



DYSMENORRHOEA AND QUALITY OF LIFE AMONG MEDICAL AND NURSING STUDENTS: A CROSS-SECTIONAL STUDY

Mamta K Shewte¹, Manik S Sirpurkar²

Financial Support: None declared
Conflict of interest: None declared
Copy right: The Journal retains the copyrights of this article. However, reproduction of this article in the part or total in any form is permissible with due acknowledgement of the source.

How to cite this article:

Shewte MK, Sirpurkar MS. Dysmenorrhoea and Quality of Life among Medical and Nursing Students: A Cross-Sectional Study. Ntl J Community Med 2016; 7(6):474-479.

Author's Affiliation:

¹Assistant Prof, Dept. of Community Medicine; ²Associate Prof, Dept. of Obstetrics and Gynaecology, CMCH, Bhopal

Correspondence:

Dr. Mamta Shewte
mamtashewte2@gmail.com

Date of Submission: 28-12-15

Date of Acceptance: 27-05-16

Date of Publication: 30-06-16

ABSTRACT

Background: Dysmenorrhoea may also affect the health-related quality of life (HRQoL) may be disrupted among adolescent women. This study was conducted to assess the prevalence of dysmenorrhoea and its impact on quality of life among medical and nursing students.

Methodology: A cross sectional study conducted from November 2014 to January 2015 at Chirayu Medical College and Hospital in central India, among 311 medical and nursing students using a Health Survey Questionnaire from the Medical Outcomes Study Short Form-36 (SF-36) to determine the HRQoL (Health related Quality of Life) of the study subjects.

Results: Total 311 study subjects were studied, among them 202 (64.95%) were MBBS & 109 (35.05%) were nursing students. The average age of the students was 19.9 ± 1.6 years. 91.63% study subjects were Hindu by religion. The overall prevalence of dysmenorrhoea was found to be 72.02% ($n = 224$). In those with dysmenorrhoea the scores received from all the domains of HRQoL were lower. It was statistically significant using student t test.

Conclusions: Dysmenorrhoea is a very common problem among adolescent girls; it affects their quality of life. HRQoL decreases with the increase in the severity of dysmenorrhoea.

Key Words - Dysmenorrhoea, Bleeding, Health relate quality of life (HRQoL), SF-36.

INTRODUCTION

Menstruation has vivid description and social stigma, mood and behavioural changes date back to Hippocrates, the Talmud and the Bible. In spite of the fact of existence of painful menstruation in ancient literature, it was only in the last half of past century when dysmenorrhoea has been accorded impartial scientific evaluation.¹

Dysmenorrhoea may be categorized into two distinct types: primary and secondary. Primary dysmenorrhoea is defined as painful menses with normal pelvic anatomy, usually beginning during adolescence.² Secondary dysmenorrhoea is menstrual pain associated with underlying pathology, and its onset may be years after menarche. Dys-

menorrhoea is characterized by crampy pelvic pain beginning shortly before or at the onset of menses and lasting 1-3 days.³ Some 2-4 days before menstruation begins, prostaglandins proceed into the uterine muscle where they build up quickly at menstrual onset and act as smooth muscle contractors that aid in the expulsion of the endometrium.⁴

Studies on the prevalence of dysmenorrhoea have shown that many factors are related to this disorder. These factors include a younger age, low body mass index (BMI), smoking, early menarche, prolonged menstrual flow, perimenstrual complaints, pelvic infections, psychological disturbance, genetic influence.⁵ Emotional and behavioral problems may also exacerbate menstrual cycle prob-

lems and dysmenorrhoea. Due to the negative effects of dysmenorrhoea on an individual's psychological status, health-related quality of life (HRQoL) may be disrupted among adolescent women.⁶ Furthermore, dysmenorrhoea is a common cause of sickness absenteeism from both classes and work by the female student community.⁷

There is a wide variation in the estimate of dysmenorrhoea from studies around the world reporting a range between 28% and 71.7%.⁸ Various studies in India revealed that prevalence of dysmenorrhoea varies from 33% to 79.67%. However, the true incidence and prevalence of dysmenorrhoea are not clearly established in India.⁹

The present study was carried out to estimate the prevalence of dysmenorrhoea, its associated common symptoms, knowledge of its management and health-related quality of life (HRQoL) among medical and nursing students.

