

EDUCATION



**Menstrual disorder and its impacts
on academic performance of adolescent
female undergraduate students in Nigeria**

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Full Length Research

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Menstruation is a natural phenomenon among women. However, it could pose severe challenge to the adolescent undergraduate students in the context of health and wellbeing with implications on their academic performance. Hence, an investigation into menstrual disorder and its impacts on academic performance. The paper specifically investigated the health disorders associated with menstruation as well as the impacts of menorrhagia and dysmenorrhea on academic performance of adolescent female undergraduate students. A total number of 421 students of Enugu Campus of the University of Nigeria, Nsukka were enlisted into the study using purposive sampling techniques. The data collected through the use of primary and secondary methods were analysed in percentage distribution and presented in tables using descriptive and inferential statistics. Findings of the study revealed that menstruation among adolescent female undergraduate student is implicated for severe health disorders arising from menorrhagia and dysmenorrhea. However, the result of the hypotheses revealed that menorrhagia and dysmenorrhea have no significant correlation with academic performance. Recommendations on the basis of these findings included social support, curriculum innovation and counseling. The purpose of this paper is to bring to the fore one of the nagging problems affecting female education in Nigeria. It is also imbued with the significance of sensitizing adolescent female undergraduate students as well as curriculum planners, university authorities and teachers on this social malady. This paper also has the potential impact for motivating curriculum innovation to cushion the impacts of menstrual disorders on academic performance of the vulnerable. However, one of the potential limitations of this study is the cultural belief of secrecy attached to menstruation among Africans which may stifle open discussion on the subject matter.

Key words: Menstruation, Menstrual disorders, Menorrhagia, Dysmenorrhea, Adolescent Female undergraduate Students, Academic performance.

INTRODUCTION

Menstruation is an episodic uterine bleeding in response to cyclic hormonal changes. It usually occurs at monthly intervals throughout the reproductive period, except during pregnancy and lactation, when it is usually suppressed (Pillitteri, 2007). Menstruation leads to the following discomforts for the girls: a bloody discharge from the vagina, pains, abdominal bloating, headache, fatigue, breast tenderness, nausea, vomiting, loose stools, mood swings, irritability and sweating which affect school performance (Jahromi, Gaeini and Rahimi, 2008).

Some common menstrual disorders among the undergraduate adolescents in addition to the challenge of normal menstruation may be broadly captured as in two folds: dysmenorrhea (painful menstruation) and menorrhagia (excessive blood loss during menstruation). Research study describes dysmenorrhoea and menorrhagia as common gynecological problems encountered among females students. Although the majority of women experience negative effects during the menstrual period, some others report that it positively

influences their mood and mental status.

Painful menstruation and excessive blood loss due to menstruation could be negatively correlated with academic performance. Available literature indicates the symptoms could lead to some psychosocial disorders resulting in absenteeism, poor concentration and weak peer interactions. Physician consultation and decreased mental performance are usually seen to be features of menstrual disorders among women. These generally are against the formal business of schools established primarily for the inculcation of knowledge measured by performance.

Statement of the Research problem

Academic performance among students is a product of a network of activities between the learners and the school. The performance of these activities by the female learner is further dependent on her health status. Unfortunately, female adolescent students are usually associated with menstrual disorders leading to poor mental and social activities.

According to Klein (1998) Dysmenorrhea and menorrhagia are common health and social disorders among adolescent students. The report further indicates that the consequences of dysmenorrhoea and menorrhagia include: Poor participation in school and sport activities and disruption of relationships and school absenteeism. Titilayo, Agunbiade, Banjo and Lawani (2009) also report that both dysmenorrhoea and menorrhagia are significant predictors of psychosocial relationship of the female students. The report further reveals that students with dysmenorrhoea reported one and a half times of depression than those without, but menorrhagia appeared as the principal factor affecting their daily school activities and relationship with colleagues.

These health and social disorders may have some influence on academic performance of female adolescent undergraduate students. Unfortunately, there may be no adequate plans to cushion the effects of these disorders among female adolescents in academic institutions in Nigeria. The etiology of gender gap in education can therefore be found in menstrual disorder against concerted efforts in developing countries to close gender parities in all its ramifications.

