

Epidemiology of Dysmenorrhea among University of Dschang Students (West Region, Cameroon): A Cross-Sectional Study

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Abstract

➤ *Background:*

Dysmenorrhea is a menstrual disorder in the world, affecting approximately 40-90% of women. Various factors have been associated with its appearance such as age of menarche, menstrual period, childbirth, family history of dysmenorrhea, among others. In order to provide information (data) on epidemiological dysmenorrhea in Cameroon, some studies were done at the University of Dschang-Cameroon.

➤ *Methodology:*

Cross-sectional descriptive study using self-administered questionnaire.

➤ *Results:*

The prevalence of dysmenorrhea among 689 young dysmenorrheic university students in this study was 63.86%. The percentage distribution for the various degrees of severity of dysmenorrhea in 440 students was 12.95%, 54.09%, and 25.90% for mild, moderate and severe dysmenorrhea respectively. About 23.10% of respondents with dysmenorrhea had absented themselves from class at some time, with 20.51% to lectures, 1.65% TD/TP and 0.94% to exams. The risk of having dysmenorrhea was 4.29 times in the participants who had a family history of dysmenorrhea (OR = 4.29, 95% CI 1.09 to 6.02), and this risk is higher when menstrual bleeding occurs for more than 7 (seven) days (72.22%).

➤ *Conclusion:*

Dysmenorrhea is a disease that has a high prevalence and significant impact on absenteeism from campus. Family history of dysmenorrhea and menstrual bleeding time were most positively associated with dysmenorrhea. The correct approach to manage girl students with dysmenorrhea can reduce the adverse impact of severe dysmenorrhea on academic activities in the form of class absenteeism.

Keywords:- Dysmenorrhea, Epidemiology, Students, University of Dschang.

I. INTRODUCTION

Dysmenorrhea is a common gynecological condition with painful menstrual cramps, of uterine origin. Two categories of dysmenorrhea are primary and secondary dysmenorrhea. Primary dysmenorrhea refers to menstrual pain without any pelvic pathology. These symptoms have underlying causes of elevated endometrial prostaglandins and their metabolites.^[1] It is a major health problem worldwide because it affects approximately 40-90% of women in the world, among whom 5-14% undergo frequent school absenteeism, and 13-51% adult women used to be absent at least once in their life at school or work. In the United States of America for example, about 600 million hours of labor and 2000 million dollars would be lost every year for that reason alone.^[2,3] Several studies in different countries have explored the various factors associated with the onset of dysmenorrhea that are the characteristics of the menstrual cycle, gynecological history, personal history and lifestyle.^[4,5,6,7,8,9] The purpose of this study was to assess the state of dysmenorrhea in the Dschang University, specifically to determine the prevalence and factors associated with dysmenorrhea, to evaluate the impact of this disease on academic activities and to describe the means commonly used to manage the pain.

II. MATERIALS AND METHODS

This was a cross-sectional study using a voluntary survey conducted anonymously on Dschang University students. The study took place over a period of 07 months (April-November 2014). The researchers estimated the sample size using Lorentz calculator assuming a response rate of 50% and confidence level of 95%.

The estimated size was 384, however, the researchers decided to distribute 1000 questionnaires to account for any un-expected scenarios of rejection to participate. Participants were interviewed (survey form) directly (in French or English) about their identity, their menstruation, dysmenorrhea, clinical signs accompanying dysmenorrhea and its risk factors and, finally, calming drugs or treatment drugs consumed to reduce dysmenorrhea. Taking part in the study, were students of puberty age in the University of Dschang; excluded from the studies, were all students

pregnant and having pelvic pathologies such as fibroids, adenomyosis, sexually transmitted infections, endometriosis, pelvic inflammatory disease, ovarian cyst or tumor. The variables that were assessed in the survey were age, menarche, duration and regularity of menstrual cycle, family history of dysmenorrhea and childbirth, history of menstrual pain, frequency and intensity of the pain, smoking, alcohol, sport activities, medication use, and school absenteeism.

Data obtained after counting the survey were analyzed using Epi Info version 6.0. Descriptive statistics used to calculate mean and percentage for most the variables. A Pearson Chi-square test was used to determine the association between variables. $P < 0.05$ of the test measures were considered statistically significant. This study was conducted after obtaining a research certificate from the Head of the Department of Biochemistry, University of Dschang Cameroon, with the approval of the Bioethics Initiative (Cambin) under reference:

CBI/313/CARE/Cambin, the Protocol 1009 and the informed and voluntary consent of the student.

