

Age at Menarche, Menstrual Pattern and Premenstrual Symptoms of Female Students of Islamia University Bahawalpur

Sabira Sultana*, Hafiz Muhammad Asif, Shifa Shafiquee, Naveed Akhtar

University College of Conventional Medicine, Faculty of Pharmacy and Alternative Medicine, The Islamia University of Bahawalpur, Bahawalpur, Pakistan

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Author's Contribution

All the authors contributed significantly to the research that resulted in the submitted manuscript.

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***Address of Correspondence Author:** drsabirachisti12@gmail.com

ABSTRACT

Objective: Population based studies on normal menstrual cycles, variability in menarcheal age and premenstrual symptoms are limited in Pakistan. Knowledge on the awareness about normal menstrual pattern, variability in menarcheal age and premenstrual symptoms is necessary for the patient education and for the evaluation of gynecological disorder.

Study Design: A cross sectional study was conducted from August 2016 to December 2016 to determine the age at menarche and menstrual pattern and associated symptoms of menstrual cycle among students of Islamia University Bahawalpur. Questionnaires were developed and distributed among the consenting participants. Four hundred and twenty-six females were included in the study.

Result: Result revealed that their ages at menarche ranged from 9 years to 16years and the mean age at menarche was 13.5 ± 1.28 years. Their menstrual cycle lengths ranged from 21–35 days with mean menstrual cycle length of 28.9 ± 0.9 28 days. The mean duration of menstrual flow was 4.7 days. Fifty percent (n= 150) had menses lasting 3–5 days while 35% had menses lasting over 6-8 days and 12% have lasting more than 8 days. The prevalence of dysmenorrhea was 53.99% (n=230) while PMS was 48% (n=207). 156 (36.6%) females having backache and abdominal pain, 38 (8.9%) having nausea, 109 (25.5%) having anxiety and depression, 52 (12.2%) having breast tenderness, 53 (12.4%) having headache, 12 (2.8%) having vomiting.

Conclusion: In the study medium age of menarche exist among the participants that is menarche age is neither too earlier and nor too late. A significant number of participant's complaint of premenstrual symptoms, irregular menstrual cycle and dysmenorrhea.

INTRODUCTION

Menarche is a woman's first menstrual bleeding. Menarche is the stage of female at which there occur hormonal changes and changes in cognitive, physical and psychological behavior. At menarche female become able to reproduce and it is first essential process of the female

puberty [1]. The age of menarche varies among girls. It is influence by various factors which includes nutritional status of girls, socioeconomic status, genetic and the environmental factors [2,3]. Age of menarche has mostly decreased in the majority of the developed countries in recent decades [4-6] and appears to stabilize at 13 ± 0.5 years [7]. Studies suggested that for the majority

of the females, it happens between the age of 10 and 16 years; nevertheless, it shows a notable sort of variation. During puberty, hormonal, cognitive, psychological and physical changes happen at the same time and due to these young girls have to face different challenges like emotional, social and behavioral. Considering girls, variations in age of menarche might be important. Past studies suggested that 5% of population reported ages of menarche at onset before 10 or after 15 years.

Menstrual problems such as dysmenorrhoea premenstrual symptoms and delayed menarche cause an immense anxiety and stress among the young females and their families; therefore, it is essential to know the menstrual cycle pattern and premenstrual symptoms [8]. The cycle length differs in different females and for individual female at different times of her life. The average range for ovulatory cycles is usually between 21 and 35 days. Menstrual bleeding last mostly for three to five days, duration of menstrual flow normally ranges from two to seven days. During first few years after menarche, irregular and longer menstrual cycles are common [9]. The cycles become regular and one to two years after the onset of menarche with mean length of 28 ± 7 days and are supposed to remain the same until perimenopausal years when ovarian function decreases. Menstrual disorders are frequent complaints in the adult girls before regular menstrual patterns are set up. These disorders include hypo-menorrhoea, dysmenorrhoea, oligomenorrhoea, menorrhagia and dysfunctional uterine bleeding [10].

Population studies based on normal and dysfunctional characteristics of menstrual cycles are limited in Pakistan. The objective of this study is therefore, to determine the age at menarche and patterns of menstruation among adults' female, and to identify the magnitude of common menstrual disorders.

METHODOLOGY

This cross-sectional study was conducted to reveal the age at menarche and menstrual pattern and premenstrual symptoms among females in Islamia University Bahawalpur. The study carried out during the month of August 2016 to December 2016, after the consent of ethical committee of The Islamia University of Bahawalpur. Questionnaires were prepared and distributed in consenting participants. Total 426 participants were chosen for study ($n=426$). The female participants were guaranteed of full confidentiality and data achieved was being used just for research points. Participants were guided to complete questionnaires carefully and also told them that their information will remain secret. Questionnaires were developed with reference of previous studies. The first part of questionnaires contains the personal information i.e. name, father /husband name, date, age, contact number, CNIC number and address. Second part contains age at menarche, menstrual pattern, duration, cycle length, regularity and premenstrual symptoms. Age of menarche was categorized into early menarche at the age of 12 or below, medium menarche after the age of 12-14 years and delayed menarche after 15 years. Third part contains personal habits, dietary habits and use of the internet, social media and electronic media.

Statistical Analysis

The data were statistical analyzed by Microsoft excel 2007 version. Data were expressed in mean \pm standard error of mean. The data of the patients were compared through t-test, Chi-square test. P value of ≤ 0.05 considered statistically significant.

RESULTS

Table 1. Age at menarche.

