# THE MENSTRUAL CHARACTERISTICS OF UNDERGRADUATE STUDENTS IN A GHANAIAN PUBLIC UNIVERSITY.

Osonuga Ayokunle[1]* and Ekor Martins N[1,2]

School of Medical Sciences, University of Cape Coast, Ghana[1] , Department of Pharmacology, School of Medical Sciences, University of Cape Coast, Ghana[2].

*Corresponding Author:*

*Dr. Osonuga Ayokunle,*

*School of Medical Sciences, University of Cape Coast, Cape Coast, Ghana.*

***Abstract***

***Introduction****: Menstrual disorders are common among females of reproductive age and are a major cause of gynaecological referrals. They result from various individual, family, socioeconomic and environmental factors. It is important to understand these variations in the menstrual cycle to help premenopausal women cope better with them and proffer treatment where necessary. However, in Ghana, there exist a paucity of literature on disturbance in the menstrual cycle, especially among University students.*

***Objectives****: This study is an attempt to add to the body of knowledge on menstrual issues females experience.*

***Methodology****: The study was a descriptive cross-sectional study involving two hundred female undergraduate students of the University of Cape Coast (UCC), Ghana. Data was analysed using standardized and acceptable statistical tools.*

***Results****: Our results show that most of the females were in their early twenties (92.6%), with the average age of menarche being 12.7 $\pm$ 0.12 years. Most respondents (49.2%) attained menarche at ages 12 and 13. Furthermore, some females had irregular cycles (17.7%) and the most common symptoms experienced by these cohorts were menstrual pain, mood changes and tiredness, accounting for 74%, 52.5% and 33% respectively.*

***Conclusion****: Our study has shown that Ghanaian undergraduate students are not left out of the disturbances in the menstrual cycle and can indeed be a source of worry and concern to them and their families. Primary healthcare physicians and Specialists should be aware of this so as to give appropriate therapy and care in order to improve their quality of life.*

*Keywords: Ghana, Menstrual cycle, Menstrual Disturbances, Menarche*

## Introduction

The menstrual cycle consists of cyclic changes in the female reproductive system which begins about the ages of 9 to 16 years (menarche) and continues till menopause. Premenopausal women undergo an average 400 menstrual cycles in their life time[1-2].

The hallmark of the menstrual cycle is menstruation. This is defined as bleeding from the endometrium due to the shedding of the necrotic functional layer. Physiologically, it results from the interplay of hormones of the hypothalamic-pituitary-ovarian axis. It is known by many names – menses, period, or "that time of the month". Counted from the first day of one period to the first day of the next, the average menstrual cycle is 28 days. Cycles may vary from 21 to 35 days. The duration of bleeding is between 2 to 8 days and the volume of blood lost is usually from 30 ml to 80ml. The average menstrual flow lasts for about 5 days, which accounts to approximately 67 months of menstrual bleeding over a lifetime[2-4].

Menstrual disorders are common among females of reproductive age and are a major cause of gynecological referrals. Disorders of volume of menses include hypomenorrhoea (small volume of bleeding and/or bleeding < 3 days) and hypermenorrhoea (heavy bleeding and/or bleeding > 7days). Disorders of interval of menstruation include oligomenorrhoea(interval > 35 days), polymenorrhoea (interval < 21 days), metrorrhagia (irregular menses) and when menstruation is absent, it is termed amenorrhoea. These derangements reflect changes in ovarian steroid production[1,5]

Menstrual patterns are influenced by a number of host and environmental factors[2]. Knowledge about the common menstrual symptoms is important not only for management purposes but also for patient education. Studies have shown it helps female sadhere to physicians' treatment, making the menstrual period less troublesome and tolerable[2,6].

Despite these advantages, very few studies are available from Ghana concerning menstrual patterns. Our study is an attempt to bridge the knowledge gap with emphasis on University students as available studies focus on adolescent and secondary school females.

## Methodology

The study was a descriptive cross-sectional study conducted in October 2010, using a three-page questionnaire which was administered to two hundred female undergraduate students of the University of Cape Coast (UCC). The questionnaire was designed to elicit the socio-demographic characteristics of the respondents (i.e. age, religion, educational level, occupation, marital status and student's level in the University) and the respondents' menstrual history. Ethical waiver was granted by the UCC Ethical Review Board before the study. The questionnaire also included a consent section in which the respondent appended her signature after the aims and objectives of the study were explained. Words or images that could depict or reveal the identity of the respondents were not included in the study.