MATERIAL AND METHOD

This cross-sectional study was conducted from November 2014 to January 2015 at Chirayu Medical College and Hospital, a tertiary care centre at Bhopal, Madhya Pradesh. The convenient sampling method used and all the female in medical & nursing student studying in CMCH and consenting to participate were included in the study. At the time of data collection four batches were studying (2011 to 2014). A total of 414 (which include 295 female medical and 119 female nursing students) were studying till 2014 batch. Of the 414 students, 103 were excluded as 26 were unwillingness to participate while 77 were not at campus at the time of the study. The remaining 75.1 % (311/414) female students constituted the study group.

The inclusion criterion being: - the study subjects should be medical or nursing student of CMCH, Bhopal.

The study tool used was a predesigned and pre-tested structured questionnaire. The questionnaire include two parts; First part included:- socio-demographic profile, menstrual history, symptoms during dysmenorrhoea and knowledge about its management. The second part of the questionnaire include the questions from the Medical Outcomes Study Short Form-36 (SF-36) Health Survey Questionnaire to determine the HRQoL(Health related Quality of Life) of the study subjects.¹⁰ The SF-36 scale is the most widely used generic instrument for rating HRQoL. The validity and reliability of this instrument has been established for measuring HRQoL in large populations of both healthy and diseased individuals. The original questionnaire

was developed by Ware and Sherbourne¹⁰, and reliability and validity studies for the Turkish version of SF-36 were performed by Kocyigit et al.¹¹. It is a self-evaluation instrument consisting of 36 items which provide assessment in eight domains: physical functioning, social functioning, role limitations due to emotional problems (role-emotional), role limitations due to physical problems (role-physical), bodily pain, vitality, mental health, and general health perception. In our study, we used the Turkish version of SF-36, which showed good reliability and validity in the Turkish validation study¹¹. The subjects gave appropriate answers for the questions in the SF-36 scale for their depression status during the last 4 weeks. Scores changed from 0 to 100 for each domain separately. The high scores obtained from the scale shows that the HRQoL increases in a positive way.

After taking approval from the institutional ethic committee, the data was collected. The participation of study subjects was on voluntarily basis, written informed consent obtained from those who were willing to participate.

The investigators were available on site during distribution of questionnaire, to explain them the objective behind the study and to assist them in completing the questionnaire. Information was collected on the students' age, grade, residency, and family history of dysmenorrhoea. Questions related to menstruation like their age at menarche, regularity of the cycle, length and duration of the cycle, amount of bleeding (little, moderate or heavy), pain during menstruation, severity of the pain (mild, moderate or severe), associated symptoms, their impact on daily activities and absenteeism from class, treatment taken, if any and questions regarding Health-related quality of life (HRQoL) using Study Short Form-36 (SF-36) questionnaire in English language was filled by the participants. Anonymity and confidentiality was assured and emphasised by placing drop box for 15 days in medical girls hostel and for 15 days in nursing college for collecting back the filled questionnaire.

Operational definitions used in the study: Dysmenorrhoea :- Onset of pain within 6-12 hours after menarche. Lower abdominal or pelvic pain associated with onset of menses and lasting for 8-72 hours. Lower back pain during menses. Medial or anterior thigh pain⁹.

Degree of pain :- **Mild pain** - "painful menstruation that seldom inhibits normal activity and analgesics are seldom required"; **Moderate pain** - "painful menstruation that affects daily activities and analgesics are required and give relief"; **Severe pain** - "painful menstruation that clearly inhibits daily

activities and the pain is not totally relieved by analgesics¹².

Amount of bleeding : Depending on the number of pads used per day as:- **Little**: (<4 pads per day), **Moderate**: (5–10 pads per day) and **Heavy**: (2 pads at a time)¹³.

