significant. The physical component score and mental component score of each of the respondent's quality of life were calculated using OrthoToolKit. An independent t-test was used to compare the mean quality of life scores between normal female college adolescents and those with

menstrual disorders. An ANOVA test was used to compare the mean quality of life of female college adolescents with different menstrual disorders which are dysmenorrhoea, oligomenorrhoea, menorrhagia and menorrhagia with dysmenorrhoea.

Results

The demographic details of the study respondents are shown in table 1. The mean age of the respondents was 18.36±0.64 years. The majority of the respondents were students from UKM with total of 103 (35.1%) participants while 93 (31.6%) of the participants were from UM and 98 (33.3%) were from UiTM. The majority of the respondents were Malay. Most of the respondents have normal BMI. Most of the respondents did not smoke and most of them had never smoked in the past 30 days (Table 2). The majority of respondents had never consumed alcoholic drinks in the past two weeks (Table 3). Table 4 shows that most of the respondents had no health issues while the most common health issue is asthma followed by anaemia and gastritis.

Characteristics of respondents' menstrual problems

All 294 respondents have menses with the mean age for menarche of the respondents was 12.09±1.21 years. A majority of respondents had normal cycle duration of menstrual, which is between 3 to 7 days followed by 8 to 10 days (table 5). Socio-demographic characteristics of the participating young women with different menstrual problems are presented below. There was significant predisposition of dysmenorrhoea as the most common menstrual disorder among adolescents. Obesity (BMI >30) was also predominant in the dysmenorrhoea group (table 6).

Menstrual pattern

There were significant differences in menstrual pattern involving the respective girls with different menstrual problems. Those with oligomenorrhoea had significantly longer duration of flow (>10 days) and longer cycle (>35 days). Girls with menorrhagia had heavy or very heavy flow and last almost 6 days. Girls with dysmenorrhoea had regular menses lasting 3-7 days with most of them reporting light to moderate flow. They also reported to have moderate to severe pain during menstruation. Most girls with menorrhagia plus dysmenorrhoea reported to have very severe pain. The menstrual pattern of the respondents is presented in Table 7.

Health related quality of life (HRQL) for respondents with menstrual problems

The statistics from 12 items of HRQL questionnaire is mentioned below. The overall mean is 44.69±6.24, the mean for health component is 47.64±7.98 and the mean of mental health component is 41.54±10.83. In Table 8, respondents were classified into two groups: normal groups and menstrual problem groups. Normal groups were girls who had no menstrual problems while menstrual problem groups were girls who had menstrual problems. There was a significant difference in the physical and emotional domains of the HRQL between normal and menstrual problem groups. As expected, girls with menstrual disorders had lower scores compared to the normal groups.

Discussion

The prevalence of menstrual disorders in UKM, UM and UITM was 66.7% which is slightly lower than the study by Lee et. al. (2006) which quoted a prevalence of 75% including premenstrual syndrome.[6] The most common menstrual problems seen in participants of this study is dysmenorrhoea 52.7%, followed by menorrhagia 15.6%, and oligomenorrhoea 10.2%.
In this study, the mean age of menarche is 12.09±1.21 with a range of 9–16 years. Female

adolescents with menstrual disorders had significantly lower mean scores compared to adolescents with no menstrual disorders both in physical and emotional domains of HRQL. Other than that, there was no significant difference among the mean scores for different types of menstrual disorders.

Liliwati (2007) and Ikramullah (2016) independently stated that dysmenorrhoea could cause school, class absenteeism and inhibit sports and school activities while pain discomfort experienced by those who have dysmenorrhoea reduces everyday functioning hours. [7, 8] Menorrhagia may cause anaemia for women, which can lead to tiredness and mental stress due to the heavy menstrual flow. It can also cause poor menstrual hygiene which results in risk of infection. This is because they had to change their pads several times per day due to the excessive heavy bleeding. Karout (2012) stated that oligomenorrhoea is a factor that can increase the rate of psychological diseases such as anxiety. [9]

Conclusion

The prevalence of menstrual disorder among students in UKM, UM and UITM is high and the quality of life of adolescents with menstrual disorder is poor. This study shows that menstrual disorder among adolescents has significant impact on a young women's quality of life. Each menstrual problem affects each domain differently. A more comprehensive approach towards managing adolescents with menstrual problem is vital. The barriers to seek medical attention in adolescents with menstrual disorder have to be explored and addressed to improve their quality of life.