Although some studies have been conducted on health disorders associated with menstruation among women, studies on the impact of such disorders on academic performance of female undergraduate students is negligible or non-existent. This study therefore aims at filling these theoretical and scientific gaps for policy direction.

Objectives of the study

1.To examine the incidence of menstrual disorders among adolescent female undergraduate students of the university of Nigeria, Enugu campus.

2.To investigate the impacts of dysmenorrhagia on the academic performance of adolescent female undergraduate students of

3.To ascertain the impacts of menorrhagia on the academic performance of adolescent female undergraduate students of university of Nigeria, Enugu campus.

The Research Hypotheses

1. There is no correlation between menorrhagia and academic performance of female undergraduate students

2. There is no significant correlation between dysmenorrhagia and academic performance of female undergraduate students.

Literature Review Menstruation

Menstruation is an episodic uterine bleeding in response to cyclic hormonal changes. It usually occurs at monthly intervals throughout the reproductive period, except during pregnancy and lactation, when it is usually suppressed (Pillitteri, 2007). Menstruation leads to the following discomforts for the girls: a bloody discharge from the vagina, pains, abdominal bloating, headache, fatigue, breast tenderness, nausea, vomiting, loose stools, mood swings, irritability and sweating which affect school performance (Hillarp, 2002). Oster and Thornton (2011) report increasing female education is an important policy priority in many developing countries. Girls lag behind boys in schooling attainment, and female schooling is thought to be important for a variety of developmental outcomes. Oster and Thornton (2011) further argument on the possible role for menstruation in limiting school attendance has received significant attention in popular media, nearly all of which reported that menstruation is likely to be a significant factor in schooling.

Menstruation may seriously affect girls' attendance, attention, and achievement in school in both rural and urban areas. The absence of clean and private sanitation facilities that allow for menstrual hygiene may discourage girls from attending school when they menstruate. In addition, if a girl has no access to protective materials, or if the materials she has are unreliable and cause embarrassment, she may be forced to stay at home while menstruating. This absence of approximately 4 days every 4 weeks may result in the girl missing 10 to 20 percent of her school days. Contributing, The World Bank (2005) posits that it will be difficult for a girl who misses so much schoolwork to keep up academically.

Psycho-physiological changes are often negative and disabling in nature. Hence, the question arises as to whether these cyclical changes in moods and symptoms also impact adversely on cognitive performance? Up to 50 per cent of all menstruating women suffer acute menstrual pains (dysmenorrhoea), with elevated levels of prostaglandins causing excessive contractility of the

uterus (Richardson, 1991).

Menorrhagia

Research studies usually take menorrhagia to be a monthly menstrual blood loss in excess of 80ml (NICE, 2012). Menorrhagia is very subjective; a more practical definition may be that it is the blood loss that is greater than the woman feels she can reasonably manage. The National Institute for Health and care excellence (NICE, 2012) defines heavy menstrual loss as excessive blood loss that interferes with a woman's physical, social, emotional and/or quality of life.

Dysmenorrhoea

Bernstein (1977) defines dysmenorrhoea or painful menstruation as painful cramps that begins a few hours before the onset of bleeding and may persist for hours or days. Danborno and Oyibo (2000) further opines that dysmenorrhoea may be either primary, when there is no identifiable cause, or secondary in organic pelvic diseases. Primary dysmenorrhoea occurs typically between 17 and 22 years of age while secondary dysmenorrhoea is more common in older women. Dysmenorrhoea is commonly associated with systemic symptoms like lower back pain, nausea, vomiting, diarrhoea, fatigue and headache.

Studies have shown that not less than 10% of menstruating young women are incapacitated for up to three days all because of monthly menstrual disorder (Patel *et al.*, (2006) also complemented this by reporting that the burden of dysmenorrhoea is greater than any other gynaecological complaints. Though, mild and moderate cases of dysmenorrhoea could be treated by reassurance and paracetamol (Davis & Westhoff, 2001), the effect of menstrual disorder and discomfort on a woman's life could be so severe as to confine the woman to bed.

