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PREVALENCE, SEVERITY, AND IMPACT OF DYSMENORRHEA ON THE WELLBEING OF FEMALE UNIVERSITY STUDENTS IN KENYA: A CROSS-SECTIONAL STUDY

Jim Amisi[1*], Maureen W. Chege[2], Susan M. Atieno[3], Nahashon G. Akunga[4], Felix Hosea[5] and Helmut Khol[6]

[1]Department of Pharmacology and Pharmacognosy, School of Pharmacy, Kabarak University, Nakuru, Kenya.

[2,3]Department of Pharmacology and Pharmacognosy, School of Pharmacy, Kabarak University, Nakuru, Kenya.

[4]Department of Preclinicals, School of Pharmacy, Kabarak University, Nakuru, Kenya.

[5]Pharmacovigilance, Dinlas Pharma Africa Limited, Nairobi, Kenya.

[6]Department of Public Health, School of Medicine and Health Sciences, Kabarak University, Kenya.

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***Corresponding Author**
Jim Amisi
Department of Pharmacology and Pharmacognosy, School of Pharmacy, Kabarak University, Nakuru, Kenya.

ABSTRACT

Dysmenorrhea is a disorder characterized by discomfort in the lower abdominal area experienced either before or while having menstrual periods. There is limited evidence on the prevalence, severity and effect on the physical, mental, and emotional health of female students in Kenya. This study, therefore, evaluated the prevalence, severity, and impact of dysmenorrhea on the wellbeing of female students in Kabarak University. A cross-sectional design was used to conduct the study with a sample of 334 obtained via random sampling technique. Open-ended and closed questionnaires were formulated and shared via an online Google form which was circulated to the target respondents on the social media platforms. Majority of the participants experienced their menarche between the ages of 13 and 15 years (66.7%), with menstruation lasting on average between 4 and 7 days (68.3%). The study found a high prevalence of dysmenorrhea of 72.5%, with majority of the students describing the severity of pain as very painful.

The study also showed that dysmenorrhea has negative impacts on the health, social, and academic lives of the students.

KEYWORDS: Dysmenorrhea, Prevalence, Severity, Wellbeing, Female students.

INTRODUCTION

Dysmenorrhea is a common gynecological disorder among adolescent girls and premenopausal women.[1] It is characterized by painful cramps in the lower abdomen prior to or during the menstrual period.[2] Generally, dysmenorrhea is classified into two categories: primary and secondary. Whereas primary dysmenorrhea has no identifiable underlying pelvic pathology, secondary dysmenorrhea is associated with pathological disorders, conditions, or abnormalities in uterine structure, such as endometriosis, fibroids, and pelvic inflammatory disease.[3,4] They also differ in terms of duration and prognosis, with primary dysmenorrhea lasting up to 8-72 hours and its prognosis often improves with age and postpartum as opposed to secondary dysmenorrhea which lasts more than 72 hours, with prognosis worsening with age and does not improve postpartum.[4]

The risk factors of dysmenorrhea are many and varied, including both modifiable and non-modifiable forms. For primary dysmenorrhea, some of the modifiable factors include smoking as nicotine induces vasoconstriction, alcohol and caffeine intake during menstruation, diet, underweight, obesity, and stress.[5–7] For instance, Hu and colleagues found that female students who were underweight had a higher risk of dysmenorrhea as compared to the average weight of students attributed to excessive release of prostaglandins as reduced amount of body fat has effect on the regular ovulation and menstrual cycle.[5] Examples of non-modifiable factors include longer and heavier menstrual flow, family history, and nulliparity.[8,9] The major risk factors for secondary dysmenorrhea include positive family history, endometriosis, and pelvic infections.[5]

Previous studies on dysmenorrhea show that the prevalence widely varies in different regions and age groups.[7,9–11] The World Health Organization (WHO) estimates the prevalence of dysmenorrhea in menstruating women to range from 16.8% to 81% globally.[12] However, some studies have reported higher prevalence rates, particularly among younger women.[7,11] In Kenya, there is a dearth of information on the prevalence of dysmenorrhea among women and, in particular, among female students. Only a recent study that assessed the impacts of

dysmenorrhea on academic engagements of female students in a Kenyan university showed the prevalence to be 82.4%.[13]