Table 1: Distribution of demographic factors

Demographic factor	Percentage (%)
Age	
18 years old	73.2
19 years old	18.0
20 years old	8.8
Place of study	
UKM	35.1
UM	31.6
UiTM	33.3
Race	
Malay	92.5
Indian	4.1
Chinese	2.4
Others	1.0
Body Mass Index (BMI)	
Normal	59.0
Underweight	2.2
Overweight	12
Obese	7

Table 2. Smoking status

Item	Status	Percentage (%)
Have you ever smoke?	No	95.9
	One or two times	3.1
	Occasionally but not often	1.0
How often do you smoke in the past 30 days?	Never	99.3
	Less than one per day	0.7

Table 3. Alcohol consumption

Item	Status	Percentage (%)
In the past two weeks, how often do you drink alcohol?	Never	97.6
	One time	1.0
	Two times	1.4

Table 4. Frequencies of students with medical problems

Health issues	Frequency	Percentage (%)
Allergy	5	1.7
Asthma	14	4.8
Anemia	6	2.0
Gastritis	6	2.0
Crohn's disease	1	0.3
Hypothyroidism post RAI	1	0.3
Depression	1	0.3
Anxiety	2	0.7
Scoliosis	2	0.7
No health issue	256	87.1

Table 5: Duration of menses

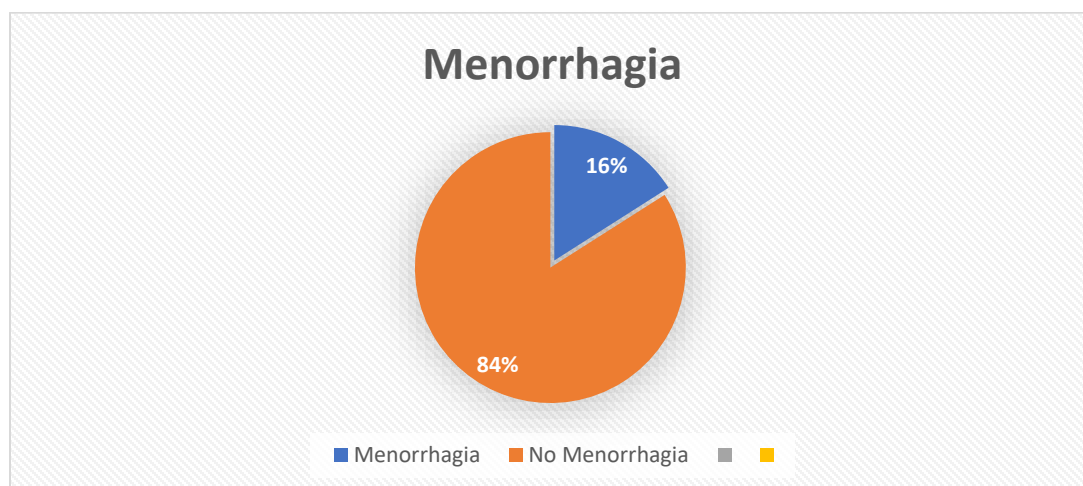| Item	Status	Percentage (%)
On average, for the last 3 months, how long has your menstrual period been?	Less than 3 days	3.1
	Between 3 to 7 days	63.6
	Between 8 to 10 days	27.2
	More than 10 days	6.1
On average, for the last 3 months, has your menstrual period been fixed or not?	Yes	54.4
	No	45.6

