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## Prevalence, Impact and Treatment of Primary Dysmenorrhea in Workers of an Academic and Research Institute

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### Abstract

Dysmenorrhea is one of the cyclical processes in chronic pelvic pain. Dysmenorrhea in women causes a high psychosocial and economic impact. For this reason, we conducted a study to assess the prevalence, impact and use of drugs for the treatment of dysmenorrhea among workers of an Educational and Research Institute. A prevalence of dysmenorrhea of 57.2% was found. About a half (49.4%) of women with dysmenorrhea reported that it limited their daily activities in  $4.1 \pm 2.4$  cycles per year. 29.3% reported absenteeism by at least  $2.7 \pm 1.4$  (range 1-5) cycles per year. Of the women with dysmenorrhea, only 34.9% consulted a doctor and the most prescribed drugs were over the counter medications with metamizol and butylscopolamine (25.0%), another medicine with paracetamol, pamabrom and pyrilamine (Syncol®, 16.7%) naproxen (12.5%) and mefenamic acid (12.5%). On the other hand, self-medication was practiced by 54.2% of women with dysmenorrhea and the most used drugs were Syncol® (28.9%), naproxen (17.8%), metamizol with butylscopolamine (13.3%) and dipyrone (6.7%). Our data suggest a significant prevalence of primary dysmenorrhea and dysmenorrheic women used many drugs for self-medication, but rarely come to medical services.

**Keywords:** Dysmenorrhea, Self-Medication, Prescription, Prevalence

### Introduction

Dysmenorrhea is defined as a cyclical and chronic pain associated with the menstrual cycles.<sup>1-6</sup> Prevalence of dysmenorrhea in women has been estimated between 7.2 to 90%. About 15% of women with dysmenorrhea reported it as severe and causes absenteeism at work and school.<sup>1</sup> The most common symptom of dysmenorrhea is the pain or discomfort in the lower abdomen at the end of the menstrual cycle and that the person associates it with the onset of menstruation and even during it. Primary dysmenorrhea is due to myometrial contractions prompted by prostaglandins (mainly PGF<sub>2α</sub>) produced and released by the secretory endometrium, which produce significant myometrial contraction, myometrial and endometrial vessels vasoconstriction, uterine ischemia and sensitization of the nerve terminals together will turn into pain.<sup>2,3</sup> Secondary dysmenorrhea is pain coincident with

menstruation but associated with pathological processes such as endometriosis, adenomyosis, pelvic inflammatory disease, tumors, cervical stenosis, uterine malformations, pelvic congestion and intrauterine device.<sup>4-6</sup>

We recently conducted a study to determine the presence, severity, symptoms, treatment and the limitations caused by primary dysmenorrhea on 1,539 students of medicine, nursing, nutrition, dentistry, pharmacy and psychology at the Health Sciences Institute from the Universidad Autónoma del Estado de Hidalgo.<sup>7</sup> The average age of women was  $20.4 \pm 2.0$  years, the average of menarche was  $12.3 \pm 1.5$  years. Dysmenorrhea prevalence was 64%. Dysmenorrhea was more frequent among nutrition and psychology students than among students of medicine, pharmacy and dentistry ( $p < .05$ ). Dysmenorrhea was mild in 36.1% of women, moderate in 43.8% and severe in 20.1%. The intensity of pain in nursing students was significantly higher than those students of medicine and dentistry ( $P < 0.05$ ). Of the women with dysmenorrhea, 65% reported that it limits their daily activities and 42.1% reported truancy. Also 25.9% of these women consulted a doctor and 61.7% practiced self-medication. The drugs most used were: a drug (Syncol<sup>(MR)</sup>) with paracetamol (an analgesic), pamabrom (a diuretic) and pirilamine (histamine antagonist), another drug (Buscapina<sup>(MR)</sup>) with metamizol (an anti-inflammatory drug [NSAID]) and butylscopolamine (an antispasmodic drug) and naproxen (an NSAID). Of the women with prescription medications, 18.4% reported complete remission of their symptoms, while 78.1% reported relief from mild to moderate, and 3.6% reported not having any effect on their menstrual discomfort. Likewise, from women who practiced self-medication, 23.4% reported complete relief, 75.5% had mild to moderate improvement, and 1.0% reported ineffectiveness.<sup>7</sup> For this reason, the main objective of the present work was to describe the prevalence of dysmenorrhea, its impact and pharmacological treatments used by staff working at the Health Science Institute from Universidad Autónoma del Estado de Hidalgo.

