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ORIGINAL RESEARCH

Prevalence of Dysmenorrhea and its Contribution to School Absenteeism Among Nigerian Undergraduate Students

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Abstract

Background: Dysmenorrhea remains one of the common gynaecological conditions among women of reproductive age. With varying severity, it can be associated with morbidities that affect the quality of life. Among students, dysmenorrhea leads to school absenteeism which may ultimately affect school performance.

Objectives: To determine the prevalence of dysmenorrhea among undergraduates as well as the incidence of school absenteeism in women with dysmenorrhea.

Methods: A questionnaire-based cross-sectional study of 583 female university students was done using the multistage sampling method.

Results: Four hundred and twenty-four respondents out of 516 had experienced dysmenorrhea giving a prevalence of 82.2%. On a visual analogue scale, 8.5% reported mild pain, 59.7% moderate and 31.8% severe. Two hundred and thirty-six (55.7%) could not carry out their routine chores because of the pain while 181 (42.7%) had been absent from school because of painful menses. School absenteeism was significantly associated with severe pain.

Conclusion: This study has identified that dysmenorrhea is common among undergraduates. It is also associated with school absenteeism, especially in those that reported severe pain. Therefore, it has the potential to affect the academic performance of the affected students. It is recommended that university managements should provide basic care for dysmenorrheic students to improve their school attendance and ultimate performance.

Keywords: Dysmenorrhea, Menstrual pain, Menstruation, School absenteeism, Undergraduates.

Introduction

Dysmenorrhea is a common gynaecological complaint with varying severity and with the ability to affect the woman's daily routines. Dysmenorrhea, meaning painful menstruation, can be divided into two types. Primary (spasmodic) dysmenorrhea is painful menstruation in the absence of organic pelvic pathology and it is the commoner form in the years following menarche. On the other hand, the secondary (congestive) type is usually due to organic pelvic pathology. [1]

Dysmenorrhea is a common gynaecological complaint among adolescents and young women and may even be considered a public health

issue. The prevalence of dysmenorrhea varies widely depending on the population studied and the definition used in the study. In Ibadan, western Nigeria, a prevalence of 73% was reported among female secondary school students.[2] This compares well with the prevalence of 71.8% reported among adolescent school girls in Kwara State. [3] A higher prevalence of 85.4% has also been reported in a different study in Ethiopia. [4] These contrast with the prevalence of 51.1% reported among secondary school students in Enugu, eastern Nigeria. [5] and 42.5% in Kano, northern Nigeria. [6] Studies have shown that the prevalence rate can be as low as 20% and as high as 94%. [7]

Apart from the definition used in each study, pain is an individual perception and it is subjective. The severity of the pain also varies depending on individual perceptions and pain thresholds. Dysmenorrhea can be mild, moderate or severe. Studies have shown that most women will have mild to moderate pain, although the few with severe pain can be associated with some physical, social and emotional ill feelings. [7,8]

School absenteeism has been recognized as a common feature among young women with dysmenorrhea. [2,9] The frequency of school absenteeism varies depending on the perceived severity of the pain and its associated morbidities. In Ibadan, 13.1% of adolescent school girls that had dysmenorrhea reported school absenteeism during their menstruation. Of these, a subset of 15.9% was absent from school for every menstrual flow.[2] Another study in Ibadan reported school absenteeism in 39.5% of medical and nursing students that experienced dysmenorrhea.[10] Studies have also shown that those who can attend school may not be able to concentrate or participate in their class works. [2] School absenteeism will affect the academic performance of the student especially when it becomes a frequent occurrence. More so, universities usually insist on a particular level of

attendance of lectures to be able to qualify for examinations. The implications of dysmenorrhea are, therefore, many and are worth studying to be able to improve the reproductive health of women. There appears to be a paucity of data on this subject in the south-eastern part of the country as the only identified study in eastern Nigeria was done about ten years ago. The majority of the studies were on younger adolescents in secondary schools where there is significant school absenteeism due to dysmenorrhea. Whether the situation will be the same in older females was considered worth studying. The present study aimed to determine the prevalence of dysmenorrhea and the incidence of school absenteeism among female undergraduates with dysmenorrhea in an Eastern Nigerian University. The findings from this study may form a basis for advocacy to school managements to formulate a way to address common gynaecological challenges of adolescents and young adults.