The severity of dysmenorrhea varies among different groups, with evidence suggesting that about 2-29% of women report severe symptoms of dysmenorrhea[7] compared to 4.67% of female university students.[14] The severity of symptoms is also correlated to negative impacts on the lives of females who experience dysmenorrhea.[11] Due to the negative impacts of dysmenorrhea on the wellbeing of adolescent girls and young women, some individuals resort to high doses of drugs to lower the pain, which is dangerous.[15] Although Kho and Shields suggested that dysmenorrhea has been normalized by female students who may have accepted the symptom as an inevitable response to menstruation,[4] dysmenorrhea adversely affects the quality of life and wellbeing and, therefore, needs to be addressed. However, there is limited evidence on the severity and effect on the physical, mental, and emotional health of female students in Kenya. Therefore, this present study assessed the prevalence, severity, and impact of dysmenorrhea on the wellbeing of female students in Kabarak University, Kenya.

METHODS

Study design

This was a cross-sectional study to obtain data on the prevalence, severity, and impact of dysmenorrhea using structured questionnaires. The target population was female students studying at Kabarak University within the age bracket of 18-30 years.

Sampling procedure

Random cluster sampling technique was employed. The female students from the School of Pharmacy (SOP) and School of Medicine and Health Sciences (SMHS) participated in the study and were divided into clusters based on the year of study.

Sample size

The sample size was determined using Cochran's formula[16]:

$$N_0 = \frac{(Z)^{2} * (p)\,(1-p)}{d^2}$$

$N_1 = n_0/(1+n_0/\text{population})$

N_1= needed return size of sample without estimated response rate factor

N_0= required return size of sample according to the Cochran formula

Z = The value of the standard normal distribution at a given level of significance (alpha)

d = Sampling error.

Taking a sampling error of 5 % (d=0.05), setting the level of significance alpha level of 0.05 (Z=1.96) and setting a priori 50% of respondents to be experiencing dysmenorrhea monthly (p=0.5;

$$n_0 = \frac{(1.96)^2*(0.5)\ (1-0.5)}{(0.05)^2}$$

=384

The estimated study population of female students in the SOP and SMHS was 600;

$N_1=n_0/(1+384/600)=234$

Using a potential rate of response of 70%, a sample size of 334 was used for this study.

Inclusion criteria

Female students in session at Kabarak University during the study period aged between 18 and 30 years were eligible to participate in the study. Only the female students in the School of Pharmacy and School of Medicine and Health Sciences participated in the study.

Exclusion criteria

Female students below the age of 17 years or above 30 years were excluded from the study. Besides, female students who were not in the School of Pharmacy and School of Medicine and Health Sciences were excluded. Female students aged above the age of 18 and below 30 years were targeted because they are the ones most likely to benefit from the study findings, as this is the typical age range of the student population in a university setup. Moreover, females aged below 18 are considered minors, and parental consent might be required necessitating additional ethical considerations.

Data collection

Open-ended and closed questionnaires were administered to study participants to collect data on prevalence, severity, and impact of dysmenorrhea. The questionnaires were formulated and shared online using the Google Form tool and administered through social media to the various class groups. The participants filled in the questionnaires and responses were collected.

Data processing and analysis

During data collection there was use of automated checks to ensure previous questions were answered before moving on to the next questions. Daily checking of data entries was done to ensure conformity. After data collection, thorough data cleaning was performed to identify out-of-range values and missing entries**.** The collected data was cleaned and organized using Microsoft excel. IBM-SPSS v29 was employed to analyze the data. Descriptive statistics, mean, mode, median, percentages, and proportions, were employed when performing data analysis. Tables and bar graphs were used to display the findings.

Ethical consideration

Ethics approval of the study was duly obtained from the Research and Ethics Committee of Kabarak University. Informed consent of the participants was also obtained.

RESULTS

A total of 240 female students gave their responses.

Age when the first monthly period was experienced

Respondents were asked to indicate their age when they experienced their first monthly period.

Table 1: Age when the first monthly period was experienced.

	Frequency	Percentages
9-12 years	51	21.3
13-15 years	160	66.7
16 -18 years	18	7.5
Above 18 years	2	0.8
Don’t know	9	3.8

The study found that majority of the respondents (66.7%) had their first monthly period at the age of between 13-15 years, 21.3% between 9 -12 years, 7.5% between 16-18 years, and only 0.8% above 18 years. Another 3.8% did not know when they first experienced their monthly period. This shows that on average, girls typically begin menstruating between the ages of 13 and 15. However, it is normal for this to occur anytime between the ages of 9 and 18, giving a range of 9 years.

