

Some characteristics of menarche in a developing economy

NWAGHA UCHENNA IFEANYI^{1*}, DIM CYRIL²,
NWAGHA THERESA UKAMAKA³ and ANYAEHIE BOND UGOCHUKWU⁴

¹Department of Physiology/Obstetrics and Gynaecology University of Nigeria, Enugu Campus

²Department of Obstetrics and Gynaecology, University of Nigeria Teaching Hospital Enugu

³Department of Haematology, University of Nigeria Teaching Hospital Enugu, (Nigeria)

⁴Department of Physiology, University of Nigeria Enugu Campus, (Nigeria)

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ABSTRACT

Menarche, a physiological event in every woman may present with diverse physical and social characteristics. Age at menarche is lower in Caucasians than Africans and has continued to show secular trends. The present study aim to evaluate some characteristics of menarche and determine if the secular trend of the age at menarche still exist in our environment.

Key words: Menarche, secular trends, menstrual characteristics, socioeconomic conditions.

INTRODUCTION

First menstrual period otherwise called menarche (Ganong 2003) is the last but a very important stage of puberty in females (Wronka and, Pawlinska-Chmara 2005). It serves as both an indicator of onset of ovarian function and a predictor of ovulatory frequency (Bernstein 2002). It is influenced by a number of factors including percentage body fat and is therefore a sensitive indicator of environmental conditions during childhood (Wronka and, Pawlinska-Chmara 2005). Though birth weight is not significantly related to age at menarche, girls who were relatively long and thin (>49cm, <3kg) at birth were found to attain menarche six months earlier than girls who were short and light (<49cm, < 3kg)(Adair2001). Furthermore age at menarche was positively correlated with their mother's age at menarche (Bernstein 2002), which suggests a genetic input. In a more recent study, timing of puberty in general shows high genetic correlation, but environmental factors had stronger influence on menarche, pubarche and adrenarche (Van den Berg 2006) .

Though many studies especially in developed countries have noted a decline in age at menarche (Herman-Giddens 2006, Silva and Padez 2006) same cannot be said with certainty for our environment because of paucity of documented evidence. A lot of women in this environment are psychologically ill prepared for this all-important event and this could constitute serious embarrassment and confusion especially when it starts outside the home.

The purpose of this study therefore, was to determine some baseline characteristics of menarche in our environment, emotional implications and level of preparedness for this important event. This would serve as a reference data for future studies considering the current secular trend of menarcheal age.

MATERIAL AND METHODS

This is cross-sectional study of female students of University of Nigeria, Enugu and Nsukka campuses, Enugu state University of science and

technology, and Institute of management and technology Enugu using pre-tested self-administered structured questionnaires. It was carried out during a six weeks period in the 2006/1007 academic session. Three thousand female students aged between 16 and 20 years were selected using systematic sampling of every second female student queued for submission of school fees' slips and registration for 2006/07 academic session. After an informed oral consent, and ethical clearance from the relevant authority, we obtained the following information; age at onset of menarche, duration of menarche, reaction and feeling at onset of menarche, prior knowledge and sources of information about menarche before its onset and location on the first day of menarche. Menarche is said to be delayed when first menses occurs after 16 years of age, while premature menarche refers to when first menses occurs before 10 years of age (ACOG 2001).

The data were analyzed by simple percentage and descriptive statistics using Statistical Package for Social Sciences (SPSS) software version 11 (SPSS Inc: 2001).

RESULTS

Two thousand seven hundred and twenty four questionnaires were completed satisfactorily and returned given a response rate of 90.8%. The mean age of respondents was 18.2 ± 2.7 years (Range 16-20 years). Ninety eight percent of the respondents were unmarried. All were Christians.

Forty eight (1.8%) respondents could not recall their exact age at menarche. The mean age at menarche for the remaining 2676 respondents was 12.9 ± 1.1 years (Range 9-19years). Out of this, 96 (3.6%) and 48 (1.8%) respondents had delayed menarche and premature menarche respectively as shown in table 1. The commonest range of duration of bleeding at menarche was 2-4 days (63.9%) followed by 5-8 days (26.5%) while 7.9% and 1.8% of respondents had bleeding at menarche lasting 1 day and more than 8 days respectively. This is shown in table 2. The distribution of respondents with respect to their location at onset of menarche is shown in table 3. 68.3% were at

Table 1: Distribution of respondents by menarcheal age

Menarcheal age (years)	Frequency	Percentage (%)
<10	48	1.8
10 – 16	2532	3.6
>16	96	94.6
Total	2676	100.0

Table 2: Duration of bleeding at menarche

Duration (days)	Frequency	Percentage (%)
1	216	7.9
2 – 4	1740	63.9
5 – 8	720	26.4
> 8	48	1.8
Total	2724	100.0

Table 3: Location at onset of menarche

Location	Frequency	Percentage (%)
No response	12	0.4
Home	1860	68.3
Classroom	660	24.2
Church	96	3.5
Inside vehicle	48	1.8
Market	48	1.8
Total	2724	100.0

Table 4: Emotional Feeling at onset of Menarche

Emotional Feeling	Frequency	Percentage (%)
Embarrassed because of no prior knowledge	156	5.7
Felt normal because of prior knowledge	1248	45.8
Embarrassed despite prior knowledge	1320	48.5
Total	2724	100.0

home, 24.2% in the classroom, 3.5% in the church and 1.8% of the respondents were inside the market or in a vehicle.

