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RESEARCH ARTICLE

Self-medication practice in primary dysmenorrhea among medical and paramedical students - A cross-sectional questionnaire study

Afreen Fatima, Mamatha K R, Banapura Ambika, Kavitha Rajarathna

Department of Pharmacology, Bangalore Medical College and Research Institute, Bengaluru, Karnataka, India

Correspondence to: Afreen Fatima, E-mail: drafreen89@gmail.com

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ABSTRACT

Background: Primary dysmenorrhea is one of the most common gnaecological problems among adolescent females which interferes with daily activities, affecting their physical and emotional aspects and has a negative impact on quality of life. Self-medication for primary dysmenorrhea is a very common practice. **Aims and Objectives:** The aim of this study was to observe and evaluate self-medication practice in primary dysmenorrhea among medical and paramedical students. **Materials and Methods:** This was a cross-sectional questionnaire study conducted among 250 female students from Bangalore medical college and Research Institute. The self-medication practice and features of dysmenorrhea were assessed with a 19 item pre-validated questionnaire and the data were analyzed using descriptive statistics. **Results:** A total of 250 female students participated in the study. Dysmenorrhea was reported in 210 participants with self-medication practice among 131 (62.98%) students. The majority were medical students (64.88%) followed by paramedical students (35.11%). Drugs commonly used for self-medication were fixed dose combination of mephenamic acid + dicyclomine (60.1%), followed by paracetamol (14.9%) and ibuprofen (9.21%). Medical consultation was sought only in 15.38%, mainly in paramedical students (73.3%) followed by medical students (26.6%). 36 students (17.30%) used medications along with home remedies. **Conclusion:** Self-medication practice for dysmenorrhea was more among medical students probably due to the knowledge of drugs, better awareness and greater access to drug information during their curriculum. Most commonly used drugs were non-steroidal anti-inflammatory drugs which are known for its adverse drug reaction. This highlights the importance of creating awareness among students to consume drugs only in severe discomfort after prescription by the registered medical practitioners.

KEY WORDS: Self-medication; Primary Dysmenorrhea; Medical Students; Paramedical Students; Questionnaire

INTRODUCTION

A normal female undergoes a myriad of changes in her body from puberty and thereafter. Puberty is a period of extreme stress and strain due to various physiological and psychological changes that occur. One of the major pubertal changes in girls is the onset of menstruation. Every mature female menstruates on an average of 3-5 days each month until menopause. Sometimes this cycle is associated with painful uterine contractions and discomfort known as dysmenorrhea.[1,2] The prevalence of dysmenorrhoea in India is 62%, and it varies greatly across different populations and ethnic groups.[3]

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Dysmenorrhea can be either primary or secondary.[4] Primary dysmenorrhoea is defined as painful menses in women with normal pelvic anatomy, usually beginning during adolescence.[5] The pain is usually spasmodic in character

and felt mainly in the lower abdomen, but it may radiate to the back and along the thighs. It is accompanied by some other symptoms and complications such as nausea, vomiting, diarrhea, headache, fatigue, dizziness, and in severe cases syncope.[6,7] In essence, it is a symptom-complex which not only affects the quality of life but also reduces productivity. In students, it also has a negative impact on academic and daily activities.[1,8,9]