Menstruation regularity:- **Regular menstruation** (normal):experienced menstrual bleeding in equal intervals between 21 and 35 days; **Short** : menstruation interval less than 21 days; **Long**: menstruation interval more than 35 days¹³.

Duration of Menstruation:- **Short** : Menstruation of less than 2 days, **Normal** : Between 2 and 6 days, and **Long**: More than 6 days¹³.

Statistical Test: The data was entered in Microsoft excel 2007.All the continuous variable was summarized using mean & SD while the categorical variables as percentage & proportion. For showing the association student t test was applied on continuous variables while chi-square test was applied for categorical variables. The significance considered when the p value is less than 0.05.

RESULTS

A total of 311 study subjects were studied, 202 (64.95%) MBBS & 109 (35.05%) nursing students. The average age of the participants was 19.9 ± 1.6 years (17–30 years). Mean age of MBBS students was 20.6 ± 1.4 years while for nursing students it was 19.2 ± 1.7 years. More than 64.6% of the students (n = 201) belonged to 20 years and below age group. 91.63% study subjects were Hindu by religion. The proportion of those whose family was of a nuclear type was 73.6 % (n = 229). The overall prevalence of dysmenorrhoea was found to be 72.02 % (n = 224). The overall average menarche age was 13.2 ± 1.7 years, ranging from 9 to 18 year. More detailed socio-demographic characteristics of those with dysmenorrhoea are shown in Table 2. Out of total 224 dysmenorrhoeic study subjects, 69.19%(n=155) were MBBS students while 30.81%(n=65) were nursing students. Table no.1 shows degree of dysmenorrhoea among study subjects.

Of total 311 study subjects, 234(75.2%) were having regular (21 -35 days) menstrual cycle, of which 73.9 % (n=173) were dysmenorrhoeic. 246 (79%) study subjects had normal (2-6 days) bleeding duration, of which 73.9% (n=182) were dysmenorrhoeic. 209 (67.2%) study subjects had little (< 4 pads/day) amount of bleeding during menstruation, of which 75.5% (n=158)were dysmenorrhoeic. 192 (61.7%) study subjects had family history of dysmenorrhoea, of which 73.4%(n=141) were dysmenorrhoeic (table 3).

Most commonly associated physical symptom among dysmenorrhoeic study subjects was reduced appetite (41.9%) and nausea (27.2%). Irritability (67.8%) was the most common associated emotional symptom followed by less interest in work (50.4%). 42.8% of dysmenorrhoeic study subjects used allopathic drugs and 28.5% study subjects used hot fomentation. 40.6% of dysmenorrhoeic study subjects doesn't used anything during dysmenorrhoea.

Table 1: Distribution of study subjects according to degree of dysmenorrhoea.

Degree of Dysmenorrhoea	MBBS (n=155) (%)	Nursing (n=69) (%)	Total (n=224)(%)
Mild	85 (54.8)	32 (46.4)	117 (52.2)
Moderate	53 (34.2)	27 (39.1)	80 (35.7)
Sever	17 (11)	10 (14.5)	27 (12.1)
Total	155 (100)	69 (100)	224 (100)

Table 2: Sociodemographic wise distribution of study subjects

Sociodemographic variable	Total Subjects (n=311)	Dysmenorrhoeic (n=224) (%)
Age (yrs)		
17 - 20	201	134 (66.66)
21 - 24	108	88(81.48)
25 - 28	02	02(100.0)
Profession		
MBBS	202	155 (76.7)
Nursing	109	69(63.3)
Religion		
Hindu	285	203(71.2)
Muslim	15	11(73.3)
Buddhist	03	03(100.0)
Christians	03	03(100.0)
Other	05	04(80.0)
Type of family		
Nuclear	229	169 (73.7)
Joint	65	43(66.1)
Three generation	17	12(70.5)

Figures in parenthesis indicate percentages

Table 3: Distribution of study subjects according to menstrual characteristics and dysmenorrhoea

