

THE IMPACT OF TWO SOCIOECONOMIC INDICATORS ON THE AGE AT MENARCHE OF FEMALE UNDERGRADUATE STUDENTS IN NIGERIA: BAYELSA AS A CASE STUDY.

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Abstract

Introduction: The age at menarche is the age at which a female child sees her first menstrual period. It is part of the characteristic features involved in the transition of a female child to puberty. It occurs suddenly, unlike the other features such as axillary and pubic hair or breast development which are gradual in their occurrences. The moment of menarche is however, associated with some psychological features.

Objective: The objective of this study was to investigate the relationship between socioeconomic indicators, especially pre-pubertal family income status and parent's educational level and the age at menarche of daughters from such families in a Bayelsa population

Materials and Method: A questionnaire was distributed to 120 female medical students of 200 and 300 level at the College of Health Sciences, Niger Delta University, Bayelsa State. Data for Parent's income status and educational level as well as other parameters such as parent's employment and marital status prior to age at menarche were collated from the 78 returned questionnaires and analysed.

Results: No association was established by this study between socioeconomic status and the age at menarche. The study revealed that neither the family income status nor the parent's level of education during early childhood exert any influence on the age at menarche.

Conclusion: Though, the study failed to show evidence of a relationship between socioeconomic status and age at menarche as revealed by previous studies. It was suggested that the result obtained may be due to the very small sample size and the homogeneous nature of the studied population. Future research on the topic should therefore involve larger sample size and a more heterogeneous population.

Keywords: menarche, socioeconomic status, Bayelsa population.

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INTRODUCTION

The age at menarche is the age at which a female child sees her first menstrual period. It is part of the characteristic features involved in the transition of a female child to puberty. It occurs suddenly, unlike the other features such as axillary and pubic hair or breast development which are gradual in their occurrences. The moment of menarche is however,

associated with some psychological features. While some girls may feel excited with the perception that they have become matured, in others, the appearance of the first menses represents a period of exasperation, moodiness, anxiety and apprehensiveness. Yet a few others may appear indifferent.

It has previously been observed that many internal and external factors exert direct and indirect influence on the onset of menarche. Internal factors are mainly physiological such as hormonal and genetic factors.

The external factors that are said to exert influence on the age at menarche include nutritional, ethnic and race^{1,2,3}. Socioeconomic status of a family has also been suggested to be a determining factor on the age at menarche⁴.

Previous studies on the influence of socioeconomic status on the age at menarche has however, been unequivocal. While some studies suggested that exposure of a female child to low socioeconomic or poor nutrition during early childhood delay the onset of menarche^{5,6,7}, others postulated that such exposure rather hasten the age at menarche due to the high prevalence of obesity and overweight among girls with low socioeconomic status^{8,9}.

Previous studies have demonstrated that the relationship between socioeconomic status and age at menarche is mainly accounted for by nutritional factors^{7,8}.

Since poor nutrition appears to delay the onset of menarche, it was envisaged that families with low socioeconomic status are more likely to be exposed to poor nutritional conditions, which could possibly lead to poor weight gain in their daughters and hence cause delay in the onset of menarche, because there is a critical weight which the girl child needs to attain before she can achieve menarche. Available data on the relationship between socioeconomic status and age at menarche is therefore contradictory, hence the need for more research on the topic.

Average age at Menarche

Report from available data from Western Europe has demonstrated that the menarcheal age has been observed to have reduced from about 17 years to 12.8 years¹⁰. In rural India, the mean menarcheal age in girls was shown to be like that in the developed world (12.6 years)¹¹.

In Africa, the mean age at menarche in rural Cameroon girls was reported to be 14.3 ± 1.65

years¹². In Central Sudan, it was reported to be 13.89 ± 0.15 years¹³, in Egypt, the mean menarcheal age of rural girls was shown to be 13.89 ± 0.18 years¹⁴ and in Nigeria, the mean age at menarche of urban school girls in Western Nigeria was reported to be 13.94 ± 1.31 years¹⁵.

