ORIGINAL ARTICLE

# FREQUENCY OF DYSMENORRHOEA, ITS IMPACT AND MANAGEMENT STRATEGIES ADOPTED BY MEDICAL STUDENTS

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**Background**: Dysmenorrhea is quite frequent and may affect the daily activities especially during the early years of adolesence. This study aimed to evaluate the prevalence of dysmenorrhoea, its impact, and the management strategies adopted. **Methods**: This cross-sectional study was done with 356 consenting females studying at Mohiuddin Islamic University, Mirpur Azad Kashmir, between 18–25 years of age, with regular menstrual cycles and normal abdomino-pelvic ultrasound and not taking any medication. Information was gathered regarding age, residence, menstrual history, body mass index (BMI), associated symptoms, remedies used and days lost. **Results:** A total of 56.1% females had dysmenorrhoea. The mean age of participants was 21.01±1.54 years, mean age of menarche was 12.9±1.65 years, mean duration of menstrual flow was 4.75±1.27 days and mean BMI was 24.1±1.6. 17% of the participants were dieting and 26% had daily milk intake. 25% reported being absent due to pain and number of days lost was 1.5±1.0 days. Common symptoms associated with the dysmenorrhoea were difficulty concentrating in 65%, less involvement in social activities and sleep affected in 64%, mood disturbances in 58% and headache in 56%. Household remedies for dysmenorrhea were used by 43% and 66% used analgesics and only 4% sought medical advice for pain. **Conclusion:** Dysmenorrhoea is a very common problem affecting academic performance and limiting daily activities requiring appropriate intervention.
**Keywords:** Dysmenorrhoea, Body mass index, medical students

## INTRODUCTION

Dysmenorrhoea is defined as painful menstrual cramps of uterine origin. It is commonly divided into primary dysmenorrhoea (pain without organic pathology) and secondary dysmenorrhoea (pelvic pain associated with an identifiable pathological condition, such as endometriosis or ovarian cysts). The initial onset of primary dysmenorrhoea is usually shortly after menarche (6–12 months), when ovulatory cycles are established. Pain duration is commonly 8–72 hours and is usually associated with the onset of menstrual flow.[1] Adolescent girls tend to have a higher prevalence of primary dysmenorrhoea than older women as primary dysmenorrhoea improves with age. In developing countries it was found that 25–50% of adult women and about 75% of adolescents experienced pain with menstruation, with 5–20% reporting severe dysmenorrhoea or pain that prevents them from participating in their usual activities.[2] Age <30 years, low BMI, smoking, earlier menarche (<12 years), longer cycles, heavy menstrual flow, nulliparity, premenstrual syndrome, sterilisation, clinically suspected pelvic inflammatory disease, sexual abuse, and psychological symptoms were associated with increased risk of dysmenorrhoea.[3]

This study was performed on medical and D-Pharm students obtaining their degree at Mohiuddin Islamic University, Mirpur, Azad Kashmir. Medical students represent a population with better knowledge, understanding and exposure to other forms of chronic suffering, which might result in different pain perception and different approach to pain management and coping skills. This study aimed to evaluate the frequency of dysmenorrhoea, its impact, and the management strategies adopted by medical students.

## MATERIAL AND METHODS

This cross-sectional survey was conducted on 356 female medical students studying at Mohiuddin Islamic University, Mirpur Azad Kashmir after ethical committee approval, who fulfilled the inclusion criteria from January to June 2013. Inclusion criteria for participation was females between 18–25 years of age, having regular menstrual cycles, normal abdomino-pelvic ultrasound and willing to give informed consent to participate in the study. The participants were assured of complete confidentiality and data obtained was being used purely for research purposes. Exclusion criteria was age less than 18 years and above 25 years, irregular menstrual cycles, presence of an abnormal abdomino-pelvic ultrasound and those refusing to give consent to participate in the study. Participants were also excluded if they were taking concomitant

medications including antipsychotics, antidepressants, sedative hypnotics, antispasmodics, corticosteroids or taking physician prescribed medications.