Majority (48.5%) of the respondents felt embarrassed at onset of menarche despite prior knowledge of the condition. One thousand three hundred and twenty (1320) (45.8%) felt normal emotionally at the onset of menarche because of prior knowledge. However, 5.7% of respondents had no prior knowledge at its onset and therefore felt embarrassed. This is illustrated in table 4. The source of information about menstruation in one thousand three hundred and sixty two (50.0%) of respondents was their mothers; teachers/lecturers contributed 21.7% while the house – helps were the source in 4 (0.4%) of respondents. This is shown in table 5.

Table 5 : Sources of information about menstruation

Source	Frequency	Percentage
Mother	1362	50.0
Friends	390	14.3
Sisters	270	9.9
Books	99	3.6
Teachers/Lectures	591	21.7
House – helps	12	0.4
Total	2724	100.0

DISCUSSION

The mean age at menarche of 12.9 years in this study is lower than 13.3 years (Modebe 1987) and 13.1 years (Ezem 2006) reported for Igbos of South East Nigeria. It is equally lower than other related studies in other non Igbo tribes of Nigeria 13.57 years (Mathur and, Toriola 1982), 13.45 years (Toriola and Salokun 1991) and 13.19 years (Ikaraoha *et al* 2005). The decline in menarcheal age for both the Igbos and non Igbo speaking tribes of Nigeria therefore, can be said to be in line with the reported secular trend towards younger menarcheal age (Silva and Padez 2006). In this study, the trend toward younger menarcheal age when compared with other studies shows a decline at the rate of about 5 months per decade. Prior to that a rate of decline of about 4 months per decade has been

reported. (Modebe 1987), an indication of improving socioeconomic conditions. This is also supported by the finding that only 0.2% of respondent had their menarche before age of ten in 1995 (Nwobodo *et al*, 1995) as compared to 1.8% in this study. It is also important to note that fluctuating socioeconomic conditions in our environment affects a sustained decline as evidenced by the menarcheal age of 14.19 years reported in 1995 (Nwobodo *et al*, 1995) for Igbos and 13.9 years reported in 1997 (Abioye- Kuteyi *et al* 1997) for the non –Igbo speaking tribe of Nigeria. Furthermore, the mean menarcheal age in this study is higher than 12.8 years in Americans, (Zacharias and Rand 1976, ACOG 2001), 12.88 years in Brazilians (Silva and Padez 2006) but lower than 14.3 years in Malawians. (Lema *et al* 2002). These variations in the age at menarche in different environment are probably nutritional (Herman-Giddens *et al* 1997). This is supported by the findings that poor nutrition may delay menarche from age 12-13 years to about 19 years though a 2 year delay is probably more common (Kulin *et al* 1982).

In order to determine the effect socioeconomic and environmental factors on the age at menarche, comparison with results obtained in rural areas would have been more appropriate. If that was done, the average age at menarche may likely to be higher than we reported. However attempts to do that were abandoned as information obtained was very scanty and inconclusive due to poor educational background of the respondents. Furthermore, a previous study among Igbos did not notice any significant effect of socio-economic class on the age at menarche (Nwobodo *et al*, 1995). The wide range of menarcheal age of 9-19 years in this study may be a reflection of the varying socioeconomic and genetic background of the students. The average duration of 2-4 days found in this study is not different from findings from other studies (Ezem 2006).

Prior knowledge of menstruation did not prevent embarrassment in the majority of the respondents (48.5%). In another study done in 2000, although majority had prior knowledge up to 84% were not psychologically prepared (Abioye-Kuteyi 2000), which may cast doubt on the quality of the information received prior to menarche.

That house-helpers were sources of information in some respondents while some others never had prior information may indict some parents who never had time or are shy of discussing reproductive health matters with their wards. If our children get only scanty information about menarche and menstruation, one wonders the quality of sex education they will obtain and their preparedness to cope with some situations in the adolescent period. The socio-cultural peculiarities of our environment still have strong influence on our parents irrespective of educational attainment. This makes them reluctant to exhaustively discuss reproductive health matters with their wards.

The factors that modulate the complex relationship in the hypothalamo-pituitary- ovarian axis that allows gross variation in the timing of menarche are unclear, thus further studies should be encouraged in this regard. There is also need for periodic review of the characteristics of menarche in our environment so as to monitor its trend over time. Parents should devote more time to their female wards as well as be more open to them in reproductive health matters. This will ensure adequate psychological preparation for menarche and other reproductive health issues.

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