The data we gathered was carefully coded and entered into Statistical Package for Social Sciences (SPSS) version 17. Data was expressed as frequencies, percentages, means and standard deviation. Microsoft excel was used to draw bar graphs.

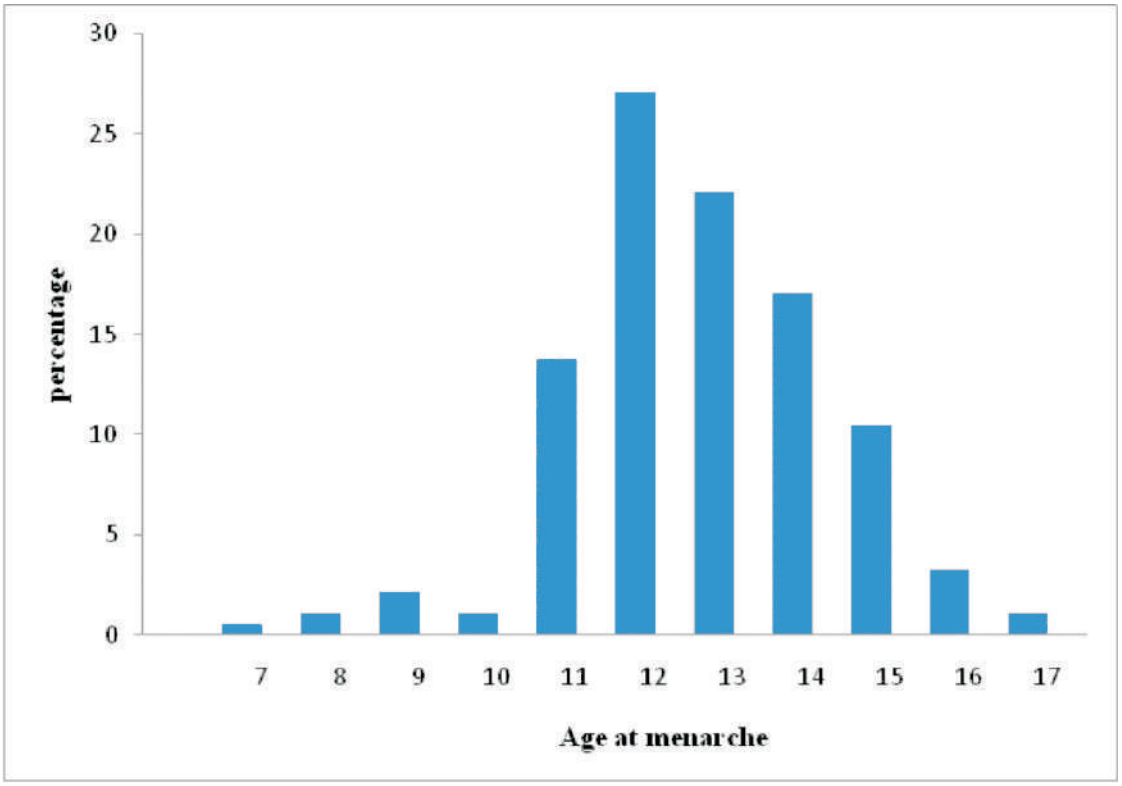
## Results

**Table 1:** Demographic characteristics of respondents

| | Frequency (N=200) | Percentage (%) |
|---|---|---|
| *Age* | | |
| 15-19 | 38 | 19.0 |
| 20-24 | 126 | 63.0 |
| 25-29 | 29 | 14.5 |
| >29 | 7 | 3.5 |
| *Marital status* | | |
| Single | 185 | 92.5 |
| Married | 15 | 7.5 |

Most of the respondents (92.5%) were unmarried and within ages 20-24 years' category