Menstrual characteristics	(n)	Dysmenorrhoeic
Family members having dysmenorrhoea	192	141(73.4)
Duration		
Short	36	21(58.3)
Normal	246	182(73.9)
Long	29	21(72.4)
Menstrual regularity		
Regular	234	173(73.9)
Short	31	22(70.9)
Long	46	29(63.0)
Amount of bleeding		
Little	209	158(75.5)
Moderate	29	22(75.8)
Heavy	73	44(60.2)

Figures in parenthesis indicate percentages

Table 4: HRQoL scale among study subjects using SF-36

Scale (Mean ± SD)	Dysmenorrhoea		P - value*
	Present(n=244) (Mean ± SD)	Absent (n=87) (Mean ± SD)	
Physical functioning	560 ± 175	698 ± 280	p< 0.00001
Role limitation due to physical health	32.2 ± 16.5	62.0 ± 32.9	p< 0.0001
Role limitation due to Emotional Problem	30.7 ± 21.6	54.4 ± 39.0	p<0.00001
Energy/Fatigue	51.6 ± 14.7	57.8 ± 16.0	p=0.002
Emotional well being	54.8 ± 14.3	60.9 ± 14.8	p=0.001
Social Functioning	56.6 ± 12.3	70.9 ± 25.7	p<0.00001
Pain	68.5 ± 14.6	80.5 ± 19.8	p<0.00001
General Health	43.4 ± 14.7	57.2 ± 17.8	p<0.0001

*Student t test.

Table 5: HRQoL scale among dysmenorrhoeic study subjects using SF -36 score

Scale (Mean ± SD)	Dysmenorrhoea Present (n=224)		P value*
	MBBS (n=155) (Mean ± SD)	Nursing (n=69) (Mean ± SD)	
Physical functioning	564.6 ± 147.3	468.5 ± 156.6	p<0.00001
Role limitation due to physical health	70.6 ± 18.3	56.5 ± 26.2	p<0.00001
Role limitation due to Emotional problem	51.3 ± 23.4	60.7 ± 16.2	p<0.00001
Energy/Fatigue	49.5 ± 17.2	58.4 ± 13.5	p<0.00001
Emotional well being	65.7 ± 14.2	56.4 ± 11.5	p<0.00001
Social Functioning	70.3 ± 16.7	57.1 ± 13.8	p<0.00001
Pain	65.8 ± 15.7	74.1 ± 17.9	p<0.00001
General Health	58.6 ± 18.7	48.4 ± 14.6	p<0.00001

*Student t test

Table 4 shows HRQoL(health related quality of life) of study subjects using SF-36 scores. There was significant difference between the average scores of study subjects with and without dysmenorrhea received from HRQoL scale. In those with dysmenorrhea the scores received from all the domains of HRQoL were lower. The high scores obtained from the scale shows that the HRQoL increases in a positive way i.e higher the score better the quality of life.

HRQoL (health related quality of life) of dysmenorrhoeic study subjects using SF-36 scores shows physical functioning, role limitation - physical, emotional well being, social functioning & general health was lower among nursing study subjects as compared to MBBS study subjects. The difference was found to be statistically significant using student's t-test. More detailed HRQoL scales of dysmenorrhoeic study subjects are shown in table 5.

DISCUSSION

Mean age of menarche in our study was 13.2 years. Similar findings were observed in study conducted by Shah M et al ¹, Gulsen Eryilmaz et al, Demr SC et al; Vicdan K et al in Turkey.^{14,15,16} Dambhare DG et al found that Mean ages of menarche were 13.51 years in their cross sectional study conducted on

1100 school adolescent girls in district Wardha, Central India.¹⁷ In our study, dysmenorrhoea occurred in students with both regular and irregular cycles .Similar findings were observed by Shah.M et al. ¹ In a recent study Begum J et al found no association between menstrual cycle regularity and presence of dysmenorrhoea.¹⁸ Hong-Gui Zhou et al in a study of 2640 students found that dysmenorrhoea was unrelated to the irregularity of menstrual cycles¹⁹. In another study, Sundell et al found that severity of dysmenorrhoea was not associated with length of menstrual cycles²⁰.

