Research Article   Open Access

Prevalence, Impact and Management Practice of Dysmenorrhea among Wollo University Female Students, North East Ethiopia

Yohannes Mengesha* and Wendimu Haile

Pharmaceutics Unit, College of Medicine and Health Science, Wollo University, Ethiopia

***Corresponding author:** Yohannes Mengesha Pharmaceutics Unit, College of Medicine and Health Science, Wollo University, Ethiopia, Tel: +251913837244, E-mail: wendimuhai@gmail.com; joymengesha@gmail.com

Abstract

Background: Dysmenorrhoea is pain during menstruation that occurs in most girls of adolescent age associated with some degree of pain and discomfort which may affect their daily activities. This also appears to be the leading cause of absenteeism from class and it affects the academic performance of female students. This study aims to assess the prevalence, impact and management practice of dysmenorrhoea in wollo university female students.

Methods: A cross-sectional study using a self-administered questionnaire was used to obtain data from 380 female students from February 25 to March 16/2019, in wollo university Dessie campus. Multistage sampling was used to select study units and simple random sampling was used to select the participants. The data was analyzed and interpreted using the SPSS version 23 software.

Results: the prevalence of dysmenorrhoea was 92.2%. The most widely observed influence of dysmenorrhoea was the loss of attention (44%). Two third of the females (66.1%) experienced a practicing management strategy and the most widely used method was home remedies that account for 31% and more than one third (38.2%) of the participants took medication. The most frequently used medication was diclofenac that accounts for 11.5%.

Conclusion: This study showed that a high proportion of wollo university female students had dysmenorrhoea; it affected their academic (loss of attention) performance. Home remedies were the most commonly practiced management strategies.

Keywords: Dysmenorrhoea; Wollo University; Management; Impact

Introduction

Dysmenorrhoea is the occurrence of monthly painful cramps at the time of menstruation or just after menstruation [1]. Ethiopian standard treatment guideline (STG) defines dysmenorrhea simply as excess pain during menses [2]. Signs and symptoms of dysmenorrhoea are considered to be related to the secretion of prostaglandin, which induces uterine contraction, thus reducing uterine blood flow leading to uterine hypoxia and pain [3]. The most prominent symptoms of dysmenorrhoea are lower abdominal pain, back pain, headache, nausea, vomiting, fatigue and weakness [4]. Primary dysmenorrhoea is believed to be increased prostaglandin production [1] whereas secondary dysmenorrhoea is due to outflow obstruction, pelvic tumors, and infections [5].

Dysmenorrhoea is a common gynecological condition that affects most of the women, special for those workforces at younger age [6]. Ethiopian STG expresses as it affects around 50% of women during their menstruation period [2]. Dysmenorrhoea has several impacts on the patient, family, economy, academic, public, sports activity, and occupational health, diminishes opportunities for successful educational, psychosocial, and cognitive development during the critical period of adolescent growth. Dysmenorrhea can be treated with pharmacological or non-pharmacological methods. Dysmenorrhea can be treated pharmacologically with Non-steroidal anti-inflammatory drugs (NSAIDs), oral contraceptives (OC), and others. NSAIDs are the most widely used medication in dysmenorrheal treatment which is used to relieve menstruation pain because they inhibit the synthesis of prostaglandins [4].

Dysmenorrhea has several impacts on the women's' quality of life, academic performance (absenteeism and unable to study), economy, working are, social life, psychological impacts 7 Overall academic performance of the women decreases, due to this many women student academically dismissed from learning and teaching programs. Self-management practice has also its impact and few females take medications without knowledge on the maximum daily dose and side effects of their medication from different sources adding on this Dysmenorrhoea prevalence is not well known in this study area. The study aimed was to investigate the prevalence, impact and management practices of female students at Wollo University.

Methods

Study setting and periods

An institution based cross-sectional study design was conducted. This study was conducted from February 25 to March 16/2019, in wollo university (WU) Dessie campus. Wollo University is one of the higher education institutions in Ethiopia established in 2007. It is found 401 km away from the capital city of Ethiopia, Addis Ababa. It has two campuses. The Dessie campus of Wollo University had two schools and seven colleges. The campus serves more than 7797 students and of the 3351 students are female.

Sample size and sampling procedure

The sample size of this study was calculated using population proportion formula by taking into consideration ρ is the prevalence of dysmenorrhea, (0.5[50%]) [8], the marginal error of 5% ($d = 0.05$) and 95% confidence level = 1.96; the sample size calculated was 380. Female regular students who are available during the data collection period and who gave consent to participate and who were from colleges and schools from the first year to sixth year batches selected randomly were included in the study. Females who first participate in the pre-test data were excluded from the study to avoid bias. A self-administered questioner was prepared to collect the data. Stratified multi-stage sampling and simple random sampling method was used to select the college, department and participants.

