

Research Article

**Self-Medication Practice for Dysmenorrhoea in Medical, Paramedical and Non-medical Students**

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ABSTRACT

Dysmenorrhea is responsible for significant absenteeism from college in female students. Self-medication and home remedies are used by the students for relief from menstrual discomfort. The pattern of self-medication varies among the medical, paramedical and non-medical students. Hence, the present study was done to analyze and compare the self-medication practice and drugs used for dysmenorrhoea among medical, paramedical and non-medical students. This was a cross-sectional study conducted among female students with dysmenorrhoea in M.S.Ramaiah College Campus, Bangalore. Out of total 261 female students; 84 were medical, 91 paramedical and 86 non-medical students. Data was collected with prevalidated questionnaire related to various aspects like demographic data, symptoms and duration of dysmenorrhoea and pattern of management in the three groups. Data collected was analyzed using SPSS version 20. The mean age of female students with dysmenorrhoea was 19.37 ± 0.99 years. 39% students perceived hormonal changes as causative factor for dysmenorrhoea. About 112(42.9%) were on self-medication and 78(29.9%) of students used home remedies for dysmenorrhoea. Among 112 students, drugs commonly used for self-medication were mefenamic acid + dicyclomine (63.4%) followed by paracetamol (17.9%), dicyclomine (9.8%) and ibuprofen (7.1%). Mefenamic acid was used commonly by students in three groups. Non-medical students used more of dicyclomine (22.2%) when compared with medical (4.2%) and non-medical students (3.6%). Dysmenorrhoea is a common cause for self-medication among females. Self-medication practice for dysmenorrhoea was seen more in medical students where as non-pharmacological remedies in paramedical and non-medical female students. Analgesics like mefenamic acid and paracetamol are the mainstay of self-medication for dysmenorrhoea.

Keywords: Cross-sectional study, Dysmenorrhoea, Medical students, Non-medical students, Paramedical students, Self-medication.

INTRODUCTION

Dysmenorrhoea is the most common gynaecological problem in adolescent females and young adult females.¹ It is the periodic, spasmodic lower abdomen menstrual crampy pain which interferes with daily activities, physical and emotional aspects of young women.² Dysmenorrhoea is responsible for significant college absenteeism among adolescents and young adult females.^{3,4}

Dysmenorrhoea is of two types: primary and secondary. Primary dysmenorrhoea refers to pain with no obvious pathologic pelvic disease. Secondary dysmenorrhoea refers to painful menses resulting from pelvic pathology like endometriosis, pelvic inflammatory disease, adenomyosis, fibroids and polyps. Primary dysmenorrhoea typically occurs in young women while secondary dysmenorrhoea is more common in older women. Dysmenorrhoea is commonly associated with systemic symptoms like lower back pain, nausea, vomiting, diarrhoea, fatigue and headache. Most symptoms can be explained by the action of uterine prostaglandins, particularly $PGF_{2\alpha}$. During endometrial sloughing, endometrial cells release $PGF_{2\alpha}$ as menstruation begins; $PGF_{2\alpha}$ stimulates myometrium contractions, ischemia and sensitization of nerve endings. The most common pharmacological treatments for dysmenorrhoea are Non-Steroidal Anti Inflammatory Drugs (NSAIDs).⁵ Several NSAID preparations, including

mefenamic acid, ketoprofen, ibuprofen, paracetamol and diclofenac are proven to be effective treatment which inhibit cyclooxygenase, leading to a reduction in prostaglandin production. The resulting lower level of prostaglandins leads to less vigorous contractions of the uterus and reduces discomfort for primary dysmenorrhoea. Hence, NSAIDs are used as self-medication in primary dysmenorrhoea as they are easily available as over the counter drugs.

Self-medication is termed as the use of medicines especially designed and labeled for use without medical supervision and approved as safe and effective for such use. They are called Non-prescription or OTC (Over the Counter) drugs and are available without doctor's prescription through pharmacies.⁶ Hence, the present study has been taken up to analyze the self-medication practice among medical, paramedical and non-medical students.

