Age at Menarche and Menstrual Pattern among Adolescences Girls in Selangor

Kamarulzaman Siti-Arffah[1]*, Mohamed PN[1] and PM Ridzuan[2]

[1]Department of Medical Science, International Medical School, Management & Science University, Malaysia

[2]Department of Pre-Clinical, International Medical School, Management & Science University, Malaysia

*Corresponding author: Dr. Siti Arffah Kamarulzaman, Department of Medical Science, International Medical School, Management & Science University, Selangor Malaysia, Tel: +601139989001; Email: siti_arffah@msu.edu.my

Abstract

Menarcheal age symbolizes the first menstrual period in female life and it is affected by biological and psychological factors. This study aimed to assess the effect of sociodemographic factor, menstrual pattern, menstrual disorder, physical activity and health care-seeking behavior on age at menarche. Materials and methods: This present cross-sectional study was conducted among 422 female students of government school in Selangor. After taking consent, self-constructed questionnaire were distributed to the students consisting part A sociodemographic profile, part B menstrual pattern and menstrual problem and part C physical activity and healthcare-seeking behavior. Mean age at menarche of this study subject were 12.21±1.09. Dysmenorrhea was reported by 90.8% of the female students. 38.9% of the students had PMS while 48.6% claimed only sometimes they experienced PMS symptoms and the remaining of 13% of students had no symptoms of PMS. Mean age at menarche was not statistically significant in different category of sociodemographic factor but showed a significant result in Dysmenorrhea (P=0.004), PMS (P=0.029) and physical activity (P<0.05). Findings also revealed a strong significant relationship between age of respondents and healthcare-seeking behavior towards menstrual problems (P=0.001). The result of age at menarche was comparable with other findings in the world. Public health education, counseling programs and routine counseling should be offer to the school to assist in early detection of menstrual disorder.

Keywords: Adolescences; Menarcheal Age; Menstrual Pattern; Sociodemographic; Selangor

Introduction

Adolescence is defines as person between age of 10 and 19 years old and involve a changes of state from childhood to adulthood which cause physical changes, sexual maturation and psychological changes to individual. The journeys of reproductive system in women begin with onset of menstruation and continue until menopause [1]. Menarche is the first menstrual bleeding which occur at different age in each individual

and also recognize as a marking point of menstruation cycle [2,3]. Numerous factors can influence the age at menarche such as physical activity, nutritional status, body mass index (BMI) and genetic [4]. In addition, the mean age at menarche also is affected by other condition including socioeconomic status, weather condition, and environmental. Family structure, high-conflict family, exposure to hazards, inadequate breastfeeding, oral contraceptive, and sexual exposure could alter and influence age at menarche [1]. Women reproductive health is measure by the regularity of menses [5]. In gynecology clinics, the most common chief complaint received by the doctor regarding reproductive problem were irregular menses, heavy bleeding and dysmenorrhea [6]. Disturbance in central gonadotropin-releasing hormone will affect the regularity of menstrual cycle [7]. Menstrual disorder can affect the quality of adolescents' life such as abseentism in workplace or school and decrease in work performance [8]. Abseentism was reported in 28%-48% of adolescent girls due to dysmenorrhea [6].

In middle-low economic countries, menstruation topic is considered taboo and people were ashamed to talk about it [9]. As a result, many of the young girls are lack of knowledge and information on menstruation [9]. Most of the girls received information regarding menstruation from their mother [9]. Unfortunately, only 2% of the girls received information regarding menstruation from health care personnel [9]. Although studies on age at menarche and menstrual pattern have been studied worldwide, few were done in Malaysia. Hence, the present study was undertaken among adolescence girl with the objective to study age at menarche and menstrual patterns among adolescence girl in Selangor as well as the health care seeking behavior of adolescence towards menstrual disorder.