Data Collection and Management

The data collection instrument was taken from previous studies and prepared in English. This was translated to Amharic local language and then back to English in order to ensure that the translated version gives proper meaning. The questionnaire had three main parts concerned on socio-demographic characteristics, prevalence, impact and management practice of dysmenorrhea. The instrument was pretested on 20 students who were not included in the final analysis and relevant modifications were included before the beginning of the study. The data were collected by five clinical pharmacy students through interviewer-administered questionnaires and face to- face interview by explaining the questions for those who were unable to understand. The investigators who collected the data were properly trained on the instrument and ways of approaching the students and securing their permission for interview prior to the data collection process.

Data analysis

The collected data using quantitative method were cleaned, entered into, and analyzed using IBM SPSS version 23. In the study, socio-demographic characteristics, prevalence, impact, and management practice of dysmenorrhea were described using frequencies, percentage, and mean and standard deviation.

Ethical considerations

Ethical clearance was issued from the College of Medicine and Health Science Ethical Committee, Wollo University (CMHS/229/028/19) and the purpose of the study was explained before the interview. Verbal consent was obtained from each participant. To ensure the participant's confidentiality, participants were not identified by names.

Results

Socio-demographic factors of participants

In this study 380 students were interviewed, 348 returned the questionnaire providing a response rate of 91.5%. The dominant age range of the participants was 19-21, 237(68.1%). The study was conducted among 52% (181) rural and 48% (167) urban students of WU Dessie campus regular female students. 76.4% (266) of them were non-medical students and 32.5% (113) were third-year students (Table 1).

Table 1: Socio-demographic factors of WU female students in 2019

Variable	Frequency	Percentage
Age		
16-18	20	5.7
19-21	237	68.1
22-25	87	25
>25	4	1.1
Religion of participants		
Orthodox	257	73.9
Muslim	64	18.4
Catholic	4	1.1
Protestant	23	6.6
Educational level		
First year	105	30.2
Second year	105	30.2
Third year	113	32.5
Fourth year	13	3.7
Fifth year	11	3.2
Sixth year	1	0.3
College of the participants		
Medical	82	23.6
Non-medical	266	76.4

Menstruation related information

Menstruation related information was collected concerning the age of the menarche, regular or irregularity of menstruation and bleeding time of the participants. About 2.3 %(8) of the female have early menarche (before the age of 11 years old)

and 9.2% (32) have late menarche (after the age of 18 years old). More than half of the respondents, 58.9% (205) had started menstruating between 15-17 years of age. Among 348 respondents 78.7% (274) had regular menstruation cycle and 6.0% (21) had irregular menstruation cycle. 66.4% (231) had a bleeding time of 3-4 days and 3.2% (11) of the female has a bleeding time of >7 days, but only 6% (2) get treatment (Table 2).

Table 2: Menstruation related information of WU Dessie female students, 2019

Variable	frequency	Percentage
Age at menarche (years)		
9-11	8	2.3
12-14	103	29.6
15-17	205	58.9
>18	32	9.2
Menstrual cycle		
Every month (28 days)	274	78.7
Between 1-2 months	53	15.2
Every 3 month	14	4
>3 months	7	2
Days of menstrual bleeding (days)		
1-2	17	4.9
3-4	231	66.4
5-7	89	25.6
>7	11	3.2
Treatment for >7 days bleeding		
Yes	2	
No	9	

History of dysmenorrhoea, family history of dysmenorrhoea and other factors related to dysmenorrhoea

From 348 of the total respondents, 92.2% (321) have a history of dysmenorrhoea and more than half of the respondents, 58 % (202) have a family history of dysmenorrhoea and 46(13.2%) of them do not know whether they have or no family history of dysmenorrhoea. 32.8% (114) of them were associated with their sisters (Table 3). The most prevalent signs and symptoms of dysmenorrhoea as a single symptom was abdominal pain accounts 114 (32.8%), but most of the female develop a combination of symptom that accounts 35.9% (125) (Figure 1).

Of the total 348 respondents who have a history of dysmenorrhoea only19.5% (68) consult a physician for their dysmenorrhoea. More than half of the respondents 53.7% (187) reported that they develop the pain before the menses and 67% (233) of them develop intermittent pain.

