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Prevalence and Associated Risks Factors for Menstrual Disorders among Undergraduate Students in Borno State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Authors AAK, MBK and AGM were involved in the conceptualization and design of the study. The data collection, entry and statistical analysis was carried out by authors AAK, SMI and BI, while author HAU did the literature search and preliminary draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Background: Problems pertaining to menstruation are generally perceived among women as normal variation in body physiology and often not regarded as a serious health issue that requires public health attention. They only presents to our outpatient gynaecological clinics to seek medical attention when it become unbearable.
Objective: To determine the prevalence and assess the associated risks factors for menstrual disorders among undergraduates in Borno state.
Methodology: This was a cross sectional descriptive study, which was carried out among undergraduate students in Borno state, Nigeria. One thousand five hundred structured questionnaires were administered to ascertain the menstrual history, patterns, associated symptoms, any co existing gynaecological problem and abnormalities of menstruation.
Results: Majority (72.2%) of the respondents are nulliparous and only 514 (37.1%) have ever use any form of contraception while only 15.2% have ever experienced STDs or PID in the past.

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Normal menstruation was only observed among 33.5%, while the commonest menstrual abnormalities were dysmenorrhoea and premenstrual syndrome. Dysmenorrhoea and PMS are observed more in those age bracket <24years, There was observed strong association between past pregnancy with dysmenorrhoea, menorrhagea, PMS and oligomenorrhoea ($P \leq 0.001$), while those who have not used any form of contraception have strong relationship with dysmenorrhoea, menorrhagea, polymenorrhoea and oligomenorrrhea with each having $p \leq 0.001$. Equally the respondents who had STDs/PID have strong association to experienced dysmenorrhoea, menorrhagea, PMS, polymenorrhoea and oligomenorrhoea as complications of menstruation.
The commonest non gynaecological symptom observed among the respondents was headache accounting for 54.2%.
Conclusion: Abnormalities of menstruation is common among the undergraduate students in the study settings, the subjects in the study population should be enlightened through key stakeholders in the community at both formal (school, health institutions) and non formal (homes) settings to seek medical attention early to avert serious gynaecological conditions that may affect reproductive and sexual functions.

Keywords: Patterns; abnormalities of menstruation; non gynaecological symptoms; students.

1. INTRODUCTION

Problems pertaining to menstruation are generally perceived among women as normal variation in body physiology and often regarded as not a serious health issue that requires public health attention [1]. The few that seeks medical attention were forced to do so when the situation is unbearable or in association with other gynaecological problems. Despite this serious reservation, abnormalities of menstruation are very much prevalent among students particularly adolescents and young adults significantly affecting studies and routine domestic activities [2,3,4,5,6,7]. The common abnormalities of menstruation reported include dysmenorrhoea, menorrhagea, oligomenorrhoea, dysfunctional uterine bleeding (DUB), polymenorrhoea and premenstrual syndrome (PMS) [4,7,8,9], with PMS and dysmenorrhoea being the most prevalent menstrual disorders among the students[1,2,5,7,9]. Population based studies involving all women of child bearing ages are generally lacking in our environment as most studies done in Nigeria were institution based that particularly targeted the students in secondary schools within early reproductive years where abnormalities of menstruation is common. This study was aimed at assessing the pattern and prevalence of menstrual abnormalities, risks factors and other non gynaecological symptoms associated with menstruation in the study subjects

2. METHODOLOGY

2.1 Setting

Borno one of the 36 states, located in the north-eastern part of Nigeria was created in 1976 from the then North-eastern Nigeria with a population of 4,994,000. It has a land area of 70,898 square kilometre and population density of 69.73 inch per square kilometre. The state is made up of 27 Local Government Areas (LGAs). The study was carried out in four selected LGAs of the state viz:- Maiduguri metropolitan, Bama, Biu and Jere which are major urban cities with high populations of 320,170, 208,330, 247,860 and 640,080 respectively. Similarly, major tertiary institutions including College of basic studies Bama, College of Education Waka Biu, University of Maiduguri, & School of nursing University of Maiduguri in Jere and Ramat Polytechnic Maiduguri are located in these urban cities.

This a population based cross sectional descriptive survey among six tertiary educational institutions spread across four local government areas of the state, namely Maiduguri metropolitan, Jere, Bama and Biu. Two of the institutions are located in Jere while one each in Bama, Biu and Maiduguri. Bama and Biu LGAs each has a general Hospital that provides general as well as comprehensive emergency obstetric care services, while the 2 major health institutions University of Maiduguri teaching Hospital and Specialist Hospital Maiduguri are located in Jere and Maiduguri respectively. The predominant sources of income of the people of Borno are farming and commerce.

The study was carried out between February 2012 and April 2013 among female students in the selected tertiary educational institutions. All female students within child bearing age who gave a informed consent were recruited into the study (Inclusion criteria) while any female

students who is not of child bearing age, refused to give their consent or opted out of the study were excluded from the study.