III. RESULT

Six hundred and eighty-nine (689 representing 91.13%) of the 756 students sampled had their questionnaires completed and returned. All the students who returned their completed questionnaires had stated their ages and dates of birth in response to the first question on the questionnaire. The prevalence of dysmenorrhea was 63.86% with 21.1% causing absenteeism from school (20.51% in lectures, 1.65% in tutorials and 0.94% in the exams).

Table 1 presents the prevalence of dysmenorrhea in respondents according to their level of education. Whatever the level of education, at least 60% of participants suffered from dysmenorrhea. However, the rates were slightly higher for those who do graduate work (Master and Ph.D).

Level of education	Withdysmenorrhea		Withoutdysmenorrhea		Total
	Number	(%)	Number	(%)	
1	162	60	108	40.0	270
2	131	70.43	55	29.57	186
3	76	60.31	50	39.69	126
4	30	75.0	10	25.0	40
5	16	75.19	05	23.81	21
Ph.D	14	100.0	00	00.0	14
Total	419	100	228	100	657

Table 1:- Frequency of distribution of participants according to level of education.

Figure 1 shows the distribution of dysmenorrhoeic participants by age group. The most affected age group was between 21-24 years. For the higher age groups, there was a progressive regression of the disease from 10.76% for the age group between 25-28 years, and 2.2% for those between 29-33 years.

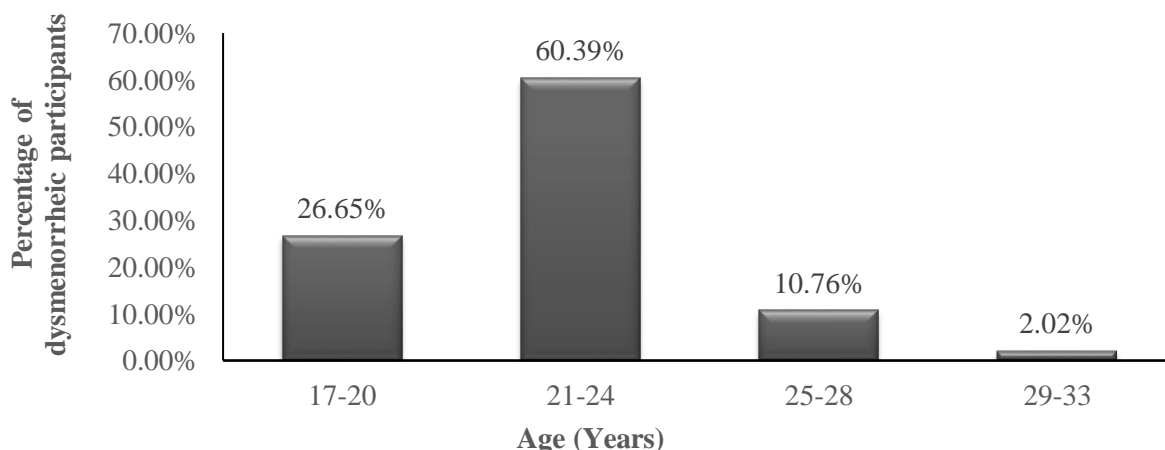


Fig 1:- Distribution of dysmenorrhoeic participants by age group (years).

The frequency of dysmenorrhea was higher than in healthy women, with a very significant increase when menarche appears to be under 13 years of age (75.90%), or more than 17 years old (84.61%) (Figure 2).

