

## Primary Dysmenorrhea in the Schools of Parakou: Prevalence, Impact and Therapeutic Approach

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### Abstract

**Objective:** Assess prevalence, associated factors, impact of primary dysmenorrhea and therapeutic approach available for Parakou high schools facing primary dysmenorrhea.

**Method:** It is a cross-sectional, descriptive and analytical study carried out through a survey from 25 May to 30 August, 2014 among 425 girl students from public high schools in the town of Parakou. Probabilistic sampling served as research tool and information was collected using a self-administered questionnaire.

**Findings:** Prevalence of primary dysmenorrhea was 78.35% with 95% CI [74.07% – 82.11%]. It was light in 33.3% of the cases; moderate in 37.8% and severe in 28.8%. Irritability and fatigue were the most associated signs respectively in 60.1% and 51.6% of the cases. Dysmenorrhea was significantly associated with adolescents' age and family history of dysmenorrhea. Absenteeism in class was noted in 30% of the cases, declining concentration in 63.7% of the cases and participation to sports activities in 55% of the cases. Among the students suffering from dysmenorrhea 11% consulted a medical doctor for pain relief and 89% used either self-medication (68%) or traditional medicine (21%). Complementary treatments were performed and consisted of hot baths (29%), rest (67%), and scarifications (9%).

**Conclusion:** Prevalence of dysmenorrhea in the schools is high in Parakou. It requires a particular attention for lack of information impacts on its persistent under-treatment.

**Keywords:** Dysmenorrhea; Prevalence; Impact; Therapeutic approach

### Introduction

Primary dysmenorrhea is a very common disease. It globally affects 15% to 94% of adolescent girls [1,2]. The outcomes of non-treated primary dysmenorrhea range from absenteeism in classroom [3,4] to disruption of relationships with family and friends [5]. The disease affects female adolescents' performance through absenteeism that it generates and disturbance of their daily activities, particularly the academic ones. Primary dysmenorrhea is also an obstacle to the adolescents' emancipation it reduces their participation to sports and social activities [6,7]. On psychosocial level, it represents a source of anxiety and concern, not only for female adolescents who are suffering from it but also for their family, thus disturbing their peace. Therefore, primary dysmenorrhea in schools is a real health issue which deserves more attention and requires having better knowledge of its prevalence and particularly of its associated factors. To the best of our knowledge, to date no study has been performed on primary dysmenorrhea in the schools of Parakou. Our research work aimed to assess the prevalence, associated factors, impact of the disease and the therapeutic method available for Parakou girl students facing primary dysmenorrhea.

### Patients and Methods

It was a cross-sectional and descriptive study with analytical purpose, conducted from May 25 to August 30, 2014.

Source population consisted of girls from public high schools of Parakou.

The study involved the nulliparous girls who had already started menstruating for at least six months during the survey period, and excluded pregnant girls, girls who did not give their consent to participate to the study and girls not present in classrooms on the day of survey.

Sample size was calculated using Schwartz formula:

$$N = (\epsilon \alpha^2 p^* q) / i^2$$

With:

N = expected sample size

$\epsilon \alpha = 1.96$  (risk standard score  $\alpha = 5\%$ )

p = 53.3% (p = dysmenorrhea prevalence in Nigeria in 2008 [3]).

q = 1 - p = 0.467

i = 0.05 (desired accuracy)

$$N = (1.96^2 \times 53.30 \times 0.467) / 0.05^2$$

$$= 382.$$

This size was increased by 10% to take into account the non-respondents and the forms that may probably be completed improperly; therefore the size was estimated at 382 + 38 = 421.

A three-stage sampling technique were used.

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At first stage, we selected 50% of public high schools (5 high schools selected out of 10 existing in Parakou) through simple random sampling using epi6 software.

At second stage, based on data available we identified the number of girls per high school and per grade in proportion to number of the different high schools and grades concerned.

At third stage, we selected through simple random sampling the girls representing each grade, using a previously drafted list.

The study variables were age, gynecological history (menarcheal age, contraception, concept of family history of dysmenorrhea, length of the menstrual cycle, regularity of the cycle, length of menstruation, amount of the menstrual flow), functional signs (headaches, vertigo, asthenia, anorexia, nausea and irritability), dysmenorrhea outcomes (absenteeism, limitation of sports activities, concentration/attention in classroom and capacity to do homework) and therapeutic approach methods (use of modern drugs, pharmaceutical products, prescription of drugs and other treatments used).

Existence and level of pain were identified using a digital scale graduated from 0 to 10 considering the following elements [8].

0: No pain

1-3: Mild pain

4-6: Moderate pain

≥7: Severe pain

The Higham score served to harmonize the estimation of blood flow during menstruation [9].

As survey tool we used a questionnaire. The participants were invited to self-administer the questionnaire after explanation of the study objectives and the questionnaire.

Students' informed consent was obtained and data confidentiality guaranteed.

Data were entered with Epi data 3.1 software and analyzed using Epi info 7 software.

The qualitative variables were described using ratio calculation; and the quantitative ones with averages  $\pm$  standard deviation.

