

RESEARCH ARTICLE

The Study on Age of Menarche in Girls in the Buldana District of Maharashtra

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ABSTRACT

The present study was designed to determine the age at which menarche occurs among school girls in Buldana district of Maharashtra state, India. A survey was conducted among 488 girls by writing the questionnaire from schools in the selected area. Respondents completed a questionnaire that recorded age at first menstruation by the recall, residential status, type of education, and diet/food habit. The mean age at menarche was 13.44 ± 0.75 years. Most girls (72.95%) of the respondents were found of normal age menarche (12–14 years), 27.05% of late-type menarche (> 14 years), and 0% were of early menarche (< 12 years). Our study suggests an influence of school education, residential area, and diet/food habit on menarcheal age.

Keywords: Age, Girls, Menarche, School, Survey.

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INTRODUCTION

Menarche is the first menstrual cycle experienced by the girls, and it is an important event in the life of the women. Menarche is the first step of the transformation of a girl to a woman¹ and an important event for each female as it marks the beginning of her adulthood with all its known biological and psychological consequences.² The normal mean age of menarche varies substantially between women across different countries and ethnic groups.³ The recorded mean menarche age in Jordan was 13.1 years, 14.8 years in Ethiopia, 12.5 years in Ghana, and 12.31 years in Croatia.⁴ In Turkey, it was 13.12 years, and in the white American girls of North America ranged from 12.55 to 12.88 years.⁵ Recently, the age of puberty becomes important due to the increased recognition of the association between early menarche and the future development of breast cancer and cardiovascular diseases in adulthood.²

There is a change in the trend of menarche in different parts of the world. It tends to occur earlier among girls in the United States and Europe than in the past decades.⁴ In these regions, the age of menarche decreased approximately to about four months for every decade and now stabilized at around 13 years.⁴ This trend of decreasing age of menarche is still ongoing in countries of the Asian continent.² Such data would be considered as the benchmark to predict the occurrence of disease in adulthood. The current lifestyle, food habits, stress in school education, etc., changed drastically in the last few

years, so it becomes important to check whether any effect of changed lifestyle on the age of menarche. Thus, the aim of this research is to determine the age of menarche among girls of Buldana district of Maharashtra state.

It has been suggested that the difference in the mean age of menarche in different countries was due to the genetic inheritance and environmental factors as the type of residence, nutrition, and socioeconomic status.⁶ Identifying age of menarche has important public health implications of females, since, it has been noticed that girls with early age of menarche are at increased risk of breast cancer and cardiovascular diseases in the future,⁷ they are more prone to psychosocial problems as depression, eating disorders, poor academic achievements, and even substance abuse.⁸

METHODOLOGY

Retrospective data were obtained from the secondary school girls in Buldana district of Maharashtra state using questionnaire over two months. The purpose of the study and method of filling the questionnaire were explained to all participants. Consent was then obtained for participants before answering the questionnaire. Girls who disagreed for participating in the research, and those with chronic disease were excluded from the study. Overall, 500 questionnaires given to students out of which 488 school girls responded properly. It was estimated that 488 females are an adequate

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sample size to be selected randomly from the different schools of Buldana district of Maharashtra state areas. Menarche age divided into early (9 to <12 years), normal (12 to 14 years), and late age menarche (14 to 16 years). The questionnaire was designed to be filled by the girl student, which included the female's age, age of onset of her menarche, the board of study, residential status, and the diet/food habit of the girl that was prevailing during the onset of her menarche.

RESULTS AND DISCUSSION

The mean age of menarche was 13.44 years. The age of the respondents was ranged between 13 and 16 years. The earliest recorded age of menarche was at 12 years, and the latest age was at 15 years. Figure 1 shows the distribution of the age of menarche samples. About 72.95% of the respondents were found of normal age menarche (12 to 14 years); 27.05% of late-type menarche (> 14 years), and 0% were of early menarche (<12 years).

Figure 2 shows the distribution of girls according to the age of menarche. The highest recorded number of females was for those who started their menarche at 13 to 14 years of age (41.19%) followed by the age of 12 to 13 (31.76%), 14 to 15 (25.61%), and more than 15 years of age (1.43%), while no girl who recorded age of menarche below 12 years.