The major cause of dysmenorrhea is still not clear. It is said that prostaglandins (PGs) have a well-recognised pathophysiological role in primary dysmenorrhea by inducing intense uterine contractions, decreasing uterine blood flow, increasing peripheral nerve hypersensitivity resulting in pain or cramps.[10,11] The factors such as nulliparity, obesity, diet, family history of dysmenorrhea, stress, depression, cigarette smoking, and abuse are highly associated with the prevalence of primary dysmenorrhea.[12] Treatment for primary dysmenorrhea varies across different population worldwide, and includes lifestyle modification, complementary and alternative modalities, over-the-counter drugs, prescription analgesics and hormonal contraceptives. Prompt alleviation of the symptoms is necessary, failing which it may be responsible for the silent suffering among young women. Non-steroidal anti-inflammatory drugs (NSAIDs) and antispasmodics are commonly used drugs. NSAIDs such as ibuprofen, mefenamic acid, naproxen, ketoprofen, celecoxib, and diclofenac are proven to be effective by inhibiting cyclooxygenase leading to a reduction in PGs production.[10,11] Antispasmodics such as dicyclomine and drotaverine act synergistically with NSAIDs to reduce the menstrual cramps, hence reducing the discomfort in primary dysmenorrhea.[10] Hormonal therapy in the form of oral contraceptive pills is reserved for patients with suboptimal or lack of response to NSAIDs.[13] Non-pharmacological home remedies commonly used are warm beverages, heat application, vitamin B1 or magnesium supplements, low-fat diet and herbal treatment.[6,14,15]

Self-medication is termed as the use of medicines, specially designed and labeled for use without medical supervision and approved as safe and effective for such use.[16] They are called "over the counter" drugs and are available without doctor's prescription through pharmacies. Hence, this study was taken up to evaluate self-medication practice and to analyze the pattern of drugs use in primary dysmenorrhea among medical and paramedical students.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted in Bangalore Medical College and Research Institute, Medical and paramedical female students aged ≥17 years with dysmenorrhea who willingly gave the written informed consent were included in the study. After approval from the institutional ethics committee, self-medication practice and features of dysmenorrhea was assessed with a pre-validated 19 item questionnaire. Respondents completed the structured questionnaire which composed of questions regarding socio-demographic data, menstrual history, presentation of dysmenorrhea, and its impact on daily routine and social activities. Various remedial treatment methods practiced and health care seeking behavior to relieve dysmenorrhoea were recorded. The data were analyzed using descriptive statistics for demographic characteristics, menstrual history, dysmenorrhea, and its associated symptoms. The remedial methods used by the students such as self-medication, medical advice, home remedies for dysmenorrhea were analyzed using chi-square test and the value of $P < 0.05$ was considered statistically significant.

RESULTS

Out of 250 respondents, only 210 (84%) respondents with dysmenorrhea (109 medical and 101 paramedical) were computed and analyzed. 40 respondents (16%) were excluded from the study as they did not have a history of dysmenorrhea.

Demographic Characteristics

The majority of the respondents were MBBS students (40.4%) followed by nursing (36.6%), whereas the medical post graduate and allied health students were the least (11.4%), respectively, each. Participant's age ranged between 17 and 28 years, and the mean age was 22.03 ± 1.66 years. Females aged between 20 and 22 years were 40%, whereas 26 to 28 years age range was 10.9%. Out of 210 female participants, 195 (92.8%) were unmarried, while 15 (7.1%) were married. Less than half (40%) of the participants family income was Rs 10,000/month to Rs 25000/month, and all participants were having a normal body mass index (BMI). See Table 1 and 2 for characteristics of menstrual cycle and associated symptoms respectively in participants with dysmenorrhoea. whereas (Figure 1) is showing impact of dysmenorrhoea on various physical and social activites.

The remedial methods practiced by students with dysmenorrhoea were mainly self-medication, home remedies and medical consultation ($P > 0.0001$) (Figure 2). Self-medication practice was seen more among medical students than paramedical students ($P < 0.0001$) whereas medical consultation and use of home remedies was seen more in paramedical students (Figures 3 and 4). Out of total 131 (62.98%) students with dysmenorrhea who practiced self-medication, 86 (65.64%) used fixed dose combination (FDC) of mefenamic acid + dicyclomine, 22 (16.79%) used paracetamol, 17 (12.97%) used ibuprofen. FDC of tranexamic acid + mefenamic acid (pause- MF) was used by 12 (9.16%), whereas the use of diclofenac and nimesulide was seen in only 1.43% students.