Table 3: History of dysmenorrhoea, family history of dysmenorrhoea, types of pain, time at which the pain occurs and physician consulting habits of WU female students, 2019

Variable	frequency	percentage
History of dysmenorrhoea		
Yes	321	92.2
No	27	7.8
Family history of dysmenorrhoea		
Yes	202	58
No	73	21
I do not know	46	13.2
Who of your family has a history		
Mother	64	18.4
Sister	114	32.8
Aunt	16	4.6
More than one	8	2.3
Type of pain you develop		
Continuous	88	25.3
Intermittent	233	67
When does your dysmenorrhoea occur		
Before the menarche	187	53.7
During the menarche	123	35.3
After the menarche	11	3.2
Physician consultation		
Yes	68	19.5
No	253	72.7

Figure 1: signs and symptoms of dysmenorrhea that WU Dessie female students experience

Management practice of dysmenorrhoea

Concerning the management practices of dysmenorrhoea, From 348 respondents, 66.1% (230) were practicing different management strategies for their dysmenorrhoea. From these, 31.0% (108) practices home remedies and 5.5% (19) consult a physician and take medication (Table 4).

Table 4: Management practice of wollo university female students towards dysmenorrhea, 2019

Variable	Frequency	percentage
Have you manage your dysmenorrhoea		
Yes	230	66.1
No	91	26.1
Type of management practice		
Sport activity	15	4.3
Home remedies	108	31
Massage	19	5.5
Medication	19	5.5
Combination of practice	69	19.8

Impact of dysmenorrhoea

Accordingly, 82.8% (288) of the respondents faced the challenges of dysmenorrhoea. Academic, social and psychological impacts were assessed and the results were 18.4% (64), 9.2% (32) and 10.4% (36) respectively. Most of the students were faced with many challenges or a combination of impacts that accounts for 31.3% (109). This combination of impact includes social, academic and psychological impacts. Loss of attention (48%) and loss of appetite and sleep were the prevalent impacts of dysmenorrhoea in this study (Figure 2).
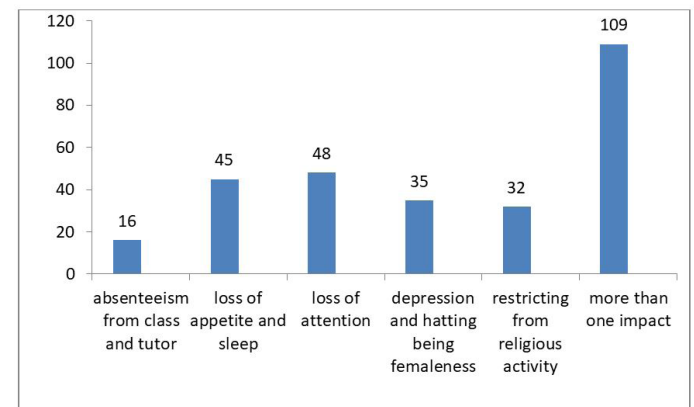

Figure 2: impact of dysmenorrhea among WU female students, 2019

Medication history of participants

From those who had dysmenorrhoea (321), 38.2% (133) of them take medication for their pain. Reasons for their medication history were assessed, and 106(30.5%) of them take medication because of the severity of pain and 1.4 %(5) of them take medication because they were aware. 17% (59) of 133 take medication prescribed by physicians and 15.5% (54) from community pharmacies. 28.7% (100) of them take medication during the menarche and one-third of the students take their medication as required (30.5%). The common medication was diclofenac
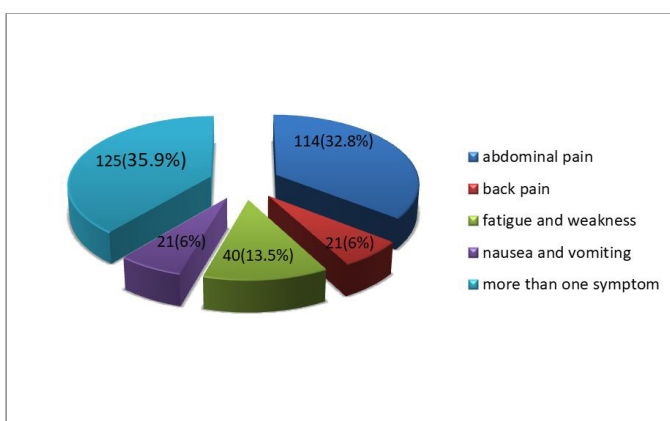
that accounts 11.5% (40) and the least used medication was morphine 0.3% (1). From those who take medication 17.2 %(60) and 25.6% (89) of them know the side effects and daily maximum doses of their medication respectively (Table 5).