Objectives

To analyze drugs used as self-medication for dysmenorrhoea and to compare self-medication practice for dysmenorrhoea in medical, paramedical and non-medical students.

MATERIALS AND METHODS

This was a cross-sectional study conducted in M. S. Ramaiah College Campus, Bangalore from October 2012



to March 2013 with prior approval from Institutional Ethics Committee. Medical, paramedical and non-medical female students aged ≥ 18 years with dysmenorrhoea and willing to give written informed consent were included. The self-medication practice and characteristics of dysmenorrhoea was assessed with a pre-validated questionnaire. The data collected were: demographic characteristics (age, BMI), duration of dysmenorrhoea, severity of menstrual flow, the discomfort experienced during dysmenorrhoea by the students such as leg and abdominal cramps, headache, generalized body ache, mood disturbance, acne and remedial methods practiced such as self-medication, home remedies (such as use of fenu greek seeds and increased fluid intake), physical exercise, hot water bath, sleep and rest, consultation of doctor were recorded. Impact of dysmenorrhoea on daily routine, social activity, insomnia, increased stress, college absenteeism and academic performance were also considered. The cause of dysmenorrhoea as perceived by students, source of information for self medication, source of procurement of drugs for self-medication among the students, the types of drugs used were recorded.

Based on a previous study by Cheng HF, Lin YF, et al 186 female students with dysmenorrhoea was needed for 80% power and 95% confidence interval with alpha error of 5% for the study.⁷ Statistical analysis was done using SPSS version 20. The demographic characteristics, duration of discomfort, associated symptoms and cause of dysmenorrhoea as perceived by the students were analyzed by descriptive statistics. The remedial methods used by the students such as self-medication, home remedies and the drugs used for self-medication for dysmenorrhoea were analyzed by chi square test and $p < 0.05$ was considered as statistically significant.

RESULTS

Our cross-sectional study included 261 female students with dysmenorrhoea from M.S Ramaiah college campus comprised of 84 medical students (second year MBBS), 91 paramedical students (which included physiotherapy and nursing students) and 86 non-medical students (included Biotechnology engineering and law students). The mean age of 261 female students with dysmenorrhoea was 19.37 ± 0.99 years. The mean age in medical group was 19.49 ± 1.28 years, 19.57 ± 0.86 years in paramedical group and 19.07 ± 0.85 years in non-medical group ($p > 0.05$). The mean BMI was 23.4 ± 1.2 kg /m². 98.8% of medical, 73.5% of paramedical and 30.1% of non-medical female students were aware of the term dysmenorrhoea. Menstrual cycle characteristics including regularity, duration of menstrual period and amount of flow during menstrual period were recorded (table 1). The common symptoms associated with menstrual discomfort were backache, generalized tiredness, abdominal pain, mood disturbances, anxiety and acne problems (table 2). Discomfort was experienced in menstrual period and

premenstrual period (table 3). Duration of menstrual discomfort was recorded (figure 1).

Out of total 261 female students with dysmenorrhoea; 115 (44.1%) students described their menstrual discomfort as stressful, 54(20.7%) students had difficulty in carrying out their social activities and 37(14.2%) students had insomnia due to dysmenorrhoea. 60(22.9%) students experienced difficulty in carrying out their daily activities, 24(9.2%) students had to absent themselves from college due to dysmenorrhoea and 19(7.3%) students recorded poor academic performance.

The cause of primary dysmenorrhoea as perceived by the students were hormonal changes, stress and familial condition mainly in medical group when compared with other groups ($p < 0.05$). Lack of exercise was considered as the cause mainly by non-medical students ($p < 0.05$). Diet like coffee consumption was considered as causative factor mainly by paramedical students ($p < 0.05$) (figure 2).

The remedial methods practiced by students with dysmenorrhoea were mainly self-medication, home remedy and exercise. Self-medication was mainly practised by medical followed by non-medical students with dysmenorrhoea ($p < 0.05$). Home remedy was mainly practised by paramedical students followed by non-medical students ($p < 0.05$). Physical exercise was mainly practised by non-medical students ($p < 0.05$). Other methods practised by the students were hot water bath, rest and sleep ($p > 0.05$). Only 3% of the students consulted doctor (figure 3).

