

FACTORS AFFECTING THE ETIOLOGY OF PREMENSTRUAL SYNDROME IN  
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## ABSTRACT

## Objectives:

- To study the phenomenon of premenstrual syndrome.
- To see the relationship of PMS with age of menarche.

**Design of Study:** Cross sectional study (An observational study). **Settings:** The Department of Obstetrics & Gynaecology, Bahawal Victoria Hospital, Bahawalpur. **Duration:** 3 months from october 2019 to december 2019. **Methodology:** The study groups included 50 controls and 31 patients of the age group 18-28 years. Their symptoms of PMS were noted by questionnaire. Data related to age of menarche was also recorded. **Results:** The T-test was used to assess the relationship of premenstrual syndrome and age of menarche. While considering age of menarche with PMS in cases and controls, P value is non-significant. **Conclusion:** It suggests that in our study groups age of menarche does not affect the symptomology of PMS. There may be other factors responsible for the symptoms in our subjects such as life style, dietary habits or genetics.

**KEYWORDS:** PMS, Menarche, Luteal phase.

## INTRODUCTION

The physical and psychological symptoms that a woman experiences during luteal phase of the menstrual cycle are known as premenstrual syndrome (PMS). These symptoms disappear once the menstruation starts (Biggs and Demuth, 2011). Psychological symptoms are like fear, mood swings, irritability, depression and nausea etc while somatic symptoms include mastalgia, migraine headache, leg cramps and abdominal bloating etc. (Brahmbhatt S., 2013).

The symptoms of premenstrual syndrome exhibit cyclically in the luteal phase of the menstrual cycle (Allais et al., 2012). Females experiencing symptoms of PMS have negative effects on their working abilities, study, job and social relationships (Cheng *et al.*, 2013). Symptoms of PMS can occur at anytime in the luteal phase of the menstrual cycle (Rapkin and Akopians, 2012).

Menarche means the start of menstruation in adolescent girls. The age of menarche is about 12.6 years on average but it varies depending upon other factors too like ethnicity. (Campbell C et al., 2013). Most of the adolescent girls of our population have misconceptions regarding menstruation and probably having no idea of

personal hygiene at the onset of menarche. There is a need to educate the adolescent girls at schools or residential areas or religious centers or health care facilities to improve their knowledge about menarche and menstruation related health problems (Michael et al).

Premenstrual syndrome is highly prevalent in females having age of menarche less than 12 years (Amjad.A, 2014).

The aim of current study is to explore the relation of age of menarche with the symptoms of premenstrual syndrome in medical college students. Certain studies shows the strong impact of age of menarche with premenstrual syndrome.

## METHODOLOGY

This was an observational study conducted in the Department of Obstetrics & Gynaecology, Bahawal Victoria Hospital, Bahawalpur including a total of 81 female medical students. Out of all these study participants 31 participants were cases and 50 participants were controls. The study duration was 6 months. Convenient sampling technique was applied.

Data regarding the age of menarche and severity of symptoms of premenstrual syndrome was recorded. The females having any underline pathology were excluded from the study.

The cases and controls were selected by the questionnaire designed according to ACOG (American College of Obstetrician and Gynecologists) criterion of premenstrual syndrome diagnosis. ACOG criterion is used for PMS diagnosis and PMS scoring. Severity of

PMS symptoms was numbers from 1-4 indicating no symptoms to severe symptoms.

### RESULTS

Data of all the cases and controls was assessed by IBM-SPSS version 21. Age of menarche was presented as means and standard deviations and symptoms of PMS were presented as frequencies and percentages. Valid percent and cumulative percent were also calculated.

T test was applied to evaluate the relation of age of menarche with PMS.

#### I: Distribution of subjects regarding age of menarche

Age of Menarche (years)	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 12	22	27.2	27.2
	13	33	40.7	67.9
	14	16	19.8	87.7
	15+	10	12.3	100.0
	Total	81	100.0	100.0

#### II: Age of menarche in cases and controls

Relationship between group and menarche		Groups		Total	
		Case	Control		
Age of Menarche (years)	< 12	Count	7	15	22
		% within Groups	22.6%	30.0%	27.2%
	13	Count	18	15	33
		% within Groups	58.1%	30.0%	40.7%
	14	Count	2	14	16
		% within Groups	6.5%	28.0%	19.8%
	15+	Count	4	6	10
		% within Groups	12.9%	12.0%	12.3%
Total	Count	31	50	81	
	% within Groups	100.0%	100.0%	100.0%	

#### III: T-TEST ANALYSIS BETWEEN GROUPS AND AGE OF MENARCHE

T-test analysis was performed between cases and controls and age of menarche.

	Group	N	Mean	SD	SE	t-value	P-value
Age at the time of first period	Control	50	22.14	1.67	0.236	-1.15 <sup>NS</sup>	0.255
	Case	31	22.61	2.01	0.361		

NS: non-significant

P > 0.05 = non-significant

SD = Standard deviation

SE = Standard error

#### DISCUSSION

In this research study total 81 female medical students participated. Out of these participants 31 were suffering from PMS and 50 were not suffering from PMS. When the data was analyzed it came out that 20.7% participants had age of menarche <12 years.

40.7% participants had age of menarche 13 years while 19.8% participants had age of menarche 14 years. Age of menarche is 15 years and above in 12.3% participants.

The relationship of age or menarche in cases and controls was also analyzed in each group. Age of menarche is less than 12 years in 22.6% of the cases and 30.0% of the

controls. Age of menarche is 13 years in 58.1% of the cases and 30.0% of the controls.

Age of menarche is 14 years in 6.5% of the cases and 28% of the controls. Age of menarche is 15 years or greater than 15 years in 12.9% of the cases and 12% of the controls.

This data shows that maximum participants had age of menarche 13 years both from the cases and controls and minimum participants had age of menarche at 15 years or more (table I & II).

When T-test analysis was performed on the cases and controls with age of menarche the p-value calculated was

0.255 that is non-significant. It shows in our study groups age of menarche does not have much impact of the symptoms of premenstrual syndrome.

In contrast to our results there is a study that shows that age of menarche has a great impact in the development of premenstrual syndrome. Early menarche causes more premenstrual syndrome. (Abeje A, Berhanu Z).

But in our study population results show that not only age of menarche but certain other factors play a key role in the development of premenstrual syndrome such as serum mineral levels and females sex steroids have a much greater impact on the severity of premenstrual syndrome.

A study was conducted to see the efficacy of mineral and vitamin supplements on improving the symptoms of premenstrual syndrome. It showed that supplementation by vitamin B6 and serum minerals has a beneficial effect on alleviating the symptoms of premenstrual syndrome (Srd Gaynor, 2009). Thus not only age of menarche but other physical and social factors can also be considered in regard to premenstrual syndrome.

## CONCLUSION

In this study many of the cases and controls have age of menarche less than 12 years and few of the participants were having age of menarche greater than 15 years. These extreme variations in age of menarche shows that PMS is not only affected by age of menarche but there are certain other factors such as serum minerals, hormones and vitamins etc. that could contribute more to the symptomology of premenstrual syndrome.

This study will aid to focus on all the risk factors of premenstrual syndrome and a better understanding of premenstrual syndrome by considering all the factors affecting the etiology of premenstrual syndrome.

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