Dysmenorrhea among Female Medical Students of Bayero University Kano

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Abstract

Background: *Dysmenorrhea is the occurrence of painful menstruation of sufficient magnitude so as to incapacitate day-to-day activities and may require medication. It is one of the common complaints and often debilitating condition that affect women of reproductive age worldwide.*
This study was conducted to determine the prevalence of dysmenorrhea among female medical students of Bayero university, Kano as well as to determine the socio-demographic characteristics and self-management strategies of dysmenorrhea employed by the female medical students.

Methods: *It was a cross sectional study conducted among female medical students of Bayero University Kano. A self-administered questionnaire was used in extracting the data. Researcher met with students at their free time in the university hostels. The weight of each student was taken by an electronic personal scale CAMRY MODEL: EB9360 CERTIFIED BY SGS with maximum capacity of 150 kg. A pre-marked wall centimeter measurement was used to take the height of the students from the head to the heel.*

Results: *Two hundred and seventeen (217) medical students were interviewed of which majority of the respondents 75.6% reported dysmenorrhea. The mean age of the respondents was 21.2 ± 2.29 years. The average age at menarche was 12.8 ± 1.12 years. Most respondents 92.1% were single, 81.6% of the respondents experienced regular menses while 54.8% of respondents had duration of menstrual flow between 6-8 days.*

Conclusion: *Dysmenorrhea is a major cause of monthly discomfort among female medical students in Bayero University Kano, often associated with fatigue and nervousness.*

KEYWORDS: Bayero University Kano, Dysmenorrhea, Medical Students

Introduction

Dysmenorrhea is a very common complaint, experience by women of reproductive age.[1,2] It is one of the most common complaints for women that can affect quality of life.[3] Dysmenorrhea is a subgroup of pelvic pain that manifest as painful sensation in the lower abdomen often accompanied by other biological symptoms including dizziness, fatigue, sweating, backache, headache, nausea, vomiting and diarrhea all occurring just before or during the menstruation. [3,4] The prevalence of dysmenorrhea is difficult to determine because of different definition of the condition and is variably reported-[5,6,7,8]estimates vary from45%- 95%.[5,9,10] The figure indicated a high prevalence of the condition and indicates a challenge to care-giver.[9] The wide variation may derive from ethnic, socio-cultural, or biological factors of the study population.[7] The prevalence worldwide was reported as 16.8 to 81%, while 89.1% was found in Iran,[3] 77.7% in Northwest Ethiopia,[4] 83.6% in Ghana, [11]60-64% in Ile-Ile South–west Nigeria,[12] 70.4% in Nnewi South-east Nigeria,[10] 83.1% in Ibadan South-west, Nigeria,[6] 78.1% in Ogun, South-west,Nigeria [8] 60.9% in Maiduguri, North-east, Nigeria[13]64.3% in Zaria, North-west Nigeria.[14]

Dysmenorrhea is grouped into two categories: Primary dysmenorrhea is pelvic pain without pelvic pathology before and/ or during menstruation, while Secondary dysmenorrhea is menstrual pain that is related to fundamental pathology.[2,5,9,15,16]

Primary dysmenorrhea is thought to be due to excessive or imbalance secretion of prostaglandin (particularly PG F2α) in the myometrium during menstruation, triggering myometrial contraction and increasing uterine tone.[5,9,17,18]It is more common in younger women after establishment of r ovulatory cycles.[5,18]Psychological factors, such as anxiety and tension can precipitate and exacerbate primary dysmenorrhoea.[19,20]Age <20 years, nulliparity, heavy menstrual flow, attempt to lose weight, physical activity and smoking are risk factors for dysmenorrhoea.[17,21]Secondary dysmenorrhea can be caused by any of the dozen or so disorders such as endometriosis, pelvic inflammatory disease, intra- uterine devices, irregular cycles or infertility problems, ovarian cysts, adenomyosis, uterine myomas or polyps, intra-uterine adhesions or cervical stenosis.[20,21] Onset of secondary dysmenorrhea may be years after menarche more common in women older than 20 years and is seen in about 10% of young adult or adolescents with dysmenorrhoea.[20-22] Characteristic symptoms of primary dysmenorrhea include lower abdominal or pelvic pain with or without radiation to the back or leg which typically last 8 to 72 hours and usually occurs at the onset of menstrual flow.[22]Secondary dysmenorrhea may be accompanied by other gynecological symptomssuch as inter-menstrual bleeding and menorrhagia.[23]