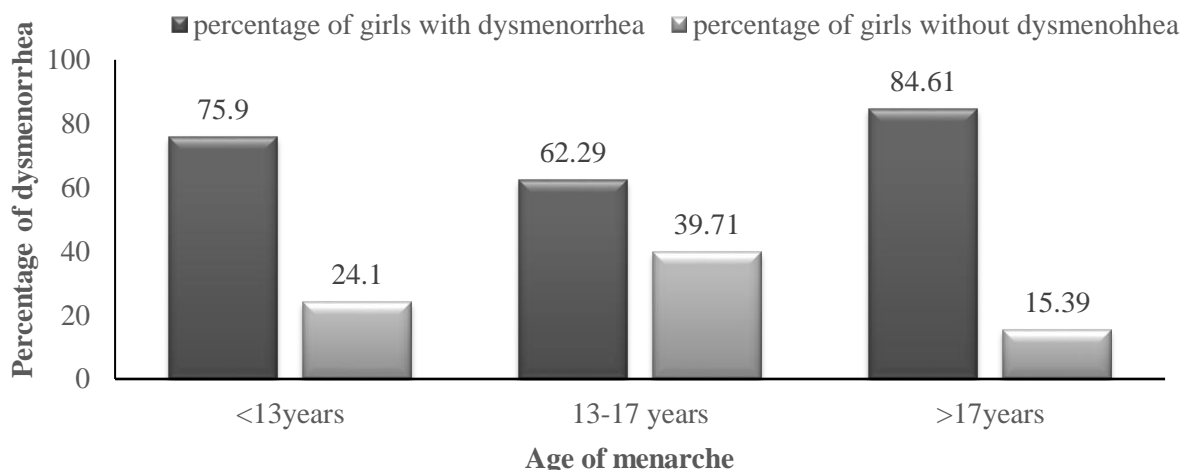


Fig 2:- Distribution of participants according to their age of menarche

Regardless of the duration of menstruation, the rate of dysmenorrhoeic participants was high. This increase was significant when the duration of menstruation exceeds 7 (seven) days (72.22%) (Table 2).

Duration of menstruations	<4 days		[4-6] days		>7 days		Total
	Number	(%)	Number	(%)	Number	(%)	
With dysmenorrhea	94	55.62	327	66.46	13	72.22	434
Withoutdysmenorrhea	75	44.38	165	33.54	5	27.28	245
Total	169	100	492	100	18	100	679

Table 2:- Distribution of participants according to the duration of their menstruation.

Table 3 presents the frequency of the onset of dysmenorrhea in respondents according to the family history of dysmenorrhea. From 337 students who reported that their antecedents (mother, aunt and sister) had dysmenorrhea, 77.15% were dysmenorrhoeic, versus 22.85% healthy. Among these dysmenorrhoeic participants, there was also a very high rate of antecedents suffering from the same disease, with 9 times the number of mums suffering from dysmenorrhea. These results were confirmed by the Odd Ratio (OR = 4.29, 95% CI 1.09-6.02), which indicated a risk of having dysmenorrhea of 4.29 when there is a family history of dysmenorrhea.

Familyhistory of dysmenorrhea	Sister		Mother		Aunt		OR
	Number	(%)	Number	(%)	Number	(%)	
Withdysmenorrhea	185	73.7	55	91.66	20	76.92	4.29
Withoutdysmenorrhea	66	26.30	5	8.33	6	23.08	
Total	251	100	60	100	26	100	337

Table 3:- Distribution of participants according to their Family history of dysmenorrhea.

Regardless of the history of delivery, the percentage of students with dysmenorrhea patients was higher than those who do not have dysmenorrhea patients. However, the increase in frequency was significantly greater (76.92%) in participants who had given birth at least twice. This showed a low incidence (8.62%) of childbirth for the latter. The risk of developing dysmenorrhea after delivery was 0.82 times (OR = 0.82, CI95% 1.01-2.25) (Table 4).

Number of delivery	No childbirth		one childbirth	2-4 childbirths		OR	
	Number	(%)	Number	(%)	Number	(%)	Total
With dysmenorrhea	399	66,05	25	56,81	10	76,92	434
Without dysmenorrhea	205	33,94	19	43,18	3	23,08	227
Total	604	100	44	100	13	100	661

Table 4:- Distribution of participants according to their delivery history.

Dysmenorrhea is usually associated with pre-menstrual symptoms (pms) (Nausea, dizziness, fatigue anxiety, irritability). However, in the present study, the majority of girls (93%) have reported pre-menstrual symptoms even in the absence of dysmenorrhea; only 7% of the girls didn't report any such symptom. Among these 93% of girls, asthenia, ovulation pain, headache, dizziness and nausea were recorded, with asthenia most frequent (64.09%)(Figure 3).