## Material and Methods

According to the above background, it was decided to make a study for determining the prevalence of primary dysmenorrhea among workers of the Medical School (in Spanish: ICSA Instituto de Ciencias de la Salud) from Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico. The study protocol was approved by the Committees on Research Ethics and Health Services of Hidalgo, Pachuca, Hidalgo, Mexico, and the study was conducted according to the Declaration of Helsinki.

To accomplish our objective, we performed the implementation of a multiple-choice anonymous questionnaire to all ICSA employees, which include: teachers, researchers, secretaries, janitors, administrative staff, police officers and directors. The questionnaires were given during working time to each of the participants. Participants were chosen according to convenience sampling method (workers on their working hours and agreed to participate in the study).

The questionnaire was designed and adapted from the questionnaire validated by Larroy et al.<sup>7,8</sup> Before starting the formal study, the questionnaire was validated when applied a pilot sample. The final considered items were: the prevalence of dysmenorrhea, the severity, prescribed drugs, drugs used for self-medication, common symptoms, changes in daily activities and absenteeism. To determine the severity of pain, we used a visual analog scale (VAS) of 100 mm, where "zero" corresponds to "no pain" and "100 mm" corresponds to the "worst pain imaginable".

We made a data analysis and obtained the central tendency and dispersion measures (averages, percentages and standard deviation). The results were expressed in graphics, for which we used the Microsoft Office Excel program for Windows XP.

## Results

In this study, a total of 145 workers voluntarily answered the multiple-choice quiz. The average age of all participating women was  $37.2 \pm 0.7$  years (range 20-48 years). The prevalence of dysmenorrhea in these women was 57.2%. The average age of women with and without dysmenorrhea were  $35.3 \pm 0.9$  years and  $39.4 \pm 1.0$  years, respectively.

The most common symptoms in workers with dysmenorrhea were lower abdomen spasm (90.4%), abdominal bloating (61.4%), sadness, depression (60.2%), breast tenderness (57.8%), irritability (44.6%), back pain (38.6%), headache (32.5%), lower extremity pain (26.6%) and gastrointestinal discomfort (21.7%).

According to the intensity of the last frame of dysmenorrhea we found that it was mild in 43.4%, moderate in 31.3% and severe in 25.3%. Approximately half of women (49.4%) with dysmenorrhea reported that it limited their daily activities in  $4.1 \pm 2.4$  cycles per year.

These same women reported that symptoms forced them to stop doing their activities for at least 30 minutes in a 12.2%, 30 to 60 minutes in a 24.4%, from 61 to 160 minutes in 41.5%, from 161-360 minutes in a 9.8%, and 360 to 1440 minutes at 12.2%. Out of this group of women, 29.3% reported absenteeism at work by at least  $2.7 \pm 1.4$  (range 1-5) cycles per year. Table 1 shows the characteristics of symptoms in women who had dysmenorrhea.

From all women with dysmenorrhea in our study, only 34.9% consulted a doctor in  $2.9 \pm 1.9$  cycles per year and the most prescribed drugs were: an OTC (Over The Counter) drug containing metamizole with butylscopolamine (Buscapina®, 25.0%), other OTC that has acetaminophen, pamabrom and pyrilamine (Syncol®, 16.7%), naproxen (12.5%) and mefenamic acid (12.5%) (Table 2).

In this sense, in our study self-medication for the treatment of symptoms was practiced by 54.2% of women with dysmenorrhea in  $7.0 \pm 3.8$  cycles per year and the drugs most used were the OTCs with acetaminophen, pamabrom and pyrilamine (Syncol®, 28.9%), naproxen (17.8%), metamizole with butylscopolamine (Buscapina®, 13.3%), and dipyrone (6.7%) (Table 2).