Table 1 shows the distribution of the variables of the respondents. The average age of menarche for the rural area (13.51) is more than the urban area (13.40). The average age of girls studying in the central board of education school (13.34) is found lesser than girls studying in state board education (13.59). While the average age of menarche was lowest in girls with non-vegetarian diet/food habits (13.08) and highest in girls with vegetarian diet/food habits (13.67). The mean

age at menarche at different variables of the respondents was shown in Figure 3. ANOVA single factor was used to analyze the data, and the p-value was found to be 0.994062, while the F value was 0.082928.

The current study showed the mean age of menarche was 13.44 ± 0.75 years. In the USA, the mean age of menarche had decreased to a rate of 3 to 4 months per decade over the past 100 years. Now, it is around 13 years. This change may be due to improved nutrition and socioeconomic status.⁷ The estimated age of menarche in our study was consistent with menarche age reported from Saudi Arabia (13.08 years),¹ but was higher than age recorded in Baghdad (12.61),³ Kuwait (12.41 years),⁹ Egypt (12.44 years),¹⁰ Canada (12.72 years),¹¹ Argentina (12.84 years),¹² and UK (12.5 years).¹³ In poor income countries, the age of menarche seemed to be higher and was 16.9 years in Ethiopia,¹⁴ 13.25 years in Iraq,¹⁵ and 15.26 years in Nigeria.¹⁶

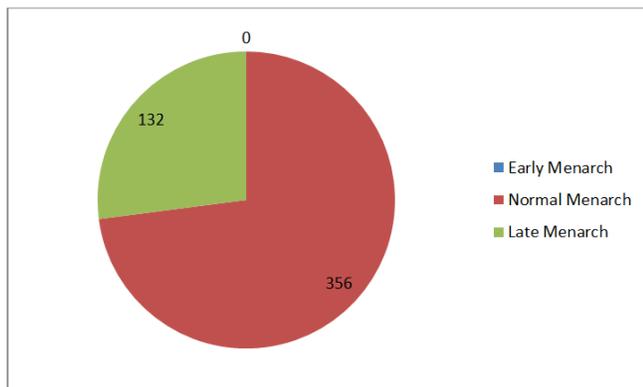


Figure 1: The distribution of the age of menarche sample

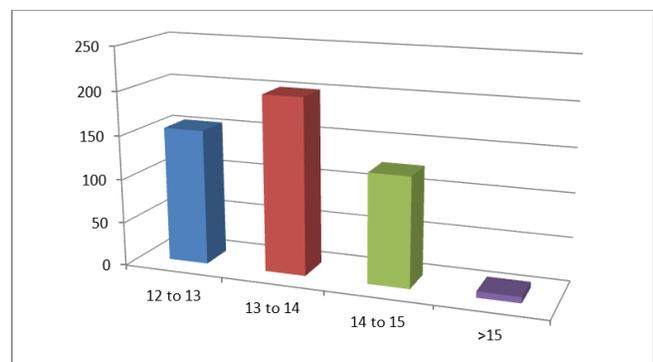


Figure 2: The distribution of number of females according to the age of menarche

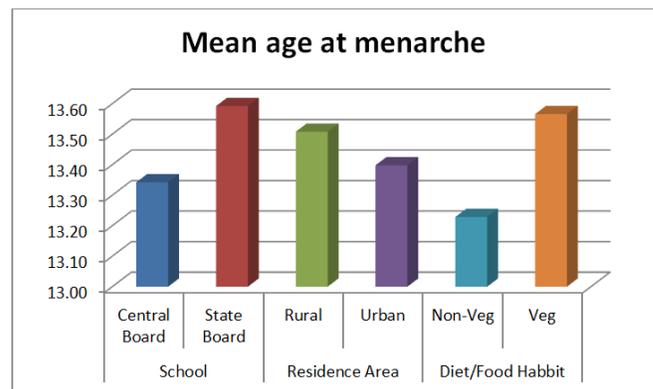


Figure 3: The mean age at menarche at different variables of the respondents

Table 1: Distribution of variables of the respondents

Variable factors		Total number of girls (n)	Average age at menarche (years)	STD deviation
Residence area	Rural	170	13.51	0.8003
	Urban	318	13.4	0.7250
School board of education	Central board	304	13.34	0.6853
	State board	184	13.59	0.8323
Diet/food habit	Non-veg	187	13.08	0.7497
	Veg	301	13.67	0.7257

CONCLUSION

The age of menarche in Buldana district of Maharashtra state was more than that reported in India and many countries but was lower than ages in a few other developing countries. The age at onset of menarche is an important marker of sexual maturation in females. Therefore, an assessment of the mean age at menarche is also an important guide for teenage and adolescent sexual and reproductive health programs.

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