2.2 Instruments and Methods of Data Collection

One thousand five hundred structured questionnaires with 27 parameters which was designed by the authors for this study were randomly distributed to the students of this institution after obtaining written clearance from their respective school authorities and with assurances that the information provided will be treated as confidential. Equally a verbal informed consent was also obtained from the study subjects before instituting the questionnaires. However no specific criteria were used for the selection and determination of the sample size. The data collection tool i .e the questionnaires was validated. The main thematic areas that was looked are socidemographic characteristics, menstrual history (menarche and patterns) medical history (pelvic & sexually transmitted infections), contraceptive practice and non gynaecological symptoms.

2.3 Subjects

The students cutting across the various levels from remedial, diploma, certificate and under graduate were randomly selected in the 6 tertiary institution and were issued with the questionnaires which was personally administered by the authors. Information pertaining to their age, age of menarche marital status, menstrual pattern (cycle length, regularity, duration of menstrual flow, associated pain frequency and subjective assessment of quantity of blood loss), and other non gynaecological symptoms experienced during menstruation , parity/previous pregnancies, history of contraceptive use, miscarriage and previous uterine evacuation were extracted . Also information regarding previous diagnosis of pelvic infection, STDs, surgeries for gynaecological problems were obtained. In conformity with standard definitions [10] the respondents were made to understand the meaning of each of the abnormalities in the questionnaire viz:

Dysmenorrhoea: Means painful menstruation and oligomenorrhoea stands for menstrual interval greater than 35 days. Polymenorrhoea and menorrhagea simply means menses occurring at less than 21 days interval and prolonged/increased menstrual flow respectively. While premenstrual syndrome was explained to mean cyclic presence of somatic, psychological and emotional symptoms that worsens as menses approaches and are ameliorated by the onset of menstrual flow. Of about 150 symptoms associated with PMSD the commonest symptoms of bloating, cyclic weight gain, mastalgia, abdominal crumps, fatigue, depression and irritability were the ones considered as symptoms of PMS. The above clinical symptoms, when it occur during the 2^{nd} half of the cycle, symptoms increased in severity as the cyclic progress and the symptoms also subsides with the onset of menses and are absent by day 3 of flow. There must also be a postmenstrual symptom free period of at least seven days. In addition the symptoms of PMS must be present for at least 3 cycles and should be of severity sufficient enough to interfere with daily activities, were considered as applicable [10]. Normal menstruation is the menstruation with cycle length between 21 – 35 days, with duration of menstrual flow less than 8 days, with minimal or no pain associated with the onset and flow of the menstruation and without heavy flow/clots.

Data was analysed using Statistical Packaged for Social sciences (SPSS) version 17 and chi square was used for test of significance at $p \leq 0.005$.

3. RESULTS

Out of the 1500 questionnaires administered only 1385 responded (92.3% retrival), with age range between 18 – 44 years with mean age 26.1. Majority (72.2%) of the respondents were nulliparous and only 514 (37.1%) had ever used any form of contraception as shown on Table 1. Also only 15.2% had ever experienced STDs or PID in the past.

Table 2 shows the various menstrual patterns of the respondents, with normal menstruation observed among 33.5%, while the commonest menstrual abnormalities were dysmenorrhoea and premenstrual syndrome (PMS). The relationship between menstrual pattern and socio -demographics characteristics on Table 3 showed that dysmenorrhoea and PMS are observed more in those age bracket <24 years, while there was no observed significant

difference in the age bracket in respect to oligomenorrrhea, menorrhagea and polymenorrhoea. There was also an observed statistically strong relationship between age at menarche 10 -12 years and incidence of PMS and dysmenorrhoea ($p \leq 0.005$). There was observed strong association between past pregnancy with dysmenorrhoea, menorrhagea, PMS and oligomenorrhoea ($P \leq 0.001$).

Table 1. Socio-demographic characteristics

Age	Number	%
<20	234	16.9
20 – 24	385	27.8
25 – 29	312	22.5
30 – 34	243	17.5
35 – 39	128	9.3
40 – 44	83	6.0
Total	**1385**	**100**
Age at Menarche		
10 – 12	624	45.0
13 – 15	694	50.1
>15	67	4.8
Total	**1385**	**100**
Marital status		
Married	450	29.6
Single	950	68.6
Divorced	15	1.1
Widow	10	.7
Total	1385	100
Parity		
0	1001	72.2
1 – 4	265	19.2
≥5	119	8.6
Total	**1385**	**100**
Contraceptive use		
Yes	514	37.1
No	871	62.9
Total	1385	100
Previous STD		
Yes	213	15.4
No	1172	84.6
Total	**1385**	**100**

Table 2. Menstrual pattern

	Number	%
Number	464	33.5
*Dysmenorrhoea	750	54.2
*Menorrhagea	455	32.9
*PMS	612	44.2
*Polymenorrhoea	312	22.5
*Oligomenorrhoea	115	8.3
*Multiple response		

Those who have not used any form of contraception have strong associations with incidence of dysmenorrhoea, menorrhagea, polymenorrhoea and oligomenorrrhea with $P \leq 0.001$ for each. Equally the respondents who experienced STDs/PID had strong association with incidents of dysmenorrhoea, menorrhagea, PMS, polymenorrhoea and oligomenorrhoea as complications of menstruation.