**Figure 1:** Age at Menarche of the respondents



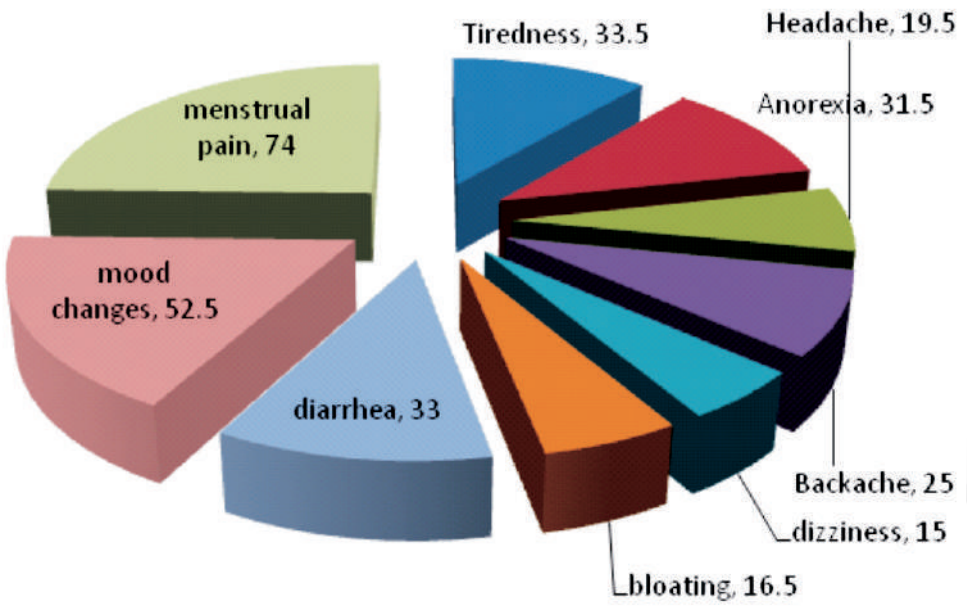

The mean age of menarche of the respondents was 12.7 $\pm$ 0.12 years. Most respondents (49.2%) attained menarche at ages 12 and 13.

**Table 2:** Menstrual characteristic of respondents

| | Frequency | Percentage (%) |
|---|---|---|
| *Length of menstrual cycle (days) (n=198)* | | |
| <21 | 5 | 2.5 |
| 21-35 | 146 | 73.7 |
| >35 | 12 | 6.1 |
| Irregular | 35 | 17.7 |
| *Quantity of menstrual flow (n=198)* | | |
| Low | 11 | 5.6 |
| Moderate | 140 | 70.7 |
| Heavy | 47 | 23.7 |
| *Duration of menstrual flow (days) (n=199)* | | |
| < 3 | 8 | 4.0 |
| 3-7 | 180 | 90.5 |
| >7 | 11 | 5.5 |

Most respondents (82.3%) had regular cycles.
The quantity of menstrual flow was assessed based on number of soaked sanitary pad changes daily. 70.7% of respondents have moderate menstrual flow. 90.5% of respondents have a normal duration of menstrual flow (3-7 days).

**Figure 2:** Menstrual symptoms associated with menstruation (expressed as percentages)




The most common menstrual symptoms were menstrual pain (74%), mood changes (52.5%) and Tiredness (33%).

## Discussion

This study was an attempt to determine the menstrual characteristics of Undergraduate females in a Ghanaian Public University. The mean age at menarche in this study was 12.7 ± 0.12 years very similar to 12.5±1.28years reported by Gumanga et al in Ghana[7]. Over two decades ago, Adadevoh et alreported menarcheal age of 13.98 ±1.42years in Ghanaian school girls[8]. Thisfalling trend in menarcheal age has been observed in other studies[9-11]. Historical records noted a gradual decline from 17 years in 1830 to about 14 years in 1900 to about 13 years in 1980 in the United States[11,12](rbej22, mum.org/menarche). A plateau in menarcheal age since the 1950s has been upheld by some authors while others suggested an upward trend [13-15] Genetic and non-genetic factors are responsible for this; ERa gene polymorphisms, single nucleotide polymorphism of rs314276 in intron 2 of LIN28B on chromosome 6, prenatal and immediate post-natal factors, attaining a critical weight at an early age (due to improved nutrition, urbanization and general health), heredity,parents' ethnic group, environmental conditions (e.g. high altitude), body stature, socioeconomic status, family size, level of education, and psychological wellbeingare some of the contributing factors advanced by previous workers[2,7,9,11]. The implications of this include risky sexual activity in adolescence with associated increase insexually transmitted infections, adolescent depression, unwanted pregnancy, unsafe abortion and adolescent motherhood[2, 7]. A rise in incidence of genital tract and breast cancer has also been associated with early menarche along with increased body mass index, insulin resistance, total number of metabolic syndrome components and hence increased cardiovascular risk and asthma[9,11].

