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# DYSMENORRHEA AND OTHER MENSTRUAL CHARACTERISTICS IN RWANDAN FEMALE STUDENTS AT NATIONAL UNIVERSITY OF RWANDA AND NYANZA SCHOOLGIRLS (Huye and Nyanza Districts / Southern Province of Rwanda)

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## ABSTRACT

Dysmenorrhea or the syndrome of painful menstruation is not life-threatening, but it is most of the time debilitating and psychologically taxing for women. This first study aims to bring out epidemiological, clinical, and therapeutical aspects, as well as social impacts, attitudes, awareness and knowledge of treatment in dysmenorrheic female students and adolescents in our environment (Southern Province of Rwanda). Moreover, some menstrual characteristics were also looked for in the whole study population (dysmenorrheic and non dysmenorrheic participants). This study is cross-sectional, descriptive, and analytical. The population study consisted of two groups relating to two joint surveys: (1) 466 female students (National University of Rwanda or NUR, Huye) who accepted to participate in the survey and answered the appropriate questionnaire; (2) 423 consenting schoolgirls from Nyanza boarding high schools (77 teenagers were excluded from the survey because of incomplete questionnaires). Dysmenorrhea was considered as a whole without distinction between primary and secondary dysmenorrhea. The following statistics were calculated: RR and 95 % CI, Pearson's Chi square test (with Yates' correction) and Fisher exact test to compare observed proportions, and Student's t test to compare means from normal distributed data. The results in female university students as compared to secondary school girls were as following: (1) dysmenorrhea prevalence (77.3% vs 85.6 %; p = 0.001; RR = 0.90 [0.85 − 0.96]); (2) dysmenorrhea duration > 3 days (21.1 % vs 39.5 %; p = 0.000; RR = 0.46 [0.36 − 0.58]); (3) inactivity > 3 days (16.4 % vs 41.1 %; p = 0.000; RR = 0.36 [0.27 − 0.46]); (4) absenteeism (60.5 % - 61 %; p = 0.891; RR = 0.99 [0.88 − 1.12]); (5) missed exams (11.6 % vs 39.5 %; p = 0.000; RR = 0.30 [0.22 − 0.40]); (6) decreasing pain (7.2 % vs 20.6 %; p = 0.000; RR = 0.30 [0.20 − 0.45]); (7) self-medication (31.1 % vs 23.2 %; p = 0.169; RR = 1.34 [1.05 − 1.71]); (8) wait-and-see attitude (48.1 % vs 59.4 %; p = 0.002; RR = 0.81 [0.71 − 0.93]); (9) hospitalization (5.3 % vs 46 %; p = 0.000; RR = 0.17 [0.06 − 0.46]); (10) awareness of treatment (60.8 % vs 48.3 %; p = 0.000; RR = 1.26 [1.10 − 1.44]); (11) analgesics (39.4 % vs 26.2 %; p = 0.013; RR = 1.29 [1.05 − 1.57]); (12) nonsteroidal anti-inflammatory drugs (38.8 % vs 16.7 %; p = 0.000; RR = 1.98 [1.55 − 2.53]); (13) antispasmodics (17.5 % vs 12.2 %; p = 0.249; RR = 1.22 [0.87 − 1.71] ); (14) aspirin (3.8 % vs 4 %; p = 0.986; RR = 1.01 [0.53 − 1.90]); (14) age at menarche (14.4 ± 1.7 vs 14.5 ± 1.9 years; p > 0.2); (15) menstruation duration > 3 days (56.7 % vs 44.7 %; p = 0.000; RR = 1.27 [1.11 − 1.45]); (16) menarche < 12 years (5.8 % vs 5.6 %; p = 0.56; RR = 1.13 [0.75 − 1.70]); (17) menarche > 16 years (9.8 % vs 8.7 %; p = 0.56; RR = 1.13 [0.75 − 1.70]); (18) abundant menstrual flow (19.7 5 vs 33.8 %; p = 0.000; RR = 0.58 [0.47 − 0.73]); (19) headache (34.5 % vs 55.3 %; p = 0.000; RR = 0.62 [0.54 − 0.73]); (20) vomiting (17.6 % vs 31.6 %; p = 0.000; RR = 0.56 [0.44 − 0.71]); (21) malaise (47.2 % vs 24.5 %; p = 0.000; RR = 1.92 [1.58 − 2.33]); (22) somnolence (22.8 % vs 40.8 %; p = 0.000; RR = 0.51 [0.41 − 0.63]); (23) behavior problems (37.3 % vs 12.5 %; p = 0.000; RR = 2.98 [2.26 − 3.93]).In conclusion, dysmenorrhea is significantly more frequent and its duration more long in schoolgirls than in female students in the southern part of Rwanda. It represents on the whole a real public health issue resulting in a high rate of absenteeism, inactivity, missed exams, and even hospitalization; this negative impact and most of the unpleasant symptoms are significantly more frequent in schoolgirls than in female students. An information campaign is needed to alleviate the lack of treatment awareness as well as the high rate of resignation. Age at menarche and other menstrual characteristics are on the whole within the range of what is observed worldwide, except that precocious puberty is twice less frequent in our study population. Besides, it is suggested that other surveys are carried out in other parts of Rwanda.

