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INFLUENCE OF SOCIAL ECONOMIC CLASS ON MENARCHE OF NIGERIAN GIRLS IN PORT HARCOURT

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ABSTRACT

This work used historical data to study the influence of social economic class (SEC) on menarche and some menstrual changes in Nigerian girls using undergraduates of the University of Port Harcourt as a model system for the study. The girls were randomly selected and graded into SEC according to their parent's educational level, occupation, income per capita, and access to better health care. Onset of menarche for the upper, middle and low SEC commenced at 11.68 ± 1.49, 13.63 ± 1.52, and 15.57± 1.59 years respectively, with mean of 13.53 ± 1.53 years. The days for menstrual flow were 4.68 ± 1.06, 4.56 ±0.99 and 4.27 ± 0.85 for the upper, middle, and low SEC respectively with mean of 4.50 days. There were also significant difference in the body mass index and anovulatory cycles for the three social economic groups. It is concluded that in a depressed economy as found in Nigeria the improvement of social economic status also reduces the age at attainment of menarche and as well influences the pattern of menstrual changes. It therefore suggested that improvement of social conditions and nutrition is important in girls developmental process and sex education need to start early with the view of improving reproductive capability.

KEYWORDS: sex education, social economic class, menarche, girls

INTRODUCTION.

In a depressed economy as found in most African countries especially Nigeria, menarche, more specifically, the age at which the first menstrual bleeding occurs is of clinical interest because it is an important parameter for assessing maturity in girls. In recent times, the age at menarche has been shown to occur at progressively earlier younger ages and thus tends to shorten childhood and prolong the interval between physiological and psychosocial maturity in girls (Dewhurst, 1984). Over the past decade, it has declined from 17 to 13 years, with a median of 12.8 years, in the normal age range of 9 to17 years (Zacharis et al, 1976, Stuart and Ash, 2001). The continual reduction in age of menarche has been attributed to improvement of nutrition and one's social economic environment (Frisch, 1985). It has been suggested that where nutrition and social economic conditions are adequate, SEC has no effect on the age of menarche (Jenicak and Demirjian, 1974) on the other hand, when these conditions are inadequate or less favourable; the onset of menstruation is much delayed (Zacharis et al, 1976). It has also been suggested that hereditary and environmental factors play a crucial role in the maturity of young people at different ages (Tanner and O'Keefe, 1962).

Thus, some researchers have evaluated the contribution that SEC make on menarche in Nigerian girls (Tanner and 0'Keefe, 1962; Uche and Okoroafor, 1979; Nwokocha and Okoro, 1997) but such report is not available for girls in the cosmopolitan city like Port Harcourt .The present study therefore is intended to find out the effects of social economic class in the present economic dispensations on the pattern of sexual maturation in girls and the attainment of menarche using undergraduates of the University of Port Harcourt

MATERIALS AND METHODS

This study is an ex-post facto study of historical data on the age of menarche, length of menstrual cycle, days of menstrual flow in a sample of female undergraduates of the University of Port Harcourt. A sample of 500 subjects aged 17 to 28 years with a mean age of 20.07 ± 1.74 years was used for the study. A self-administered questionnaire was adopted to select the subject for the study. They were questioned for socio-economic status identifying their parent's occupation, income per capita, level of education and access to medical care and graded as upper, middle, and lower social economic class (SEC) respectively.

The data was statistically analyzed using variance analysis with ANOVA single factorial arrangements on Microsoft excel at 95% confidence level.

RESULTS

Table 1 shows the mean age of the subjects studied, weight, height, and body mass index, and Table 2 length of menstrual cycle, days of menstrual flow, age at menarche and the frequency of anovulatory cycle in girls as a function of social economic class of the 500 female undergraduates of the university of Port Harcourt studied, 41(8.2%) were in the upper social economic class, 355(71%) and 104(20.8%) were in the middle and low social economic classes respectively with a mean age of 20.07±1.74 years (table 1) The age of menarche was much higher for the low SEC groups followed by the middle class, the upper class being the least (table 2). This represented 16.7% and 33.3% increase compared with upper class. The mean menarcheal age was 13.55 ± 1.53 year for the population studied. Furthermore, the days of menstrual flow was much longer for the upper class than either for the middle or low classes (table 2). This represents a difference of 2.56% and 8.76% respectively compared with the upper class. The frequency of anovulatory cycle was much longer in the middle and low classes compared with upper class (table 2).