Duration of the menses

Respondents were asked to provide the duration of their menses.

Table 2: Duration of the menses.

	Frequency	Percentages
1-3 days	61	25.4
4-7 days	164	68.3
More than 7 days	08	3.3
Don't know	07	2.9

The study found that majority of the respondents (68.3%) had their menstrual period lasting between 4-7 days, 25.4% indicated 1-3 days, while 3.3% indicated more than 7 days. About 2.9% did not know the duration of their menses. This shows that the duration of a menstrual period varies among individuals, but it typically lasts between 3 to 7 days. Some girls may experience shorter periods, while others may have longer ones.

Description of the monthly period as regular or irregular

Respondents were asked to describe their monthly period as regular or irregular.

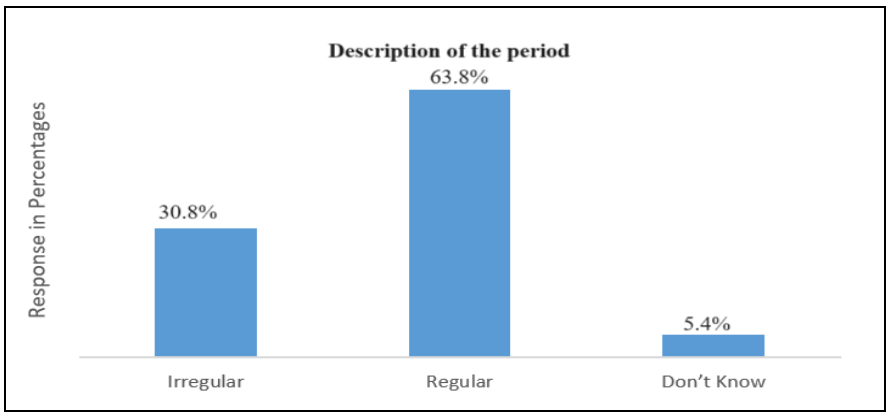

Fig. 1: Description of the monthly period as regular or irregular.

The study established that most of the girls (respondents) described their period as regular as indicated by almost two-thirds of the respondents (63.8%), 30.8% indicated irregular, and 5.4% did not know how to classify their period. This shows that most of the girls had regular menstrual periods.

Experiences of painful cramps during monthly periods

Table 3: Experiences of painful cramps.

	Frequency	Percentages
Yes	174	72.5
No	10	4.2
Rarely	49	20.4
Can't tell	7	2.9

The study found that majority of the respondents at 72.5% had experienced painful cramps during their monthly periods, 20.4% rarely experience painful cramps, while 4.2% do not experience painful cramps at all. The rest, 2.9% could not tell whether they experienced painful cramps during their monthly periods. These findings show that most of the respondents experienced painful cramps during their monthly periods.

Pain severity

Respondents also rated their pain severity on a scale of 1 to 10.

Table 4: Pain severity on a scale of 1-10.

Description of the pain	Scale	Frequency	Percentages
Mild pain	1 to 4	23	9.6
Moderate pain	5	64	26.7
Severe pain	6 to 10	153	63.8

The study found that majority of the respondents, 63.8% experienced very painful cramps during their menses, 26.7% rated their pain as average, while only 9.6% indicated mild pain based on their rating. This shows that although the severity of pain can vary widely, majority of the girls experience very painful cramps. However, for some, the cramps are mild and manageable.

Location on the body where menstrual pain is experienced

Table 5: Location on the body where one experiences the pain.

	Frequency	Percentages
Lower Abdomen	114	47.5
Back	83	34.6
Both Legs and Back	22	9.2
Others	21	8.8

The study established that majority of the respondents (47.5%) witnessed their menstrual pain in the lower abdomen, 34.6% indicated back pain, 9.2% indicated both legs and back, while 8.8% indicated other parts of their bodies such as hips.

Frequency of the pain

Table 6: Frequency of The Pain.