A structured questionnaire was used to obtain the data including age, area of residence either at medical college hostel or commuting from home, student of MBBS or Pharm-D and in which year of degree. Menstrual history including age of menarche, duration of menstrual flow and duration of premenstrual syndrome. Severity of pain was assessed using the pain scale of 0–10, with 0 representing no pain and 10 representing the worst pain imaginable experienced by the participants. Body mass index (BMI) was also recorded. The students were asked about associated symptoms, i.e., headache, vomiting, mood disturbances, difficulty concentrating, sleep disturbances, breast tenderness, abdominal bloating and effect on social activities. They were also questioned regarding if they were trying to lose weight and about regular milk consumption. The students were asked if they tried home remedies to alleviate the pain, allopathic medication or both. They were also asked about the analgesic used, i.e., paracetamol, aspirin, brufen, diclofenac or mefenamic acid. If the medication had any effect on the menstrual blood flow, i.e., increased, decreased or had no effect.

The data was analysed on SPSS-19. Frequencies and percentages were calculated for categorical variables e.g., degree either MBBS or D-Pharm, year of Degree, place of residence, work days lost due to dysmenorrhea ,trying to reduce weight, regular consumption of milk. Also for symptoms associated with dysmenorrhoea, i.e., headache, vomiting, mood disturbance, difficulty concentrating on studies, sleep affected, breast tenderness, abdominal bloating and less involvement in social activities. Frequencies and percentages were also calculated for household remedies used or not, allopathic medicine (Analgesics) and which analgesic was used and its effect on menstrual blood flow. Mean and standard deviation was calculated for quantitative date e.g., age, height, weight, BMI, age of menarche, duration of menstrual flow and duration of Pre-menstrual syndrome.

## RESULTS

A total of 356 females were asked to participate in this study. These 356 students were asked about dysmenorrhea and those who reported having dysmenorrhea were further enquired using the questionnaire. Two hundred (56.1%) females reported having dysmenorrhea. The mean age of the girls having dysmenorrhea was 21.01±1.54 years, of these females 168 (84%) were obtaining their MBBS degree and 32 (16%) were obtaining their Pharm-D degree. Thirty-six (18%) were first year students while 66 (33%) were second year students, 28 (14%) were third year students, 26 (13%) were forth year and 44 (22%) were final year students. Of the 200 students 186 (93%) were living in the medical college hostel and 14 (7%) were commuting from home.

Age of menarche was 12.9±1.65 years and duration of menstrual flow was 4.75±1.27 days. Duration of Pre-menstrual syndrome was 1.5±0.7 days. Mean weight in kilograms was 55.2±5.6 and height (cm) was 151.2±4.7. The BMI was calculated and average BMI was 24.1±1.6. 34 (17%) admitted to dieting whereas 166 (83%) were not dieting. 52 (26%) students had regular daily milk intake and 148 (74%) didn't have regular milk intake. Of the 52 students 32 students had two cups of milk a day and 20 had one cup a day. The students were questioned regarding work days lost due to dysmenorrhoea and 50 (25%) answered yes and 150 (75%) said no and the number of days lost was 1.5±1.0 days.

The students were questioned about the symptoms associated with the dysmenorrhoea. Headache was present in 112 (56%) and vomiting in 60 (30%). Mood disturbance were present in 116 (58%), low mood being present in 100 of the female students and irritability in 16 of the participants. Difficulty in concentrating on studies was present in 130 (65%). Sleep disturbances was seen in 124 (64%) with 80 saying their sleep was less as compared to when dysmenorrhoea was absent. Breast tenderness was present in 64 (32%), abdominal bloating in 48 (24%) and less involvement in social activities was seen in 128 (64%) of the students. Less involvement was present due to the combined effect of the dysmenorrhoea and associated symptoms.