Being a debilitating condition for many women, it has a major impact on health-related quality of life, work productivity, and health-care utilization. [24] Despite the substantial effect on the quality of life and general well-being, most girls do not seek medical treatment for this condition because they feel it is a normal part of the menstrual cycle or they believe it will not help.[4,25]. Dysmenorrhea is frequently associated with sickness absenteeism, decrease in academic performance, and decrease in physical and social activities in adolescents.[10,25]A study from Ile Ife showed that 28% of those with severe dysmenorrhea missed school.[13] Better management of dysmenorrhea may not only improve women's quality of life, but also reduced their risk of developing future

pain.[11]Dysmenorrhea can be treated with antibiotics, analgesics, and hormonal agents. The role of good counseling and psychotherapy cannot be overemphasized.[13]

Though menstruation is a natural and normal physiological process during reproductive years, it has been surrounded by secrecy and myths in many societies like ours, which does not allow any discussion concerning reproductive health issues including dysmenorrhea. It was observed that many BUK female medical students suffer badly due to dysmenorrhea and they became absent from the college during the time of menstruation. The true incidence and/or prevalence of dysmenorrhea is not clearly established in Kano, more especially among this group of students whose medical training can be greatly affected as a result of the negative effects of dysmenorrhoea.. This study therefore is to determine the prevalence, socio-demographic characteristics and mode of management of dysmenorrheal employed by female medical students of BUK.

Materials and Methods:

It was a cross sectional study carried out among female medical students of Bayero University Kano, North-Western Nigeria. The study was carried out between July to October 2018. Dysmenorrhea for this study was described as painful menstruation.

The sample size was calculated using the Cochranformula for cross sectional survey[6]($n=z^2pq/d^2$) where n= sample size, z= degree of accuracy required = 1.96, d = marginal error 5% (0.05) and the prevalence of 83.1% was used from the study by Bello et al,[6] giving a minimum sample size of 217.

The study was conducted at Bayero University Kano and participants were met at their hostels of residence on the university premises located at the old site of the university and the hospital site which housed the clinical students.

The sample size was spread across the 6 classes by dividing the number of female students by factor of 1.5 and a random sampling was done in each class. Written informed consent was obtained from respondents before the recruitment.

The inclusion criteria were female medical students from year one to year six of BUK while those who do not wish to take part in the study were excluded.

Ethical clearance was obtained from the ethical committee of Bayero University Kano and the study was carried out in accordance with the Declaration of Helsinki 2013.

Questionnaire with open and closed-ended questions on demographic data, menstrual history and clinical features associated with dysmenorrhea was administered among the study participants. Assessment of dysmenorrhea was rated using modified moos menstrual distress questionnaire (MMMDQ) which is the standard method of measuring cyclical perimenstrual symtoms.[3-5]

Variables extracted included age, year of study, weight, height, BMI, parity and family history of dysmenorrhea. The main outcome measure was the presence of dysmenorrhea.

Data were analyzed with SPSS version 22.0, 2013 (IBM, New York, USA). $P < 0.05$ was considered statistically significant.

Results

Two hundred and seventeen (217) questionnaires were distributed, of which all were responded (giving a response rate of 100%).

Table I. Socio-Demographic profile of respondents N=217

Variables	Dysmenorrhea	No Dysmenorrhea	Total	P value
Age group				
< 19	45 (27.4)	12 (22.6)	57 (26.3)	0.177
20 – 24	110 (67.1)	34 (64.2)	144(66.)	
> 25	9 (5.5)	7 (13.2)	16 (7.4)	
Marital status				
Married	13 (7.9)	11 (20.8)	24 (11.1)	0.020
Single	151 (92.1)	42 (79.2)	193(88.9)	
Religion				
Islam	163 (99.4)	50 (94.3)	213(98.2)	0.046
Christianity	1 (0.6)	3 (5.7)	4 (1.8)	
Tribe				
Hausa	105 (64.0)	35 (66.0)	140(64.5)	0.152
Fulani	34 (20.7)	7 (13.2)	41 (18.9)	
Yoruba	8 (4.9)	7 (13.2)	15 (6.9)	
*Others	17 (10.4)	4 (7.5)	21 (9.7)	
Body Mass Index (BMI)				
Underweight	28 (17.1)	6 (11.3)	34 (15.7)	0.113
Normal	122 (74.4)	40 (75.5)	162(74.7)	
Overweight	13 (7.9)	4 (7.5)	17 (7.8)	
Obese	1 (0.6)	3 (5.7)	4 (1.8)	

Table 1. Above shows the demographic profile of the study participants.