Many adolescents ignorantly consider dysmenorrhoea to be a normal part of the menstrual cycle and thus fail to report their pain to the physicians. Many reasons have been deduced as the factors responsible for the low public attention attracted to menstrual disorder and discomfort. Some women see public discussion on menstruation as a 'taboo. Some other women perceive the issue of menstruation as a personal affair and if discussed publicly could cause discomfort (Hickey & Balen, 2003).

Impact of Menstrual Characteristic on Cognitive Function/Academic Performance.

The possibility that female students might experience temporary cognitive deficits at the premenstrual/menstrual phases has provoked much controversy over the years (Bernstein, 1977) There is a widespread belief that intellectual functioning is impaired to some extent, and that academic performance is diminished during the premenstrual and menstrual

phases of the normal monthly cycle (Walker, 1992).

Diminished academic performance is one of the main complaints attributed to menstrual-cycle problems (Moos, 1985). Indeed, Sherry *et al.*, (1988) argue that nearly half of their sample of university students reported considerable premenstrual/menstrual distress symptoms. Lending credence, Richardson (1988a, 1988b; 1989) notes that about 30 per cent of various samples of female undergraduates reported poor academic performance prior to onset of menstruation. Richardson (1989) points out that, "Out of 215 respondents, 73 per cent reported that at least one aspect of academic work was disrupted by premenstrual symptoms, and 14 per cent reported that their academic work was disrupted in all six respects. Furthermore, Ylikorkala & Dawood (1978) report that primary dysmenorrhoea (acute menstrual pain) is the greatest single cause of lost school days among young women. In another dimension, some studies have suggested little or no debilitating effects on cognitive performance across the menstrual cycle (Bernstein, 1977). Other studies (Chrisler *et al.*, 1994) reports on positive psycho-physiological changes associated with the menstrual cycle.

As Herrmann (1984) argues, it is likely that female students may impose artificial barriers on their performance levels on the assumption that their intellectual functioning is regularly disrupted by menstrual cycle factors. Likewise, a woman's susceptibility to cognitive failure under stress may be a function of ingrained socio-cultural beliefs (Martin & Jones, 1984). Hence, coping mechanisms may have been developed to cushion the impacts of menstrual disorders.

The Research Method

The study design is descriptive and cross-sectional. To ensure confidentiality, each participant was assigned an identification number which was used throughout the study for all data collection. A self-administered questionnaire was developed for the purpose of this study. It included the following variables: socio-demographic characteristics, menstrual history, academic performance and habits (sleeping, appetite, exercise, mood and social relationships) during the menstrual period. The following anthropometric indices were measured: height, weight, waist circumference and hip circumference. The following anthropometric indices were derived: body mass index (BMI) and waist hip ratio (WHR).

Study Area

The research was carried out in University of Nigeria, Enugu campus. The University is located in the eastern part of Nigeria. The study area covers the following faculties in the University: Faculty of Medical Sciences, Health Sciences and Technology and Management Sciences. The subjects were all second year students (2013/14 academic session) of the following department:

Table 1: Distribution of the various symptoms associated with menstruation.

Symptoms	Responses	
	Yes (% Frequency)	No (% Frequency)
Nervousness	72 (17.0)	349 (82.9)
Irritability	200 (47.5)	220 (52.3)
Depression	159 (37.8)	262 (62.2)
Dizziness	228 (54.2)	193 (45.6)
Backache	109 (25.9)	311 (73.9)
Fatigue	262 (62.2)	159 (37.8)
Headache	93 (22.1)	328 (77.5)
Sleeplessness	77 (18.3)	344 (81.7)
Diarrhoea	99 (23.5)	322 (76.5)
Nausea / Vomiting	176 (41.8)	243 (57.7)
Acne/ Flushing	190 (45.1)	190 (54.6)
General aching	195 (46.3)	226 (53.7)

Medicine & Surgery, Nursing Sciences, Radiography, Medical Laboratory Science, Medical Rehabilitation, Accounting and Business Administration.