Methods

Study design

A cross sectional study was conducted among secondary school students to evaluate the age at menarche and menstrual pattern among adolescence girl in Selangor. The schools involved were SMK Jalan Kebun, Shah Alam, SMKJK Yu Hua, Kajang and SMK Kampong Soeharto, Ulu Selangor. The respondents were selected according to WHO criteria for the adolescence that is 10-19 years World Health Organization, 1948. The inclusion criteria for the respondents including all students studying in Form 1 until Form 5 from the selected school, girls who had attained menarche, and student who gave consent and agreed to join this study voluntarily. The

exclusion criteria for this study are student who did not attained menarche and students who were absent on the day of data collection. There are 422 students who involved in this study. The study was approved by ethical committees of Research Management Centre (RMC) of MSU.

Data collection

The data was collected using questionnaire which consisted three parts. Part A of questionnaire was about the socio-demographic profile included age, religion, living area, races, parent's income and parent's educational level. Part B was to identify the menstrual patterns and menstrual disorder included age at menarche, menstrual cycle and menstrual bleeding pattern, number of pad/day, dysmenorrhea, and premenstrual syndrome. Part C was to evaluate the physical activity and health care-seeking behavior of the respondents. In order to measure physical activity, students were asked about the frequency of their physical activity and types of activity they usually get involved. Moreover, health care- seeking behavior questions such as the best action to relieve period pain or dysmenorrhea and Premenstrual Syndrome (PMS) were asked to the students.

Data Analysis

Data was analyzed using statistical package of social science (SPSS) version 22. Descriptive analysis was used for frequency distribution. Chi square was used to analyze the association between two groups of variables. The association between age at menarche and socio-demographic profile were tested using ANOVA. The prevalence of menstrual disorder and menstrual patterns were determined by using ANOVA. The Chi square test was applied to find association between age at menarche and physical activity and association between age of respondents and health care-seeking behavior. P-Value < 0.05 was considered significant.

Results

A total number of 422 students were enrolled from age 9 to 15 years of age for their menarcheal age. The mean and standard deviation of age at menarche in this study was 12.21±1.09. Out of that, 139 (32.9%) student were from urban area, 141 (33.4%) student from suburban area and 142 (33.6%) student were from rural area. The socio-demographic characteristics and age at menarche of the respondents are shown in Table 1. In this study, the majority, 271 (64.2%) student attained age at menarche less than 13 years old while 151 (35.8%)

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students had attained their menarcheal age between 13 - 15 years of age. The main ethnicity, were 292 (69.2%) Malay, 124 (29.4%) Chinese and only 6 (1.4%) of respondents were Indian. Since the majority of respondent were Malay, the percentage of Islamic believer were (69.2%) which is higher than other religion. The second higher religion was Buddha (27.0%) follow by Christian (2.6%) and Hindu (1.2%). Most of the participants were from low social economic class 199 (47.2%). The remaining of 118 (28.0%) of respondents belongs to middle social economic class, high social economic class 53 (12.6%) and poor level were 51 (12.1%). The highest rank for both father and mother educational level were secondary education with value 257 (60.9%) and 252(59.7%) respectively.

Sociodemographic Profile	Subgroup	Age at Menarche (Mean±SD)	ANOVA	
			F- Statistic	P- Value
Living Area	Urban	12.29±1.05	F= 2.008	P=0.136
	Suburban	12.30±1.06		
	Rural	12.05±1.13		
Races	Malay	12.18±1.12	F= 0.692	P= 0.501
	Chinese	12.25±1.03		
	India	12.67±0.82		
Religion	Islam	12.12±1.11	F= 0.686	P= 0.561
	Christian	12.00±0.77		
	Buddha	12.30±1.06		
	Hindu	12.60±0.89		
Socioeconomic status (SES)	High SES	12.29±1.05	F= 1.171	P= 0.093
	Middle SES	12.30±1.06		
	Low SES	12.05±1.13		
	Poor	12.07±1.13		
Father's Education	No education	12.42±1.02	F= 0.837	P= 0.475
	Primary Education	12.11±1.06		
	Secondary Education	12.11±1.10		
	Tertiary Education	12.35±1.06		
Mother's Education	No education	12.40±0.97	F= 1.335	P= 0.263
	Primary Education	12.05±1.08		
	Secondary Education	12.21±1.09		
	Tertiary Education	12.38±1.09		

Table 1: Distribution of Social Demographic Characteristics.