Household remedies were used by 86 (43%) of the students to relieve the dysmenorrhoea and 132 (66%) used allopathic medicine (analgesics). Paracetamol was used by 26%, Aspirin by 15%, Ibuprofen by 15%, Diclofenac sodium by 10%, Mefenamic acid by 26% and combination of analgesic by 8% of the participating students. Effect of the analgesics used on menstrual blood flow was also inquired. One hundred and seventy-seven (88.5%) of the students reported no effect on blood flow, 22 (11%) had decreased blood and 1 (0.5%) reported increase blood flow and she used aspirin as a painkiller. Only 4% admitted to seeking medical advice for

the pain and 96% self-treated either pharmacologically or non-pharmacologically.

**Table-1: Characteristics of study participants**

| Characteristics (n=200) | | Results |
|---|---|---|
| Age±S.D (years) | | 21.01±1.54 |
| Degree | MB, BS | 168 (84%) |
| | Pharm-D | 32 (16%) |
| Year of Degree | First year | 36 (18%) |
| | Second year | 66 (33%) |
| | Third year | 28 (14%) |
| | Fourth year | 26 (13%) |
| | Final year | 44 (22%) |
| Residence | Living at home | 14 (7%) |
| | Living in hostel | 186 (93%) |
| Weight (kg) | | 55.2±5.6 |
| Height (cm) | | 151.2±4.7 |
| Body Mass Index±S.D (BMI) | | 24.1±1.6 |
| Age of Menarche±S.D (years) | | 12.9±1.65 |
| Duration of Menstrual flow±S.D (days) | | 4.75±1.27 |
| Duration of Pre-menstrual syndrome (days) | | 1.5±0.7 |
| Work days lost due to dysmenorrhea | | 50 (25%) |
| Number of work days lost±S.D (days) | | 1.5±1.0 |
| Trying to reduce weight | | 34 (17%) |
| Regular consumption of milk | | 52 (26%) |
| Medical advice taken | | 8 (4%) |

**Table-2: Symptoms associated with dysmenorrhea**

| Characteristics | Results |
|---|---|
| Headache | 112 (56%) |
| Vomiting | 60 (30%) |
| Mood disturbance | 116 (58%) |
| Difficulty concentrating on studies | 130 (65%) |
| Sleep affected | 124 (64%) |
| Breast tenderness present | 64 (32%) |
| Abdominal bloating present | 48 (24%) |
| Less involvement in social activities | 128 (64%) |

## DISCUSSION

The frequency of dysmenorrhoea was 56.1% in our study; the prevalence of dysmenorrhoea is different and varies amongdifferent studies performed in various countries. Similar prevalence of 64% and 74.3% were seen in studies conducted on medical students in Mexico[4]and Nigeria.[5] The prevalence of dysmenorrhoea was reported as high as 80%, 88% and 93% in studies also performed on medical students in Hong Kong, Turkey and Taiwan respectively.[6–8]

Dysmenorrhoea was measured on pain scale from 0–10 with 0 being no pain and 10 being worst pain ever appreciated by the participants. The mean pain score in our study was 6.7±1.3 being more severe on the first day of menstrual bleeding and gradually decreasing to no pain on the third day of the menstrual blood flow. Pathophysiology behind dysmenorrhoea being present early on and particularly in the initial days is the increased release of prostaglandins causing intense uterine contractions, decrease uterine blood flow causing

ischemic necrosis of endometrial lining and nerve hypersensitivity, ultimately causing expulsion of the endometrial lining.[9,10] The pain score in a study conducted in Hong Kong was 5.0±1.7.[6] Measurement of the severity of pain has been different as different studies have used different scales for measurement of pain i.e. visual analogue scale(VAS).[11,12]