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Table 1: Relationship between the height, weight, age and body mass index of the various social economic groups (range in parenthesis)

Social Economic Class	Age (years)	Weight (Kg)	Height (M)	Body mass index (Kg/M)
Upper class	19.20±1.55 (17-25).	60.32±12.08 (44-102)	1.67±0.5 (1.55-1.78)	21.75±3.85 (16.20-35.30)
Middle Class	20.0±1.94 (17-26)	57.28±7.80 (42-83)	1.67±0.05 (1.5-1.8)	20.54±2.76 (15.20 -34.5)
Low Class	21.0±1.94 (18-28)	58.21±8.26 (45-90)	1.67±0.05 (1.53-1.84)	20.76±2.87 (15.9 -31.1)
Mean	20.07±1.74	58.6±9.36	1.67±0.05	21.02±3.15

Table 2: Pattern of menstrual changes in girls in relation to social economic status (range in parenthesis)

Social Class	Age at Menarche (years)	Length of Menstrual cycle (days)	Days of Menstrual flow	Frequency of Anovulatory cycle
Upper Class	11.68±1.49 (9-15)	28.22±1.70 (26-36)	4.68±1.06 (3-7)	20(8.3%)
Middle Class	13.63±1.52 (9-19)	27.90±1.7 (21-36)	4.56±0.99 (2-7)	180(74.7%)
Low Class	15.57±1.59 (9-19)	27.90±1.49 (21-36)	4.27±0.85 (2-7)	41(17.0%)
Mean	13.55±1.53	28.0±1.63	4.50±0.47	241(48.2%)

DISCUSSION

The presented data showed that the age at menarche for the upper, middle and low social economic class (SEC) commenced at 11.68±1.49, 13.63 ±1.53 and 15.57± 1.59 years respectively with a mean of 13.53 ± 1.53 years. Previous reports for Nigerian subjects have demonstrated mean menarcheal age of 14.20 years (Ellis, 1950), 14 years(Tanner and O'keefe, 1962) 13.40 years (Uche and Okorofor, 1979), and the commencement of age at menarche for upper, middle and low SEC at 12.77 ±1.36, 13.27 ± 1.80, and 13.30 ± 1.27 years respectively(Nwokocha and Okoro,1997).The findings of this and other study several of them reviewed earlier are consistent with the view that there is a continual reduction in age of menarche and that improvement in individual's socio-economic condition and better health care influence menarche (Oduntan et al 1976, Wright,1985, Goyea 1982, Okorocha and Okoro,1997). This secular trend in age of maturity for the upper social economic group observed may thus suggest that the girls were well nourished and reached their genetic potential and physiological maturity earlier unimpeded by malnutrition and illness (Stark et al, 1989)

The present study has also demonstrated that days of menstrual flow are slightly longer for the upper social economic class (r= -0.3923) than either the middle class (r= -0.5182) or the low class (r= -0.0721). Similarly, the length of menstrual cycle for the upper class (r = -0.5616) is slightly longer than either the middle class (r=0.22) or low class (r= -0.2156). This further proves that the age of menarche, the length of menstrual cycle as well as the days of menstrual flow is associated with individuals SEC. Analysis of variance using ANOVA single factorial method on Microsoft excel at 95% confidence level for the age of menarche (ft= 4.109.229, Fc=3.014, P = 4.79, 2df), and the days of menstrual flow (Ft= 4.037,Fc=3.014, P = 0.018,2df) for the three social economics groups showed that the difference were statistically significant, however, that for the length of menstrual cycle (Ft=0.6747, Fc 3.014, P=0.5097,2df) was not.

Further analysis showed that the high frequency of anovulatory cycle observed for the middle and low social economics status respectively compared with the upper class undoubtedly may be a reflection of certain stress- associated factor like poor nutrition (Frisch, 1985).Interestingly, analysis of the variance however, showed that the body mass index (BMI) of the populations studied (Ft3.314, Fc=3.014, P=0.037, 2df) was significantly different, suggesting that the observed age at menarche for the three SEC groups can be explained on the basis of the critical weight hypothesis which states thus 'initiation of growth, and earlier ages of menarche in girls occur at a particular body weight (48kg) and percent of body fat (17%) " (Frisch, 1985). From this study, the earlier younger age at menarche with the corresponding longer days of menstrual flow and lower frequency of anovulatory cycles for the upper social economic class compared with middle and low social economic groups undoubtedly reflects improvement of nutritional and social economic conditions, which is suggestive that sex education need to start early on reproductive capability in Nigerian girls.

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