Key-words: Dysmenorrhea − Menstruation - Female students − Schoolgirls − Rwanda

## RESUME

La dysménorrhée ou les règles douloureuses  n'est pas mortelle, mais elle est la plupart du temps débilitante et psychologiquement éprouvante pour les femmes. Cette première étude vise à souligner les aspects épidémiologiques, cliniques et thérapeutiques ainsi que l'impact social, l'attitude, la conscience et la connaissance du traitement chez les étudiantes et élèves (Province du Sud / Rwanda). En outre, quelques autres caractéristiques menstruelles ont été relevées chez les dysménorrhéiques et non dysménorrhéiques. Il s'agit d'une étude transversale, descriptive et analytique. La population d'étude est constituée par deux groupes interviewés  au cours de deux  enquêtes menées conjointement: (1) 466 étudiantes de l'Université Nationale du Rwanda qui avaient accepté de participer à l'enquête et de répondre au questionnaire; (2) 423 adolescentes et jeunes filles des pensionnats de la ville de Nyanza (77 d'entre elles avaient été exclues à cause des questionnaires incomplets). La dysmenorrhée était considerée dans son ensemble sans faire la distinction entre dysmenorrhée primaire et secondaire. L'analyse statistique s'est appuyée sur les éléments suivants : le calcul du RR et l' IC à 95 %, le test de Chi carré (avec correction de Yates) et le test exact de Fisher pour comparer les proportions observées ainsi que le test t de Student pour comparer deux moyennes des données normalement distribuées. Les résultats suivants étaient observés chez les étudiantes et les adolescentes: (1) prévalence de la dysménorrhée (77.3% vs 85.6 %; p = 0.001 ; RR = 0.90 [0.85 − 0.96]); (2) durée de la dysmenorrhée > 3 jours (21.1 % vs 39.5 %; p = 0.000 ; RR = 0.46 [0.36 − 0.58]); (3) inactivité > 3 jours (16.4 % vs 41.1 % ; p = 0.000 ; RR = 0.36 [0.27 − 0.46]); (4) absentéisme(60.5 % - 61 %; p = 0.891 ; RR = 0.99 [0.88 − 1.12]); (5) examens manqués (11.6 % vs 39.5 %; p = 0.000 ; RR = 0.30 [0.22 − 0.40]); (6) diminution de la douleur (7.2 % vs 20.6 %; p = 0.000 ; RR = 0.30 [0.20 − 0.45]); (7) automédication (31.1 % vs 23.2 %; p = 0.169 ; RR = 1.34 [1.05 − 1.71]); (8) résignation (48.1 % vs 59.4 %; p = 0.002 ; RR = 0.81 [0.71 − 0.93]); (9) hospitalisation (5.3 % vs 46 %; p = 0.000 ; RR = 0.17 [0.06 − 0.46]); (10) sensibilité au traitement (60.8 % vs 48.3 %; p = 0.000 ; RR = 1.26 [1.10 − 1.44]); (11) analgésiques (39.4 % vs 26.2 %; p = 0.013 ; RR = 1.29 [1.05 − 1.57]); (12) anti-inflammatoires non stéroïdiens  (38.8 % vs 16.7 %; p = 0.000 ; RR = 1.98 [1.55 − 2.53]); (13) antispasmodiques (17.5 % vs 12.2 %; p = 0.249 ; RR = 1.22 [0.87 − 1.71]); (14) aspirine (3.8 % vs 4 %; p = 0.986; RR = 1.01 [0.53 − 1.90]); (14) âge de la ménarche (14.4 ± 1.7 vs 14.5 ± 1.9 ans; p > 0.2); (15) durée de la menstruation > 3  jours (56.7 % vs 44.7 %; p = 0.000 ; RR = 1.27 [1.11 − 1.45]); (16) ménarche < 12 ans (5.8 % vs 5.6 % ; p = 0.56 ; RR = 1.13 [0.75 − 1.70]); (17) ménarche > 16 ans (9.8 % vs 8.7 % ; p = 0.56 ; RR = 1.13 [0.75 − 1.70]); (18) polyménorrhée (19.7 5 vs 33.8 %; p = 0.000 ; RR = 0.58  [0.47 − 0.73]); (19) céphalées (34.5 % vs 55.3 %; p = 0.000 ; RR = 0.62 [0.54 − 0.73]); (20) vomissements (17.6 % vs 31.6 %; p = 0.000 ; RR = 0.56 [0.44 − 0.71]); (21) malaise (47.2