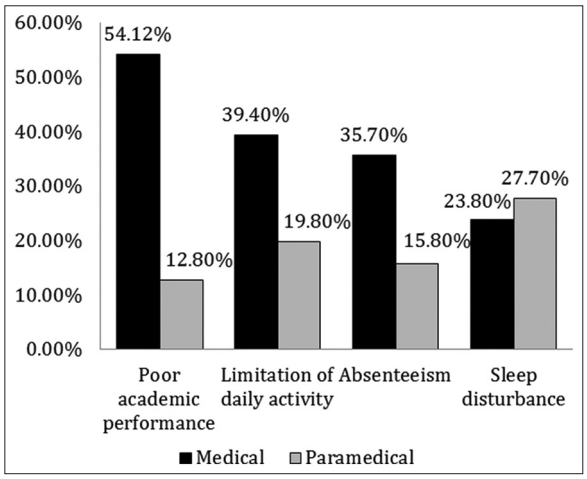

Figure 1: Impact of dysmenorrhoea in medical and paramedical students

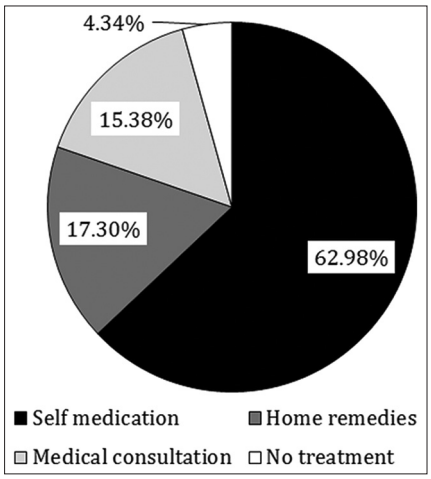

Figure 2: Management strategies for dysmenorrhoea

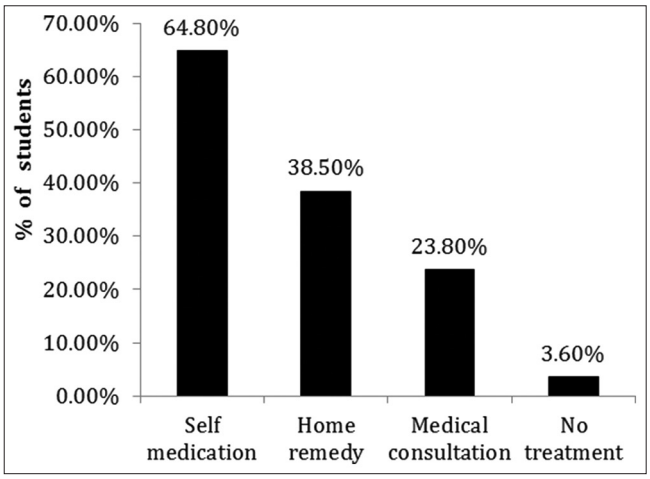

Figure 3: Management strategies used by medical students

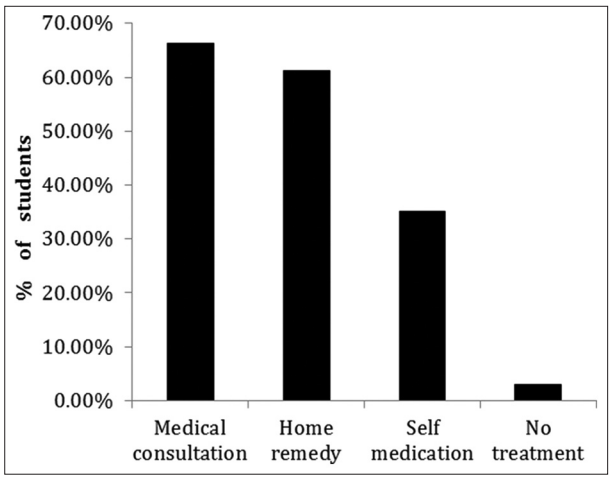

Figure 4: Management strategies used by paramedical student

DISCUSSION

Dysmenorrhea is the most common gynecological disorder among adolescent and young females and the most common complaint during clinical consultations. As a result of the enormous negative impact it has on activities of daily living,[1,2] making women opt for various options to alleviate the pain or discomfort ranging from drugs to household remedies. In the present study, dysmenorrhea was reported in 84% of participants. The mean age of menarche was 12.56 ± 0.94 years, and 79% of participants had a regular menstrual cycle. Of the 210 participants, who experienced dysmenorrhea 60% of the participants reported pain for first 2 days of menstrual flow. Poor academic performance was seen in 54.12% medical and 12.8% paramedical students respectively whereas 35.7% medical and 15.8% paramedical students reported absenteeism from college. The remedial methods practised by students with dysmenorrhoea were mainly self-medication, home remedies and medical consultation. Self-medication practice was more among medical students. Medical consultation and use of home remedies was seen more in paramedical students. FDC of mefenamic acid and dicyclomine was used by the majority of students who practised self-medication.

In our cross-sectional study, 210 female students with dysmenorrhoea were analyzed for menstrual pattern and treatment strategies adopted by them with pre-validated questionnaire. The prevalence of dysmenorrhoea in this study was high (84%) which is akin to study conducted by Jasim N Al- Asadi in Basra, Iraq, but higher compared to results of Akshara Mathew which reported 75%.