Surprisingly, age at menarche seems to be declined in rural area while there is not much difference between mean age and SD in urban and suburban area. Early menarcheal age was detected in poor and low social economic status compare to girl who lived in urban area. Age at menarche of female students with both parents that did not have education was found to be earlier among other level of education. ANOVA test showed there is no significant result found between menarcheal age and each category of socio-demographic factor.

Table 2 shows menstruation history and characteristics of the respondent. Majority of the students, 242(57.3%) had regular menstrual cycles with mean age and SD 12.15±1.08. There was 333 (78.9%) of the respondents reported with irregular menstrual cycle with mean age and SD of 12.31±1.33. Menstrual bleeding pattern for adolescent girls in this study was categorized under four categories. Spotting bleeding pattern were rarely found which about 5(1.2%) of population-based study. There was 25(5.9%) of the students experienced light menstrual bleeding and 59(14.0%) of them suffered heavy menstrual bleeding. Mean age and SD were increased in students who are experienced light menstrual bleeding 12.84±1.07 and decline in heavy menstrual bleeding 12.14±1.01. Almost all of the students, 288 (68.0%) had normal 5-7 days of menses and 74(17.5%) had a slightly shorter time of period which were between 2-4 days but it is still considered normal. A small percentage of 3(0.7%) of the students had period less than 2 days and. Students who had menses for more than 8 days were 57 (13.5%). The lesser the number of period days the higher mean age and SD were found. For instance, student who experienced menses less than two

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days, had higher mean age and SD 13.00±1.73. Furthermore, the more number of period days, the lower mean age and SD meant to be. In case of prolong menstruation which is more than 8 days, the mean age and SD were 12.28±1.22.

Variables	Subgroup	Mean age ± SD	Frequency	Percentage (%)
Menstrual Cycle	Regular	12.15±1.08	242	57.30%
	Irregular	12.31±1.33	105	24.9
	Not sure	12.21 ±0.92	75	17.80%
Menstrual bleeding pattern	Light	12.84±1.07	25	5.90%
	Moderate	12.17±1.12	333	78.90%
	Heavy	12.14±1.01	59	14.00%
	Spotting	12.17±1.60	5	1.20%
Period of menses	Less than 2 days	13.00±1.73	3	0.70%
	2-4 days	12.08±1.17	74	17.50%
	5-7 days	12.21±1.08	288	68.20%
	More than 8 days	12.28±1.22	57	13.50%
Presence of Dysmenorrhea	Yes	12.19±1.13	383	90.80%
	No	12.36±1.01	39	9.20%
Occurrence of dysmenorrhea	Before blood begins	12.17±1.06	180	42.70%
	during menstruation	12.14±1.20	138	32.70%
	after menstruation	11.82±1.33	11	2.60%
	before and during menstruation	12.43±1.12	51	12.10%
	during and after menstruation	11.33±1.53	3	0.70%
Effect of Dysmenorrhea	Absenteeism	12.17±1.04	38	9.00%
	Restriction in physical activities	12.20±1.07	144	34.00%
On Daily life	Poor Concentration	12.82±1.04	148	35.00%
	Decrease Academic Performance	12.15±1.04	63	14.90%
	Social Withdrawal	12.26±1.10	89	21.00%
	Yes	12.10±1.16	162	38.40%
Presence of Premenstrual syndrome	No	12.56±0.94	55	13.00%
	Sometimes	12.19±1.12	205	48.60%
	Abdominal Cramps	12.11±1.17	131	31.00%
Symptoms of Premenstrual syndrome	Skin problem (Acne & Dryness	12.30±1.14	159	37.70%
	Breast Tenderness	12.37±1.27	52	12.30%
	Insomnia	11.79±1.08	29	6.90%
	Social Withdrawal	11.94±1.23	71	16.80%
	Irritability	12.14±1.13	211	50.00%
	Food Craving	12.17±1.17	225	53.30%

Table 2: Distribution of Menstruation History and Characteristics of Respondents.

