Dysmenorrhoea and its association with stress among nursing students of a selected medical college: A cross-sectional study

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Abstract

Background: Dysmenorrhoea is a painful menstruation often presented with other symptoms such as sweating, headache, nausea, vomiting, and diarrhoea which influence the quality of life and social activities among the undergraduate students. Psychological disorders like stress, anxiety and depression have bi-directional relationship with dysmenorrhoea.

Objectives: To assess the prevalence of dysmenorrhoea and its association with stress among nursing students of a selected medical college.

Methods: Analytical cross-sectional study was conducted among nursing students of NAIHS-CON from 2021 August 26 to 2021 September 2 after institutional ethical clearance. Total 154 nursing students were included in the study using proportionate stratified simple random sampling technique by lottery method. Data were collected using a semi-structured, self-administered questionnaire using Perceived Stress Scale (PSS). The collected data were analysed using SPSS software v.20.

Results: The study findings revealed that 131 (85.1%) of the nursing students had moderate perceived stress level and 14 (9.1%) of them had mild stress level. The mean perceived stress score with standard deviation was 19.27 ± 4.806. The findings of the study revealed that 115 (74.7%) of the nursing students had dysmenorrhoea. Dysmenorrhoea was found to be significantly associated with family history of dysmenorrhoea ($p < 0.001$) and pattern of menstrual cycle ($p = 0.04$).

Conclusion: Most of the nursing students experience dysmenorrhoea which might result in psychological stress and bring negative effects on their physical health. As a result, it may impact on their academic performance. Therefore, it is important to enhance awareness regarding dysmenorrhoea to reduce physical and mental problems.

Key words: Dysmenorrhoea; Nursing Students; Stress.

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INTRODUCTION

Dysmenorrhoea, is the most common health problem in adolescent girls as it affects 50-90% of the general population.[1] Previous studies on university students showed its prevalence to be 93% (Taiwan), 64% (Nigeria and Mexico), 84% (Thailand), and 66.8% (India).[2-5]

Dysmenorrhoea is complained by most women of developing countries.[6] A study carried out among reproductive aged female in Nepal showed that lower

abdominal pain was the most common complaint and lifetime prevalence of dysmenorrhoea was 86.4%. It revealed a significant relationship between severity of dysmenorrhoea and negative impact on daily activities.[7] The morbidity of dysmenorrhoea can lead to higher health costs with negative impact on quality of life.[8] Psychological stress is a major risk factor for dysmenorrhoea.[9] Dysmenorrhoea is a discomforting gynaecological condition among students hindering their studies and causing prolonged resting hours.[10] It affects the important aspects of wellbeing.[11]

Academic stress, the demand of peer interaction for scholastic and non-academic achievements and parental pressure are negative effectors on physical health which contribute to youngsters experiencing dysmenorrhoea. Inability to cope effectively with stressors, the incidence of dysmenorrhoea among adolescents is higher.[12] Hence, objective of this study was to assess the prevalence of dysmenorrhoea and its association with stress among nursing students.

METHODOLOGY

An analytical cross-sectional study was carried out among nursing students of Proficiency Certificate Level (PCL) and Bachelor of Science in Nursing (B.Sc. Nursing) students of Nepalese Army Institute of Health Sciences, College of Nursing (NAIHS-CON) from 2021 August 26 to 2021 September 2 after ethical clearance from Institutional Review Committee of NAIHS (Ref. 245). Permission to conduct research was obtained from the coordinators of different programs. Informed written consent was obtained from each respondent above 18 years and those who were below 18 years, informed assent from respondents and informed consent from the principal was obtained before data collection.