Prevalence of dysmenorrhea in our study was 72.02%, Shah. M et al reported prevalence of 72% of dysmenorrhoea. Dambhare DG et al found that prevalence of dysmenorrhea and PMS was 56% in their cross sectional study conducted on 1100 school adolescent girls in district Wardha, Central India.¹⁷ Unsal A et al had found out that prevalence of dysmenorrhea among college going students in western Turkey was 72.7% (n = 453).¹³ Prevalence rates of dysmenorrhea were found to be 72.7% in Turkey, 74.5% in Malaysia, 72% in Ethiopia and 53.3% in Nigeria.^{13,21-23} Thus, it was found that the prevalence of dysmenorrhea in young female students is high and this finding of our study is in concordance with others.

In our study, it was revealed that among dysmenorrhoeic study subjects (n=224), 52.3%, 35.7% and

12% of students had mild, moderate and severe pain (dysmenorrhoea) respectively. Study by Shah M et al revealed that 18%, 40% and 42% of students had mild, moderate and severe pain (dysmenorrhoea) respectively. Alaettin Unsal et al conducted a study on 623 female students in Turkey University and found that 66.6% of students were having moderate and severe dysmenorrhoea.¹³ Dysmenorrhea is usually associated with some other symptoms like nausea, reduced appetite, vomiting, headache, dizziness, diarrhoea etc. In our study, prevalence of reduced appetite and nausea was (41.9%) and (27.2%) respectively. Irritability (67.8%) was the most common associated emotional symptom followed by less interest in work (50.4%). In a study conducted by Shah.M.et al prevalence of nausea & vomiting, headache, giddiness, diarrhoea was 9%, 5%, 12.5% and 3.5% respectively¹. In a study conducted by Gulsen Eryilmaz et al had found out that prevalence of nausea & vomiting, diarrhea, dizziness and headache was 12.2%, 8.1%,8.1% and 17.7% respectively among the school going students of 26 high schools located in Erzurum, Northeastern Turkey¹⁴. Thus prevalence of the dysmenorrhea is high in our study population. Such high prevalence makes dysmenorrhoea a significant public health problem among young students that demands some attention from policy makers.

In this study, the scores received from many of the SF-36 domains (physical functioning, role-physical, bodily pain, general health perception, and vitality) were significantly lower in students with dysmenorrhoea. Dysmenorrhoea is an important illness that affects physical, Social and psychological parameters such as social functioning, role-emotional, and mental health. In addition, with the increasing severity of dysmenorrhea, the average scores received from all the domains of SF-36 showed decrease, consistent with the study by Barnard et al²⁴ and Chaumoor K et al²⁵, indicating that women with dysmenorrhea and the other menstrual symptoms had lower HRQoL values.

CONCLUSION

The prevalence of dysmenorrhea among female students was relatively high throughout our study, reaching almost three-quarters (72.2%), and HRQoL showed a decrease in the presence of dysmenorrhoea and with the increase in the severity of dysmenorrhoea.

Limitation:- The study was a cross-sectional study, thus precluding inferences of causality among variables. Also, the nature of self-reporting may have resulted in under-reporting of the conditions.

Written permissions of persons/agency acknowledged: Permissions from the institutional review board, head of nursing college and medical superintendent of the hospital were obtained prior to initiate the study.