The source of information for self-medication was family members in 30(26.8%) students followed by pharmacist in 5(1.9%) students. Among the students who practiced self medication 50.9% purchased it directly from pharmacy, 28.6% procured the drugs from relatives and friends and 20.5% from left over medication.

Out of total 112 (42.9%) students with dysmenorrhoea who practised self-medication, 71(63.4%) used fixed drug combination of mefenamic acid and dicyclomine, 20(17.9%) used paracetamol, 8(7.1%) used ibuprofen, 11(9.8%) used dicyclomine and 2(1.8%) used hyoscine as depicted in figure 4. Fixed drug combination of mefenamic acid and dicyclomine was mainly used by students in all three groups followed by paracetamol ($p < 0.05$). Dicyclomine was used by non-medical students more than other groups ($p < 0.05$). Single drug was used by 35 (31.3%) students, 2-3 types of medications were used by 12 (10.7%) students. Single dose was used by 86 (76.8%) students during the discomfort.

DISCUSSION

In our cross sectional study, 261 female students with dysmenorrhoea were analyzed for menstrual pattern and self treatment strategies with pre-validated questionnaire. 206 (78.9%) students suffered from dysmenorrhoea in spite of having regular cycles. The medical students were more aware of the term



dysmenorrhoea when compared to paramedical and non-medical students. The majority of students across the groups considered hormonal changes and stress as the cause of dysmenorrhoea; some considered it as familial. The menstrual discomfort was associated with leg cramps, abdominal cramps, headache, generalized body ache, tiredness, nausea, vomiting, mood disturbances resulting in a stressful period for the students and limited their daily activities.^{8,9} Similar to some previous studies,

our study also showed the impact of dysmenorrhoea on social activities of the students, absenteeism from college and resulting in poor academic performance.^{9,10,11} Paramedical and non-medical students reported significantly greater limitation of daily activities due to dysmenorrhoea than medical students ($p < 0.05$). College absenteeism was seen in three groups similar to previous study ($p > 0.05$).¹¹

Table 1: Characteristics of the menstrual cycle in female students with dysmenorrhoea

	Medical (n=84) N (%)	Paramedical (n=91) N (%)	Non-medical (n=86) N (%)
Regular menstrual cycle	73(86.9)	72(79.1)	61(70.9)
Irregular menstrual cycle	11(13.1)	19(20.9)	25(29.1)
Duration of menstrual period			
1-2 days	03(03.6)	03(03.3)	01(01.2)
3-5 days	56(66.6)	34(37.4)	33(38.3)
>5days	25(29.8)	54(59.3)	52(60.5)
Amount of menstrual flow			
Little (1-2 pads/day)	60(71.4)	58(63.7)	56(65.1)
Moderate (2-3 pads/day)	21(25.0)	32(35.2)	29(33.7)
Heavy (>3 pads/day)	03(03.6)	01(01.1)	01(01.2)
Interval between each menstrual cycle			
<21 days	01(01.2)	10(11.0)	12(13.9)
21-35 days	71(84.5)	66(72.5)	63(73.3)
>35days	12(14.3)	15(16.5)	11(12.8)

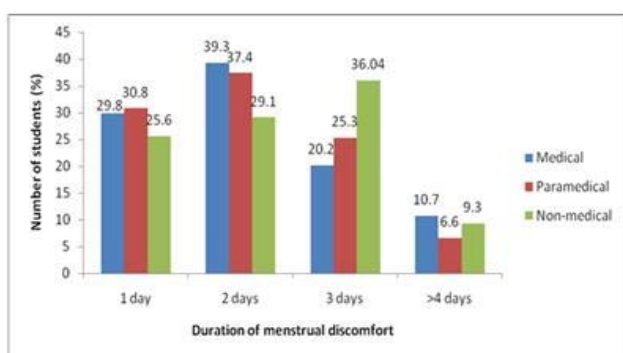


Figure 1: Bar chart showing duration of menstrual discomfort among students with dysmenorrhoea