Convenience sampling technique was used to select the medical colleges. After selection of the data collection site, list was made on the basis of program and year of the study. The total number of girl students in nursing included 235 in that academic year. Total 154 nursing students were included in the study by using proportionate stratified simple random sampling technique by lottery method. Data were collected using a semi-structured self-administered questionnaire consisting of three parts. Part I covered socio-demographic and gynaecologic information. Part II consisted of questionnaire related to prevalence of dysmenorrhoea, associated symptoms with pain and severity of pain. To assess the severity of the dysmenorrhoea, the respondents were asked to rate their pain from an analog scale of 1–10 as Grade 1 (mild)

represents score of 1–3, Grade 2 (moderate) represents score of 4–7, and Grade 3 (severe) represents score of 8–10. Part III consisted of questionnaire related to stress. For assessing the stress, psychology assessing standard tool Perceived Stress Scale (PSS) was used. The 10 questions in this scale asks about subject's feelings and thoughts during the last month, where 0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, 4 = Very Often. PSS score is obtained by reversing responses (0= 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0) to the four positively stated questions (4, 5, 7, and 8) and then adding up scores of all questions. Scores ranging from 0-13 is considered as low stress, 14-26 as moderate stress and 27-40 as high perceived stress.

To prevent contamination, data were collected at a time by keeping the respondents in a separate class room through the help of co-authors. Every precaution was taken to safeguard the right of the respondents. The respondents were asked to provide information about their socio-demographic and gynaecologic information. All the respondents were provided PSS tool to measure the stress level. Among the respondents having dysmenorrhoea, they were asked to rate the dysmenorrhoea severity. All the instruments were cross checked on the same day of the data collection to assure nothing is missed on the spot.

Data were checked for completeness and accuracy. Data were coded, entered, and analysed by using IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA). Analysis and interpretation of the findings were done with the help of descriptive statistics (frequency, mean, standard deviation, and percentage) and inferential statistics (Chi-square test).

RESULTS

The mean age of the 154 respondents was 19.64 ± 1.983 years. Most (139, 90.3%) of the respondents followed Hinduism. Highest proportions (93, 60.4%) of the respondents were Brahmin/Chhetri. Among the total respondents, 78 (50.6%) of them were studying B.Sc. Nursing and 76 (49.4%) of the respondents were studying PCL Nursing. Majority (128, 83.1%) of the respondents belonged to nuclear family. Nearly half of the respondents (72, 46.8%) stayed in hostel (Table 1).

Findings illustrate that 106 (68.8%) of the respondents had their first menses at and before the age of 13 years. More than half (108, 56.8%) of the respondents shared their menstrual problem with their mothers. Regarding pattern of menstrual cycle, 114 (74%) of the respondents had regular cycle and 121 (78.6%) had their

menstrual blood flow for more than 3-7 days. Most of the respondents 141 (91.6%) had some kind of restriction practices in their home during menstruation. Among them, 132 (53.4%) of the respondents were not allowed to attend religious functions during menstruation (Table 2).

Similarly, 85 (55.2%) of the respondents did not have any family history of dysmenorrhoea and those who had family history of dysmenorrhoea, 36 (45.6%) of the respondents' mothers had dysmenorrhoea (Table 3).

Study finding depicts that 115 (74.7%) of the respondents experienced dysmenorrhoea and those who experienced dysmenorrhoea, 54 (47.0%) of them experienced moderate menstrual pain. The most common symptoms associated with dysmenorrhoea were abdominal pain (109, 17.8%) followed by backache (97, 15.8%), tiredness

(88, 14.3%), and mood changes (85, 13.8%). Majority (96, 83.5%) of the respondents did not take any medical advice for menstrual problems and those who took medical advice for menstrual problems, 11 (57.9%) of them took from medical professionals (Table 4).

Regarding level of perceived stress, 131 (85.1%) of the respondents had moderate perceived stress level which is followed by mild stress level that is 14 (9.1%). The mean perceived stress score was 19.27 (Table 5).

Likewise, study reveals that dysmenorrhoea was not found to be significantly associated with perceived stress level (Table 6).

Findings demonstrate that dysmenorrhoea was found to be significantly associated with family history of dysmenorrhoea and pattern of menstrual cycle (p-value <0.05) (Table 7).