Data indicated above appear to demonstrate that the mean menarcheal age of African girls was slightly higher than their Western European counterparts. This may be accounted for by the better socioeconomic status in Western Europe compared to that in Africa.

To the best of the knowledge of the authors of this study, previous study on the relationship between socioeconomic status and age at menarche has not been conducted in a Bayelsa population.

This study therefore aimed at assessing the relationship between two indicators of socioeconomic status and age at menarche among female university students at the College of Health Sciences, Niger Delta University, Bayelsa State. The two socioeconomic indicators to be assessed are the educational status of the parents and the parent's income prior to the age at menarche.

To achieve this aim, a questionnaire was planned and constructed. Consent was obtained from the participants among 200 and 300 level female undergraduate students at the College of Health Sciences, Niger Delta University. The questionnaire was then distributed and collected for data collation and analysis.

MATERIALS AND METHODS

Data was obtained from female university students through a questionnaire. The questionnaire contained the following features: Present age of participant, age at menarche of the participant, number of bleeding days per cycle of the participant, parent's educational level prior to age at menarche, parent's income (father and mother) prior to age at menarche and parent's marital status prior to age at menarche.

The participants were female university students in 200 and 300 levels at the college of Health Sciences, Niger Delta University, Bayelsa State,

Nigeria.

A total of 120 questionnaires were distributed to the participants following prior consent. The participants were requested to fill and return the questionnaire over a period of 72 hours. However, only 78 (65%) were returned. Data were extracted, collated and analysed.

Analysis was done using SPSS version 20 while Pearson Chi square was used to test for the association between variables.

RESULTS

Data from the seventy-eight (78) participants analysed revealed that 23.1% (18) had their menarche at eleven (11) years and constitute highest group in the study. Fifteen (19.2%) of them had their menarche at the age of 12 years, while those whose age at menarche was 13 and 14 were each 17.9%. Those that had 17 and 18 years as their menarcheal age were only one (1) participant (1.3%) each. The mean menarcheal age among the participants in this study was 12.72 ± 1.8 (table 8).

To assess the association between parent's income and age at menarche of the participants, the study assumed that the middle-class income families are those with income range of between 150 to 499 thousand Nigerian naira. Below 150 thousand Nigerian naira is low income class and above 499 thousand Nigerian naira is high income class.

Out of the eighteen (18) participants with menarcheal age of 11 years, nine (9) of them were from the middle-income class, while six (6) were from the high-income group. Also, out of fourteen

(14) participants with menarcheal age of 14 years, ten (10) were within the middle-income group, while four (4) were in the high-income group. The only participant that had 8 years as age at menarche was in the high-income class, but interestingly, all the participants whose age at menarche were between 16 and 18 years also fall within the middle and high-income classes. Pearson's Chi square used to test the association between the parent's income level and age at menarche of the participants show no statistical significance ($p=0.974$). Level of statistical significance for this study was $p < 0.05$. This indicates that there was no association between the two variables (tables 9, 6 & 5).

Again, the study revealed no association between parent's level of education and the age at menarche of the participants. Even though the participants with age at menarche of 11 years and 12 years were more in families with high educational level (HND/BSc to MSc/PhD), the few that had their age at menarche of 17 and 18 years were also within the families with high educational level. The Pearson's Chi square used to test the association between the two variables show no statistical significance. $P = 0.624$ and 0.882 for the father and the mother respectively. Statistical significance level for the study was $p < 0.05$. See tables 1 and 2. This also reveals that there was no association between the parent's level of education and age at menarche in this study.