Methods

Study population
The study was done among female undergraduates of the Nnamdi Azikiwe University located at Awka, Southeast Nigeria. Female students who were within their reproductive age and who still had their menstruation were included in the study. Excluded from the study were students who were pre-menarchial, those who have had a hysterectomy and those in the medical sciences.

Sample size and sampling method
The sample size was calculated using the formula [11] n = Z²pq/d² where n is the desired sample size (when the population is greater than 10,000), Z is the standard deviation, 1.96 at 95% confidence level, p is the prevalence of dysmenorrhea (73%) previously reported in Ibadan. q is 1.0 – *p* while d

is the degree of accuracy set at 0.05. A minimum sample size of 303 was calculated. Assuming a response rate of 80%, an adjustment was made using the formula N = n/0.8 to give the final sample size as 379. Altogether, a total of 583 respondents were interviewed.

To select the respondents, a list of all the faculties with their constituent departments was made. The college of health science which includes the faculty of medicine was excluded based on the assumption that their understanding of the condition and its management may skew the data. From the list of departments in each faculty, a department was randomly selected. For the selected departments, two levels of study were randomly selected (for a department of a four-year study, any two of the four levels can be selected). Each selected class was approached just before the commencement of a lecture. Thirty-five female members of the class were selected using systematic random sampling, the starting point having been determined using a table of random numbers.

Study design
This was a descriptive, cross-sectional study carried out among female undergraduate students, within their reproductive age, between September and December 2018. The study instrument was a semi-structured self-administered questionnaire that contained 21 items. The questionnaire was previously pre-tested among 50 female nursing students for completeness and correctness and necessary modifications were made. The first section of the questionnaire contained the socio-demographic characteristics of the respondents. Any respondent that answered 'yes' to painful menstruation was required to answer the remaining questions. They were asked to complete the questionnaire individually and they did it and submitted it before the commencement of their lecture. On average, it took about 15 minutes to complete the questionnaire.

Data analysis
The data were checked for completeness, coded and entered into the statistical software, Statistical Package for Social Sciences (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.). Descriptive data were presented as frequencies and tables. Association between variables was tested with the Chi-Square test. The Student's t-test was used to compare means of continuous data. A p-value less than 0.05 at 95% confidence interval defined statistical significance.

Ethical considerations
Ethical approval was obtained from the ethics committee of Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Awka, Anambra State. Information on the research was provided to the selected female students before obtaining their verbal consent.

Results

Out of the 583 questionnaires distributed, 516 were considered filled. The age range of the respondents was 16-40 years. The mean age of the respondents was 21.9+2.7 years with the modal age group being 20–25 years. The respondents were mostly Christians (96.9%), unmarried (93.2%) and had no previous childbirths (94.5%). The socio-demographic characteristics of the respondents are shown in Table I. Four hundred and twenty-four (82.2%) reported that they had painful menstruation.

Table I: Socio-demographic characteristics of the respondents

Variables		Frequency	Percentage
Age group (n = 519)	< 20 years	95	18.4
	20-25 years	368	71.3
	26-30 years	52	10.1
	> 30 years	1	0.2
Ethnicity (n = 516)	Igbo	472	91.5
	Yoruba	24	4.6
	Hausa	5	1.0
	Others	15	2.9
Religion (n = 516)	Christianity	500	96.9
	Islam	6	1.2
	Others	10	1.9
Marital status (n = 516)	Married	35	6.8
	Unmarried	481	93.2
Parity (n = 516)	Nullipara	488	94.6
	Primipara	13	2.5
	Multipara	15	2.9
Dysmenorrhea (n = 516)	Yes	424	82.2
	No	92	17.8

Of the 424 who had menstrual pain, 233 (54.9%) reported that their menstrual pain started at menarche. The commonest site of pain was the lower abdomen (72.9%), followed by the waist (29.0%). In most of the respondents (82.8%), the pain usually started at the onset of the menstrual flow. Two hundred and eighty-nine (68.2%) reported that their pain was most severe on the first day of the menstrual flow.