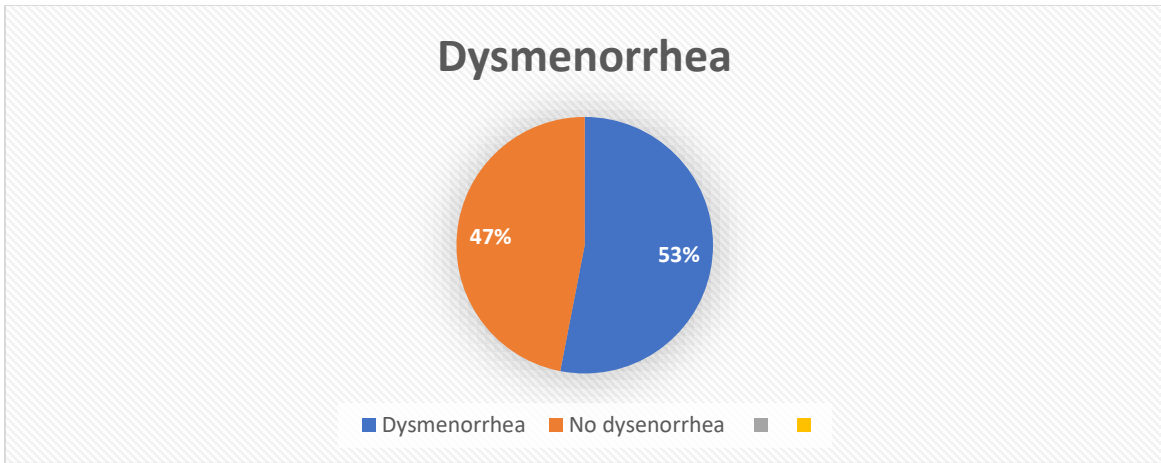**Figure 1.** Distribution of menorrhagia
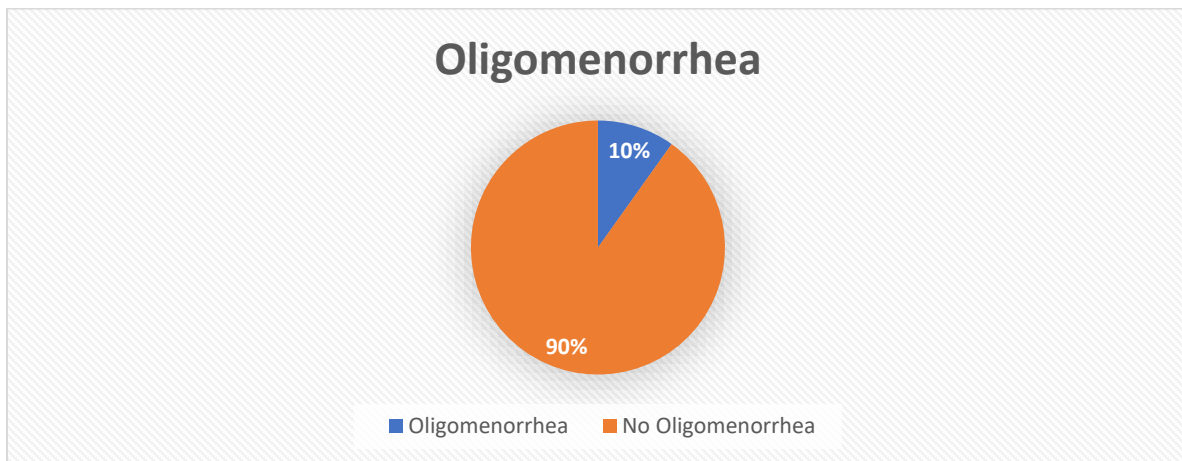
Figure 2. Distribution of dysmenorrhea

