

# Dysmenorrhea and Stress among the Nepalese Medical Students

Katwal PC, Karki NR, Sharma P, Tamrakar SR

Dhulikhel Hospital, Kathmandu University Hospital  
Kathmandu University School of Medical Science  
Dhulikhel, Kavre, Nepal

## Corresponding Author

Prakash Chandra Katwal  
Dhulikhel Hospital, Kathmandu University Hospital  
Kathmandu University School of Medical Science  
Dhulikhel, Kavre, Nepal  
E-mail: pck.prapd@gmail.com

## Citation

Katwal PC, Karki NR, Sharma P, Tamrakar SR. Dysmenorrhea and Stress among the Nepalese Medical Students. *Kathmandu Univ Med J* 2016; 56(4):318-21.

## ABSTRACT

### Background

Dysmenorrhea is the most common gynecological disorder in women of reproductive age with implications as reduced quality of life and school absenteeism. Mental stress is possibly the most important known predisposing factor for primary dysmenorrhea.

### Objective

This study aims to assess the relationship between stress and dysmenorrhea amongst the Nepalese medical students.

### Method

This is cross-sectional descriptive study, conducted from 1<sup>st</sup> Dec. 2012 to 31<sup>st</sup> Jan. 2013. The study was conducted in Kathmandu University School of Medical Sciences. A total of 184 participants consented for this study and each one was given a questionnaire to complete. This study included only unmarried nulliparous, healthy (all through first to final years) female medical students, in age group of 16 to 24 years.

### Result

The mean age of the participants was 19.43(±3.9) years. Among them, 67% of the participants experienced dysmenorrhea. Of them, 85% experienced increase in frequency and severity of dysmenorrhea after joining medical college. Similarly, 65% of participants considered medical education to be stressful. Of participants experiencing dysmenorrhea, 29.45% missed classes and 17.39% participants had positive family history of dysmenorrhea in first and second degree relatives.

### Conclusion

The present study indicated a positive relationship between psychological stress and dysmenorrhea. Dysmenorrhea is the leading cause of recurrent short-term school absence in young ladies; this issue certainly needs to be addressed.

## KEY WORDS

*Absenteeism, dysmenorrhea, medical students, stress*

### INTRODUCTION

Menstrual disorders are a common presentation by late adolescence, 75% of girls experience some problems associated with menstruation.<sup>1-5</sup> Primary dysmenorrhea is defined as painful menses in women with normal pelvic anatomy, usually beginning during adolescence. Affected women experience sharp, intermittent spasm of pain usually concentrated in the supra-pubic area and may radiate to the back of the legs or the lower back. Systemic symptoms of nausea, vomiting, diarrhea, fatigue, mild fever and headache or lightheadedness are fairly common. Pain usually develops within hours of the start of the menstruation and peaks as the flow becomes heaviest during the first day or two of the cycle. Painful menstruation with pelvic pathology is defined as secondary dysmenorrhea. During the first two year after menarche, most cycles are anovulatory. The risk factors for dysmenorrhea are: age <20 years, nulliparity, heavy menstrual flow, smoking, high/ upper socioeconomic status, dietary habit, attempts to lose weight, physical activity, disruption of social networks, depression and anxiety.

Through this study we are trying to explore the relationship between stress and dysmenorrhea among Nepalese medical students

### METHODS

The study, designed as a cross-sectional descriptive study, was conducted with an objective to characterize the relation between stress and dysmenorrhea. The study was conducted at Kathmandu University School of Medical Sciences (KUSMS) during 1<sup>st</sup> Dec. 2012 to 31<sup>st</sup> Jan. 2013. A total of 184 female participants were consented for this study and each one was given a questionnaire to complete. The participants were identified as healthy from age group of 16 to 24 years, from first to final year medical students who were nulliparous and unmarried. Ethical approval was sought from the institute’s ethical committee KUSMS-IRC. The participation was a voluntary decision made by the participants and written consent was taken before initiating the data collection. All females of above mentioned age group studying MBBS/BDS/Nursing in Kathmandu University School of Medical Sciences were included in the study. Ladies who are married, known to have pelvic pathology (as suggested by history) and those who refuse to participate in this survey were excluded from the study.

Data entry and analysis was done in a computer using SPSS-16. Data were analyzed by Chi-square test. Statistical significance of differences between groups was tested for p-value <0.05.

### RESULTS

The mean age of the participants was 19.43(±3.9) years with variation of participants aged 16 to 24 years (Fig. 1). The majority of participants were from hilly region contributing 72% (Fig. 2) and hindu by religion 84% (Fig. 3).