Frequencies were compared by means of  $\chi^2$  test; we consider that there is a statistically significant association between two variables, for  $p < 0.05$ .

The tables were drafted using Microsoft Office Word and Excel version 2007 softwares.

## Findings

### Dysmenorrhea prevalence and pain characteristics

Among the 425 students, 333 had primary dysmenorrhea, i.e. a prevalence of 78.35% with 95% CI [74.07%-82.11%].

Pain focus is in the pelvic region in 52.0% of the cases, in the lumbo-pelvic region in 39.9% of the cases and in the lumbar region in 8.1% of the cases.

The type of pain was contraction in 60.7% of the cases, torsion in 23.4% and heaviness in 15.9% of the cases. Pain was mild or light in 33.3% of the cases, moderate in 37.8% of the cases and severe in 28.8% of the cases.

### Gynecological history

Menarcheal age varied between 10 and 18 years. Mean age at menarche was  $13.04 \pm 1.3$  years.

Only 39 students i.e. 9.1% used a contraceptive method. The most common method used was condom in 100% of the cases.

### Distribution of girl students according to the symptoms associated with dysmenorrhea

Table 1 shows distribution of girl students according to the symptoms associated with dysmenorrhea.

### Impact of dysmenorrhea on students' academic and social and family life

Table 2 summarizes dysmenorrhea impact on the school and social activities of students.

### Review of factors associated with dysmenorrhea

Table 3 summarizes the factors and their significant association or not with dysmenorrhea.

### Therapeutic methods used by students suffering from dysmenorrhea

Among the students suffering from dysmenorrhea, 11% consulted a medical doctor for pain relief and 89% used either self-medication (68%) or traditional medicine (21%).

The pharmaceutical products most used were paracetamol (32%), ibuprofen (28%) and aspirin (13%).

Complementary treatments consisted of hot baths (29%), rest (67%) and scarifications (9%).

## Discussion

This study has identified a high prevalence of primary dysmenorrhea, i.e. 78.35% in high school students of Parakou. Similar results were reported by Gumanga et al. (74.4%) in Ghana in 2012 [10], by Agarwal et al. (72%) in India in 2002 [11], by Gilany et al. (74.6%) in Egypt [4] in 2002, by Singh et al. (73.8%) in 2008 [5].

Symptoms	Yes		No		Total
	N	%	n	%	
Irritability	200	60.1	133	39.9	333
Fatigue	215	51.6	118	48.4	333
Anorexia	161	48.4	172	51.7	333
Nauseas	87	39.9	246	60.1	333
Vertigo	102	30.6	231	69.4	333
Headaches	56	16.8	277	83.2	333

**Table 1:** Distribution of girl students according to the symptoms associated with primary dysmenorrhea in the public high schools of Parakou in 2014.

Impact	Yes		No		Total
	N	%	n	%	
Absenteeism	102	30.6	231	69.4	333
Sport activities	183	55.0	150	45.1	333
Concentration in classroom	212	63.7	121	36.3	333
Missed school works	36	10.8	297	89.2	333
Homework	160	48.1	173	52.0	333

**Table 2:** Dysmenorrhea impact on school and social activities of girl students involved in the survey on primary dysmenorrhea in the public high schools of Parakou in 2014.

Variables	Total	Dysmenorrhea		$\chi^2$ (p-value)
		N	%	
<b>Age (years)</b>				
<15	169	117	69.2	14.99 (0.0004)
15-20	238	203	85.3	
20-25	18	13	72.2	
<b>Menarcheal age (years)</b>				
≤14	84	63	75.0	0.69 (0.4048)
>14	341	270	79.2	
<b>Length of the menstrual cycle</b>				
≤5 days	374	290	77.5	1.21 (0.2705)
>5 days	51	43	84.3	
<b>Amount of the menstrual flow</b>				
Low	111	83	74.8	1.37 (0.5034)
Average	248	196	79.0	
Heavy	66	54	81.8	
<b>Use of contraception</b>				
Yes	39	29	74.4	0.40 (0.5251)
No	386	304	78.8	

**Table 3:** Distribution factors and their significant association or not with dysmenorrhea.

By contrast, the prevalence of our study is clearly higher than the interval of 18% to 59.55% [1,3,12,13] found out in studies performed from 2006 to 2013.

Our prevalence is lower than the one encountered by Kindi et al. (94%) [3], by Banikarim et al. (85%) [14], by Tangchai et al. (84.2) [15], and by Cakir et al. (89.5%) [2].

The variation noted in those prevalences may be due to the selection method and the difference of age between the subjects interviewed from a study to another. Moreover, the definition of dysmenorrhea does not meet with overwhelming support among all the authors.

In our sample, 28.8% claimed to have severe pain. In other countries, severe pain was reported by 6.3% to 42% of adolescent girls suffering from dysmenorrhea [1,5,7,13,16].

Those differences in pain severity may be associated with cultural differences as regards pain perception and variability of pain threshold. Studies pointed out a correlation between ethnicity and pain perception [14]; and assessment of pain severity is subjective [17-21].

