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Age at menarche and its secular trend in rural and urban girls of bathinda district

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ABSTRACT

The present study concentrates on age at menarche and its secular trend prevailing in rural and urban girls of Bathinda district. 320 school girls were studied from Bathinda city and its neighbouring villages. Age at menarche of girls and their mothers were noted by recall method. Height, weight, body fat percentage, Hb and three day diet recall was also taken. It is observed that age at menarche was delayed in rural girls than urban girls. Age at menarche of daughters is almost a year earlier than their mothers.

Introduction

Menarche is an important phenomenon in the physical development in the physical development of girls. The age at menarche is an important index of human development and physiological age. Age at menarche is affected by a number of factors like genetics, geographical residence, physical activity, nutrition, climate and health facilities (Frisch and Arthur 1974, Waren 1980, Malina 1983, Kabir et al 2007). Age at menarche is greatly affected by the place of living. It is observed in many studies that age at menarche in rural areas is slightly higher than urban areas (Frisch and McArthur 1974, Ikaroha et al 2005, Mokha et al 2006) that can be due to better socioeconomic status and nutrition in urban girls. (Zegeye et al 2009)

It is also observed that age at menarche occurs earlier now a days and is declining (Frisch and Wyshak 1982, Khanna et al 2005) this was attributed to better socioeconomic status and improved health and nutrition.

The present study has been undertaken with a view to find whether the girls from urban areas differ in age at menarche from rural girls. An attempt has been made to study the secular trend in age at menarche by comparing daughters' age at menarche with mothers'.

Materials and Methods :- The study was conducted to evaluate the age at menarche of 320 school going girls ranging in age from 8-16 years from various schools of bathinda city and neighbouring villages (Mahima sarja, Daansing Wala, Mehraj). Out of 320 girls 160 were from urban areas of Bathinda while 160 were from rural areas of Bathinda during the period of Oct-Nov 2011. The grouping was done in 9 groups with a difference of one year in them. The age at menarche was calculated using retrospective method that is recall method through questionnaire. Height, weight, body fat %, Hb and dietary intake was also calculated for each subject.

Results and Discussion

Table 1. Gives the mean age of menarche of urban and rural girls of Bathinda district in different age groups. The mean age at menarche of

Age (in yrs)	Particular - age at menarche	
	Rural girls Mean SD	Urban girls Mean SD
8.5-9.5		
9.5-10.5		

10.5-11.5				
11.5-12.5			11.27	+ .23
12.5-13.5	12.52	+ .41	12.3	+ .84
13.5-14.5	12.58	+ .87	12.21	+ .32
14.5-15.5	13.1	+ .83	13.2	+ 1
15.5-16.5	14.5	+ .57	13.8	+ 1.11

Table 1. Mean age at menarche of rural and urban girls

urban girls is 13.17 years and that of rural girls is 12.55 years. Age at menarche is delayed in rural girls. Which is in accordance with study of Bagga et al (2000), Mokha and kaur (2006), Gupta et al (2007).

Table 2. Displays the comparison between mean values and standard deviation of mothers and daughters. The mean age at menarche of daughters in rural areas was 13.17 years and that of mothers was 15.14 years. Similarly the mean age at menarche of daughters in urban areas was 12.55 and that of mothers was 14.9 years. The difference between the mean values of age at menarche of mothers and their daughters was found to be approximately 2 years in both rural and urban areas. It was noted that the difference between in age at menarche of mothers and daughters was statistically significant. Similar observations has been noted by Frisch (1982), Bagga (2004), Mokha et al (2007).

Table 2. Secular trend in age at menarche

	Mother's Age at Menarche X + SD	Daughter's Age at Menarche X + SD	Difference
Rural Girls	15.14 +.81	13.17+.87	1.97
Urban girls	14.9+.32	12.55 +.79	2.3

Table 3 - Shows the correlation between age at menarche and mothers age at menarche. It has been found that age at menarche is genetically determined as there are high correlation values between age at menarche and mothers age at menarche. It has also been found that there are secular trends which is in accordance with the results of Kolaran et al (2005), Rokade and mane (2009) and Banerjee et al (2010).

Table 3 - Correlation between age at menarche and mothers' age at menarche

Age	Between Rural Girls' & Their Mothers'	Between Urban Girls' & Their Mothers'
12-13 yrs	.75450425	.99355408
13-14 yrs	.992018418	.993012048
14-15 yrs	.996932104	.993121
15-16 yrs	.972322132	.973341

Conclusion

It has been found that the age at menarche is higher in all age groups in rural girls as compared to their urban counterparts. It was also observed that age at menarche is genetically influenced as there is correlation between mothers' age at menarche and that of subjects age at menarche but age at menarche in girls is lower than their mothers in all age groups. So there is an acceleration phenomenon involved.

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