Table 1: Socio-demographic characteristics of the respondents (N = 154)

Characteristics	Frequency (Percent)
Age	
≤19 years	77 (50.0)
20 years and above	77 (50.0)
Mean ± SD = 19.64 ± 1.983 years	
Religion	
Hinduism	139 (90.3)
Others	15 (9.7)
Ethnicity	
Dalit	2 (1.3)
Janajati	52 (33.8)
Madhesi	4 (2.6)
Brahmin/Chhetri	93 (60.4)
Thakuri	3 (1.9)
Program	
PCL nursing	76 (49.4)
B.Sc. nursing	78 (50.6)
Academic year	
First	51 (33.1)
Second	26 (16.9)
Third	77 (50.0)
Type of family	
Nuclear	128 (83.1)
Extended	6 (3.9)
Joint	20 (13.0)
Residence	
Own home	50 (32.5)
Hostel	72 (46.8)
Rented house	29 (18.8)
Relative's house	3 (1.9)

Note: Others (Buddhism and Christianity)

Table 2: Menstrual characteristics of the respondents (N = 154)

Characteristics	Frequency (Percent)
Age of menarche	
≤13 years	106 (68.8)
14 years and above	48 (31.2)
Mean S.D. :	13.05 ± 1.308
Sharing of menstrual problem to*	
Teacher	3 (1.6)
Friends	79 (41.6)
Mother	108 (56.8)
Pattern of menstrual cycle	
Regular	114 (74.0)
Irregular	40 (26.0)
Duration of menstrual blood flow	
<3 days	33 (21.4)
More than 3-7 days	121 (78.6)
Any restriction during menstruation	
Yes	141 (91.6)
No	13 (8.4)
Restrictions during menstruation	
Not allowed to attend religious functions	132 (53.4)
Restriction to go to kitchen	64 (25.9)
Sleep separately	28 (11.3)
Not to touch male	21 (8.5)
Others	2 (0.8)

*Multiple responses; Note: Others (Not allowed to touch plants: 1, not allowed to eat spicy foods: 1).

Table 3: Family history of dysmenorrhoea of the respondents

Characteristics	Frequency (Percent)
Family history of dysmenorrhoea (N = 154)	
Yes	69 (44.8)
No	85 (55.2)
To whom* (n = 69)	
Mother	36 (45.6)
Sister	34 (43.0)
Aunt	9 (11.4)

*Multiple Responses

Table 4: Dysmenorrhoea related characteristics of the respondents

Characteristics	Frequency (Percent)
Presence of dysmenorrhoea (N = 154)	
Yes	115 (74.7)
No	39 (25.3)
Severity of dysmenorrhoea (n = 115)	
Mild	25 (21.7)
Moderate	54 (47.0)
Severe	36 (31.3)
Symptoms associated with dysmenorrhoea*	
Nausea/vomiting	24 (3.9)
Abdominal pain	109 (17.8)
Breast Heaviness	55 (9.0)
Headache	41 (6.7)
Loss of appetite	53 (8.6)
Altered bowel habit	56 (9.1)
Tiredness	88 (14.3)
Backache	97 (15.8)
Mood changes	85 (13.8)
Edema	4 (0.7)
Hunger/cravings	2 (0.3)
Taken medical advice for menstrual problems (n = 115)	
Yes	19 (16.5)
No	96 (83.5)
Taken medical advice from (n = 19)	
Medical personnel	11 (57.9)
Friends/family	8 (42.1)

*Multiple Responses

Table 5: Level of perceived stress (N = 154)

Perceived stress level	Frequency (Percent)
Mild stress	14 (9.1)
Moderate stress	131 (85.1)
High perceived stress	9 (5.8)
Mean S.D.: 19.27 ± 4.806	

Table 6: Association of dysmenorrhoea and perceived stress level (N = 154)

Dysmenorrhoea	Perceived Stress Level		p-value
	Mild	Moderate and High	
Yes	8 (5.2)	107 (69.48)	0.193†
No	6 (3.89)	33 (21.43)	

† Fisher exact

Table 7: Association of dysmenorrhoea with gynaecological characteristics (N = 154)