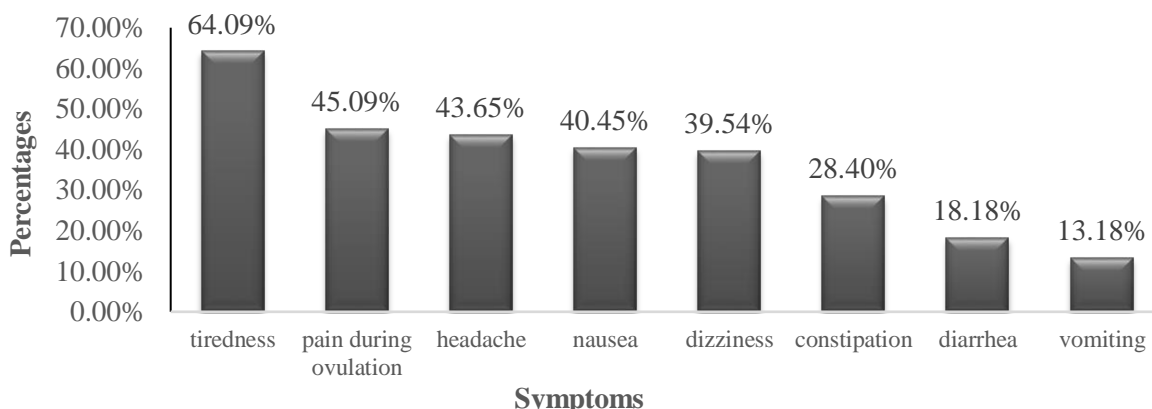


Fig 3:- Symptoms of dysmenorrhea in students of Dschang University.

Table 5 shows the frequency distribution of the sedatives, factors and the types of drugs used respectively by dysmenorrheic students. We observed a drug usage frequency of 91.23%, well above other pain management options. Increased consumption of *NSAIDs and analgesics was observed (over 88%), with 79.23% of self-medication.

	Characteristics Modalities	Total number	Percentage(%)
Sedative factors used by participants	Drugs	401	91.23%
	Sleep	24	5.45%
	Bath and mick warm	06	1.36%
	Walk	03	0.68%
	Rest	04	0.90%
	Pray	2	0.45%
	Total	440	100%
Types of drugs consumed by participants	NSAIDs	165	41.14%
	NSAIDs and Antalgics	105	26.18%
	Antalgics	83	20.69%
	Herbal drink	25	6.23%
	Anti spasmodics	7	1.74%
	Herbal drink and NSIDs	4	0.99%
	Anti spasmodics, NSAIDs and Antalgics	4	0.99%
	Anti spasmodics and Antalgics	2	0.49%
	Anti spasmodics and NSAIDs	2	0.49%
	NSAIDs, Antalgics and Herbal drink	2	0.49%
	Antalgics and antibiotics	2	0.49%
	Total	401	100%

*NSIDs means Non steroid inflammatory drugs

Table 5:- Frequency distribution of sedative factors and the types of drugs used by dysmenorrheic students.

The influence of the frequency of episodes of dysmenorrhea on medication is shown on figure 4. Medication is systematic in that dysmenorrhea appears either monthly (63.01%) or at least 9 times a year (73.68%).

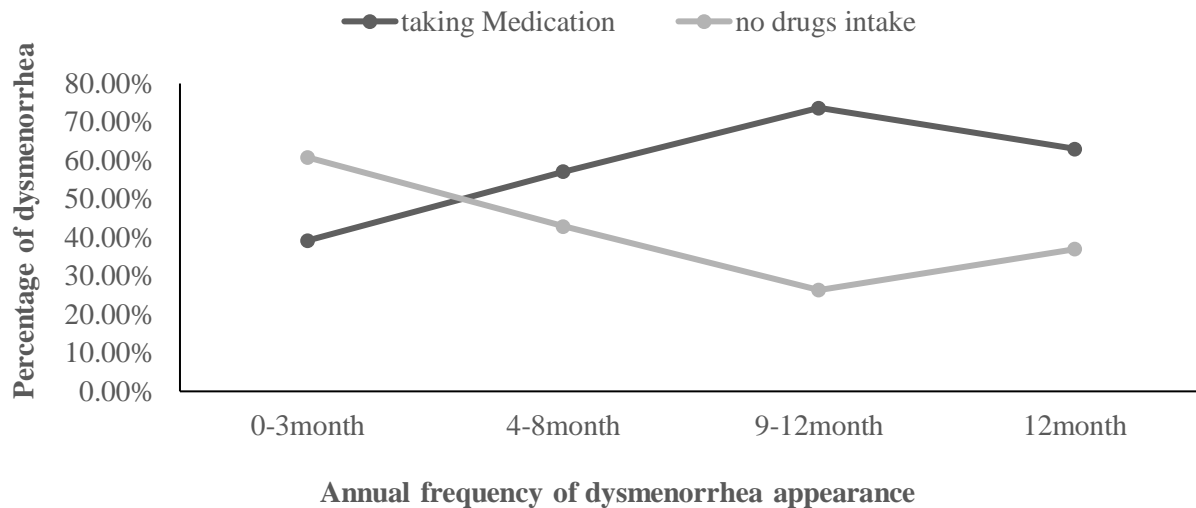


Fig 4:- Influence of the frequency of dysmenorrhea episodes on medication.