[12,17] However, it is in consistent with the worldwide figure that nearly three-quarters of women suffer with prevalence estimates varying widely. The variation in these estimates may be attributed to the use of selected groups of women in our study, differences in collecting data, ethnic proportions, cultural background, and geographical location. Our results revealed that the mean age at menarche was 12.56 ± 0.94, similar to previous studies.[12,13,18,19] Most of the adolescent participants had normal BMI and the mean BMI was 21.49 ± 2.13 kg/m^2, this is consistent with the study conducted by Ju et al.[20] in which the mean BMI of the adolescent girls was 21.69 ± 3.27 kg/m^2. A study conducted by Chauhan et al. showed that increased prevalence of dysmenorrhea was seen in females with low BMI, hence

Table 1: Characteristics of menstrual cycle in participants with dysmenorrhea (*n*=210)

Menstrual cycle characteristics	Participants
Average age at menarche	12.56±0.94
Family H/O dysmenorrhoea	
Present	58 (27.6)
Absent	152 (72.3)
Regularity of menstrual cycle	
Regular	166 (79.0)
Irregular	44 (20.0)
Duration of menstrual period	
2-3 days	88 (41.9)
3-4 days	70 (33.3)
>5 days	52 (24.7)
Amount of menstrual flow	
Scanty (1-2 pads/day)	14 (6.0)
Moderate(2-3 pads/day)	140 (66.6)
Heavy (associated with clots) (>4 pads/day)	56 (26.6)
Interval between each menstrual cycle	
<28 days	32 (15.2)
days	116 (55.2)
>30 days	62 (29.5)

Table 2: Number of participants with dysmenorrhoea and associated symptoms (*n*=210)

Menstrual discomfort (pain)	Participants
During premenstrual period	60 (28.57)
During first 2 days of cycle	127 (60.4)
Throughout the cycle	23 (10.9)
Symptoms during dysmenorrhoea	
Nausea	29 (13.8)
Vomiting	17 (8.0)
Diarrhoea	12 (5.8)
Backache	98 (46.6)
Myalgia	68 (32.3)
Burning micturition	12 (5.8)
Increased frequency of micturition	38 (18.0)