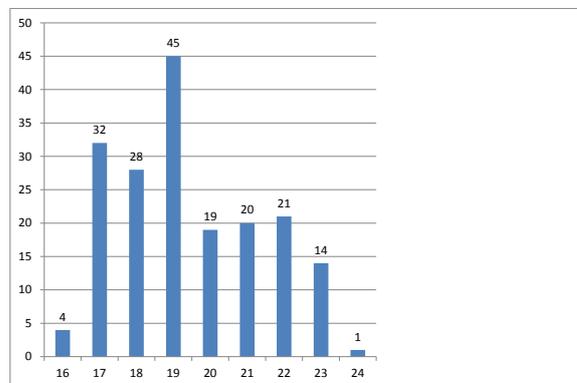


Figure 1. Age distribution of participants (in years)

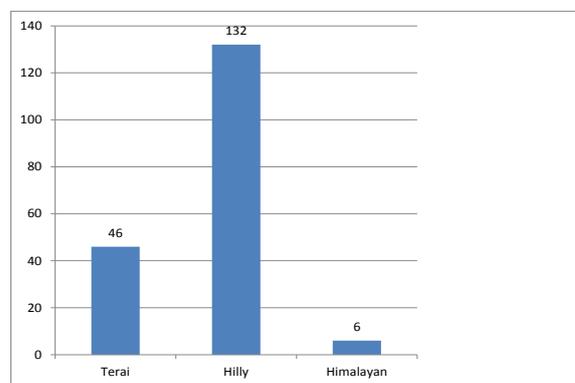


Figure 2. Region of participants

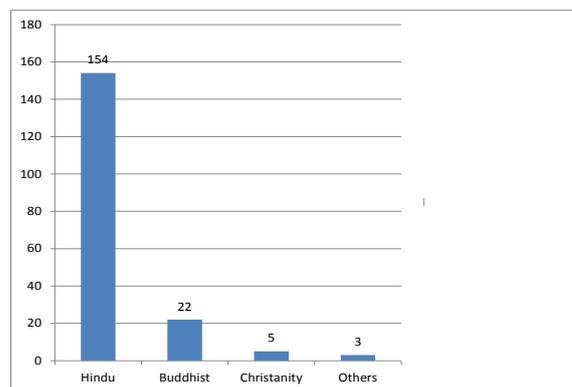


Figure 3. Religion of participants

Most of the participants have menarch at the age of 13 yrs (Fig. 4); among them, 67% of the participants experienced dysmenorrhea (Fig. 5). Of them, 85% experienced increase in frequency and severity of dysmenorrhea after joining medical college. Similarly, 65% of participants considered medical education to be stressful. Of participants experiencing dysmenorrhea, 29.45% missed classes and 17.39% participants had positive family history of dysmenorrhea in first and second degree relatives.

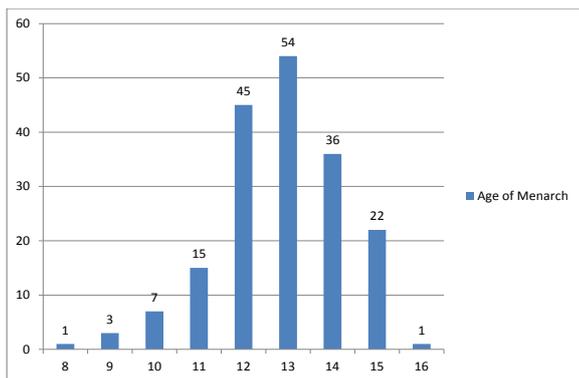


Figure 4. Age of Menarch (in years)

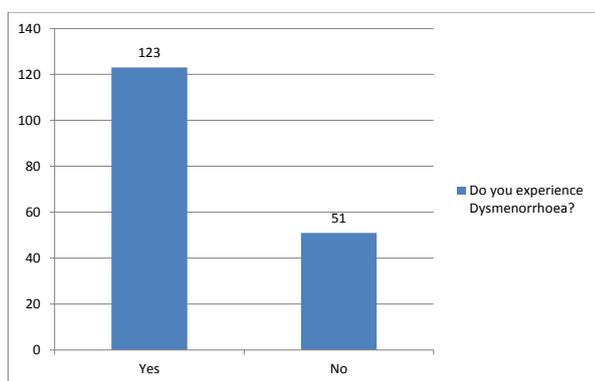


Figure 5. No. of participants experiencing dysmenorrhoea

The relationship between the presence or absence of stress and dysmenorrhoea was statically significant  $\chi^2= 1.956$  ( $p<0.05$ ) (Table 1). Similarly the no. of years in medical school was statistically significant with dysmenorrhoea  $\chi^2= 6.836$  ( $p<0.05$ ). (Table 2)