The mean age and standard deviation of the respondents with dysmenorrheal was 21.2 years ± 2.29 with majority of them 67.15% between the ages 20-24 years. Most of the respondents were single (88.9%) while only (11.1%) were married. More than half of the respondents (74.7%) were within the range of normal body mass index. Parents and teachers were the main source of knowledge of dysmenorrheal in this study.

Table 2. Students experience of dysmenorrhea and Frequency

Variables	Frequency	Percentage
Do you experience dysmenorrheal?		
Yes	164	75.6
No	53	24.4
Total	217	100
If Yes, How Frequently?		
Monthly	94	57.3
Occasionally	57	34.8
Rarely	13	7.9
Total	164	100

The table 2 above shows the percentage and frequency of the respondents experienced dysmenorrhea.

Majority of the respondents 164 (75.6%) experienced dysmenorrhea while 53 (24.4%) of them didn't experienced dysmenorrhea.

Table 3. Gynaecological features of the respondents with or without dysmenorrhea. N=217

Variables	Dysmenorrhea	No Dysmenorrhea	Total	P value
Age at Menarche				
10 – 12	56 (34.1)	21 (39.6)	77 (35.5)	
13 – 15	108(65.9)	32 (60.4)	140(64.5)	0.51
Parity				
0	157(72.3)	46(21.2)	203(93.5)	
1	5 (3.0)	5 (9.4)	10 (4.6)	
2	1 (0.6)	2 (3.8)	3 (1.4)	0.035
Regular Menstrual cycle				
Yes	135(82.3)	42 (79.2)	177(81.6)	
No	29 (17.7)	11 (20.8)	40 (18.4)	0.684
Duration of flow (in days)				
3 – 5	59 (36.0)	29 (54.7)	88 (40.6)	
6 – 8	95 (57.9)	24 (45.3)	119(54.8)	
9 – 12	10 (6.1)	0 (0.0)	10 (4.6)	0.018
Interval of menstruation (in days)				
20 – 24	41 (25.0)	5 (9.4)	46 (21.2)	
25 – 29	90 (54.9)	39 (73.6)	129(59.4)	
30 – 34	25 (15.2)	8 (15.1)	33 (15.2)	
35 – 39	8 (4.9)	1 (1.9)	9 (4.1)	0.044

Table 3 above shows gynaecological features of the study participants.

The average age at menarche was 12.8 ± 1.12 years. Majority of them were nulliparous 203(93.5%) as most of the students were single.

Table 4: Measures taken during dysmenorrhea

Variable	Frequency (%)	p - value
Have you taken any measures		
Yes	114(69.5)	
No	50 (30.5)	
Measures taken:		
Hot application	34(29.8)	
Cold application	25(21.9)	
Pain killers	55(48.2)	1.000

Table 4 above shows about 69.6% of the students with dysmenorrheal reported taken measure during dysmenorrheal.

Table 5. Proxies to determine severity of dysmenorrhea:

Features	Frequency (%) n = 164
Pain prevents from routine daily activities	78 (47.6)
Had presented to a doctor on account of pain	28(17.0)
Had been admitted in a hospital	6 (3.7)
Have had investigations to evaluate the pain	9 (5.5)
Pain severe enough to make them miss classes	43 (26.2)

Table 5 above shows Proxies to determine severity of dysmenorrhea. Majority of the respondents 78 (47.6%) had pain severe enough to prevent them from routine activities, 43 (26.2%) of them were absent from school classes, 28 (17.0%) of them presented to a doctor, 9 (5.5%) had investigations to evaluate the pain.

Table 6. Symptoms and feeling associated with menstruation using MMMDQ among the respondents.