Characteristics	Dysmenorrhoea		p-value
	Yes F (%)	No F (%)	
Age of menarche			
≤13 years	80 (51.96)	26 (16.88)	0.736
14 and above	35 (22.72)	13 (8.44)	
Family history of dysmenorrhoea			
Yes	62 (40.26)	7 (4.54)	<0.001‡
No	53 (34.42)	32 (20.78)	
Pattern of menstrual cycle			
Regular	90 (58.44)	24 (15.58)	0.04‡
Irregular	25 (16.24)	15 (9.74)	
Duration of blood flow			
<3 days	24(15.58)	9 (5.84)	0.772
More than 3-7days	91 (59.1)	30 (19.48)	
Physical exercise during menstruation			
Yes	18 (11.69)	10 (6.5)	0.162
No	97 (62.98)	29 (18.83)	
Gynaecological problem before menarche			
Yes	1 (0.65)	1 (0.65)	0.444†
No	114 (74.03)	38 (24.67)	

p-value <0.05 is significant; ‡ = Chi-square test value; † = Fisher exact test p-value

DISCUSSION

Menstrual characteristics of the respondents: A cross-sectional study was carried out to assess the prevalence of dysmenorrhoea and its association with stress among nursing students. This study found that 114 (74%) respondents had regular cycle which is consistent with the study conducted in tertiary care hospital in India where 70.45% of the respondents had regular menstrual cycles.[13]

Family history of dysmenorrhoea of the respondents: Nearly half (69, 44.8%) of the respondents had family history of dysmenorrhoea which is consistent with the findings of the study conducted among pharmacology students which showed that 45% of the respondents had a familial history of dysmenorrhoea.[14] However, another study finding is contrast with the present study finding where only 17.39% had positive family history.[15]

Dysmenorrhoea related characteristics: The study showed that (115, 74.7% of the respondents experienced dysmenorrhoea and those who experienced dysmenorrhoea, nearly half (54, 47.0%) of them experienced moderate dysmenorrhoea, (36, 31.3%) experienced severe dysmenorrhoea (25, 21.7%) of the respondents experienced mild dysmenorrhoea. These findings are moreover similar to the study conducted in technical schools of Dang, Nepal which revealed that dysmenorrhoea is experienced by 75.2% of the respondents and among those who experienced dysmenorrhoea, half of the respondents experienced moderate pain (50.7%), followed by mild (26.6%) and severe (22.7%).[16] The most common symptoms associated with dysmenorrhoea were abdominal pain (109, 17.8%) followed by backache (97, 15.8%), tiredness (88, 14.3%) and mood changes (85, 13.8%) which findings are in line with the study conducted in Ethiopia as stomach

cramp, backache, mood change, fatigue, diarrhoea and headache.[5] In this study, (96, 83.5%) of the respondents did not take any medical advice for menstrual problems which is in contrast with the study conducted in Ethiopia where 78.2% of them practiced self-medication.[17]

Level of perceived stress: Regarding level of perceived stress, (131, 85.1%) of the respondents had moderate perceived stress level which is followed by mild stress level (14, 9.1%). In contrast with the present study, 71.9% of the respondents had moderate stress level followed by high perceived stress level (18.7%). This could be due to difference in study setting.[14] The Chi-square test was applied and no association was found between dysmenorrhoea and perceived stress level in the study. This result was in agreement with the research findings conducted among medical college students which could not find association between dysmenorrhoea and stress level.[18-19]

Association of dysmenorrhoea with gynaecological characteristics: There was statistically significant association with family history of dysmenorrhoea (p-value <0.001) and pattern of menstrual cycle (p-value = 0.040) in present study. These findings are in line with the study conducted in Dang, Nepal as family history of dysmenorrhoea (p-value <0.001) and pattern of menstrual cycle (p-value <0.041) was found significantly associated with dysmenorrhoea.[16] A similar result was obtained from the research study results conducted in India and northern Ethiopia.[8,17]

CONCLUSION

There is a high prevalence of dysmenorrhoea among nursing students and seems to affect important aspects of wellbeing and academic performance when the pain intensity is severe. Nearly half of the nursing students had perceived moderate level of pain. It also concluded that there is association between family history of dysmenorrhoea and dysmenorrhoea among nursing students. There was no significant association between dysmenorrhoea and perceived stress. All girls entering into menarche should be oriented with dysmenorrhoea management practices to maintain physical, physiological and psycho-social health.

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