% vs 24.5 %; p = 0.000 ; RR = 1.92 [1.58 − 2.33]); (22) somnolence (22.8 % vs 40.8 %; p = 0.000 ; RR = 0.51 [0.41 − 0.63]); (23) troubles du comportement (37.3 % vs 12.5 %; p = 0.000 ; RR = 2.98 [2.26 − 3.93]). En conclusion, la dysménorrhée est plus fréquente et sa durée plus longue chez les adolescentes et jeunes filles des écoles secondaires que chez les étudiantes dans la partie méridionale du Rwanda. Elle représente un vrai problème de santé  publique se traduisant par un taux élevé d'absentéisme et d'inactivité, des examens manqués, voire des cas d'hospitalisation ; cet impact négatif ainsi que la plupart des symptômes désagréables sont significativement plus retrouvés chez les élèves de l'école secondaire que chez les étudiantes de l'université. Une campagne d'information s'impose en vue de minimiser l'absence de prise de conscience du traitement et le niveau de résignation. L'âge de la ménarche et les autres caractéristiques menstruelles se situent dans les limites observées ailleurs dans le monde, sauf que la prévalence de la puberté précoce est deux fois inférieure dans notre série. En plus, il est recommandé de réaliser  des enquêtes similaires dans d'autres régions du Rwanda.

**Mots Clés:** Dysménorrhée – Menstruation – Etudiantes – Adolescentes - Rwanda

## INTRODUCTION

Dysmenorrhea refers to difficult menstrual flow or the syndrome of painful menstruation. The term dysmenorrhea derives from the Greek words $\delta\upsilon\sigma$ (dys, meaning difficult, painful, abnormal), $\mu\eta\nu$ (mên, meaning month), and $\rho\epsilon\iota\nu$ (rrhein, meaning to flow) [1, 2]. Primary dysmenorrhea is not associated with macroscopic pelvic pathology, and usually begins within the first 6 months or occurs in the first few years after menarche once a regular ovulatory cycle has been established, whereas secondary dysmenorrhea may present at any time after menarche, results from anatomic and / or macroscopic pelvic pathology, and commonly arises when a woman is in her 20s or 30s, after years of normal, relatively painless cycles [3 - 5]. This first study aims to bring out epidemiological, clinical, and therapeutical aspects, as well as social impacts, attitudes, awareness and knowledge of treatment in dysmenorrheic female students and adolescents in our environment (Southern Province of Rwanda). Moreover, some menstrual characteristics were also looked for in the whole study population (dysmenorrheic and non dysmenorrheic participants).

## METHODOLOGY

This cross-sectional, descriptive, and analytical study results from two surveys realized in the framework of MD dissertations jointly supervised and presented in 2007 through the National University of Rwanda Department of Obstetrics and Gynecology [6, 7]. Data from these surveys were then partly and per se analyzed, i.e. without reference to the other survey. This study is rather a combined descriptive and analytical exercise in order to make a comparison between students and schoolgirls. The study population consisted of two groups relating to abovementioned surveys: (1) 466 female students (National University of Rwanda or NUR, Huye) who accepted to participate in the survey and answered the appropriate questionnaire; (2) 423 consenting schoolgirls from Nyanza boarding high schools (77 teenagers were excluded from the survey because of incomplete questionnaires). The calculated size on the basis of unknown dysmenorrhea prevalence was 384.16. Dysmenorrhea was considered as a whole without distinction between primary and secondary dysmenorrhea.