Symptoms	No With Symptoms Freq (%)	No Without Symptoms Freq (%)
Backache/Muscle stiffness	108 (49.8)	109 (50.2)
Fatigue/Nervousness	150 (69.1)	67 (30.8)
Generalized body aches/ Weakness in lower limbs	68 (31.3)	149 (68.7)
Painful or tender breast/Enlargement of breast	138 (63.6)	79 (36.4)
Headache/Dizziness	139 (64.1)	78 (35.9)
Nausea/Vomiting	102 (47.0)	115 (53.0)
Hot Flashes/Chest pains	74 (34.1)	143 (65.9)
Heart pounding/Numbness and Tingling	30 (13.8)	187 (86.2)
Decreased appetite	100 (46)	117(53.9)
Anxiety/Loneliness	139 (64.1)	78 (35.9)
Irritability/feeling sad/Irritability	129 (59.5)	88 (40.5)
Insomnia/Restlessness	124 (57.1)	93 (42.9)
Forgetfulness/Confusion/Poor judgment	79 (36.4)	138 (63.6)
Difficulty concentrating/Distraction/Poor school performance	119 (54.8)	98 (45.2)
Minor accidents/Poor motor coordination	49 (22.6)	168 (77.4)
Take naps/stay at home, bed/Deceased efficiency	113 (52.1)	104(47.9)

Symptoms associated with dysmenorrhea among the respondents are shown in Table 6 above. The table shows symptoms and feelings associated with menstruation which describes the respondent's experience in varying degree during the time of menstruation. The item decides whether the respondents have no experience of symptoms, or there is presence of symptoms.

Discussion

Dysmenorrhea is a worldwide problem in women of reproductive age and its prevalence varies from 45%-95%. [5,26] The presence study found prevalence of dysmenorrheal of 75.6% among university medical students in Kano which is similar to other studies done within the country.[9,10] A study by Unsal A. et al in Turkey reported similar prevalence of 72.7% and 73.2% in Iran by Rakhzshaee.[20,26] However, the prevalence was lower than 89.1%,77.6%, 84.1% and 83.6% in various studies done in Iran, Ethiopia, Italy and Ghanaby Habibi et al, Gebeyehu et al, Grandi et al and Ameade et al respectively.[3,4,7,14] The possible difference may be due to different perception of pain, different study population, genetic, psychosocial, familial, different cultural and lifestyle factors and absent of universally accepted methods of defining dysmenorrhea.[14] In this study it may also be due to the fact that the study population may have higher threshold for reporting pain as they were undergoing medical training.

The mean age and standard deviation of the respondents was 21.2 ±2.29 with the majority (67.15%) of them werebetween the ages of 20-24 years. This is similar to the study done in other part of the country [6,9,16,17] and by Hailemeskel et al and Gebeyehu in Ethiopia. [4,28] It was higher in a study by Ameade et al in Ghana and Rakhshaee in Iran with the mean age of 23 ± 5.07 years

and 22.3 respectively. [14,26] About 27.4% of the respondents were less than 19 years of age and 5.5% were above 25 years similar to study by Kural et al.[29] This indicate decrease in the severity and incidence of dysmenorrhea with increasing chronological age. Some studies have determined that prevalence of dysmenorrhea decreases with increasing age thus indicating that dysmenorrhea peaks in adolescent by 20s and then incidence falls with increasing age.[29] In this study however, the difference was not significant.

This study found a significant association between marital status and dysmenorrhea. Only 11.1% of all respondents in this study were married as at time of the study compared to 88.9% single respondents. Among the married respondents only 7.9% reported dysmenorrhea out of which 5(3.0%) parousare with one or more children. Married females were significantly less likely to suffer dysmenorrhea and those in their early 20s were significantly more likely to have dysmenorrhea, while 92.1% of those who reported dysmenorrhea were single.

This study found no significant association between the presence of dysmenorrhea and body mass index (BMI), this is similar to other studies.[2,,3,29] Majority of the respondents 74.4% were within normal weight similar to the study done in India by Kural et al which showed that more than half of the participants had normal BMI.[29] In this study, respondents with low BMI experienced more pain during their menstrual period than those with high BMI. This may be attributed to the fact that low weight, fat mass and low-calorie intake are speculated to disturb the pulsatile secretion of pituitary gonadotropins leading to an increased in dysmenorrhea.[1,5] This is similar tothe study done in Maiduguri by Okoro et

al[15], Bello et[6] al and Hailemeskel et[28] al in North eastNigeria, south-west Nigeria and Ethiopia in East Africa respectively, but Kural et[29] al reported having equal distribution between underweight and overweight in his study group.