Table 1. Stress vs. dysmenorrhoea

		Dysmenorrhoea		Total
		Yes	No	
Do you feel stress?	Yes	78	47	125
	No	43	16	59
Total		121	63	184

$\chi^2= 1.956(P<0.05)$ ,  $df=1$

Table 2. No of years in medical school vs. dysmenorrhoea

		Dysmenorrhoea		Total
		Yes	No	
No of years in medical school?	1	22	18	40
	2	35	21	56
	3	30	14	44
	4	34	10	44
	Total	121	63	184

$\chi^2= 6.836(P<0.05)$ ,  $df= 3$

## DISCUSSION

In the present study, the mean age of participants was 19.43 ( $\pm 3.9$ ) years. Dysmenorrhoea is most common gynecological problem among medical students of the age group 16 to 24. Our study reports a prevalence of 67% which is similar to many other studies conducted in related population.<sup>1-5</sup> Of note, nine of ten lady experienced increase in severity and duration of dysmenorrhoea after joining medical college. This finding corroborates with earlier studies that established high level of psychosomatic stress in medical colleges.<sup>1</sup> Based on participants' subjective assessment of stress, the prevalence of dysmenorrhoea and stress matched closely. The statistical analysis too established association between dysmenorrhoea and stress. Even more meaningfully, number of years in medical school was found to be positively correlated.

Dysmenorrhoea is one of the most distressing problems associated with menstruation among the undergraduate medical students which affects the daily routine. It causes prolonged resting hours and inability to study.<sup>6</sup> Results of the present study indicated statistically significant relation between stress and dysmenorrhoea. This result corroborates the result of previous studies.<sup>7</sup> Compared to women with low stress the risk of dysmenorrhoea was 60% greater among the women with moderate stress and more than twice as great among those with high stress.<sup>8</sup> Study among US Air Force employees also showed that high stress was associated with more than two fold increase in risk for dysmenorrhoea.<sup>9</sup>

In the United States, dysmenorrhoea is the leading cause of recurrent short-term school absenteeism.<sup>10</sup> Several studies have shown that adolescents with dysmenorrhoea report that, it affects their academic performance, social and sports activities. Although there are many studies on this subject, data on Nepalese medical students are scant and lacks statistical power.<sup>11</sup> Stress is prevalent among students who have very busy and demanding schedule.<sup>12</sup> The stress of medical training stems from academic pressure, perfectionist standards and demanding nature of medical practice which requires involvement with most personal or emotionally draining aspects of life (human suffering, death, sexuality and fear).<sup>13</sup>

Physiologically, Stress, inhibits the pulsatile release of follicle stimulating hormone (FSH) and luteinizing hormone (LH) leading to impaired follicular development. As synthesis of progesterone is increased in the luteinized follicle following ovulation, stress induced impairment of follicular development could potentially reduce progesterone synthesis and its release. Reduced progesterone may cause increased production of prostaglandin, the mediator of pain. On the top of it, reduced titer of progesterone caused increased myometrial contraction, that gives more strain to ischemic myometrium and intensify pain resulting dysmenorrhoea. Genetic polymorphisms with certain genotype being the connecting link between stress and

dysmenorrhea offer a new dimension to our understanding of neurobiology of dysmenorrhea.<sup>14</sup>

Although a clear association between stress and dysmenorrhea has been validated by many studies.<sup>15,16</sup> Such close approximation of prevalence rates could be explained as follows: Stress is a common denominator to myriad of psychosomatic disorders, more so in the young females.<sup>1</sup> As our study comprised of young healthy nulliparous ladies, we can conclude that organic pathology didn't contribute to dysmenorrhea to any significant extent. In this circumstance, psychological stress would then be the most important factor leading to dysmenorrhea. Nearly half (one third of total) participant missed classes owing to distress associated with dysmenorrhea; this highlights the impact on quality of life and school performance.<sup>1-3</sup> family history makes a less significant contribution to dysmenorrhea.<sup>1,17</sup>

This study might be the first study that associates with stress and dysmenorrhoea specifically and used more validated questionnaire for assessed variable. Previously, the study used self-perception to assess whether they felt dysmenorrhoea or not with stress. Additionally, subjects were almost remarkably homogenous in their age and nulliparous that made the results were not influenced by parity and wide range of age.

The study is probably limited by the retrospective method of design and a scoring system would have yielded more objective results. Factor such as smoking, change in environment both physical and social and dietary changes may have confounded the association.<sup>18</sup> There are less robust studies with contradictory outcomes too.<sup>19</sup> Also, it was a self-assessment questionnaire, it might result in underreporting conditions. Lastly, the study was conducted in a single university with few subjects; therefore, the sample might not be representative of all Nepalese medical students.