## Discussion

Some studies have found a positive relationship between the presence of dysmenorrhea with the young age of women,<sup>5,9</sup> while other studies have not found such connection.<sup>10,11</sup> In our study, the observed prevalence of 57.2% is higher than Pawlowski<sup>12</sup> reported of 28% in a Mayan rural community of Mexico. This difference may be due to the diversity of studied population (rural vs. urban), but not to the difference in women ages, as the average age of women in our study was  $35.3 \pm 0.9$  years with range 20-48 years, and the average age of Mayan women was  $33 \pm 6.75$  years with a range of 18-45 years, which are very similar.

On the other hand, the prevalence found in our study is similar to the prevalence of dysmenorrhea published by Pedron-Nuevo et al.<sup>11</sup>, which proved that the overall prevalence of dysmenorrhea in young women from the city of Mexico was 56%. Furthermore, the prevalence of 57.2% found in our group of women working at the ICSA is slightly similar to the overall prevalence of 64% found in the students from the same institute.<sup>7</sup>

However, our data show a lower prevalence of dysmenorrhea (57.2%) that the one reported by Velasco-Rodriguez et al.<sup>13</sup> of 90% in a group of students of nursing in the city of Colima, Colima, Mexico.

Table 1. Features of symptoms in women with dysmenorrhea

|                                   | n (%)     |
|-----------------------------------|-----------|
| <b>Onset of dysmenorrhea</b>      |           |
| First menses                      | 47 (56.6) |
| 2-5 years after menarche          | 16 (19.3) |
| 6-10 years after menarche         | 8 (9.6)   |
| More than 10 years after menarche | 12 (14.5) |
| <b>Symptoms</b>                   |           |
| Colicky pain in lower abdomen     | 75 (90.4) |
| Swollen abdomen                   | 51 (61.4) |
| Sadness, depression               | 50 (60.2) |
| Breast pain                       | 48 (57.8) |
| Irritability                      | 37 (44.6) |
| Headache                          | 33 (39.7) |
| Lower back pain                   | 32 (38.6) |
| Discomfort or pain in lower limbs | 23 (27.6) |
| Gastrointestinal discomfort       | 18 (21.7) |
| Genital pain or discomfort        | 11 (13.3) |
| Diarrhea                          | 3 (3.6)   |

**Onset of symptoms**

|                                 |           |
|---------------------------------|-----------|
| Two days before menses          | 38 (45.8) |
| One day before or the same day  | 27 (32.5) |
| One or two days after the onset | 18 (21.7) |
| Not specified                   | 3 (3.6)   |

**Time of disability because of the symptoms**

|               |           |
|---------------|-----------|
| 30 min        | 5 (12.4)  |
| 31 – 60 min   | 10 (24.4) |
| 61 – 180 min  | 17 (41.5) |
| >3 – 6 hours  | 4 (9.8)   |
| >6 – 24 hours | 5 (12.2)  |

Table 2 Drugs used in prescription (24 patients) and self-medication (45 patients)

|                                    | Prescription<br>n (%) | Self-medication<br>n (%) |
|------------------------------------|-----------------------|--------------------------|
| Metamizol plus butylscopolamine    | 6 (25.0)              | 6 (13.3)                 |
| Paracetamol, pamabrom y pyrilamine | 4 (16.7)              | 13 (28.9)                |
| Naproxen                           | 3 (12.5)              | 8 (17.8)                 |
| Mefenamic Acid                     | 3 (12.5)              | 1 (2.5)                  |
| Ibuprofen                          | 3 (12.5)              | 2 (4.4)                  |
| Butylscopolamine                   | 2 (8.3)               | 2 (4.4)                  |
| Metamizole                         | 1 (4.2)               | 3 (6.7)                  |
| Diclofenac                         | 0 (0.0)               | 2 (4.4)                  |