Menstrual disorders are common in adolescent girl and it was found that 383 (90.8%) of the student had experienced dysmenorrhea with the mean age and SD of 12.19±1.13. Only 39(9.2%) of the study subject did not experienced painful menstruation with mean age and SD 12.36±1.01. The mean age and SD were found to be low in students who had experienced dysmenorrhea. The occurrence of dysmenorrhea where found high in 180(42.7%) in painful menstruation before blood begins followed by 138(32.7%) had experienced dysmenorrhea during menstruation and only 11(2.6%) of them feel pain after menstruation. However, certain students may experience dysmenorrhea in both before and during menstruation (12.1%). Approximately 3 or 0.7% of female students experience dysmenorrhea during and after menstruation. The highest mean and SD for occurrence of dysmenorrhea were 12.43±1.12 and the lowest were 11.82±1.33.

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The results showed 148(35.0%) and 144(34.0%) believed dysmenorrhea can lead to poor concentration while studying and hindered their daily physical activities. 63(14.9%) reported that dysmenorrhea could decrease their academic performance and 38% of them could not attend class or school when dysmenorrhea occur. Remaining of 89(21.0%) of the students experienced social withdrawal when dysmenorrhea started to appear. The highest mean age and SD were found in poor concentration (12.82±1.04) while the lowest mean age and SD were discovered in decrease academic performance (12.15±1.51). Other common type of menstrual disorder was Premenstrual Syndrome (PMS). 162 (38.4%) of the students experienced PMS and 205 (48.6%) claimed that they experienced PMS occasionally. The balance of 55 (13.0%) of the students do not experienced PMS symptoms. The mean age and SD were found higher in students who did not experienced PMS (12.56±0.94) and lower in students who had PMS (12.10±1.16).

Most of the respondents might suffer more than one symptom of PMS. Out of all, food craving 225 (53.3%) and irritability 211(50%) were found higher in compare to other symptoms. The next common symptoms were skin problem 159(37.7%) which include dryness and acne. Abdominal cramps were discovered to affect 131 (31.0%)

of the students and social withdrawal were found in 71 (16.8%) of the students. The least symptoms chose by the students were breast tenderness and insomnia with value of 52(12.3%) and 29 (6.9%) respectively. Additionally, even though breast tenderness constitute for only 12.3% of the study population, it still had a highest mean age and SD 12.37±1.27 compare to other categories while insomnia had a lowest mean age and SD 11.79±1.08.

Table 3 shows the prevalence of menstrual disorder and menstrual pattern among adolescent girls in Selangor. In this study, menstrual pattern were divided into four groups. The highest mean age and SD were light bleeding 12.88±0.88 and the lowest mean age and SD were 12.14±1.01. There is a slight difference in mean age and SD between medium bleeding 12.15±1.13 and heavy bleeding 12.14±1.01 among the female students. Dysmenorrhea was categorized under four subgroups according to the severity of pain during menses. Above all, severe dysmenorrhea seems to have highest mean age and SD 12.50±1.04 than the others. Mild symptoms of dysmenorrhea were reported to have mean age and SD of 12.36±1.16. Unexpectedly, there is a decline in mean age and SD of moderate bleeding by 11.97±1.09 and it was the lowest among all categories. Some of the female students described that they never had any pain during period of menses and the mean age and SD for it were 12.26±0.99.