The following parameters were considered: age, first menstrual period, menstrual flow characteristics (duration and amount), clinical symptoms and signs, impact on daily activities, evolution, management, awareness and knowledge of the treatment.

Denominators relating to issues concerning dysmenorrhea were the respective numbers of dysmenorrheic participants (n = 360 for students, and n = 362 for schoolgirls), and those relating to dysmenorrhea and medical treatment the respective numbers that reported to health centers / hospitals following an attack (n = 75 for students, and n = 63 for schoolgirls). The following statistics and tests were used:  RR and 95 % CI, Pearson's Chi square test (with Yates' correction), Fisher exact test to compare observed proportions, and Student's t test to compare means from normal distributed data.

## RESULTS

DEMOGRAPHIC AND MENSTRUAL CHARACTERISTICS

Demographic and menstrual characteristics in female students of National University of Rwanda and Nyanza schoolgirls are shown in table I. There is a highly significant difference about average age, menstruation duration (> 3 days) as well as menstrual flow abundance (polymenorrhea), and no difference about menarche onset.

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**Table I**. Demographic and menstrual characteristics in female University students and Nyanza schoolgirls.

| PARAMETERS | STUDENTS (N = 466) | SCHOOLGIRLS(N= 423) | p |
|---|---|---|---|
| | | | RR          95 % CI |
| **Average age** | 23.7 ± 2.8 years | 19.8 ± 2.9 years | 0.000 |
| **Menarche between 12 and 16 years** | 85.4 % | 85.5 % | 0.94 <br> RR = 1 [0.95 – 1.05] |
| **Average age at menarche** | 14.4 ± 1.7 years | 14.5 ± 1.9 years | NS |
| **Menstruation duration > 3 days** | 56.7 % | 44.7 % | 0.000 <br> RR=1.27[1.11–1.45] |
| **Menarche < 12 years** | 5.8 % | 5.6 % | 0.56 <br> R=1.13[0.75 - 1.70] |
| **Menarche > 16 years** | 9.8 % | 8.7 % | 0.56 <br> RR=1.13[0.75–1.70] |
| **Menstrual flow abundant** | 19.7 % | 33.8 % | 0.000 <br> RR=0.58[0.47–0.73] |

## ADDITIONAL MENSTRUAL SIGNS AND SYMPTOMS

Apart from pain in the pelvic area (the main dysmenorrhea symptom), table II displays additional menstrual symptoms / signs in students and schoolgirls. Except for diarrhea, malaise and behavior problems, all other symptoms and signs are significantly more frequent in schoolgirls than in female university students. The occurrence of the following symptoms / signs was insignificant (0.2 – 1.8 %): anorexia, thirst, dizziness, constipation, insomnia, blurred vision, apathy, tachycardia, palpitations, common cold syndrome, and perineal pain.

**Table II**. Additional menstrual signs and symptoms in female students of National University of Rwanda and Nyanza schoolgirls.

| SIGNS / SYMPTOMS | STUDENTS (N = 466) | SCHOOLGIRLS (N = 423) | P | |
|---|---|---|---|---|
| | | | RR | 95 % CI |
| Headache | 34.5 % | 55.3 % | 0.000 RR = 0.62 [0.54 – 0.73] | |
| Backache | 67.8 % | 84.8 % | 0.000 RR = 0.80 [0.74 – 0.86] | |
| Nausea | 32.2 % | 38.7 % | 0.04 RR 0.83 [0.69 – 0.99] | |
| Vomiting | 17.6 % | 31.6 % | 0.000 RR = 0.56 [0.44 – 0.71] | |
| Diarrhea | 37.8 % | 25.5 % | 0.000 RR = 1.48 [1.21 – 1.81] | |
| Malaise | 47.2 % | 24.5 % | 0.000 RR= 1.92 [1.58 – 2.33] | |
| Somnolence | 20.8 % | 40.8 % | 0.000 RR = 0.51 [0.41 – 0.63] | |
| Tiredness | 61.4 % | 78 % | 0.000 RR = 0.79 [0.72 – 0.86] | |
| Breast ache | 61.4 % | 71.1 % | 0.002 RR= 0.86 [0.78 – 0.95] | |
| Behavior problems | 37.3 % | 12.5 % | 0.000 RR = 2.98 [2.26 – 3.93] | |

## PREVALENCE OF DYSMENORRHEA

The prevalence of dysmenorrhea was 77.3 % (360 / 466) in National University of Rwanda female students and 85.6 % (362 / 423) in schoolgirls from Nyanza boarding high schools (p = 0.001; RR = 0.90 [0.85 – 0.96]).