The average age at menarche was 12.8 ± 1.12 years,this is similar to other studies. [6,13]But slightly lower than the13.7±1.87 found in Ghana.[14] This may be due to the different geographical areas.There was no significant association between the presence of dysmenorrhea and age at menarche, which was similar to the finding by Heilesmeskel et al[28] and Kural et al.[29]

Among the respondents with dysmenorrhea 82.3% of them have regular menstrual cycle while only 17.7% of them do not have regular menstrual cycle. Though a study in Zaria reported 69% of the respondents with regular cycle length.[13] This study showed no significant association between the presence of dysmenorrheal and regular menstrual cycle. Half of those respondents with no dysmenorrheal (79.2%) reported regular menses and about 20.8% with irregular menses, which ismuch higher than the respondents with dysmenorrhea.

There is a significant association between dysmenorrhea and taking measure to control it in this study group. Majority of the participants with dysmenorrhea 69.5% reported taken measure to control it and most of them practice self-medication, 48.2%, while about 30.5% of those with dysmenorrhea reported that they usually ignored the pain. This finding is slightly higher than that sof Farotimi et al[8] and Bello et al[6]who reported 29.3% and 29.4% respectively, managed themselves with over the counter medications. Medication was the most common method of treatment as seen in other studies. [25] The self-treatment of dysmenorrhea by many women rather than visit a hospital is

because many consider the pain as normal thus not worth taking to a hospital where they may join queues to consult a physician. [14] The negative aspect of self-medication is that most people are not cognizant of the side effects and it is also possible that correct dosage may not be used.Drug to drug interaction is also another potential danger associated with self-medication. Women on contraindicated medications are at increased risk of morbidity and mortality.

In this study only 17 % of the respondents had presented to a doctor on account of dysmenorrhea which is similar to a study by Gebeyehu et at[4], Ameade et al[14] and Kumar et al[25] in which only 16.2%, 16.3% and 13% of the participants ever consulted health professionals about their menstrual pain. This is probably due to the fact that most women consider it to be normal part of menses or do not think that treatment will help and again many who self-medicate get relieved from the use of these medications as shown in this study. [6] Participants level of knowledge on dysmenorrhea did show significant association with their attitude towards dysmenorrhea. The other non-phamacological methods used for treatment are hot and cold application, including use of hot bath and heating padas reported in another study.[25] In this study, dysmenorrheal was found to adversely affect daily activity of concerned students. About 47.6% of the respondents reported dysmenorrhea preventing them from routine daily activities and 26.2% missed classes/school. This is higher compared to a study by Egenti et al where only 7% missed classes and 39.2% had impaired concentration in school.[10]In the study by Farotimi et al about 46.3% absenteeism from school due to dysmenorrhea was reported. [8]

In this study there were range of symptoms and feelings commonly experienced by the respondents with dysmenorrhea.

Majority of the respondents (69.1%) experienced the presence of fatigue and nervousness; this is higher compared to the study done by Rakhshaee in Iran which showed those with associated fatigue and nervousness as17.9% among the respondents with dysmenorrhea. About (49.8%) complaint of backache and muscle stiffness during episode of dysmenorrheal, moods swing and irritability were seen in about (68.9%) while Adegbite et al[27] reported moodiness and irritability as 32.8% and 27.1% respectively. Among the respondents 57.1% reported restlessness and insomnia during the time of dysmenorrheal. Similarly, 64.1% reported headache, dizziness, loneliness and anxiety, 73.3% avoid social activity and stay on bed and (63.6%) breast tenderness and enlargement. These figures are higher compared to the study by Adegbite et al. [27] Escape of prostaglandins from the uterus in to the systemic circulation may be responsible for some of the somatic complaints such as dizziness, headache and fatigue.[27-29] However, mood swings known to be associated with changes in the autonomic functions are believed to be mediated by endorphins. [27] The associated symptoms worsen with approaching menstruation and improve with the onset of menstruation or thereafter.

Conclusion
Dysmenorrhea is a major cause of monthly discomfort among female medical students in BUK. A significant association exists between the chronological age of respondents with younger respondents experiencing dysmenorrheamuch more. It presents with a wide range of symptoms which may affect the students' performance in school. Knowledge of basic remedies for dysmenorrhea will go a long way in alleviating the pain and discomfort thereby improving student's academic performance and quality of life. Female medical students should therefore be encouraged to seek medical care when having dysmenorrhea.

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