	Frequency	Percentages
Just before the menses	57	23.8
During the menses	118	49.2
After the menses	6	2.5
Before and during the menses	64	26.7

According to the study findings, majority of the respondents at 49.2% experience pain during their menses, 26.7% indicated before and during the menses, 23.8% just before the menses, while 2.5% indicated after the menses. This shows that many girls experience cramps during their period, especially in the first few days when the uterine lining is shedding.

Other symptoms associated with dysmenorrhea

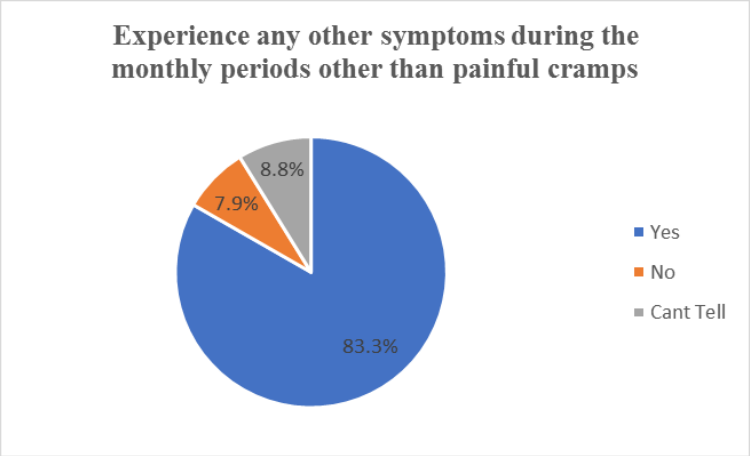

Fig. 2: Other symptoms associated with dysmenorrhea.

The study found that most of the respondents experience other symptoms during the monthly periods other than painful cramps, as shown by 83.3% of the respondents, 8.8% were not sure, while 7.9% indicated otherwise. These other symptoms included bloating, breast tenderness, which implies soreness or swelling in the breasts; changes in mood, such as irritability, anxiety, or depression; migraines or tension headaches; fatigue; nausea; and changes in bowel habits, like diarrhea or constipation.

Impact of dysmenorrhea on the quality of life

Table 7: Effect of painful cramps on relationship with friends.

	Frequency	Percentages
Yes	87	36.3
Sometimes	84	35.0
No	51	21.3
Cannot tell	18	7.5

The study established that 36.3% of the respondents confessed that painful cramps affect their relationship with friends, 35.0% indicated that sometimes it affected their relationship, 21.3% indicated that there was no effect at all, while 7.5% could not tell. This shows that painful cramps affected their relationship with friends.

Impact of dysmenorrhea on the wellbeing

Table 8: Impacts of dysmenorrhea on the wellbeing.

Painful cramps affect your performance in school	Yes	32	13.3
	No	69	28.8
	Sometimes	122	50.8
	Can't tell	17	7.1
Ever missed school or an academic activity due to dysmenorrhea	Yes	127	52.9
	No	74	30.8
	Can't tell	39	16.3
Dysmenorrhea affects your ability to concentrate during classes or studying	Yes	178	74.2
	No	33	13.8
	Can't tell	29	12.1
You feel comfortable talking about dysmenorrhea -related issues with others	Yes	39	16.3
	No	201	83.8
Ever experience stigma related to discussing painful menses	Yes	32	13.3
	No	208	86.7

The study found that half of the respondents at 50.8% sometimes have their painful cramps affecting their performance in school, 28.8% indicated no effect at all, while 13.3% confirmed that it sometimes affected them. However, 7.1% could not tell whether it affects or not. On whether they ever missed school or an academic activity due to dysmenorrhea, majority of the respondents at 52.9% agreed with the statement, 30.8% disagreed, while 16.3% neither agreed nor disagreed. On whether dysmenorrhea affected their ability to concentrate during classes or studying, the majority at 74.2% confirmed the statement, 13.8% disagreed, while 12.1% could not tell. On whether they felt comfortable talking about dysmenorrhea-related issues with others, majority of the respondents at 83.8% indicated that they were not comfortable, while only 16.3% felt comfortable. When asked on whether they experience stigma related to discussing painful menses, majority of the respondents at 86.7% indicated that they did not experience any stigma, while 13.3% indicated that they experienced stigma.