## DYSMENORRHEA DURATION AND INACTIVITY

Pain was felt for more than 3 days in 21.1 % of students (n = 360) and 39.5 % of schoolgirls (n = 362) respectively (p = 0.000; RR = 0.46 [0.36 – 0.58]). Inactivity was respectively noticed in 63.9 % of students and 58 % of schoolgirls (p = 0.105; RR = 1.10 [0.98 – 1.24]). This inactivity exceeded 3 days in 16.4 % of students and 41.1 % of schoolgirls (p = 0.000; RR = 0.36 [0.27 – 0.46]).

## DYSMENORRHEA, ABSENTEEISM, AND MISSED EXAMS

Academic and school absenteeism was registered in 60.5 % and 61 % of cases respectively (p = 0.891; RR = 0.99 [0.88 – 1.12]). Missed exams were reported by 11.6 % of students and 39.5 % of schoolgirls with dysmenorrhea (p = 0.000; RR =0.30 [0.22 – 0.40]).

## DYSMENORRHEA DEVELOPMENT

The following figures were respectively reported by students and schoolgirls: unpredictable (58.9 % vs 52.5 %; p = 0.000; RR = 1.32 [1.15 – 1.53]), increasing (15.8 % vs 21.7 %; p = 0.001; RR = 0.62 [0.46 – 0.84]), decreasing (7.2 % vs 20.6 %; p = 0.000; RR = 0.30 [0.20 – 0.45]), vanished (0.3 % vs 1.6 %; p = 0.037; RR = 0.13 (0.02 – 1]), and not specified (18.4 % vs 3.6 %; p = 0.000; RR = 4.60 [2.63 – 8.04]).

## DYSMENORRHEA AND PATIENTS' BEHAVIOUR

The following attitudes at the time of dysmenorrhea onset were reported by students and schoolgirls: purchase of drugs or self-medication (31.1 % vs 23.2 %; p = 0.169; RR = 1.34 [1.05 – 1.71]), medical consultation (20.8 % vs 17.4 %; p = 0.241; RR = 1.20 [0.89 – 1.62]), and wait-and-see attitude (48.1 % vs 59.4 %; p = 0.002; RR = 0.81 [0.71 – 0.93]).

## DYSMENORRHEA AND MEDICAL TREATMENT

At the health center / hospital, most of students (71 / 75, i.e. 94.7 %) versus 52.4 % of schoolgirls (33 / 63) received an ambulatory medical treatment (p = 0.000; RR =1.81 [1.42 – 2.30]). Only 5.3 % of students versus 46 % of schoolgirls were once hospitalized (p = 0.000; RR = 0.17 [0.06 – 0.46]). One schoolgirl (1.6 %) has even been operated.

## AWARENESS AND KNOWLEDGE OF ANTIDYSMENORRHEAL DRUGS

Awareness of treatment was noticed in 60.8 % of students and 48.3 % of adolescents (p = 0.000) . The following drugs were respectively reported by dysmenorrheic students and schoolgirls: analgesics (39.4 % vs 26.2 %; p = 0.013), nonsteroidal anti-inflammatory drugs (38.8 % vs 16.7 %; p = 0.000), antispasmodics (17.5 % vs 12.2 %; p = 0.249), and aspirin (3.86 % vs 4.2 %; p = 0.986). Those other drugs were rarely used (0.21 – 1.07 %): oral contraceptive, dydrogesteron (duphaston), methylergonovine (methergin), antibiotics, diazepam (valium), and antihistaminics.

## DISCUSSION

Dysmenorrhea is not life-threatening, but it is most of the time debilitating and psychologically taxing for women, and no significant difference exists in prevalence or incidence between races [1]. Its prevalence in United States is estimated at 20 % of women and up to 90 % of adolescents [3, 8]. The results of our study in Rwandan female students and adolescents were in the upper slice of this range with also the highest prevalence in schoolgirls (with primary dysmenorrhea more probably). The following prevalences of primary dysmenorrhea have been noticed in adolescent girls: 55 % in Croatia [9], 73 % in China [10], 80 % in Australia [11], and 67 % in Mexico [12]. Dysmenorrhea is responsible for significant absenteeism from work, and it is the most common reason for school absence among adolescents [3]. Academic and school absenteeism was very high in our survey with 6 out of 10 participants concerned on the whole; inactivity during menstruation was also in the same range. The negative impact of dysmenorrhea comes at its summit when it brings about missed exams and surgical issues.