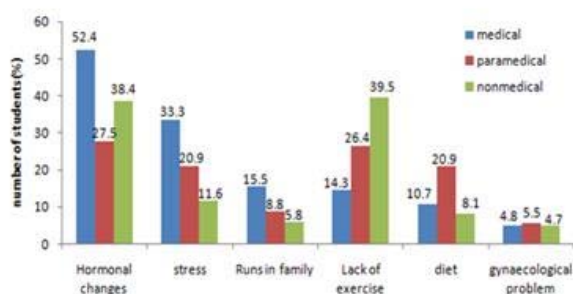


Figure 2 - Bar chart showing the cause of dysmenorrhoea as perceived by the medical, para-medical and non-medical students with dysmenorrhoea.

Table 2: Symptoms associated with menstrual discomfort experienced by female students with dysmenorrhoea

Symptoms during dysmenorrhoea	Medical (N)	Para medical (N)	Non-medical (N)
Nausea	15	11	07
Vomiting	05	09	07
Dizziness	10	11	10
Headache	11	20	07
Backache	50	59	48
Tiredness	48	54	34
Myalgia	23	10	16
Anxiety	20	21	12
Mood	33	44	34
Diarrhoea	09	04	02
Breast heaviness	12	13	08
Leg cramps	28	28	15
Leg swelling	02	02	05
Abdominal pain	27	59	45
Acne	22	23	27
Sweating	02	03	00

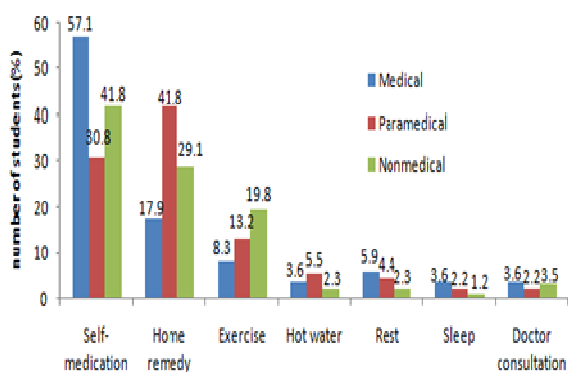
Table 3: Showing the number of students with discomfort during menstrual cycle and premenstrual period

Menstrual Discomfort	Medical (n=84) N (%)	Para-medical (n=91) N (%)	Non-medical (n=86) N (%)
During menstrual cycle	47(55.9)	46(50.5)	37(43.0)
During premenstrual period	18(21.4)	17(18.7)	14(16.3)
Both	19(22.6)	28(30.7)	35(40.7)

Our study showed that self treatment strategy used by the students for dysmenorrhoea were self medication and non pharmacological remedies like home remedy, exercise, rest, hot water bath and sleep similar to previous studies by Eryilmaz et al and Connel et al.^{12, 13}

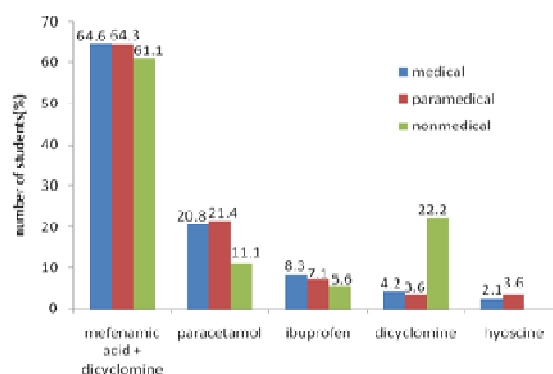
Self-medication practice was more common in medical students (40.5 %) probably due to knowledge of drugs for dysmenorrhoea, better awareness of self-medication and greater access to drug information during their curriculum. Non pharmacological remedies were common in paramedical and non-medical students which gave relief during the discomfort and also were safer. Majority of the students experienced discomfort only during menstrual cycle, some during the premenstrual period and some during both premenstrual and menstrual period adding to stress burden among the students.

The drugs used for self-medication practice were mainly fixed drug combination of mefenamic acid and dicyclomine followed by paracetamol in the three groups.