Fifty-four respondents (12.7%) reported they had mild pain, 208 (49.1%) reported moderate pain while 162 (38.2%) reported severe pain. When asked to mark the severity of their menstrual pain on Visual Analogue Scale of 1 to 10, 36 (8.5%) marked mild (points 1 – 3), 253 (59.7%) marked moderate (points 4 – 7) while 135 (31.8%) marked severe (points 8 – 10). Table II shows that most of the socio-demographic variables of the respondents were not significantly associated with having painful menstruation. Age of 25 years and below was significantly associated

with the report of dysmenorrhea among the respondents.

Out of those who had menstrual pain, 236 (55.7%) were not able to perform their routine chores. One hundred and eighty-one (42.7%) reported that they had been absent from school because of menstrual pain. Out of these 181, 30 (16.6%) would always be absent from school during their menses, 84 (46.4%) would be absent occasionally and 67 (37.0%) would rarely be absent from school during their menses. Reporting of severe menstrual pain was significantly associated with school absenteeism [mild pain (12/54) *vs.* moderate pain (64/208) *vs.* severe (105/162); X^2 = 47.1, p < 0.001]. Two hundred and sixty-seven (62.9%) of those who had dysmenorrhea had applied an intervention to achieve relief; 177 (66.3%) used conventional analgesics, 92 (34.5%) took hot water while 14 (5.2%) took alcoholic beverages. Table III shows that the mean age at menarche was significantly lower in those who reported painful menses.

Table II: Association between selected socio-demographic variables and the presence of dysmenorrhea

Variables		Dysmenorrhea		t-test	p-value
		Yes	No		
Age	≤ 25 years (n= 463)	387 (83.6)	76 (16.4)	5.25	0.02
	> 25 years (n = 53)	37 (69.8)	16 (30.2)		
Ethnicity	Igbo (n = 472)	391 (82.8)	81 (17.2)	2.68	0.41
	Hausa (n = 5)	4 (80.0)	1 (20.0)		
	Yoruba (n = 24)	17 (70.8)	7 (29.2)		
	Others	12 (80)	3 (20.0)		
Religion	Christianity (n = 500)	419 (82.2)	91 (17.8)	0.006	0.94
	Islam (n = 6)	5 (83.3)	1 (16.7)		
Marital status	Married (n = 35)	26 (74.3)	9 (25.7)	1.59	0.21
	Not married (n = 481)	398 (82.7)	83 (17.3)		
Previous childbirth	Yes (n = 28)	20 (71.4)	8 (28.6)	1.22	0.20
	No (n = 488)	404 (82.8)	84 (17.2)		
Age at menarche	Before 12 years (n = 92)	78 (84.8)	14 (15.2)	0.33	0.57
	12 years and above (n = 424)	328 (81.6)	72 (18.4)		

Figures in parentheses are percentages of the total in the respective row.

Table III: Comparison of the means of selected variables among respondents with or without dysmenorrhea

Variables	Dysmenorrhea		t-test	p-value
	Yes (n = 424)	No (n = 92)		
Age (Years)	21.9	22.2	1.21	0.23
Age at menarche (Years)	12.9	13.4	2.42	0.02
Duration of flow (Days)	4.7	4.6	0.82	0.42
Cycle length (Days)	27.5	27.7	0.43	0.67