In the past and for many centuries, opprobrious attitudes attributed dysmenorrhea to women's emotional or psychological states and misconceptions about sex and sexual behaviors until when research has established concrete physiologic explanations for dysmenorrhea, which discredit these prior theories [3, 13]. As far as primary dysmenorrhea is concerned, sloughing endometrial cells release during menstruation prostaglandins that cause uterine ischemia through myometrial contraction and vasoconstriction. Prostaglandins identified in menstrual fluid of women with severe dysmenorrhea present high levels during the 2 first days of menstruation, vasopressin also playing a similar role [3, 14]. Nevertheless, the pathophysiology is not yet still completely understood, and there is a very complex interplay between these hormones, basal body temperature, sleep pattern, and

the central nervous system [3]. Dysmenorrhea duration in our study population was mostly focused on the first 3 days of menstruation (79 % of students and 60 % of schoolgirls).

As for behavior when facing up to dysmenorrhea, we have on the whole registered appreciable numbers of self-medication as well as resignation in the ratio of almost one to four and one to two respectively. The self-medication rate in our study is lower than the one (64.9 %) observed in a Mexican population [12]. The high level of resignation rate (around 50 % and 60 % of cases respectively) in our study population is striking, especially when one knows how health insurance coverage is almost total in Rwanda. This should not be due to ignorance, but certainly to a cultural background: Rwandan women' capacity for enduring pain is admirable, even in labor rooms unlike other African women!

The hospitalization rate is significantly higher in schoolgirls than in students who are the most aware of medical treatment in our study. Analgesics and nonsteroidal anti-inflammatory drugs are the most used, followed by antispasmodics and a long way off by aspirin.

Dysmenorrhea development in our study population does not show a clear trend towards alleviation. This is comprehensive taking into account the age and marital status of most of our participants, as dysmenorrhea incidence, prevalence, and severity fall with increasing age and increasing parity [2, 15 - 17]. However, age effect can be supported by the significantly lower dysmenorrhea prevalence in female students in comparison with schoolgirls in our study population.

Among clinical features reported by participants regardless of dysmenorrhea type are general symptoms that may be present with primary dysmenorrhea: malaise, fatigue, nausea and vomiting, diarrhea, lower backache, and headache [2].

Apart from signs and symptoms, other menstrual characteristics consisted of age at menarche and menstrual flow. The menarche took place between 12 and 16 years for 85 % of participants, the average age being mutatis mutandis 14 ± 2 years. An analysis of data from the Third National Health and Nutrition Examination Survey reported that 90 % of all US girls were menstruating by 13.75 years of age, with a median age of 12.43 years, although non-Hispanic black girls menstruated significantly earlier than non-Hispanic white and Mexican American girls [18]. Another survey in 10 British towns showed that the median menarcheal age was 12 years 11 months (95 % CI: 12 years 10 months to 13 years 1 month), with 21.7 % of girls reporting having had their first period by 12th birthdays and 11.8 % before leaving primary school [19]; and this is double the rate observed in female university students (5.8 %) and schoolgirls (5.6 %) in our study population.

The menstruation duration exceeded 3 days in half of the participants in our study population; it was more abundant

in schoolgirls than in students. This discovery should not be alarming because an average duration of menstrual flow exceeding 4 to 5 days is reported worldwide [20, 21].

In conclusion, dysmenorrhea is significantly more frequent and its duration more long in schoolgirls than in female students in the southern part of Rwanda. It represents on the whole a real public health issue resulting in a high rate of absenteeism, inactivity, missed exams, and even hospitalization; this negative impact and most of the unpleasant symptoms are significantly more frequent in schoolgirls than in female students. An information campaign is needed to alleviate the lack of treatment awareness as well as the high rate of resignation. Age at menarche and other menstrual characteristics are within the range of what is observed worldwide, except that precocious puberty is twice less frequent. Besides, we suggest that other surveys are carried out in other parts of Rwanda.

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