Variables	Subgroup	Age at Menarche (Mean±SD)	ANOVA	
			F- Statistic	P- Value
Menstrual bleeding Pattern	Light	12.88±0.88	F= 3.421	P=0.017*
	Medium	12.15±1.13		
	Heavy	12.14±1.01		
	Spotting	12.17±1.60		
Severity of Dysmenorrhea	Mild	12.36±1.16	F= 0.692	P= 0.002***
	Moderate	11.97±1.09		
	Severe	12.50±1.04		
	No symptoms	12.26±0.99		
Premenstrual Syndrome (PMS)	Yes	12.12±1.11	F= 0.686	P= 0.029*
	No	12.00±0.77		
	Sometimes	12.30±1.06		

Table 3: Prevalence of Menstrual Disorder And Menstrual Pattern Among Adolescent Girls In Selangor.

There was 162 respondents had experienced premenstrual syndrome while the remaining of 55 respondents do not have any experience of premenstrual syndrome (PMS). Majority of 205 students acclaimed that they had experience premenstrual syndrome but it is only once in a while and the mean age and SD were 12.19±1.09. The mean and SD for respondents who had PMS were 12.12±1.11 and those who don't have any PMS symptoms, their mean and SD were 12.56±0.94. ANOVA test was

used to analyse the data and showed that age at menarche has a significant effect on dysmenorrhea ($P = 0.002$), premenstrual syndrome ($P = 0.029$) and menstrual bleeding pattern ($P = 0.017$).

Table 4 shows the effect of physical activity on menarcheal age. Physical activity were categorized into three categorized including light, moderate and vigorous activity based on self-perception of the students. Students

who had attained menarche less than 13 years old mostly engaged with a light activity in their exercise routine and the percentage was 57.9%. 28.4% of them were categorized under moderate activity and only13.7% of the student fell into vigorous category. 43.0 % of a student who had attained menarche between age 13- 15 years old were categorized under light activity. There is a slight difference in percentage between light activity and moderate activity of the students. The percentage of student who engages with moderate activity was 42.4% and only 14.6% of them fell into vigorous activity. The study showed a positive statistical association with the effect of physical activity on menarcheal age and the P-value was 0.007.

		Types of physical activity			Total	Chi Square	P- Value
		Light Activity (%)	Moderate Activity (%)	Vigorous Activity (%)			
Age at menarche	<13	157 (57.9)	77 (28.4)	37 (13.7)	271 (100)	$X^2 = 9.80$	0.007***
	13-15	65 (43.0)	64 (42.4)	22 (14.6)	151 (100)		
Total		222 (52.6)	141 (33.4)	59 (14.0)	422 (100)		

Table 4: Effect of Types Physical Activity on Menarcheal Age among Adolescences in Selangor.

The frequency of exercises were obtained and recorded as shown in Table 5. It was observed 14(3.32%) of the students had participate in vigorous activity. 21(4.8%) of them were actively exercising for 1-2 times per day. Only 27(6.4%) of the students did exercise for 4-6 times per week. Majority of the student 151(35.8%) exercised for 1-3 times per week. 119(28.2%) of the student had exercised less than 1 times per week while the balance of 90 (21.3%) students, admit that they rarely had any exercise. Chi square showed a significant association between age at menarche and exercise frequency of the students (*P*-value =0.023). Table 6 shows the chi-square analysis of association between age of respondents and health care seeking behavior towards menstrual disorder. Almost half of the student 214 (50.7 %) choose to ignore the pain of menstruation. 95 (22.6%) of the students responded to usage of home remedies such as drinking herbs, medicated oil (Cap kapak oil), or heated pack. Self-medication was observed among 88 (20.9% by taking drug over the counter such as paracetamol (PCM) and ponstan. 25 (5.9%) of the student consult health care provider to cure their menstruation problem. Chi square test showed there was a strong statistical significant relationship between age of respondents and Healthcare seeking behavior towards menstrual disorder.