Figure 3. Distribution of oligomenorrhoea

Table 6. Socio-demographic characteristic for different menstrual problems

	Menorrhagia plus dysmenorrhoea	Menorrhagia	Dysmenorrhoea	Oligomenorrhoea	p-value
Race					0.668
Malay	34 (97.1%)	10 (90.9%)	110 (91.7%)	28 (93.3%)	
Chinese	0 (0.0%)	0 (0.0%)	1 (0.8%)	1 (3.3%)	
Indian	1 (2.9%)	1 (9.1%)	7 (5.8%)	1 (3.3%)	
Others	0 (0.0%)	0 (0.0%)	2 (1.7%)	0 (0.0%)	
BMI					
BMI > 30	2 (5.7%)	2 (18.2%)	4 (3.3%)	1 (3.3%)	0.001
Smoking					0.258
Yes	1 (2.9%)	0 (0.0%)	4 (3.3%)	1 (3.3%)	
No	34 (97.1%)	11 (100.0%)	116 (96.7%)	29 (96.7%)	
Alcohol					0.352
Yes	2 (5.7%)	0 (0.0%)	2 (1.7%)	0 (0.0%)	
No	33 (94.3%)	11 (100.0%)	116 (96.7%)	30 (100.0%)	
Health Issues					0.973
Yes	5 (14.3%)	2 (18.2%)	16 (13.3%)	4 (13.3%)	
No	30 (85.7%)	9 (81.8%)	104 (86.7%)	26 (86.7%)	

Table 7: Menstrual pattern for different menstrual problems

	Menorrhagia plus dysmenorrhoea	Menorrhagia	Dysmenorrhoea	Oligomenorrhoea	p-value
Duration					0.052
Less than 3 days	0 (0.0%)	2 (18.2%)	4 (3.3%)	1 (3.3%)	
3-7 days	22 (62.9%)	5 (45.5%)	78 (65.0%)	13 (43.4%)	
8-10 days	9 (25.7%)	3 (27.3%)	34 (28.3%)	11 (36.7%)	
More than 10 days	4 (11.4%)	1 (9.1%)	4 (3.3%)	5 (16.7%)	
Regularity					<0.001
Regular	21 (60.0%)	3 (27.3%)	71 (59.2%)	5 (16.7%)	
Irregular	14 (40.0%)	8 (72.7%)	49 (40.8%)	25 (83.3%)	
Flow					<0.001
Light	0 (0.0%)	0 (0.0%)	7 (5.8%)	3 (10.0%)	
Moderate	0 (0.0%)	0 (0.0%)	113 (94.2%)	14 (46.7%)	
Heavy	30 (85.7%)	10 (90.9%)	0 (0.0%)	13 (43.3%)	
Very heavy	5 (14.3%)	1 (9.1%)	0 (0.0%)	0 (0.0%)	
Days of Heavy Flow					<0.001
No days	0 (0.0%)	1 (9.1%)	5 (4.2%)	3 (10.0%)	
1-3 days	19 (54.3%)	9 (81.8%)	107 (89.2%)	18 (60.0%)	
4-6 days	15 (42.9%)	1 (9.1%)	8 (6.7%)	8 (26.7%)	
7-10 days	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (3.3%)	
More than 10 days	1 (2.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Cycle					<0.001
Less than 21 days	6 (17.1%)	3 (27.3%)	25 (20.8%)	0 (0.0%)	
21-34 days	29 (82.9%)	8 (72.7%)	95 (79.2%)	0 (0.0%)	
More than 35 days	0 (0.0%)	0 (0.0%)	0 (0.0%)	30 (100.0%)	
Pain					<0.001
No pain	0 (0.0%)	4 (36.4%)	0 (0.0%)	7 (23.3%)	

Slight pain	0 (0.0%)	7 (63.6%)	0 (0.0%)	8 (26.7%)
Moderate pain	15 (42.9%)	0 (0.0%)	73 (60.8%)	9 (30.0%)
Severe pain	8 (22.9%)	0 (0.0%)	40 (33.3%)	6 (20.0%)
Very severe pain	12 (34.3%)	0 (0.0%)	7 (5.8%)	0 (0.0%)

Table 8: Comparison of mean scores between normal and menstrual problem groups

	Mean ± SD		
	Normal (n=98)	**Menstrual problem (n=196)**	**p-value**
Physical	49.39 ± 7.30	46.76 ± 8.18	0.007
Emotional	43.92 ± 10.63	40.35 ± 10.75	0.008
Total score	46.67 ± 5.58	43.56 ± 6.31	<0.001

 *Independent T-test

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