

**Original Article**

**The Age At Menarche In Nigerian Adolescents From Two Different Socioeconomic Classes**

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**Citation**

Ofuya ZM. The Age At Menarche In Nigerian Adolescents From Two Different Socioeconomic Classes. *Online J Health Allied Scs.* 2007;4:3

**URL**

<http://www.ojhas.org/issue24/2007-4-3.htm>

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<http://cogprints.org/view/subjects/OJHAS.html>

<http://openmed.nic.in/view/subjects/ojhas.html>

Submitted Nov 24, 2007; Suggested revision Jan 4, 2008; Resubmitted: Jan 14, 2008; Accepted: Jan 16, 2008  
Published: Jan 24, 2008

### Abstract:

Menarcheal age was studied in 900 girls, half of which were from middle class families and the other half from low income class families from the Niger delta region of Nigeria. A retrospective and descriptive random sampling study was conducted through the use of questionnaires. Social class was based on parental occupation. The mean age at menarche for girls from middle class families was  $12.22 \pm 1.19$  years while that for girls from low income families was  $13.01 \pm 1.44$  years. Most of the children from the middle class families attained menarche at the ages of 12 and 13 while those from the low income families attained menarche at the ages of 12, 13 and 14 years. The age at menarche of girls from middle class families was significantly lower than those of girls from the low socioeconomic class and is similar to those obtained for U.S. girls. The age of menarche of girls from low income families is lower than a result of similar study obtained for rural India.

**Key Words:** Age, Adolescents, Menarche, Nigeria

### Introduction:

Menarche is the onset of menstruation. It is the most striking event in the whole process of female puberty.(1) Age at menarche reflect numerous health aspects of a population, including the timing of sexual maturation; growth and nutritional status and environmental conditions.(2)

The age at menarche is an important factor in health planning and it is known to be influenced by genetic factors, environmental conditions, body stature, family size, body mass index (BMI) socioeconomic status and level of education.(1,3) The age at menarche shows the effectiveness of the female reproductive hormones, luteinizing hormone and the follicle stimulating hormone.

While age at menarche has been reported in several parts of the world, including the eastern and western parts of Nigeria, there is paucity of information in the Niger Delta region.(4-11) The study was therefore carried out to find out the age at menarche in this part of the country and also to see the influence of social class on the parameter. The need for this study is further strengthened by the fact that the terrain here is different from that in the eastern and western parts of the country. The culture is also very different and the ethnic group is different. Besides

the age at menarche, the length of period was also studied.

### Methods:

A retrospective study was carried out in two secondary schools in Port Harcourt. Port Harcourt is a cosmopolitan town located in the Niger Delta region of Nigeria. It is by the coast. The study was carried out in two girls secondary schools, Our Lady of Fatima and Rumuokwuta Girls Secondary School. The first school is a middle class school while the latter is a low income class school.

A multi-stage random sampling was carried out in the two schools. Four hundred and fifty students were studied in each school. Questionnaires were distributed to the students and explanations were offered where necessary. The relevant questions asked in the questionnaires were "How old were you when you first saw your menses and how long does your period last?".

The length of cycle was also determined. The other information obtained were the state of origin of the girls, the size of their family, parents occupation, frequency of meals, ownership of cell phone and internet literacy.

### Statistical Analysis

SPSS statistical package was used for data analysis. The mean, standard deviation and simple percentages were determined for most of the parameters, Z-score was used to test the significant level, since the sample size was large.