Interestingly, two Ethiopian studies had a higher age at menarche (13.9 ± 1.2 years and 14.8 respectively)[9,16]. The high altitude was suggested as the reason for this. However, theresearchers agreed to a decline in menarcheal age in line with global trends. Variations existinmenstrual cycle duration and the duration of flow[2]. In the present study, the intermenstrual interval was reported to be 21-35 days by 73.7% females (see table 2). This is similar to reports of previous workers[7, 17-19]. Shorter and longer cycles represented 2.5% and 6.1% respectively (see table 2). Again this is consistent with previous reports[2, 10, 18]. Similar prevalence to 17.7%we observedfor metrorrhagia has been reported in literature[2,7]but sharply contrastswith the30.48% reported by Dambhare et al[17], 31% reported by Sulayman et al [20] and 42.8% by Zegeye et al [16]. This variation may be accounted for by the adolescent population recruited in these studies, as irregular cycles are common in adolescencedue toinitial anovulatory cycles[21,22]. Interestingly, a Ghanaian study among adolescent cohort puts the prevalence of metrorrhagia at about 13% [7]. This suggests that other factors like lifestyle, dietary habits, stress and hormonal imbalance or an underlying medical or gynecological pathology may be contribute to irregular menses. Other symptoms accompany menses in most premenopausal women. These vary from person to person. In our study, menstrual pain (dysmenorrhea) was the commonest symptom associated with menstruation (see figure 2). This is consistent with other reports[2, 10,18-22].However, the prevalence rates differ widely in literature based on individual and researcher factors[23,24]Our prevalence of 74 % (figure 2) is in agreement with other workers[7],[25]. Dysmenorrhea is thought to be due to Prostaglandin-induced increase in uterine activity[25]. The consequences of dysmenorrhea have been widely discussed in literature[23]. In one study, female respondents described menstruation as“a cluster of negative

symptoms", including a negative mood[22]. It results in despondency, psychomotor retardation and poor performance[26]. With more than half of our respondents having mood changes (figure 2) during menstruation; it indeed calls for attention.

Fatigue, anorexia, dizziness and headache could suggest anemia that resulted from menstrual flow. This, we implied from the moderate to heavy flow (menorrhagia) experienced by some of the females in this study (table 2). Furthermore, the study was conducted in sub Saharan Africa where anemia is common among females[27] One limitation of the study is recall bias. The recall method may be less valid and its accuracy is decreased with greater time elapsed between menarche and asking for the date, because it is fraud with poor memory.

**Conclusion**

Disturbance in the menstrual cycle and menstrual symptoms are common. It is important to educate females who present to their primary care physicians and gynecologist with these symptoms and proffer appropriate management strategies to reduce morbidity and improve quality of life of the patients.

**References**


1 Dangal G. Menstrual Disorders in Adolescents. *Journal of Nepal Medical Association.* 2004; 43: 152 – 163

2 Omidvar S and Begum K. Menstrual pattern among unmarried women from south India. J Nat Sci Biol Med. 2011 Jul-Dec; 2(2): 174–179. doi: 10.4103/0976-9668.92329

3 Lentz G, Lobo R, Gershenson D et al. Comprehensive Gynecology. Philadelphia, PA: Mosby Elsevier; 2012

4 Okoro RN, Malgwi H, Okoro GO. Evaluation of factors that increases the severity of dysmenorrhea among University female Students in Maiduguri, North Eastern Nigeria. *The Internet Journal of Allied Health Sciences and Practice*. 2013; 11(4):1-10

5 Diaz A, Laufer MR, Breech LL. Menstruation in girls and adolescents: using the menstrual cycle as a vital sign. Pediatrics. 2006;118(5):2245–2250

6 Siddiqui N, Pi Tking J. Menstrual disturbances. Obstet, Gynecol and Reprod Med 2007. 2007;17(5):154–62

7 Gumanga SK and Kwame-Aryee R. Menstrual characteristics in some adolescent girls in Accra, Ghana. *Ghana Med J*. 2012; 40: 3 -7

8 Adadevoh SW, Agble TK, Hobbs C, Elkins TE. Menarcheal age in Ghanaian school girls. Int J Gynaecol Obstet. 1989;30(1):63–68

9 Esrael Ayele and Yifru Berhan. Age at Menarche among In-School Adolescents in Sawla Town, South Ethiopia. Ethiop J Health Sci. 2013 Nov; 23(3): 189–200.