Discussion

The present study has identified a prevalence rate of 82.2% for dysmenorrhea among female undergraduates. In more than half of the time, the dysmenorrhea started at the time of menarche and mainly started with the onset of the menses. The prevalence here is slightly higher than 73.0% that was recorded among secondary school girls in a different study in western Nigeria [2] but compared well with the rate reported from Hispanic adolescent female students. [9] There is much similarity between the prevalence rate in the present study and that from medical undergraduates in Ibadan, where the prevalence of dysmenorrhea was 82.1% [10] and 82% among secondary school students in Abakaliki, eastern Nigeria. [12] The prevalence reported among medical undergraduates from Maiduguri, northern Nigeria is slightly lower at

69.8% [13] compared to the finding in the present study. The present study was conducted among female undergraduates and it has reported a prevalence rate that compares well with rates from other studies done among undergraduates but higher than values reported by studies among secondary school students. It does then appear that dysmenorrhea is commoner among older females. It is possible that with increasing age, women may develop other pathologies that will contribute to the occurrence of dysmenorrhea.

Unlike the other sociodemographic parameters under consideration in the present study, younger age was significantly associated with dysmenorrhea in the present study. That younger age was significantly more likely to report dysmenorrhea may suggest that the bulk of the cases were primary dysmenorrhea. Primary dysmenorrhea usually starts at around the time of menarche and may stop or reduce after childbirth, although studies are conflicting on the veracity of this assertion. [7,10].

Other studies also identified an association between certain socio-demographic factors and the occurrence of dysmenorrhea including age at menarche. [14,15] In the present study, the mean age at menarche was significantly lower among the respondents with dysmenorrhea.

The reported severity of the pain varied among the respondents. This is as expected since pain is a subjective feeling and the perceived severity will depend on some factors including pain threshold. The majority of the respondents reported moderate to severe pain. This finding may indicate that dysmenorrhea is a significant morbidity among reproductive-age women, especially young women. However, this observation does not agree with the findings in Ibadan and Ethiopia where the pain was reported as mild to moderate. [2,16] This also explains why there is significant interference with activity in women with dysmenorrhea. In the present study,

more than half of the women would not be able to perform their usual activities because of dysmenorrhea. The pain was most severe on the first day of the menstrual flow which may suggest a preponderance of primary amenorrhea. This is similar to findings by Bello *et al.* among medical and nursing undergraduates.[10]

School absenteeism due to dysmenorrhea is also a significant issue as it may affect the overall academic performance of the student. The present study found that 42.7% of those that had dysmenorrhea had been absent from school due to menstrual pain and about 16.6% of these were regularly absent from school during their menses. The figures are higher than was reported in another Nigerian study,[2] similar to the report from India, [17] but lower than that from Ethiopia.[16] Another study showed a much lower incidence of 12% school absenteeism in students with dysmenorrhea [adolescent high school students referred for family planning counselling services]. [18] Although the present study did not assess the previous academic performances of the respondents and how school absenteeism has affected them, the impact of this can be enormous as students may miss examinations or do badly in the examinations because of lack of concentration. Expectedly, severe dysmenorrhea is associated more with school absenteeism. This has corroborated the report of Kareem *et al.* from Southwest Nigeria. [19] These findings are similar to those from other regions. [2,9] This goes to show that the problem transcends race and language. Another interesting finding among these undergraduates is that a good proportion of them used non-pharmacological and non-conventional approaches to address menstrual pain. This calls for improved and more effective ways of disseminating information on reproductive health issues to adolescents and young adults. This is important since another study had observed that some women did not feel it was necessary to seek appropriate health care for this

morbidity but rather believed it to be a natural event that must be lived with.[5]

The limitations in the study included the fact that the study depended on the report of the participants which may be fraught with poor recall or even over reportage. The study did not differentiate between primary and secondary dysmenorrhea as this could have changed some of the narratives in the discussion.

Conclusion

This study has identified that dysmenorrhea is common among female undergraduates and its association with school absenteeism, especially in those that reported severe pain. Therefore, it has the potential to affect the academic performance of students. It is recommended that university managements should provide appropriate care for common gynaecological morbidities including dysmenorrhea.

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