**Figure 3:** Bar chart showing remedial methods practiced by medical students, paramedical and non-medical students with dysmenorrhoea

Non-medical students used more of dicyclomine. The other drugs used were ibuprofen and hyoscine. NSAIDs were commonly used as self-medication similar to previous studies.^{5,11,14,15,16}

The students resorted to self-medication practice because dysmenorrhoea was a common problem with each cycle in many students, due to cost burden to seek medical help every time and their familiarity with remedy. The strengths of our study - sample size were achieved with a power more than 90% and also prevalidated questionnaire was used.

**Figure 4:** Bar chart showing the drugs used for self-medication by the medical, paramedical and non-medical students with dysmenorrhoea

CONCLUSION

Dysmenorrhoea is a common cause for self-medication among adolescent and young adult females. Self-medication practice for dysmenorrhoea was seen more in medical students where as non-pharmacological remedies were seen more commonly in paramedical and non-medical female students. NSAIDs (Mefenamic acid and paracetamol) were the commonly used drugs for self-medication in dysmenorrhoea. Since NSAIDs and other drugs which are used commonly for self-medication can lead to adverse drug reactions, it is advisable to create awareness to consume drugs only in severe discomfort after prescription by the registered practitioners.

REFERENCES

- Kolhe S, Deb S, Dysmenorrhea, *Obstet Gynaecol Reprod Med*, 21, 2011, 311-316.
- Proctor M, Farquhar C, Diagnosis and management of dysmenorrhoea, *BMJ*, 332, 2006, 1134-1138.
- Harel Z, Dysmenorrhea in adolescents and young adults: etiology and management, *J Pediatr Adolesc Gynecol*, 19(6), 2006, 363-371.
- Sultan C, Gaspari L, Paris F, Adolescent dysmenorrhea, *Endocr Dev*, 22, 2012, 171-180.
- Marjoribanks J, Proctor M, Farquhar C, Derks RS, Nonsteroidal anti-inflammatory drugs for dysmenorrhoea, *Cochrane Database of Systematic Reviews* 2010, Issue 1. Art. No.CD001751.DOI:10.1002/14651858.CD001751. pub2
- Hughes CM, McElnay JC, Fleming GF, Benefits and risks of self medication, *Drug Saf*, 24, 2001, 1027-1037.
- Cheng HF, Lin YH, Selection and efficacy of self-management strategies for dysmenorrheal in young Taiwanese women, *J Clin Nurs*, 20(7-8), 2011, 1018-1025.

8. Pembe AB, Ndolele NT, Dysmenorrhoea and coping strategies among secondary school adolescents in Ilala District, Tanzania, East Afr J Public Health, 8(3), 2011, 232-236.
9. Banikarim C, Chacko M, Kelder SH, Prevalence and impact of dysmenorrhea on hispanic female adolescents, Arch. Pediatr. Adolesc. Med, 154, 2000, 1226–1229.
10. Ortiz MI, Primary dysmenorrhea among Mexican university students: prevalence, impact and treatment, Eur J Obstet Gynecol Reprod Biol, 152(1), 2010, 73-77.
11. Eryilmaz G, Ozdemir F, Evaluation of menstrual pain management approaches by Northeastern Anatolian adolescents, Pain Manag Nurs, 10(1), 2009, 40-47.
12. O'Connell K, Davis A R, Westhoff C, Self-treatment patterns among adolescent girls with dysmenorrhoea, J Pediatr Adolesc Gynecol, 19, 2006, 285-289.
13. Sugumar R, Krishnaiah V, Channaveera GS, Mruthyunjaya S, Comparison of the pattern, efficacy and tolerability of self-medicated drugs in primary dysmenorrhea: A questionnaire based survey, Indian J Pharmacol, 45, 2013, 180-183.
14. Dawood MY, Primary dysmenorrhea: advances in pathogenesis and management, 108(2), 2006, 428-441.
15. French L, Dysmenorrhea in adolescents, Diagnosis and treatment, Pediatr Drugs, 10, 2008, 1-7.

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