Age of Menarche	Frequency	Percentage
9 to 11	42	9.8%
11 to 13	140	32.8%
13 to 14	152	35%
14 to 15	82	19%
15 to 16	10	2.3%

Four hundred and twenty-six participants were included in the study. Their ages at menarche ranged from 9 to 11 was (9.8%), 11 to 13 was (33%), 13 to 14 was (35%), 14-15 was (19%) and 15 to 16 was (2%) (Table 1). The mean menarcheal age was 13.5 ± 1.28 . Their menstrual cycle lengths ranged from 21-35 days was (73%). The mean duration of menstrual flow was 3 to 4 days. Fifty percent ($n = 150$) had menses lasting 3-5 days while 35% had menses lasting over 6-8 days and 12% have lasting more than 8 days. The prevalence of dysmenorrhea was 53.99% ($n=230$) while PMS was 48% ($n=207$) (Table 2). 156 (36.6%) females having backache and abdominal pain, 38 (8.9%) having nausea, 109 (25.5%) having anxiety and depression, 52 (12.2%) having breast tenderness, 53 (12.4%) having headache, 12 (2.8%) having vomiting (Table 3).

Table 2. Menstrual characteristics of university students.

Menstrual Characteristics	Frequency	% Percentage
Duration of flow		
< 3	79	3%
3 to 5	150	50%
6 to 8	135	35%
> 8 Cycle Length	62	12%
≤ 20 days	78	18%
21 to 35 days	314	73%
> 35 days	34	13%

Menstrual Characteristics	Frequency	%Percentage
Total Dysmenorrhea	426	
Yes	230	53%
No	188	47%
Total Premenstrual Symptoms	426	
Yes	207	48%
No	219	52%
Total Cycle Regularity	426	100
Total Regular Cycle	288	67.6%

$$\text{Irregular cycle} = \frac{141}{426} = 33\%$$

Table 3. Associated symptoms.

Characteristics	Frequency	Percentage
Backache and lower abdominal pain	156	36.6%
Breast tenderness	52	12.2%
Depression and anxiety	109	25.5%
Headache	53	12.4%
Nausea	38	8.9%
Vomiting	12	2.8%

DISCUSSION

Menarche is the main incident in female life showing numerous socioeconomic, nutritional environmental and geographical differences in societies [11]. Age of menarche was found to be (13.5 year) in this study. Four hundred and twenty-six females whose ages ranged from years 16 to 28 years were surveyed. Their ages at menarche ranged from 9 to 16 years and the mean age at menarche was 13.5 ± 1.28 years. This figure was similar to the previous studies conducted in Addis Ababa, Ethiopia, which was 13.6 ± 1.5 years [12]. Further study done in Addis Ababa reported mean age of menarche i.e., 13.72 ± 1.31 years, [13] in Nigeria it was for urban (13.19 ± 1.32) years and for rural (14.22) [18], in Sudan was (13.85 years), [14] Mozambique (13.9 ± 1.29) [15]. Menstrual cycle length was in ranged from 21-35 days. Irregular cycle was seen in 33%. The irregularity in the

first two years after menarche was a common phenomenon because of the anovulation which is common at this stage [16].

Fifty percent (n= 150) participants had menses lasting 3–5 days while 35% had menses lasting over 6-8 days and 12% have lasting more than 8 days. The female usually has little knowledge about the normal menstruation; as a consequence, some may consider normal menstruation as scanty menses while others with excessive menstrual bleeding may perceive it as normal which will result in anaemia ultimately.

In present study about 74% participants had regular menses set within the 6 months of menarche at the same time as about 26% still had irregular cycles beyond six months following menarche. The irregularity is because of poor or defective growth of follicles in the follicular phase of the menstrual cycle consequential in unovulatory cycles or luteal deficiencies.

The study showed that, the prevalence of dysmenorrhea and premenstrual symptoms had 53% and 48% respectively while 156 (36.6%) females having backache and abdominal pain, 38 (8.9%) having nausea, 109 (25.5%) having anxiety and depression, 52 (12.2%) having breast tenderness, 53 (12.4%) having headache, 12 (2.8%) having vomiting. Our prevalence of dysmenorrhea results is in similar with Burnett et al. and low when compared to study conducted in northern India (76.9%).

It is necessary to educate the adolescent girls and to give awareness of the normal menstrual cycle because due poor knowledge misconception present among adolescent about menstrual cycle, some perceive it as bad, or worse while others think of it embarrassing experience.

The proper menstrual education will eradicate some mistaken beliefs about menstruation and make sure that some unfounded deems are not passed on generation to generation where only parents were involved. Mothers are of more importance and are also preferred. Girls should be properly educated so that they discuss the

menstrual problems without feeling embracement. The drawback of without sufficient and accurate information; adolescents may be ill with superfluous morbidity related to their menstrual cycles such as the irregular cycles, premenstrual symptoms, dysmenorrhea, heavy menstrual flow and unwanted pregnancies all of which could be appropriately understood and put off or managed if precise information on menstruation is propagated.

CONCLUSION

Population based and institutional based studies on normal menstrual cycles, variability in menarcheal age and premenstrual symptoms are limited in Pakistan. Knowledge on the awareness about normal menstrual pattern, variability in menarcheal age and premenstrual symptoms is necessary for the patient education and for the evaluation of gynecological disorder. It is necessary to educate the females about normal menstrual cycle so that to overcome the superfluous morbidity related to menstrual cycles such as the irregular cycles, premenstrual symptoms, dysmenorrhea, heavy menstrual flow and unwanted pregnancies, all of which could be appropriately understood and put off or managed if precise information on menstruation is propagated

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