Table 1:

EDUCATIONAL LEVEL OF FATHER	AGE AT MENARCHE										Total
	8	10	11	12	13	14	15	16	17	18	
HND/BSc	0 (0.0%)	3 (3.8%)	6 (7.7%)	6 (7.7%)	4 (5.1%)	7 (9.0%)	5 (6.4%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	33 (42.3%)
MSc/PhD	1 (1.3%)	1 (1.3%)	11 (14.1%)	7 (9.0%)	6 (7.7%)	3 (3.8%)	2 (2.6%)	1 (1.3%)	1 (1.3%)	1 (1.3%)	34 (43.6%)
PRIMARY SCHOOL	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)
SECONDARY	0 (0.0%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	4 (5.1%)	4 (5.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	10 (12.8%)
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)

Values are presented as frequencies and percentages. Chi-square (X^2) = 24.109; $P = 0.624$. P: statistical level of association was determined using Chi-square test. $P < 0.05$ means there is an association (or relationship) between variables.

Table 2:

EDUCATIONAL LEVEL OF MOTHER	AGE AT MENARCHE										Total
	8	10	11	12	13	14	15	16	17	18	
HND/BSc	1(1.3%)	3 (3.8%)	13 (16.7%)	7 (9.0%)	7 (9.0%)	9 (11.5%)	5 (6.4%)	2 (2.6%)	0 (0.0%)	1 (1.3%)	48 (61.5%)
MSc/PhD	0 (0.0%)	1 (1.3%)	3 (3.8%)	4 (5.1%)	4 (5.1%)	1 (1.3%)	2 (2.6%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	16 (20.5%)
PRIMARY	0 (0.0%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.6%)
SECONDARY	0 (0.0%)	0 (0.0%)	1 (1.3%)	4 (5.1%)	2 (2.6%)	4 (5.1%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	12 (15.4%)
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)

Values are presented as frequencies and percentages. Chi-square (X^2) =18.667; P=0.882. P: statistical level of association was determined using Chi-square test. P<0.05 means there is an association (or relationship) between variables.

Table 3:

FATHER EMPLOYMENT STATUS	AGE AT MENARCHE										Total
	8	10	11	12	13	14	15	16	17	18	
DECEASED	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)
EMPLOYED IN ONE MAN'S BUSINESS	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.6%)
EXECUTIVES	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (3.8%)
JUNIOR CIVIL SERVANT	0 (0.0%)	0 (0.0%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	3 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (6.4%)
NO IDEA	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)
SELF EMPLOYED	0 (0.0%)	1 (1.3%)	3 (3.8%)	6 (7.7%)	3 (3.8%)	3 (3.8%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	20 (25.6%)
SENIOR CIVIL SERVANT	1 (1.3%)	3 (3.8%)	13 (16.7%)	7 (9.0%)	9 (11.5%)	6 (7.7%)	4 (5.1%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	46 (59.0%)
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)

Table 4:

MOTHER EMPLOYMENT STATUS	AGE AT MENARCHE										Total
	8	10	11	12	13	14	15	16	17	18	
EMPLOYED IN ONE MAN'S BUSINESS	0 (0.0%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	3 (3.8%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (7.7%)
JUNIOR CIVIL SERVANT	0 (0.0%)	0 (0.0%)	3 (3.8%)	2 (2.6%)	3 (3.8%)	6 (7.7%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	15 (19.2%)
SELF EMPLOYED	0 (0.0%)	1 (1.3%)	10 (12.8%)	6 (7.7%)	6 (7.7%)	5 (6.4%)	2 (2.6%)	1 (1.3%)	1 (1.3%)	1 (1.3%)	33 (42.6%)
SENIOR CIVIL SERVANT	1 (1.3%)	2 (2.6%)	5 (6.4%)	6 (7.7%)	2 (2.6%)	2 (2.6%)	5 (6.4%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	24 (30.8%)
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)

Values are presented as frequencies and percentages. Chi-square (X^2) =27.758; P=0.424. P: statistical level of association was determined using Chi-square test. P<0.05 means there is an association (or relationship) between variables.