The mean BMI of the participating students was 24.1±1.6 (normal range 18.5–24.9). The BMI was within the normal range in our participants and dysmenorrhoea present in 56.1%. The co-relation of BMI and dysmenorrhoea was studied in a study conducted on college women in Japan in whom the prevalence of menstrual pain was very high (82.8%), the frequency being greatest in the underweight group (BMI <19.8). Given the current trend for young women to wish to be thin the study suggests that it is very important to take measures to counteract young women's enthusiasm for excessive dieting or other approaches to weight loss since this will help reduce their menstrual pain and improve quality of life and also suggesting that improving the nutritional status may reduce dysmenorrhea.[13] Trying to lose weight also had an impact on dysmenorrhoea, in our study 17% were trying to lose weight and it was shown that attempting to lose weight was significantly associated with increased prevalence of menstrual irregularity and menstrual pain. However these findings is independent of body mass index.[14]

The intake of dairy calcium in the form of milk was also analysed in our study population with only 26% consuming one glass or more daily which shows low intake of calcium being associated with dysmenorrhoea as seen in other studies.[15] However another study showed no relationship of dysmenorrhoea to daily dairy product consumption.[16]

The most common symptoms observed to be associated with dysmenorrhoea were difficulty concentrating on studies in 65%, less involvement in social activities (64%), sleep affected in 64%, mood disturbances in 58% and headache in 56%. Less common symptoms were vomiting present in 30%, breast tenderness present in 32%, abdominal bloating in 24% of the students. Similar results have been seen in a study done in Portugal in which 62.8% subjects experienced menstrual pain and 65.7% reported having limitations in their daily activities due to dysmenorrhea, anxiety/depression being present in 42.5%.[17]A study from Hong Kong reported the symptoms associated with dysmenorrhoea to be as follow; reduced ability to concentrate and/or disturbance with study (75%), changes in normal physical activity (60%), adverse effect on psychosocial well-being (36%) and sleep disturbance (26%).[6] In another study the most commonly associated symptoms were nausea/vomiting (76%)

followed by headache (63%), sweating (39%), diarrhoea (38%), dizziness (36%), loss of appetite (35%), and fainting (28%).[9]

Different methods were adopted by the participating females to relieve the pain, in our study household remedies were used 43%. The household remedies consisted of hot water pads, heating pads and green tea to sooth the pain. A US study showed that apart from medication non-pharmacological remedies were also used.[18] 66% of the females used allopathic medicine (analgesics). Paracetamol was used by 26%, Aspirin by 15%, Ibuprofen by 15%, Diclofenac sodium by 10%, Mefenamic acid by 26% and combination of analgesic by 8% of the participating students. Effect of the analgesics used on menstrual blood flow was also inquired, 88.5% of the students reported no effect on blood flow, 11% had decreased blood flow and 0.5% reported increase blood flow. Aspirin probably due to its antiplatelet effect caused the increased blood flow in the participant. New techniques such as acupuncture are becoming increasingly popular in China to manage dysmenorrhoea.[19] Thus demonstrating young women cope with dysmenorrhoea differently and differ in different cultures.

The number of working days lost by the participants due to pain was 1.5±1 and 25% admitted to being absent form college ($p<0.001$). Similar results were obtained in 25.8% of school going girls in India[20] and only 10% had taken sick leaves in a study done in China.[18] Only 4% admitted to seeking medical advice for the pain and 96% self-treated either pharmacologically or non-pharmacologically which is in comparison to a study from China where only 6.4% sought medical advice and rest self-medicated.[21]

## CONCLUSION

It can be concluded from this study that dysmenorrhea is a very common problem among medical students and they experience a number of physical and emotional symptoms associated with dysmenorrhea. As seen it affects their academic performance and limits their daily activities and requires appropriate intervention through change in lifestyle and medical guidance. However, only a minority seek medical advice and an inverse relationship was observed between calcium intake and dysmenorrhoea.