DISCUSSION

The pain experienced in females who suffer dysmenorrhea is usually located on the lower back of the body and may radiate to the legs and the back. The pain can also radiate to other parts of the body, including the back, legs and hip, leading to general widespread discomfort. Other symptoms associated with dysmenorrhea include bloating, irritability, anxiety, depression, migraines, tension headaches, fatigue, nausea, vomiting, diarrhea, and constipation. Hypersecretion of prostaglandins from the uterine inner lining is one of the major causes of dysmenorrhea. Prostaglandins F2 alpha and E increase uterine contractions

and pressure, causing expulsion of the endometrial tissue and reducing blood flow to the myometrium, which leads to pain and ischemia.

According to the present study, girls generally begin menstruating between the ages of 13 and 15 years, when the majority experience menarche. Most of the respondents reported experiencing their menstruation for a duration of 4 to 7 days, and there was variation in the responses on the duration of menses, indicating that some participants had shorter durations while others had longer durations that exceeded 7 days. Majority of the respondents described their symptoms as regular. These results are consistent with the findings of a study carried out in Indonesia that showed that there is a significant relationship between the occurrence of primary dysmenorrhea and the regularity of the menstrual cycle.[17] According to the study, females with irregular cycles have an increased risk of experiencing primary dysmenorrhea in comparison to those with regular cycles. The results are also consistent with the one carried out on young women in Vilnius University, which showed that dysmenorrhea is more common with nulliparous young women who have irregular menses of a duration of 4-7 days.[18] Other causes of irregular menses include stress, polycystic ovarian syndrome, use of intrauterine devices, and extreme exercises.[19]

The prevalence of dysmenorrhea among females at Kabarak University has been found to be 72.5%. The general factors that have been identified to contribute to the occurrence of dysmenorrhea include polyps in the pelvic cavity, infections, uterine fibroids, and pelvic inflammatory disease. The findings of this study on the prevalence of dysmenorrhea vary from those carried out in other universities that showed the prevalence of 80.9% in Lebabon,[8] 68.1% in Ghana,[20] and 68.5% in Nigeria.[21] The variations in the findings from the previous studies could be due to the different geographical locations of the study populations and also differences in genetics, lifestyle, age of the participants, and sample sizes in the studies.[22]

Pain intensity experienced during menses varies among females and can be described as mild, moderate, or severe. The variation in pain could be due to factors such as family history, psychological status, social, and cultural influences.[21] This study has established that majority of the female students at Kabarak University suffer moderate-severe menstrual pain. The study is in agreement with Ullah et al., who also reported that moderate-severe painful menstruation is common among females studying in the university.[22] In contrast, some studies have reported the occurrence of mild pain.[7,23] The risk factors that are associated

with increasing pain severity among women experiencing dysmenorrhea include early menarche, age, heavier bleeding, smoking, longer menstrual periods, and positive family history.[1] Ethnic and cultural influences have also been reported to influence how people perceive, handle, communicate, and experience pain.[24]

The present study has shown that dysmenorrhea has negative effects on the wellbeing of female students in Kabarak University, especially on class attendance, the ability to concentrate in class, and relationships with friends. These could result from the emotional changes that occur in an individual during the experience of menstruation. The findings of this present study are in line with Durand et al.'s study that reported that dysmenorrhea affects the ability of students to study, concentrate, and complete class assignments.[25] Dysmenorrhea leads to changes in mood, bloating, fatigue, breast tenderness, and loss of appetite. In addition, dysmenorrhea can cause relationship constraints that affect women psychologically.[26] Moreover, dysmenorrhea negatively affects quality of life, leading to decreased productivity, withdrawal from peers, and mental problems such as depression and anxiety.[7,21,27,28] Unnisa and colleagues reported that 1 in 3 women complain of constraints during daily activities because of dysmenorrhea, and about 10% of women who have serious dysmenorrhea symptoms are left confined to bed for at least 1 to 3 days.[27] Because of these symptoms, it therefore means that dysmenorrhea can have negative impacts on mental health and the general wellbeing of an individual.

CONCLUSION

This study highlights the prevalence, severity, and impact of dysmenorrhea on the wellbeing of female university students. The findings suggest that majority of students experience moderate to severe pain that negatively affects their ability to function in personal and academic settings. The study emphasizes the need for more clinical research, alongside health education initiatives, to raise menstrual health awareness, reduce stigma around dysmenorrhea, and improve both assessment and management of menstrual pain for better overall wellbeing.

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