REFERENCES

- Shah M, Monga A, Patel S, Shah M, Bakshi H. A study of prevalence of primary dysmenorrhoea in young students - A cross-sectional study. *Healthline* 2013; 4(2):30-34
- Avasaraala AK, Panchangam S. Dysmenorrhoea in different settings: Are the rural and urban adolescent girls perceiving and managing the dysmenorrhoea problem differently? *Indian J Community Med* 2008; 33: 246-9.
- Durain D. Primary dysmenorrhoea: assessment and management update. *J Midwifery Womens Health* 2004; 49:520-8
- Campbell M, McGrath P. Use of medication by adolescents for the management of menstrual discomfort. *Arch Pediatr Adolesc Med.* 1997;151:905-12.
- Tonini G. Dysmenorrhea, endometriosis and premenstrual syndrome. *Minerva Pediatr* 2002; 54:525-38.
- Dorn LD, Negriff S, Huang B, Pabst S, Hillman J, Braverman P, et al. Menstrual symptoms in adolescent girls: association with smoking, depressive symptoms, and anxiety. *J Adolesc Health* 2009; 44:237-43.
- Dawood YM. Dysmenorrhoea. *Clinical Obst Gynecol* 1990; 33:168-78.
- Burnett MA, Antao V, Black A, Feldman K, Grenville A, Lea R, et al. Prevalence of primary dysmenorrhoea in Canada. *J Obstet Gynaecol Can* 2005; 27:765-70.
- Kumbhar SK, Reddy M, Sujana B, Reddy R, Bhargavi D, Balkrishna C. Prevalence of dysmenorrhoea among adolescent girls (14-19 yrs) of kadapa district and its impact on quality of life: A cross sectional study. *National Journal of Community Medicine* 2011; 2(2): 265-268.
- Ware, J.E., Jr., and Sherbourne, C.D. "The MOS 36-Item Short -Form Health Survey (SF-36): I. Conceptual Framework and Item Selection," *Medical Care*, 30: 473-483,1992.
- Kocyigit H, Aydemir O, Olmez N, Memis A. Reliability and validity of the Turkish version of Short-Form-36 (SF-36) *Turkish J Drugs Therap.* 1999;12:102-6.
- Al-kind R, Al-Bulushi A. Prevalence and impact of dysmenorrhoea among Omani high school student. *Sultan Qaboos Univ Med J* November 2001;11(4):484-491.
- Unsal A, Ayranci U, Tozun N, 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.* May 2010;115(2);138-145.
- Eryilmaz G, Ozdemir F, Pasinlioglu T. Dysmenorrhea prevalence among adolescents in eastern Turkey: its effects on school performance and relationships with family and friends. *Journal of pediatric and adolescent gynecology.* 2010;23(5):267-72.
- Vicdan K, Kukner S, Dabakoglu T, et al: Demographic and epidemiologic features of female adolescents in Turkey. *J Adolesc Health* 1996; 18:54
- Demir SC, Kadayyfcy TO, Vardar MA, et al: Dysfunctional uterine bleeding and other menstrual problems of secondary school students in Adana, Turkey. *J Pediatr Adolesc Gynecol* 2000; 13:171.

17. Dambhare DG, Wagh SV, Dudhe JY. Age at menarche and menstrual cycle pattern among school adolescent girls in Central India. *Global journal of health science*. 2012;4(1):105-11.
18. Begum J. Menstrual Pattern and Common Menstrual Disorders among Students in Dinajpur Medical College. *Dinajpur Med Col J*. 2009 Jul; 2 (2):37-43.
19. Hong-Gui Zhou et al. Prevalence of Dysmenorrhoea in female students in a Chinese University : a prospective study. *Health*. 2010; 2(4).
20. Sundell G, Milsom I, Andersch B. Factors influencing the prevalence and severity of dysmenorrhoea in young women. *BJOG*.1990;97 :588-589.
21. Wong LP, Khoo EM. Dysmenorrhea in a multiethnic population of adolescent Asian girls. *Suppl Int J Gynaecol Obstet*. 2010;108(2):139-42.
22. Zegeye D, Megabiaw B, Mulu A. Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. *BMC Women's Health*. 2009;9(1):29.
23. Loto OM, Adewumi TA, Adewuya AO. Prevalence and correlates of dysmenorrhea among Nigerian college women. *Aust N Z J Obstet Gynaecol*. 2008;48(4):442-4.
24. Barnard K, Frayne SM, Skinner KM, Sullivan LM. Health status among women with menstrual symptoms. *J Womens Health (Larchmt)* 2003;12:911-9.
25. K.Chuamoor, K. Kaewmanee K, P Tanmahasamut. Dysmenorrhoea among Siriraj nurses; prevalence, quality of life, and knowledge of management. *J Med Assoc Thai*. 2012 Aug;95(8):983-91.