improving the nutritional status may reduce the incidence of dysmenorrhea.[21] Positive family history of dysmenorrhea was seen only in 27.6% which is lower compared to the study of Unsal et al 2010, Basra.[22] This could be partly due to the genetic factor that may be involved in the pathogenesis of dysmenorrhea or it may be related to the behavior that is learnt from the mother. Daughters of mothers with dysmenorrhea may react to menstruation similarly and they may share the same attitude and taboos toward menses. Nearly, 33.3% had 3 to 4 days of menses (bleeding) and 55% of them had 28 to 30 days cycle, this is similar to the study conducted by Kiran et al. which also depicted that the duration of menstrual flow and the average duration between two periods were 4.5 ± 2.45 days and 28.34 ± 7.54 days respectively.[12] Approximately 66.6% of them reported moderate menstrual flow whereas 26.6% had heavy bleeding. This study illustrated that 84% of the participants experienced dysmenorrhea and revealed that the highest duration of pain among females with dysmenorrhea (60%) was "first 2 days," which is similar to Banikarim et al. (2000) who reported that 90% of adolescents had pain lasting for 48 h. These differences in the pain severity may be related to individual differences in pain perception and variability in pain threshold. Pathophysiology behind dysmenorrhea being present early on and particularly in the initial days is the increased release of PGs causing intense uterine contractions, decrease uterine blood flow causing ischemic necrosis of endometrial lining and nerve hypersensitivity, ultimately causing expulsion of the endometrial lining.[23,24] Dysmenorrhea associated symptoms manifesting either as backache, myalgia, increased frequency of micturition, nausea, vomiting and others constituted the most common medical problems among the participants in this study, this seems to be in agreement with Akshara et al., and Ramya.[12,13] In this study, 26.92% of the students reported limitation of daily activities with dysmenorrhea which is comparatively less compared to the study conducted by Banikarim et al.,[25] not similar to the previous studies which reported 79.9%, 77.2%, and 48%.[3,4,12] Activities most commonly affected due to dysmenorrhea were poor concentration, absenteeism, insomnia, attending and participating in social events. This study also revealed that insomnia due to menstrual discomfort and poor academic performance was 22.59% and 18.75%, respectively. Absenteeism from college was 17.3%, which is lower compared to the study carried out by Adekumbe et al.[3] which showed 46.3%. This study showed that self-medication was the most preferred means for pain relief. The majority of students (70%) found it convenient to opt for self-medication practice and the source of information being the previous prescription followed by friends and pharmacist. Self-medication practice was seen more common in medical students probably due to the knowledge of drugs for dysmenorrhea, better awareness of self-medication and greater access to drug information during their curriculum. Pharmacological agents that were used commonly were analgesics such as paracetamol, ibuprofen, mefenamic acid, dicyclomine, nimesulide, and diclofenac. Use of NSAIDs for self-medication in our study is comparable with previous studies.[7,13,17] NSAIDs which act by inhibiting PGs synthesis reduces menstrual blood flow hence reducing the discomfort. In this study 48% consulted doctor for health care advice during dysmenorrhea. The medical consultation was seen more among paramedical students than the medical students. This results is higher than that reported by Ezeukwa et al.[1] Use of non-pharmacological home remedies such as hot water pads, heating pads, warm beverages, and vitamin supplementation were common in paramedical students. This is similar to a US study[26] which showed that apart from medication non-pharmacological remedies were also used by the participants.

The strengths of the present study are - very few Indian studies (to the best of our knowledge) which compared the self-medication practice in primary dysmenorrhea among medical and paramedical students are available. The study was carried out using pre-validated questionnaire. The limitation was that it was a cross-sectional study, conducted in a single college, therefore the sample may not be representative of all female population, and the nature of self-reporting may have resulted in under-reporting of the condition.

Self-medication practice for dysmenorrhea was more in medical students probably due to the knowledge of drugs for dysmenorrhoea, better awareness and greater access to drug information during their curriculum whereas non-pharmacological home remedies were seen in paramedical students. Commonly used drugs in self-medication were mefenamic acid, paracetamol, and ibuprofen.

CONCLUSION

This descriptive study has found that self-medication is very common among medical students, facilitated by the easy availability of drugs and information from textbooks/ seniors. A significant number of students are unaware of the adverse effects of the medication that they themselves take and suggest to others. This highlights the importance of creating awareness among students to consume drugs only in severe discomfort after prescription by the registered medical practitioners. Since inappropriate self-medication has the potential to cause serious harm, not only to the students themselves but also to those whom they suggest medication, potential problems of self- medication should be emphasized to the students to minimize this risk.

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