10 Rigon F, De Sanctis V, Bernasconi V, Bianchin V, Bona G, Bozzola M et al. Menstrual pattern and menstrual disorders among adolescents: an update of the Italian data. Italian Journal of Pediatrics 2012, 38:38

11 Karapanou O and Papadimitriou A. Determinants of menarche. Reproductive Biology and Endocrinology 2010, 8:115

12 Kaplowitz P: Pubertal development in girls: secular trends. *Curr. Opin. Obstet. Gynecol.* 18(5),487-491 (2006)

13 Dan TC, Roberts DF: Menarcheal age in University of Warwick young women. J Biol

Sci 1993, 25:531-538.

14 Lindgren GW, Degertors IL, Fredrikson A, Loukili A, Mannerfeldt R, Nordin M, Palm K, Petterson M, Sundstrand G, Sylvan E: Menarche 1990 in Stockholm schoolgirls. Acta Paediatr Scand 1991, 80:953-955

15 Adams Hillard PJ: Menstruation in adolescents: what's normal, what's not. *Ann. NY Acad. Sci.* 1135,29-35 (2008)

16 Zegeye DT, Megabiaw B, Mulu A. Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. BMC women health. 2009;9:29

17 Dharampal G. Dambhare, Dharampal G. Dambhare, Jayesh Y. Dudhe. Age at Menarche and Menstrual Cycle Pattern among School Adolescent Girls in Central India. Global Journal of Health Science. Vol. 2012; 4(1):105-111

18 Shrotriya Charu, Ray Amita, Ray Sujoy, George Aneesh Thomas. Menstrual characteristics' and 'prevalence and effects ofdysmenorrhea' on quality of life of medical students. International Journal of Collaborative Research on Internal Medicine & Public Health. 2012; 4(4): 276-294

19 Zubairu Iliyasu, Hadiza S. Galadanci, Isa S. Abubakar, Amina O. Ismail, Muktar H. Aliyu. Menstrual Patterns and Gynecologic Morbidity among University Students in Kano, Nigeria. Journal of Pediatric and Adolescent Gynecology. 2012; 25(6): 401–406. DOI: http://dx.doi.org/10.1016/j.jpag.2012.08.006

20 Sulayman HU, Ameh N, Adesiyun AG, Ozed-Williams IC, Ojabo AO,Avidime S et al. Age at menarche and prevalence of menstrual abnormalities among adolescents in Zaria, northern Nigeria. *Annals of Nigerian Medicine*. 2013; 7(2): 66-70

21 Seven M, Guvenc G, Akyuz A and Eski F. Evaluating Dysmenorrhea in a Sample of Turkish Nursing Students. *Pain Management Nursing*. 2014; 15(3): 664-671

22 Unsal A, Ayranci U, Yozun M, Calik E. Prevalence of dysmenorrhea and its effect on quality of life of female university students. *Ups J Med Sci.* 2010; 115(2): 138-145

23 Gagua T, Tkeshelashvili B, Gagua D. Primary dysmenorrhea- Leading problem of Adolescent Gynecology (Review). *Georgian Medical News*. 2012; 6(207): 7-14

24 Omidvar S and Begum K. Characteristics and Determinantsof Primary Dysmenorrhea in Young Adults. American Medical Journal. 2012; 3 (1): 8-13.

25 Gumanga SK and Kwame-Aryee R. Prevalence and Severity of Dysmenorrhoea among Some Adolescent Girls in a Secondary School in Accra, Ghana. Postgraduate Medical Journal of Ghana. 2012; 1

26 Tang NKY, Salkovskis PM, Hodges A, Wright KJ, Hanna Magdi and Hester J. Effects of mood on pain responses and pain tolerance: An experimental study in chronic back pain patients. *Pain*. 2008; 138: 392-401

27 Dugdale M. Anemia. Obstet Gynecol Clin North Am. 2001; 28(2): 363-81