Study Populattion

Four hundred and twenty one (421) post-menarcheal female undergraduates (200 Level) volunteers of the Faculties of Medical Sciences (UNEC) Health Sciences & Technology and Management Sciences (UNEC) were recruited for this study.

Inclusion Requirements

Post menarcheal 200 level students of Faculties of Medical, Health Sciences & Technology and Management Sciences.

Students with menarcheal age of two years and above.

Exclusion Requirement

Students who are mothers

Students with clinically established pelvic inflammatory disease.

1. Semi-structured self-administered questionnaire.
2. Numeric Pain Rating Scale (NRS) and Quality of Life (QOL) rating scale.
3. Modified menorrhagia impact questionnaire (MIQ) (NICE, 2012).
4. Stand meter (England).
5. Measuring tape (Non stretchable).

Assessment and Tools

Dysmenorrhoea and Quality of Life (QOL)

A modified scale on gradation of pain i.e. Numeric Pain Rating Scale (NRS) and QOL based on the American Chronic Pain Association (ACPA) was used to measure pain of dysmenorrhoea and QOL.

Menorrhagia

Modified Menorrhagia Impact Questionnaire (MIQ) was used to evaluate ability to:

- 1) Perform physical functions
- 2) Participate in academic functions

3) Participate in social and leisure activities

4) Measures global change in menstrual blood loss and to evaluate respondent

5) Perceptions of impact of menorrhagia on academic performance.

(National Institute of Care and Excellence report, 2012)

Academic Performance

This report was obtained from the office of the Head of Department of Anatomy, Accounting and Banking & Finance departments of University of Nigeria- Enugu campus.

Results was assessed based on a retrospective analysis of second year examinations result indicators.

Ethical Consideration

Ethical Clearance and permission was obtained from the Health Research Ethics Committee.

The purpose of the study was explained to all the participants and informed consent was obtained from all the willing subjects.

Presentation and Analysis of Data

Statistical Analysis

This was done using SPSS version 20. Pearson's correlation coefficient was used to evaluate relationship between menstrual characteristics and body size indicators (BSI), menstrual disorders and BSI, and menstrual disorders and academic performance.

Respondents' data on symptoms associated with menstruation reveals that participants suffer diverse symptoms at different degrees. While a significant chunk of them representing 62percent suffer from fatigue, 54.2 percent feel dizzy from menstruation. Others are irritability, general nausea and vomiting with 47.5, 46.3 and 41.8 respectively (table 1).

Thus, table 2 representing frequency distribution of responses to questions concerning menorrhagia. 28.3% reported experiencing heavy flow and 28.0% also reported they normally wear sanitary pad and towel simultaneously during menstrual flow. 60.8% reported

Table 2: Frequency distribution of responses to questions concerning menorrhagia

Question	Responses	
	Yes (% Frequency)	No (% Frequency)
Do you experience heavy flow?	119 (28.3)	299 (71.0)
Do you normally wear sanitary pad and towel simultaneously during your menstrual flow?	118 (28.0)	303 (72.0)
Do you usually pass blood clot during your menstrual flow?	256 (60.8)	158 (37.5)
Do you normally visit the hospital on account of menorrhagia?	144 (40.5)	277 (59.5)
Have you ever been admitted on account of menorrhagia?	138 (33.0)	282 (67.0)

Table 3: Shows frequency distributions of responses to questions concerning dysmenorrhoea

Question	Responses	
	Yes (% Frequency)	No (% Frequency)
Do you experience dysmenorrhoea?	156 (37.1)	265 (62.9)
Do you normally visit the hospital on account of dysmenorrhoea?	154 (36.6)	267 (63.4)
Have you ever been admitted on account of dysmenorrhoea?	115 (27.2)	306 (72.3)

Table 4: Respondents' perceived impact of Menorrhagia and Dysmenorrhea.