The commonest non gynaecological symptom observed among the respondents was headache accounting for 54.2% as shown on Table 4, with only 29.2% of them having no observed non gynaecological symptom.

4. DISCUSSION

In our study only 33.55% of the respondents were found to have normal menstruation, while the majority (66.5%) have one or more dysfunctions of menstruation, this was similar to findings among Lebanese student nurses [11]. The commonest abnormalities of menstruation observed in this study were dysmenorrhoea (54.2%) and PMS (44.2%), which is in consonance with other findings in the study area [12-14] and India [15].

It was also observed in this study that PMS and dysmenorrhoea were more common among younger age groups (<24 years) and those of low parity, this can be partly explained by the fact in younger age groups ovarian endocrine activities are high and the fluctuation in the ovarian sex steroids might be responsible for this observations [10,16]. There seems to exist some protective effect of contraceptive practice on dysmenorrhoea and PMS among the respondents, though we could not probe further in to what form of contraceptive method, combined oral contraceptive pills is a known treatment modality for most abnormalities of menstruation specifically dysmenorrhoea, menorrhagea and PMS [10].

The finding from this study also revealed that early age at menarche has strong association with PMS, menorrhagea and Dysmenorrhoea which correlates with observations in Nigeria [17] and Sudan [18]. Those respondents who have experienced previous sexually transmitted infection and pelvic infections were significantly found to have menstrual abnormalities compared to those who had not experienced STI's and PID, most especially dysmenorrhoea which is a common symptom among patients experiencing either complicated STI or PID [10,19].

Table 3. Relationship between socio-demographic factors and menstrual pattern

Age	Normal	Dysmenorrhoea	Menorrhagea	Polymenorrho	PMS	Oligo	
<20	68	210	80	50	160	13	**P=0.0000**
20-24	60	180	64	42	148	18	
25-29	102	105	82	63	83	16	
30-34	120	175	96	43	95	19	
35-39	71	130	64	50	80	27	
40-44	53	52	69	64	46	22	
Total	**464**	**750**	**455**	**312**	**612**	**115**	
Age at menarche							
10-12	294	467	207	163	392	43	0.002
13-15	188	269	241	138	305	57	
>15	22	64	7	11	15	15	
Total	**464**	**750**	**455**	**312**	**612**	**115**	
Parity							
0	211	465	287	184	390	58	**P=0.0004**
1 – 4	154	188	139	73	121	29	
≥ 5	99	97	27	55	101	28	
Total	**464**	**750**	**455**	**312**	**612**	**115**	
Marital status							
Single	254	516	232	182	394	61	**P=0.0000**
Married	192	228	217	135	213	49	
Divorced	16	3	2	3	3	1	
Widowed	2	3	4	2	2	1	
Total	**464**	**750**	**455**	**312**	**612**	**115**	
Past pregnancy							
Yes	324	262	231	159	226	51	
No	140	488	224	153	386	64	
Total	**464**	**750**	**455**	**312**	**612**	**115**	
		P=0.00000					
Contraceptive use							
Yes	251	328	174	149	421	79	
No	213	422	251	163	191	36	
Total	**464**	**750**	**455**	**312**	**612**	**115**	
					P = 0.0000		
Past STD/pelvic infection							
Yes	197	412	205	229	394	71	
No	267	338	240	83	218	38	
Total	**464**	**750**	**455**	**312**	**612**	**115**	
				P=0.0000			

Table 4. Other associated non gynaecological symptoms

*Symptoms	Number	%
Ni;	405	29.2
Headache	752	54.3
Dizziness	174	12.6
Nausea/vomiting	268	19.4
Diarrhoea	54	3.9
Loss of appetite	78	5.6
Fever	85	6.1
***Multiple response**		

5. STRENGTH AND LIMITATIONS

The perceived strength in this study is the fact that this is the first known study among students of tertiary institutions in this study area. The large sample size and relative spread of the study settings in the major urban cities of the state is another strength in this study.

Some important compounding variables were equally not captured in the analysis.

6. CONCLUSION

Abnormalities of menstruation is common among the undergraduate students in the study settings, hence the study subjects should be availed the opportunities of continous enlightenment both at home and in schools on the need to seek early medical attention to avert serious gynaecological conditions that may affect reproductive and sexual function. Efforts should also be intensified to identify those with early menarche, previous STD/PID. General health education on the prevalence and possible associated factors will help to prevent later complications on both sexual and reproductive health.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APROVAL

A formal ethical clearance from the respective institutions was duly obtained.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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