## REFERENCES

1. Latthe PM, Champaneria R, Khan KS. Dysmenorrhoea. ClinEvid (Online). 2011;2011. pii: 0813. PubMed PMID: 21718556
2. Harlow SD, Campbell OM. Epidemiology of menstrual disorders in developing countries: a systematic review. BJOG. 2004;111:6–16.
3. French L. Dysmenorrhea. Am Fam Physician 2005;71:285–91.
4. Ortiz MI. Primary dysmenorrhea among Mexican university students: prevalence, impact and treatment. Eur J Obstet Gynecol Reprod Biol 2010;152:73–7.
5. Okusanya BO, Garba KK, Okome GB, Ohiosimuan O. Menstrual pain and associated factors amongst undergraduates of Ambrose Alli University Ekpoma, Edo State, Nigeria. Niger J Med 2009;18:409–12.
6. Chia CF, Lai JH, Cheung PK, Kwong LT, Lau FP, Leung KH, *et al*. Dysmenorrhoea among Hong Kong university students: prevalence, impact, and management. Hong Kong Med J 2013;19:222–8.
7. Polat A, Celik H, Gurates B, Kaya D, Nalbant M, Kavak E, *et al*. Prevalence of primary dysmenorrhea in young adult female university students. Arch Gynecol Obstet 2009;279:527–32.
8. Cheng HF, Lin YH. Selection and efficacy of self-management strategies for dysmenorrhea in young Taiwanese women. J Clin Nurs 2011;20:1018–25.
9. 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 2013;45:180–3.
10. Campbell M, McGrath P. Use of medication by adolescents for the management of menstrual discomfort. Arch Pediatr Adolesc Med 1997;151:905–13.
11. Larroy C. Comparing visual-analog and numeric scales for assessing menstrual pain. Behav Med 2002;27:179–81.
12. Unsal A, Ayranci U, Tozun M, Arslan G, Calik E. Prevalence of dysmenorrhea and its effect on quality of life among a group of female university students. Ups J Med Sci 2010;115:138–45.
13. Hirata M, Kumabe K, Inoue Y. Relationship between the frequency of menstrual pain and bodyweight in female adolescents. Nihon Koshu Eisei Zasshi 2002;49:516–24.
14. Montero P, Bernis C, Fernandez V, Castro S. Influence of body mass index and slimming habits on menstrual pain and cycle irregularity. J Biosoc Sci 1996;28:315–23.
15. Abdul-Razzak KK, Ayoub NM, Abu-Taleb AA, Obeidat BA. Influence of dietary intake of dairy products on dysmenorrhea. J Obstet Gynaecol Res 2010;36:377–83.
16. Obeidat BA, Alchalabi HA, Abdul-Razzak KK, Al-Farras MI. Premenstrual symptoms in dysmenorrheic college students: prevalence and relation to vitamin D and parathyroid hormone levels. Int J Environ Res Public Health 2012;9:4210–22.
17. Rodrigues AC, Gala S, Neves A, Pinto C, Meirelles C, Frutuoso C, Vítor ME. Dysmenorrhea in adolescents and young adults: prevalence, related factors and limitations in daily living. Acta Med Port 2011;24:383–8.
18. O'Connell K, Davis AR, Westhoff C. Self-treatment patterns among adolescent girls with dysmenorrhea. J Pediatr Adolesc Gynecol 2006;19:285–9.
19. Ma YX, Ye XN, Liu CZ, Cai PY, Li ZF, Du DQ, *et al*. A clinical trial of acupuncture about time-varying treatment and points selection in primary dysmenorrhea. J Ethnopharmacol 2013;148:498-504.
20. Chaudhuri A, Singh A. How do school girls deal with dysmenorrhoea? J Indian Med Assoc. 2012;110:287–91.
21. Chan SS, Yiu KW, Yuen PM, Sahota DS, Chung TK. Menstrual problems and health-seeking behaviour in Hong Kong Chinese girls. Hong Kong Med J. 2009;15:18–23.

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