Dysmenorrhea and Stress among the Nepalese Medical Students
Katwal PC, Karki NR, Sharma P, Tamrakar SR

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 1st Dec. 2012 to 31st 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.\(^1\) 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\(^{st}\) Dec. 2012 to 31\(^{st}\) 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-squire 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).

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.
DISCUSSION

In the present study, the mean age of participants was 19.43
(±3.9) years. Dysmenorrhea 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.1-5
Of note, nine of ten lady experienced increase in severity
and duration of dysmenorrhea after joining medical
college. This finding corroborates with earlier studies that
established high level of psychosomatic stress in medical
colleges.1 Based on participants’ subjective assessment
of stress, the prevalence of dysmenorrhea and stress
matched closely. The statistical analysis too established
association between dysmenorrhea 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.6 Results
of the present study indicated statistically significant
relation between stress and dysmenorrhoea. This result
corroborates the result of previous studies.7 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.8 Study
among US Air Force employees also showed that high
stress was associated with more than two fold increase in
risk for dysmenorrhoea.8

In the United States, dysmenorrhea is the leading cause of
recurrent short-term school absenteeism.10 Several studies
have shown that adolescents with dysmenorrhea 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.11 Stress is prevalent among students
who have very busy and demanding schedule.12 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).13

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

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Table 1. Stress vs. dysmenorrhea

<table>
<thead>
<tr>
<th>Do you feel stress?</th>
<th>Dysmenorrhea</th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>78</td>
<td>47</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>43</td>
<td>16</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>63</td>
<td>184</td>
<td></td>
</tr>
</tbody>
</table>

χ² = 1.956(P<0.05), df = 1

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

<table>
<thead>
<tr>
<th>No of years in medical school</th>
<th>Dysmenorrhea</th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22</td>
<td>18</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>35</td>
<td>21</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>14</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>34</td>
<td>10</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>63</td>
<td>184</td>
<td></td>
</tr>
</tbody>
</table>

χ² = 6.836(P<0.05), df = 3
dysmenorrhea offer a new dimension to our understanding of neurobiology of dysmenorrhea.\textsuperscript{14}

Although a clear association between stress and dysmenorrhea has been validated by many studies.\textsuperscript{15,16} 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.\textsuperscript{1} 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.\textsuperscript{1,3} Family history makes a less significant contribution to dysmenorrhea.\textsuperscript{1,17}

This study might be the first study that associates with stress and dysmenorrhea specifically and used more validated questionnaire for assessed variable. Previously, the study used self-perception to assess whether they felt dysmenorrhea 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.\textsuperscript{18} There are less robust studies with contradictory outcomes too.\textsuperscript{19} 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

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REFERENCES