### Results

Some of the occupations of the parents of girls from middle class school were as follows: business, engineering, medicine, architecture, civil service, management, politics, banking, law and accountancy while those of the parents from low income class school were petty trading, auto mechanic, civil service, driving, farming, electrical work, sewing, mason and security service. Younger girls attended the middle class school when compared with the low socioeconomic class School. The mean age of these girls was  $13.43 \pm 2.19$  years. The mean age of girls from the low socioeconomic class school was  $15.32 \pm 2.29$  years. The age range for the two group of girls was 10-20 years. More girls attained

menarche in the low socioeconomic (88%) class school when compared with the middle class school (67%). The mean age at menarche of girls from the middle class school was lower than that of girls from the low income school. Values of  $12.22 \pm 1.19$  and  $13.01 \pm 1.44$  were obtained from the two schools respectively. The difference in the mean age at menarche was statistically significant (Z score=-11.32 ). Menarche occurred between 8 and 15 years in girls from the middle class school while it occurred between 10 and 18 years among girls from the low income class. .

By the age of 13 years, 60% of girls from the middle class school had attained menarche while 56% attained menarche in the low socioeconomic class school by the age of 14 years.. The percentage distribution at menarche is presented in Tables 1 and 2.

**Table 1: The Percentage Of Children From Middle Class Families Who Experienced Menarche At Specific Age Groups.**

	<b>% Of Girls Who Attained Menarche</b>
8	0.25
9	0.98
10	3.92
11	10.54
12	22.55
13	22.55
14	5.39
15	0.98
Percentage of girls without menarche	32.35

**Table 2: The Percentage Of Children Experiencing Menarche At Different Age Groups**

<b>Age At Menarche (Years)</b>	<b>% Of Girls Who Attained Menarche</b>
10	1.97
11	6.97
12	21.13
13	26.86
14	19
15	8.08
16	2.18
17	0.87
18	0.66
Girls with no menarche	12.23

By the age of 10, about 3.92% of middle class girls had attained menarche while 2% had attained menarche in the girls from the low socioeconomic class school.

The length of period was similar in the two schools. The range was 2-7 days. The cycle of period was 24-36 days. In conclusion, .the ages at which girls from the middle class families attained menarche was 12 and 13 years while girls from the low income class families attained menarche at the ages of 12, 13 and 14 years of age. Many of the girls from middle class school had mobile phones and were internet literate.

Thirty-nine percent of the girls were from Rivers State while most of the others were from the neighboring eastern state.

#### Discussion:

The result of the study shows girls from middle class families reaching menarche earlier than those from the low socio-economic class. This is probably associated with better nutrition and the higher income of the parents. Historically, improved nutrition and socioeconomic status has been attributed to causing a decline in the age of menarche.(12-14) Nonetheless, mechanism through which these changes occur are still unknown. Several hypothesis have been proposed such as the “critical weight hypothesis” (15) and the Leptin hypothesis. The result of girls from the middle class school compares well with those of girls in Western Europe where the age of menarche was observed to have decreased for a period of 17 years to a value of 12.8 years.(16,17) Association has been found between anthropometric measurement and the age at menarche. Sharma et al (18) found girls with early menarche having significantly smaller skeletal dimensions and subcutaneous fat. While Lassek et al (19) reported that menarche is more related to fat distribution than skeletal maturity. Sloboda et al (20) indicated that higher BMI predicted early menarche.

This result also compares favorably with the mean value of 12.6 years obtained for urban India (21) and 12.67 years obtained for Bangladesh.(22) It is close to that reported by Ezem (9) for South East Nigeria. The value reported in this study for the middle class girls is lower than that reported by Ikaroaha et al (23) for middle class children in Port Harcourt, Nigeria.

The result obtained for rural India is 15-16 years for the age of menarche. The result obtained for girls from low income class in this study is lower than 16.1 years obtained for rural China and Senegal.(5)

This result probably shows evidence of some degree of malnutrition among girls from low income families. There is need for free or subsidized meals by the government in these types of schools. Besides, the government should also draw up programs to improve the economic status of those from the low income class.

#### Conclusion:

The mean age at menarche for girls from middle families was  $12.22 \pm 1.19$  years while that for girls from low income class families was  $13.01 \pm 1.44$  years. The mean age at menarche was lower in middle class girls than in girls from low income families. Results for girls from middle class families is similar to that of American and European girls while that for girls from low income families is lower than that for rural India.

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