Question	Impact of menorrhagia on Respondents	Impact of Dysmenorrhoea on Respondents
	Response	Response
	Yes (% Frequency)	Yes (% Frequency)
School Absence	271 (64.4)	258 (61.3)
Class Absence	180 (42.8)	264 (62.7)
Reduced concentration in class	186 (44.0)	185 (43.9)
Inability to Participate in sport	257 (61.0)	209 (49.6)
Affects relationship with family & friends	181 (42.8)	232 (55.1)
Reduces concentration during private study	139 (33)	176 (41.8)
Inability to concentrate effectively during group work	287 (67)	197 (42.5)

Table 5: Menorrhagia on Academic Performance

Responses	Frequency	%Frequency
I strongly agree	217	51.3
I agree	166	39.2
Undecided	27	6.4
I disagree	6	1.4
I strongly disagree	5	1.2
Total	421	100.0

passage of blood clots during menstrual flow. While 40.5% reported hospital visit on account of menorrhagia, 33.0% reported hospital admission on account of menorrhagia.

Table 3 Shows the distribution of responses to questions concerning dysmenorrhoea. 37.1% reported to have experienced or experiencing dysmenorrhoea, 36.6% reported to normally visit the hospital on account of dysmenorrhoea while 27.2% reported to have ever been admitted on account of dysmenorrhoea.

Table 4 representing respondents' perceived impact of menorrhagia and dysmenorrhea reveals that 67 percent of victims of menorrhagia suffer inability to concentrate effectively in group work. Similarly, 64.4 implicate it for school absence while 61 percent of them attribute it to failure to participate in sports activities. 44 percent of

Table 6: Frequency Distribution of the Respondents Perception on the Impact of Dysmenorrhea on Academic Performance

Responses	Frequency	%Frequency
I strongly agree	94	22.3
I agree	165	39.2
Undecided	39	9.3
I disagree	23	5.5
I strongly disagree	95	22.6
Total	421	100.0

them also reported that it leads to poor concentration in class. In the same vein, 62.7 percent of the total respondents implicate dysmenorrheal for class absence while 61.3 agreed that it causes school absence. Some others are inability to partake in sports activity, reduction in class activity and concentration which attract 49 and 43 percents respectively.

Data on table 5 which indicates responses of the respondents to the question; do you think that your academic performance would have been better if you were not experiencing menorrhagia? The modal response was 'I strongly agree' (51.3%).

Data on table 6 respondents' perception of the impact of dysmenorrhagia on academic performance indicates that more than 60 percent of the respondents strongly believed or believed that the disorder has negative

Table 7: Correlations of Menorrhagia with Academic Performance

		CGPA	Menorrhagia and academic performance?	Menorrhagia (heavy flow)
CGPA	Pearson Correlation	1	-.006	.031
	Sig. (2-tailed)		.904	.521
	N	421	421	421
Do you think that your academic performance would have been better if you were not experiencing menorrhagia?	Pearson Correlation	-.006	1	.025
	Sig. (2-tailed)	.904		.616
	N	421	421	421
Menorrhagia (heavy flow)	Pearson Correlation	.031	.025	1
	Sig. (2-tailed)	.521	.616	
	N	421	421	421

Table 8: Correlations of Dysmenorrhoea with Academic Performance.

		CGPA	Do you experience dysmenorrhoea (painful menstruation)?	Do you think that Dysmenorrhea affects your academic performance ?
CGPA	Pearson Correlation	1	-.049	.021
	Sig. (2-tailed)		.314	.671
	N	421	421	421
Do you experience dysmenorrhoea (painful menstruation)?	Pearson Correlation	-.049	1	.097
	Sig. (2-tailed)	.314		.047
	N	421	421	421
Do you think that your academic performance would have been better if you were not experiencing dysmenorrhic pain?	Pearson Correlation	.021	.097	1
	Sig. (2-tailed)	.671	.047	
	N	421	421	421

*Correlation is significant at the 0.05 level (2-tailed).

impact on their academic performance.

Table 7 show the result of correlation of menorrhagia with actual and perceived academic performance shows no significant correlation ($P > 0.05$).

The result of correlation of dysmenorrhoea with actual and perceived academic performance shows no correlation (table 8).