		Exercise frequency								
		Never or rarely (%)	Less than 1 times per week (%)	1-3 times per week (%)	4-6 times per week (%)	1-2 times per days (%)	>3 times per days (%)	Total (%)	Chi Square	P value
Age at menarche	<13	66 (24.4)	80 (29.5)	96 (35.4)	14 (5.2)	8 (3.0)	7 (2.6)	271(100)	$X^2 =13.02$	0.023*
	13-15	24 (15.9)	39 (25.8)	55 (36.4)	13 (8.6)		7 (4.6)	151(100)		
Total		90 (21.3)	119(28.2)	151(35.8)	27 (6.40)	21(4.80)	14 (3.32)	422 (100)		

Table 5: Effect of Exercise Frequency on Menarcheal Age among Adolescences in Selangor.

		Health seeking behaviour				Total	Chi Square	P-Value
		self - medication	Consult healthcare provider	Use home remedies	ignore the pain			
Age of students	13-15	47 (18.6)	18 (7.1)	41 (16.2)	147 (58.1)	253(100)	$X^2 = 21.0$	0.001***
	16-18	41(24.3)	7 (4.1)	54 (32.0)	67 (38.0)	169(100)		
Total		88(20.9)	25(5.9)	95 (22.6)	214 (50.7)	422(100)		

Table 6: Relationship between Age of Respondents and Healthcare Seeking Behavior towards Menstrual Disorder.

Discussion

The current mean age and SD of this study are slightly similar to the research findings done in Egypt 12.1±1.6 years, Davangere 12.14±1.09 years, University of Malaya 12.45±1.1712 years, Tumkur 12.39±1.12 years, Aligarh 12.52±1.42 years, Northern Nigeria 12.53±1.33 years, Iran 12.6±1.6 years, Lahore 12.66±1.12 years, Delhi 12.7±1.00 years, and Polish 12.86±1.30 years [4,6,10-13]. However, the mean age of this recent study are higher in comparison with the findings done in Bangkok 11.40, Korea 11.94 and Brazil 11.70 [14,15]. Age at menarche in this study may vary from other findings as it governed by different factors such as general health, socioeconomic status, religion, ethnicity, physical activities, genetics factors and geographical variations [10].

Malay students tend to attain menarche later than Chinese student which is contradicted with the previous study done by Hossain, et al. According to the previous research, Chinese female students experienced menarche (12.55±1.29) years later than Malays (12.45±1.16) years. The recent study found no significant result between age at menarche and races which is similar to the findings done in University Malaya, Malaysia [16]. The changes between menarcheal ages in each race could be affected by differences in physical characteristics and culture between each ethnicity that could also altered the onset of pubertal development [17]. The result of mean age and SD in urban and suburban area of Selangor is slightly similar to the suburban area (12.37±1.59) and urban area (12.92±1.21) in Lahore, India [10]. In contrast, the mean age and SD in this recent study were lower than the mean age and SD in a previous research done in Northern Ghana (urban = 13.41±1.71, suburban = 13.88±1.98, rural = 14.76±2.36) [18]. Additionally, studies have suggested that age at menarche tends to appear earlier due to the plausible difference in economic status, nutritional status and social demographic of the society as it improves. When Anova test applied, it showed no statistical significant result found between living area and age at menarche with a P- Value = 0.136. However, previous findings in Nepal found a significant result between living area and age at menarche with a P-Value 0.001 [1]. The variation of menarcheal age in each demographic area could be affected by climate and geographical differences. Previous study stated, female who lived in warm climates tends to attain earlier menarche than female that lived in colder countries.

Menstrual abnormalities are usually found in younger age girls and started to stabilize as they grow older [7]. In our study, irregular menstrual cycles were reported by