In addition to pain which is the main symptom, dysmenorrhea is the cause of discomfort due to subsequent clinical signs. In our study, the most common symptoms experienced by the students suffering from dysmenorrhea were irritability (60.1%), asthenia (51.6%) and anorexia (48.4%). Asthenia (70.8%) and headaches were rather the most common symptoms in the study performed by Gilany et al. in Egypt [4].

Some studies identified a relationship between dysmenorrhea and many risk factors such as early age of menstruations, prolonged length of menstrual period, heavy menstrual bleeding, [22,23] practice of contraception and family health of dysmenorrhea [24]. We found out that dysmenorrhea prevalence is significantly higher according to age ( $\chi^2=15.45$ ,  $p=0.0004$ ), and family history of dysmenorrhea ( $\chi^2=18.03$ ,  $p=0.00002$ ). Unsal et al. [16] found that dysmenorrhea prevalence is significantly different according to age, and several authors concluded that dysmenorrhea prevalence is significantly different according to family history of dysmenorrhea [16]. This association may result from simple learning of a behavior by girls whose mothers complain during menstruations, or also from somatization of empathy of a girl for her mother suffering from dysmenorrhea [3,21].

By contrast, we did not find a statistically significant association with menarcheal age ( $\chi^2=1.437$ ,  $p=0.49$ ), length of menstruation and

menstrual flow. Our results are similar to those of Kindi et al. [6] who did not identified a statistically significant association between dysmenorrhea prevalence and menarcheal age, length of menstruation and menstrual flow. In contrast, our results are different from the ones of other studies in which menarcheal age is a risk factor [3,13] for occurrence of primary dysmenorrhea, and from the one of the study conducted by Unsal et al. [16] who found out that having a length of menstruation higher than 7 days was strongly associated with dysmenorrhea.

In our research work, dysmenorrhea prevalence is not significantly different according to use of a contraceptive method ( $\chi^2=0.4039$ ,  $p=0.52$ ).

There is a discrepancy between this remark and the one described in the literature for it has been demonstrated that oral contraceptives reduce pain in persons suffering from dysmenorrhea [21].

In our study, the subjects claimed to use condom; this may explain that there was no association between dysmenorrhea and contraceptive method.

30.6% of high school students claimed to have missed at least once classes due to pain and all the symptoms associated with dysmenorrhea. Our findings are similar to those of Avsarala et al. who found a 36% absenteeism rate in girls from urban areas in India [1] in 2008, and those of Banikarim et al. estimated at 38% in 2000 [14].

However, our results are higher than 24.76%, 24% and 21.5% of absenteeism reported respectively by Dharampal et al. in 2009 [12], by Ortiz et al. [13] in 2009 and Wong et al. [19,24].

On the contrary, the absenteeism rate found by us is lower than those of Kindi et al. (45%) [6], Gagua et al. (69.78%) [20] and then those of Zegeye et al. (55.7%) [17].

The absenteeism associated with dysmenorrhea led 10.8% of students suffering from dysmenorrhea to miss at least once exams and tasks in classroom.

According to Dawood [25], in a study performed in 1981, dysmenorrhea was the leading cause of absenteeism in classroom among girls. This situation may therefore lead the student suffering from dysmenorrhea to repeat class when she does not succeed in justifying her absences as appropriate.

To avoid the outcomes associated with absenteeism, some students suffering from dysmenorrhea make efforts to remain in classroom, despite pain. In these circumstances, they are not able to concentrate on the lesson taught. For instance, 63.7% of girls suffering from dysmenorrhea interviewed claimed that pain disturbs their concentration in classroom. This ratio is close to the ones of 75% and 51.7% reported respectively by Kindi et al. [6] and by Wong et al. [19].

Pain impeded 55.0% of the students suffering from dysmenorrhea to perform sport activities. This remark is lower than the one reported in the study of Kindi et al. [6] in which pain impeded 81% of the students to carry out sports activities. Therefore, dysmenorrhea is an obstacle to the intellectual and physical capacities of the adolescent girls suffering from it, thus being an obstruction to their academic performance. It therefore deserves a particular attention.

Despite the considerable impact of dysmenorrhea on academic and social life, only 11% of students suffering from the disease claimed to have consulted a medical doctor in this regard. These findings are similar to those of Wong et al. in which 12% of the girls suffering from dysmenorrhea consulted a medical doctor [19]. They are higher than

2.7%, 3% and 8% reported respectively by Gilany et al. [4], Baidya et al. [16], Kindi et al. [6] and lower than 28% found out by Ortiz et al. [13].

The low rate of medical doctor consultation may be due to the fact that most girls and their parents, particularly their mothers, consider dysmenorrhea as normal aspect of the menstrual cycle. They seem to accept dysmenorrhea and its consequences as a physiological process of transition between adolescence and adult age. Therefore, there is a real need for information on the pathology and its management among adolescent girls and their mothers.

## Conclusion

Prevalence of primary dysmenorrhea in schools is high in Parakou. This high prevalence shows that it is a critical health issue in schools which requires a particular attention, for it is still under-treated due to lack of information. It is therefore urgent to early integrate into school curricula the issues related to reproductive health in order to prepare girls for menstruation. Another measure shall consist in providing them information on treatment options in case of dysmenorrhea.

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