Table 5: Medication history, awareness of participants on daily maximum dose and side effects of medications used among wollo university female students, 2019

Variable	Frequency	percentage
Type of medication		
Diclofenac	40	11.5
Paracetamol	12	3.4
Ibuprofen	28	8
Tramadol	14	4
Contraceptives	6	1.7
Morphine	1	0.3
Reason for medication		
Physician consultation	21	6
The Severity of pain	106	30.5
Awareness	5	1.4
More than one reason	1	0.3
Where do you get the medication		
Community pharmacy	54	15.5
Sharing from friends	16	4.6
Leftover	4	1.1
Prescribed	19	17
When you take your medication		
Before the menarche	30	8.6
During the menarche	100	28.7
After the menarche	3	0.9
Frequency of medication taking		
As needed	106	30.5
Twice daily	21	6
Three times a day	6	1.7
Route of administration		
By mouth	117	33.6
Injection	9	2.6
Rectal	1	0.3
Vaginal	1	0.3
More routes used	5	1.4
The Side effect of the medication		
Yes	60	17.2
No	73	21

Discussion

The overall prevalence of dysmenorrhoea among 348 wollo university female students was found to be 92.2% and 58.0% of them had a family history of dysmenorrhea.The prevalence was greater than a study done in North West Ethiopia, Debremarkos (69.3%) [9], Italy (84.1%) [10], Nigeria (78.1%) [11], Egypt (62 %) [12]. Thus, in a nutshell, the prevalence of dysmenorrhoea among female students of wollo university Dessie campus is very high. This difference in prevalence might be due to socio-cultural differences of participants, the involvement of a large number of adolescents in this study and different populations. Family history of dysmenorrhoea in this study was 58.0% in comparison to other research that was 69.62% in India [13], and 50.6% in Gonder university students [8].

About 67 % of the respondents' develop an intermittent type of pain. This is almost opposite to the type of pain reported from Gondar University that was 35.5% continuous type of pain [8]. Only 19.5% consult physicians, this is in agreement with the consultation behavior of Gonder university students (16.2%) [8], and 15.73% in India among physiotherapy students [13] but Greater than a study done in Nigeria (7.8%) [11]. This difference might due to the subjective features of symptoms.

In this study, the most suffering type of dysmenorrhoea pain experienced is abdominal pain (32.8%) and a combination of symptoms (35.9%). The results reported in my study are by far lower than a study done in Debrebirhan, Ethiopia (89%) [14] and Pradesh India (84.81%) [13].

The students were asked whether they have faced or not to the impact of dysmenorrhoea. Accordingly, 82.8% of the respondents faced the challenges of dysmenorrhoea. Academic, social and psychological impacts were assessed and close to 19% of participants experienced the academic impact of dysmenorrhoea which is School absenteeism. In contrast, studies conducted in Ghana [15] and Iran [16] reported lower percentages (9.5%, and 10.8%, respectively) of school absenteeism this difference may be due to poor dysmenorrhea management techniques enrolled by the students.

Regarding the management of dysmenorrhea, about 66 % of the participants have believed that they have managed the pain. Home remedies (31%) were the most commonly used management strategy to reduce pain due to dysmenorrhea but only 6% of them consulted a physician and used medication (5.5%). This result was by far lower than a study done in Nigeria (7.9%) [11] and about 28 % of the students have used over the counter NSAIDs in which diclofenac was the most used medication (11.5%). This value was lower than a study done in Nigeria in which 29.3% of the participants managed themselves with over-the-counter medications [17]. This difference in management practices might have been due to knowledge, attitude, and management practice gaps of dysmenorrhea between these population groups.

Concerning the awareness of the students about the medications used only 17.2% of the respondents are aware of the side effects of the drugs used. This result was in agreement with a study done in Gonder University, Ethiopia (22.9%) [8].

Limitation

Irrespective of the type of dysmenorrhea both the primary and secondary dysmenorrhea were investigated without discrimination so that menstrual pain of both of the conditions was considered. Grades of the pain and Specific home remedy practice of the students were not assessed.

Conclusion

Dysmenorrhea is a prevalent complaint among female students among Wollo University female students and had a greater influence on the academic (loss of attention) performnce. Home remedies were the most commonly practiced management strategies. The academic staff and the healthcare professional should provide the relevant psychological and appropriate pharmacological support for those students who are in need to enhance the educational performance of female students.

Acknowledgment

The authors like to acknowledge wollo university registrar office staffs and study participants who are wollo university female students for their cooperation throughout the data collection

Data Availability

Most of the data available was shared on the document. However, the datasets used and analyzed are available from the author on any request.

Author contributions

YM was involved in the design of the study, analysis of the raw data and preparation of the manuscript, and WH has been involved in raw data collection and analysis. Both authors have gone through the study and approved the final manuscript.

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