IV. DISCUSSION

An epidemiological study aims to evaluate the distribution of a disease and its effects in the population. It is in this context that a survey was conducted among 668 students of the University of Dschang. Among them 440 complained of dysmenorrhea, a prevalence of 63.86%. The frequency of dysmenorrhea is variable in the literature: in Ghana, a study conducted by Gumanga in 2012^[10] revealed a prevalence of dysmenorrhea of 74.4%. A 1992 study on 415 women in Singapore, aged between 15-54 years, found a prevalence of 51.3%.^[11] In 2010, a study on 126 students of the faculties of medicine and psychology at the University of Rosario in Mexico revealed a prevalence of 73%.^[5] These numerous studies showed a high prevalence of this disease among young women in the world. This corroborates the results of the current study.

The highest number of girls (60.39%) having dysmenorrhea was observed at the age range of 21–24 years; this is consistent with the results of many researchers who report that the frequency of dysmenorrhea is increased between 20 and 25 years, and then becomes less common around 30 year olds.^[12,13]

The highest of the menarche age range (over 17 years) had a sharp dysmenorrhea occurrence frequency, compared to menarche lowest age intervals. The study of Andersch in 1982^[14] pointed out that dysmenorrhea is higher if menarche occurs earlier. This study has therefore not confirmed this fact.

This study showed that dysmenorrhea settled with the prolongation of bleeding time (menstruation). This can be explained by the decrease in blood flow caused by the prolongation of blood bleeding time, and this can lead in this case, to uterine ischemia. The latter will result in a difficulty in discharging the menstrual blood, and so dysmenorrhea sets.^[14,15] The risk for a girl to be

dysmenorrheic is twice as large if his mother were herself dysmenorrheic.^[16] For this study, the risk is 4.29 times. This could be justified by heredity of dysmenorrhea add with the economic environment and the psychological profile.^[17]

During the survey period, 66.5% of participants had not yet given birth, of the 35 women who had already given birth, 71.42% had already given birth once and 28.57% had between 2-4 deliveries. Further evolution of dysmenorrhea among those surveyed gives a concave shape (U-shaped), which is contrary to the thesis that supports a decrease in the rate of dysmenorrhea with childbirth. This suggests that the uterine innervation is completely revised and altered by pregnancy.^[18] The high frequency of dysmenorrhea among those with between 2-4 deliveries could be due to physiological stress. Indeed, stress hormones (adrenaline and cortisol) cause the production of prostaglandins responsible for dysmenorrhea.^[19]

The most commonly used drugs by the respondents of the present work were NSAIDs (41.15%) specifically ibuprofen (90%), followed by analgesics/acetaminophen (20.77%) mainly Efferalgan and Paracetamol, and finally the combination of NSAIDs and analgesics (26.15%). Some authors, Connell (2006)^[4] and Yáñez (2010)^[5] had also obtained similar results. The pronounced use of these drugs could be explained by their counter (non-prescription), reduced cost of purchase and their fast action for relief of pain (if NSAIDs).^[6]

A history of drugs intake was observed in 59.09% of dysmenorrheic students; it was generally in self-medication (79.23%). Indeed most dysmenorrheic girls start their treatment at home and consult in case of failure thereof. Moreover, self-medication in dysmenorrhea most often gives a disappointing result because only one in five obtained relief.^[19]

V. CONCLUSION

Dysmenorrhea presents a high prevalence (63.86%) at the University of Dschang, resulting in 21.01% of absenteeism on campus. Factors such as age of menarche, the extension of the duration of menstruation, the presence of dysmenorrhea within family, among others influenced positively dysmenorrhea. Drug therapy was the most commonly used medium to combat pain (59.09%), with 46.82% of self-medication using NSAID (ibuprofen).

➤ *Conflict of interest*

The authors declare no conflict of interest.

➤ *Origin of fund*

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