Table 5:

FATHER INCOME RANGE PER MONTH	AGE AT MENARCHE										Total
	8	10	11	12	13	14	15	16	17	18	
>500	0 (0.0%)	1 (1.3%)	2 (2.6%)	3 (3.8%)	2 (2.6%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	10 (12.8%)
10-49K	0 (0.0%)	0 (0.0%)	3 (3.8%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (6.4%)
50-99k	0 (0.0%)	1 (1.3%)	0 (0.0%)	4 (5.1%)	0 (0.0%)	3 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (10.3%)
100-149K	0 (0.0%)	0 (0.0%)	3 (3.8%)	2 (2.6%)	3 (3.8%)	4 (5.1%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	14 (17.9%)
150-299K	0 (0.0%)	0 (0.0%)	4 (5.1%)	1 (1.3%)	3 (3.8%)	3 (3.8%)	1 (1.3%)	2 (2.6%)	0 (0.0%)	1 (1.3%)	15 (19.2%)
300-499K	1 (1.3%)	2 (2.6%)	4 (5.1%)	2 (2.6%)	4 (5.1%)	2 (2.6%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	20 (25.6%)
NO IDEA	0 (0.0%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.6%)
NONE	0 (0.0%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (5.1%)
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)

Values are presented as frequencies and percentages. Chi-square (X^2) =47.427; P=0.928. P: statistical level of association was determined using Chi-square test. P<0.05 means there is an association (or relationship) between variables.

Table 6:

MOTHER INCOME RANGE PER MONTH	AGE AT MENARCHE										Total
	8	10	11	12	13	14	15	16	17	18	
>500	0 (0.0%)	0 (0.0%)	2 (2.6%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (5.1%)
10-49K	0 (0.0%)	0 (0.0%)	2 (2.6%)	1 (1.3%)	4 (5.1%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	10 (12.8%)
100-149K	0 (0.0%)	0 (0.0%)	4 (5.1%)	5 (6.4%)	4 (5.1%)	6 (7.7%)	4 (5.1%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	24 (30.8%)
150-299K	1 (1.3%)	1 (1.3%)	3 (3.8%)	2 (2.6%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (11.5%)
300-499K	0 (0.0%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	7 (9.0%)
50-99K	0 (0.0%)	2 (2.6%)	4 (5.1%)	4 (5.1%)	2 (2.6%)	5 (6.4%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	19 (24.4%)
NO IDEA	0 (0.0%)	0 (0.0%)	2 (2.6%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (6.4%)
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)

Values are presented as frequencies and percentages. Chi-square (X^2) =50.611; P=0.606. P: statistical level of association was determined using Chi-square test. P<0.05 means there is an association (or relationship) between variables.

Table 7:

PARENT MARITAL STATUS	AGE AT MENARCHE										Total
	8	10	11	12	13	14	15	16	17	18	
MARRIED	1 (1.3%)	4 (5.1%)	16 (20.5%)	13 (16.7%)	12 (15.4%)	12 (15.4%)	5 (6.4%)	3 (3.8%)	0 (0.0%)	1 (1.3%)	67 (85.9%)
SINGLE PARENT	0 (0.0%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	1 (1.3%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	7 (9.0%)
WIDOW	0 (0.0%)	0 (0.0%)	1 (1.3%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (5.1%)
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)

Values are presented as frequencies and percentages. Chi-square (X^2) =14.896; P=0.669. P: statistical level of association was determined using Chi-square test. P<0.05 means there is an association (or relationship) between variables.

TABLE 8:

S/N	AGE AT MENARCHE	FREQUENCY	PERCENT (%)
1	8	1	1.3
2	10	4	5.1
3	11	18	23.1
4	12	15	19.2
5	13	14	17.9
6	14	14	17.9
7	15	7	9.0
8	16	3	3.8
9	17	1	1.3
10	18	1	1.3
	TOTAL	78	100.0
	MEAN	12.72	
	STANDARD DEVIATION	1.808	
	STANDARD ERROR	0.205	

Table 9:

PARENT INCOME PER MONTH	AGE AT MENARCHE										Total	MEAN	Standard error of mean	
	8	10	11	12	13	14	15	16	17	18				
0-49K	0 (0.0%)	0 (0.0%)	2 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.6%)	15.00	15.00
50-99K	0 (0.0%)	0 (0.0%)	1 (1.3%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (5.1%)	71.00	4.00
100-149K	0 (0.0%)	1 (1.3%)	0 (0.0%)	2 (2.6%)	1 (1.3%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (9.0%)	139.86	12.48
150-299K	0 (0.0%)	0 (0.0%)	7 (9.0%)	5 (6.4%)	4 (5.1%)	8 (10.3%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	1 (1.3%)	28 (35.9%)	235.29	9.66	
300-499K	0 (0.0%)	1 (1.3%)	2 (2.6%)	1 (1.3%)	5 (6.4%)	0 (0.0%)	2 (2.6%)	1 (1.3%)	1 (1.3%)	0 (0.0%)	13 (16.7%)	395.38	14.18	
>500K	1 (1.3%)	2 (2.6%)	6 (7.7%)	5 (6.4%)	3 (3.8%)	4 (5.1%)	2 (2.6%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	24 (30.8%)	720.25	35.11	
Total	1 (1.3%)	4 (5.1%)	18 (23.1%)	15 (19.2%)	14 (17.9%)	14 (17.9%)	7 (9.0%)	3 (3.8%)	1 (1.3%)	1 (1.3%)	78 (100.0%)	388.55	29.44	

Values are presented as frequencies and percentages. Chi-square (X^2) = 35.66; $P=0.974$. P : statistical level of association was determined using Chi-square test. $P<0.05$ means there is an association (or relationship) between variables.

DISCUSSION

This study demonstrated that there was no relationship between socioeconomic status and age at menarche in the studied population. The result of the study failed to provide evidence indicating that either low or high socioeconomic status was associated with early or late onset of menarche among the participants in the studied population. The reason could be due to the small sample size which may have affected the outcome of the study. Another reason may be, because in the African set up and especially in the Niger Delta region of Nigeria, there is overwhelming dependence on relatives. Hence, the girls from supposedly low socioeconomic strata may have received so much money from their rich relatives and this may have helped to close the gap between low and high-income strata. The result was that, the effect of income status on the age at menarche failed to be clearly demonstrated in this study.

However, a previous study conducted in the Western part of Nigeria showed that school girls from upper socioeconomic status attained menarche earlier than those with lower socioeconomic status¹⁵. According to this study, neither parent's income status nor parent's educational level exert influence on the age at menarche. This does not corroborate with findings of earlier studies as some revealed that low socioeconomic status was associated with earlier age at menarche^{8, 9}, while others showed that low socioeconomic status was associated with delay in the onset of menarche^{4,6,7}.

The expectation was that, the income status and educational level of the parents during the pre-pubertal period would have influenced the nutritional status and hence the body mass index which could have moderated the timing of menarche. However, it is worthy to note that

studying medicine is costly and could be afforded mainly by middle- and high-income class. Since the population involved in this study was only medical students, it could be that majority of the participants were from middle and high socioeconomic status. This does not give room to compare adequately the effect of either low or high socioeconomic status on the age at menarche. This may have accounted for the result obtained in this study.

Other socioeconomic indicators analysed in this study were parent's marital and employment status prior to age at menarche of the participants. However, no association was observed between married or single parents and age at menarche. Also, there was no association between parent's employment status and age at menarche, probably for reasons already enumerated above.

The limitations of this study include the small sample size. Only seventy-eight (78) questionnaire out of the one hundred and twenty (120) distributed were returned. Also, data on the age at menarche were collected retrospectively. This would likely result to recall bias; hence incorrect time of menarche may have occurred, and this might have affected the result. The third limitation was that the population involved in the study was not heterogeneous enough as mainly participants of middle and high socioeconomic strata were involved in the study. As a result, the study failed to demonstrate the effect of low socioeconomic status on the age at menarche. This does not provide adequate conditions for comparison between the effect of low and high socioeconomic status and the age at menarche.

Further research on this topic should involve a larger sample size and a more heterogeneous population to allow for adequate comparison of results in different socioeconomic strata.

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