78.9% of the student which is higher than the findings in Egypt [8]. In Egypt, 19.1% of the students experienced irregular periods within 6-12 months after menarche and 7.8% experienced irregular period beyond first menarche [8]. The total percentage of irregular period was 26.9% lower than the findings in this study [8]. In addition, a study among Lebanese girls also categorize irregular menses into both group which were always (53.5%) and sometimes (5.9%) [19]. The total up of irregular menses was 59.4% which is still lower than the findings in this study [19]. In contrast, 80.24% female students in Korea tend to experience irregular menstrual cycles which is higher by 1.3% in comparison with our study [20]. Regular menses in the current study was 57.3% which is parallel to the findings in Central India 57.2% respectively [21]. On the other hand, in Northern Ghana the finding for regular menses was 69.0% which higher than the result of our study [18]. The variation of differences in percentage of irregular and regular menses this study could occur due to immature of H-P-G axis. A menstrual bleeding pattern is one of the sources to determine reproductive health of female. Findings by Karout et al 2012, shows that heavy bleeding were found in 11.7% and light bleeding were discovered in 2.0% of the respondents which slightly lower than the current findings [19]. ANOVA test was applied on the data, it shows that there is a significant result between menarcheal age and menstrual bleeding pattern with P-value = P=0.017. Similar study conducted by Dasharathy et al., 2012 shows a significant P-value = 0.07 which support the current study. Thus, this show that menstrual bleeding pattern act as important parameter to help in identification of abnormal menstrual cycles or any underlying endocrine disorder.

Nearly 90.8% of the female student were identify to have dysmenorrhea which is higher than the 64.3% prevalence of dysmenorrhea documented in a previous study done in Zaria, Northern Ghana [19]. In India, dysmenorrhea was reported by 84.2% of the students whereas only 15.8% of the students reported no experience of dysmenorrhea [3]. The decline in number of student experienced severity of menstrual pain could occur as dysmenorrhea usually occurs 1 to 2 years after menarche [17]. This could be one of the reasons why most 90.8% of the students in this study experienced dysmenorrhea as they are young. On the other reports, mild dysmenorrhea were found in 19.3% of the study subject and moderate dysmenorrhea were found in 20.2% of participants while the highest percentage were severe dysmenorrhea with percentage of 60.3% [19]. A strong statistical significant result were found between age at menarche and dysmenorrhea in this study (P–value =

0.004) and it is similar with previous findings [22]. The differences in severity of dysmenorrhea among female students may be related with cultural differences in pain perception and variability in pain threshold [19].

Dysmenorrhea was considered to be normal by many people including health care workers which may affect the individual from seeking proper medical treatment [9]. In this study, there is a high proportion of female students experienced dysmenorrhea 90.8%. The most chosen method to cope with dysmenorrhea was ignoring the pain. Female students who were age 13-15 tend to ignore the pain. As the age move to 16-18 years old, the frequency of ignoring the pain to cope with dysmenorrhea fall down to 67 students which may occur due to increase in maturity and complex thinking. Surprisingly, only small amount of students in this study seek help from healthcare provider. Previous study done in Malaysia reported that majority of young women and girls were shy and reluctant to seek help for treatment of PMS and dysmenorrhea.

Conclusion

In conclusion, the mean age and SD in our study was 12.21± 1.09 years old which is slightly similar to other findings in the world. Age at menarche was directly related to physical activity and menstrual pattern of the respondents but it was negatively associated with socio-demographic factors. The prevalence of menstrual disorder such as PMS and Dysmenorrhea are high and it occur frequently among adolescence but only few seek medical advice and most of them ignore the pain. Healthcare seeking behavior towards menstrual disorder was affected by age of respondents. Therefore alternative hypothesis were accepted except for hypothesis number one.

Dysmenorrhea and PMS are common menstrual disorder face by students in urban as well as rural areas. Implementation of health education and health screening should be done in school to provide awareness on menstrual disorder. Encouragement to chart period of menses should be done in order to find out regularity of menses. This will make the students aware in any abnormality occur throughout the cycles and increase their attention on healthcare seeking behavior.

Further study is required to determine the factors which are responsible in altering secular trend of age at menarche. Generally, this study only focuses on age at menarche with socio-demographic factor, menstrual pattern, physical activity and health care seeking behavior. Several possible factors such as lifestyle, nutrition, BMI, height, size of family, and media influence should be explored in the future. Factors leading to avoidance of health-seeking behavior should also be further studied.

Acknowledgement

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