In a study published by Dawood,<sup>14</sup> it's noted that in the United States of America each year are lost 600 million working hours and two billion dollars as a result of primary dysmenorrhea. Moreover, it was found that women who insist on working while suffering menstrual pain, reflect lower productivity, plus there was more risk of accidents for them and the quality of work reduces.<sup>14,15</sup> In this regard, it has been generally reported that about 55% of women with dysmenorrhea minimize their daily activities due to symptomatology.<sup>16-18</sup> From the group of women with dysmenorrhea of this study, up to 49.4% have to completely stop doing their activities due to symptoms. This percentage is similar to those percentages reported on the research.<sup>16-18</sup> Also absenteeism found in this work was 29.3% in at least  $2.7 \pm 1.4$  (range 1-5) cycles per year, is similar to that reported by some studies.<sup>11,19-21</sup> The true impact that diminish daily activities and absenteeism was not studied in this work so it is proposed to conduct a study to determine the impact on this group of women working at UAEH ICSA.

NSAIDs are the first choice drugs in the treatment of primary dysmenorrhea. This is mainly ensured by the findings that have indicated that prostaglandins are the main substances involved in the primary dysmenorrhea etiopathogeny<sup>2-4</sup>. Some evidence has demonstrated the effectiveness of NSAIDs in the treatment of primary dysmenorrhea.<sup>22-24</sup> As a second option for primary dysmenorrhea treatment are hormonal methods, which include the administration of estrogens and/or progestins and oral combined contraceptives.<sup>22</sup> It's suggested that the hormone action mechanism is owing to the release of prostaglandins reduction during menstruation, by inhibiting ovulation.<sup>22</sup> Among other treatments in which there is no sufficient effectiveness scientific data, we find the nitroglycerin administration, fish oil supplements, vitamin supplements, nifedipine, terbutaline, antispasmodics, acupuncture, pelvic nerves, surgical section, thermotherapy, vegetarian diet, exercise, herbalism, etc.<sup>22</sup>

The percentage of women attending a doctor in our study (34.9%) is higher than that reported in the literature, which ranges from 0.4 to 15.5%.<sup>4-6,16</sup> This is probably due to the existence of ethnic, cultural, religious differences and age groups of studied populations.<sup>25</sup> These differences are mainly presented by the way of conceiving the menstruation and dysmenorrhea. While for some groups, dysmenorrhea is a disease, for other groups, this is a normal condition of women, that is, is part of her physiology.<sup>25</sup> Also, some religions consider pain as a way to go to heaven.<sup>25</sup> These and other issues result in a large number of women from different groups do not go to a doctor for treatment of their discomfort. Since patients with dysmenorrhea do not go to the doctor, it has been found in some studies that many of these patients use self-medication. For this reason, it has been found that self-medication is very high in some populations, being up to 61.2% in a population of Hungary and up to 70% in Canada.<sup>26,27</sup> Thus,

the 54.2% of women who used self-medication agrees with that reported in the literature.<sup>26,27</sup>

From our study results, the most commonly used drugs (by prescription and self-medication) for the dysmenorrhea treatment in female students were: the OTC (Over The Counter) drug with metamizol and butylscopolamine (Buscapina<sup>(MR)</sup>), a drug with paracetamol, pamabrom and pyrilamine (Syncol<sup>(MR)</sup>) and naproxen (Table 2). The efficacy of naproxen and other NSAIDs that reduces symptoms in women with dysmenorrhea is well-certified.<sup>24,28-30</sup> However, there is not enough scientific evidence to prove the paracetamol with pamabrom and pyrilamine effectiveness, and the butylscopolamine and metamizol combination in the primary dysmenorrhea treatment.<sup>31,32</sup> However, we have found in several studies OTCs containing a combination of acetaminophen, pamabrom and pyrilamine is the most widely used for the primary dysmenorrhea treatment.<sup>7,13,33,34</sup> Therefore it requires performing controlled, double-blind and randomized studies to assess the efficacy and safety of these drug combinations in treating primary dysmenorrhea.

## Conclusion

In conclusion, data of this study show that the dysmenorrhea prevalence and impact on ICSA workers is high. For this reason, it is necessary to implement health and education programs in this population to reduce unnecessary pain, absenteeism and improve their quality of life.

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