DISCUSSION OF FINDINGS

This study has revealed that several health disorders are associated with menstruation among adolescent girls in the university under study. They include: fatigue, dizziness, irritability, general aching nausea, etc in order of percentage impact on the respondents. As a consequence, menstruation characteristics and associated physical and psychosocial discomforts affect academic performance in the context of class absence, school absence and reduced peer interaction and extra-curricular activities.

The study findings also show that menstruation among adolescent female undergraduate students is positively correlated with dysmenorrhea and menorrhagia and associated physical, academic, sports, psychosocial and economic consequences. Paramount among these consequences include nervousness, irritability, depression, dizziness, backache, fatigue, headache, sleeplessness, diarrhoea, nausea/vomiting, acne/flushing

and generalized body ache, academic consequences school absence, class absence, reduced concentration in class, inability to concentrate effectively during practical's and group work and reduced concentration during private study, inability to participate in sport activities as well as relate well with family and friends. Perceived economic consequences include hospital visit & admission, purchase of drugs, purchase of pads/tampons and other utilities of hygiene.

In this study menorrhagia though occurs less frequent (28.3%) than dysmenorrhoea (37.1%), but occurred more significantly with dizziness, headache and depression, and those whose menstruation ever called for medical or surgical attention ($P < 0.05$). This finding corresponds to report by Titilayo et al., 2009. The prevalence of negative effects of menorrhagia on relationship with family and friends was 42.8% while inability to participate in sports account for 61.0%. On the degree of impact on AP, 84% reported mild to moderate school and class absence while 64.2% reported mild to moderate inability to concentrate in class ($P < 0.05$) This is in harmony with Adekemi et al., (2014) which reported that the highest academic effect recorded was absence from school (64.5%), this was closely followed by loss of concentration and feeling of irritation in the same proportion (63 o%).

In a related development, dysmenoorhagia also

constitutes serious health disorder among respondents leading to hospital visit and admission. In this study, the prevalence of hospital visit was 36.6% while the prevalence of hospital admission reported was 27.2%. The report of this study is at variants with the report of study by Titilayo et al. (2009) on menstrual discomfort and its influence on daily academic activities and psychosocial relationship among undergraduate female students in Nigeria.

Finally, the result of the hypotheses reveals that there is no significant correlation between menstrual disorders and perceived and actual academic performance. This finding reinforces the perception of menstruation and its impacts as components of feminine characteristics that should be accepted, tolerated and borne no matter its burden. It also shows evidence of adaptive mechanisms to the challenges posed by menstruation on adolescent female undergraduate students.

CONCLUSION

This paper is an attempt to investigate the incidence and impacts of menstrual disorders among adolescent female undergraduate students in Nigeria. It has shown that menstruation has social, economic psychological and pathological impacts on adolescent female undergraduate student. The study has revealed that menorrhagia and dysmenorrhea are common menstrual disorders and results to a number of challenges including nervousness, irritability, depression, dizziness, backache, fatigue, headache, sleeplessness, diarrhoea, nausea/vomiting, acne/flushing and generalized body ache. Others are school absence, class absence, reduced concentration in class, inability to concentrate effectively during practicals and group work and reduced concentration during private study, inability to participate in social activities, inability to relate well with family and friends. Respondents' data also implicates menstrual disorders among students for social and economic inconveniences such as hospital visit & admission, purchase of drugs, purchase of pads/tampons and other utilities of hygiene.

Although, these impacts are worrisome, the result of the hypotheses indicates that they are not significantly correlated with academic performance. This finding is in consonance with Martin and Jones (1988) who argue that a woman's susceptibility to cognitive failure under stress may be a function of ingrained socio-cultural beliefs (Martin & Jones, 1984). Hence, the norms and values relating to menstruation may have led adolescent female undergraduate students to develop coping mechanisms that override the impacts of menstrual disorders on academic performance.

Recommendations

Curriculum planners and school administrators should be sensitive to the plight of adolescent female undergraduate students in curriculum planning and

administration. Adolescent female undergraduate students should also be provided with counseling services on proper and safer ways to manage their menstrual cycles.

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