## CONCLUSION

The present study indicated a positive relationship between psychological stress (supported by test of significance) and dysmenorrhea. Dysmenorrhea is the leading cause of recurrent short-term school absence in young ladies; this issue certainly needs to be addressed.

## ACKNOWLEDGMENTS

Authors are thankful to all the faculties and staffs of Gynecology Department Dhulikhel Hospital, Kathmandu University Hospital.

## REFERENCES

- Pitangui AC, Gomes MR, Lima AS, Schwingel PA, Albuquerque AP, de Araujo RC. Menstruation disturbances: prevalence, characteristics, and effects on the activities of daily living among adolescent girls from Brazil. *J Pediatr Adolesc Gynecol*. 2013 Jun;26(3):148-52.
- Chuamoor K, Kaewmanee K, Tanmahasamut P. Dysmenorrhea among Siriraj nurses; prevalence, quality of life, and knowledge of management. *J Med Assoc Thai*. 2012 Aug;95(8):983-91.
- Sharma M, Gupta S. Menstrual pattern and abnormalities in the high school girls of Dharan: a cross sectional study in two boarding schools. *Nepal Med Coll J*. 2003 Jun;5(1):34-6
- Dambhare DG, Wagh SV, Dudhe JY. Age at menarche and menstrual cycle pattern among school adolescent girls in Central India. *Glob J Health Sci*. 2012 Jan 1;4(1):105-11.
- French L, Michigan State University College of Human Medicine, East Lansing, Michigan. *Am Fam Physician*. 2005 Jan 15;71(2):285-91.
- Wang L, Wang X, Wang W, Chen C, Ronnenberg A, GuangW, et al. Stress and dysmenorrhoea: A population based prospective study. *Occup Environ Med*. 2004;61:1021-6.
- Harel Z. Dysmenorrhoea in adolescents and young adults: etiology and management. *J Pediatr Adol Gynaecol*. 2006;19:363-71.
- Gordley LB, Lemasters G, Simpson SR, Yiin JH. Menstrual disorder and occupational, stress and racial factors among military personnel. *J Occup Environ Med*. 2000;42:871-81.
- Alonso C, Coe CL. Disruptions of social relationships accentuate the association between emotional distress and menstrual pain in young women. *Health Psychol* 2001;20:411-6.
- Rahma Al-Kindi, Anbarin Al-Bulushi. Prevalence and Impact of Dysmenorrhoea among Omani High School Students. *Sultan Qaboos Univ Med J*. 2011 November; 11(4): 485-91.
- Pramanik T, Shrestha R, Sherpa MT, Adhikari P. Incidence of dysmenorrhoea associated with high stress scores among the undergraduate Nepalese medical students. *Journal of Institute of Medicine*. 2010; 32:3.
- Kollipaka R, Arounassalame B, Lakshminarayanan S. Does psychosocial stress influence menstrual abnormalities in medical students? *J Obstet Gynaecol*. 2013 Jul;33(5):489-93.
- Mohanty IR, Mohanty N, Balasubramaniam P, Joseph D, Deshmukh Y. Assessment of Stress, Coping Strategies and Life Style among Medical Students Indian. *J Prev Soc Med*. 2011;42(3).
- Lee LC, Tu CH, Chen LF, Shen HD, Chao HT, Lin MW, et al. Association of brain-derived neurotrophic factor gene Val66Met polymorphism with primary dysmenorrhea. *PLoS One*. 2014 Nov 10;9(11):e112766.
- Amos WE, Khanna P. Life Stress in Spasmodic and Congestive Dysmenorrhea. *Psychological Reports*. 1985;57:216-8.
- Jeon GE, Cha NH, Sok SR. Factors Influencing the Dysmenorrhea among Korean Adolescents in Middle School. *J Phys Ther Sci*. 2014 Sep;26(9):1337-43.
- Faramarzi M, Salmalian H. Association of psychologic and nonpsychologic factors with primary dysmenorrhea. *Iran Red Crescent Med J*. 2014 Aug;16(8):e16307.
- Ju H, Jones M, Mishra G. The prevalence and risk factors of dysmenorrhea. *Epidemiol Rev*. 2014;36(1):104-13.
- Nagma S, Kapoor G, Bharti R, Batra A, Aggarwal A, Sablok A. To evaluate the effect of perceived stress on menstrual function. *J Clin Diagn Res*. 2015 Mar;9(3):QC01-3.