ORIGINAL ARTICLE

VIMSJPT

PREVALENCE OF DYSMENORRHEA IN STUDENTS OF NURSING SCHOOL

[1]DIVYA POTDAR ,[2] DR. BHARATI ASGAONKAR

[1]BPTH STUDENT, [2]ASSOCIATE PROFESSOR,

TN Medical College and B.Y.L Nair Hospital, Physiotherapy School and Centre, Mumbai, India

ABSTRACT:

OBJECTIVES: The altered working module and lifestyle make nurses at high risk of dysmenorrhoea while working with patients. The study objectives were to: (1) describe the demographic and menstruation characteristics of dysmenorrhoea, assess their dysmenorrheic pain severity and menstrual attitudes towards menstruation among dysmenorrhoeal and non- dysmenorrhoeal hospital nurses; (2) identify significant differences between the groups; and (3) examine factors influencing dysmenorrhoea.

METHODS: This cross-sectional survey used a structured questionnaire, administered at Nurses School and centre of TNMC and B.Y.L. Nair Hospital, Mumbai, India. Participants included nurses from 18 to 25 years of age who agreed to participate. All participants were recruited through convenience sampling. The questionnaire included demographic data, the Visual Analogue Scale (VAS) and Menstrual Attitude Questionaire (MAQ). ***RESULTS:*** A total of 150 nurses completed the questionnaire. Among them, 106 (71%) had experienced dysmenorrhoea in the past 6 months and 44 (29%) had not. Significant differences in age of menarche (P=0.0248), the experience of dysmenorrhea (P= <0.0001), prior doctor visit for dysmenorrhea (P= 0.0002) , and rotating three-shift ratio (P=0.0154) were identified between the dysmenorrhoea and non-dysmenorrhoea groups. Analysis of the MAS results revealed significant differences between the groups regarding consideration of menstruation as a debilitating (P=0.0069), bothersome event (P=0.0463), menstruation as the natural event (P<0.0001), and denial of any effects from menstruation (P=0.0073). Analysis of the VAS results revealed significant differences between the groups (P<0.0001). 2350 (corrected for ties) and linear regression analysis Correlation coefficient (r) = - 0.2609.

CONCLUSION : These findings could help nurses to create a caring and friendly work environment along with treatment protocol for their efficient functioning in hospitals who are at risk of dysmenorrhoea.

KEYWORDS : dysmenorrhea , nurses , prevalence , attitude

Received 6th June 2019, Accepted 11st June 2019, Published 30th June 2019

CORROSPONDING AUTHOR

Dr. Bharati Asgaonkar

(Associate Professor)

Topiwala National Medical College and

B.Y.L Nair Hospital, Physiotherapy School

and Centre, Mumbai, India

Email: bharatida123@gmail.com

BACKGROUND

With the increasing acknowledgement of gender equality in today's society, conditions faced by women during menstrual periods should no longer be avoided, but squarely faced. From menarche to menopause, most females spend atleast half of their lifetime living with menstruation. During this time period, every female goes through an average of 400 menstrual cycles, which gives an average of 5 days for each menstruation period, adds up to 67 months (more than five and half years).[2]

Menstruation is a universal experience and a phenomenon related to multiple psychosocial events, but it is yet inadequately studied, and thus, women's experiences remain poorly understood. The menstrual cycle indicates women's general health and since it is not one single event, but a lifelong process, it is important to investigate menstruation across time.[3] Dysmenorrhea is characterized by crampy pelvic pain beginning shortly before or at the onset of menses and lasting 1–3 days. 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. Dysmenorrhea may be categorized into two distinct types:

Primary dysmenorrhea

Secondary dysmenorrheal.[4]

Primary Dysmenorrhea: It is defined as painful menses in women with normal pelvic anatomy usually beginning during adolescence. Primary dysmenorrhea usually occurs for 6 to 12 months after menarche, during the period in which the ovaries begin to ovulate.[2] No other gynaecological diseases accompany primary dysmenorrhea. Initial presentation of primary dysmenorrhea typically occurs in adolescence. It is a common cause of absenteeism and reduced quality of life in women. Women with primary dysmenorrhea have increased the production of endometrial prostaglandin, resulting in increased uterine tone and stronger, more frequent uterine contractions.[5]

Secondary Dysmenorrhea: It is menstrual pain associated with underlying pathology, and its onset maybe years after menarche caused by disorders such as endometriosis, pelvic inflammatory diseases,intrauterine devices, irregular cycles or infertility problems, polycystic ovary syndrome, adenomyosis, uterine myomas or polyps, intra-uterine adhesions. Dysmenorrhea not only causes physical pain, but also affects mental well being and quality of life, leading to work or school absenteeism and a significant health burden.

Despite the high prevalence of dysmenorrhoea, nurses often neglect their own health while working and caring for patients. With regards to work, women who work rotations, especially nurses who have to alternate between day and night shifts, experience relatively more serious menstrual discomfort.[6] Nurses who work night shifts are more likely to experience dysmenorrhoeal symptoms during their menstrual cycles than those who work regular shifts.[1]

Pathology of Dysmenorrhea :

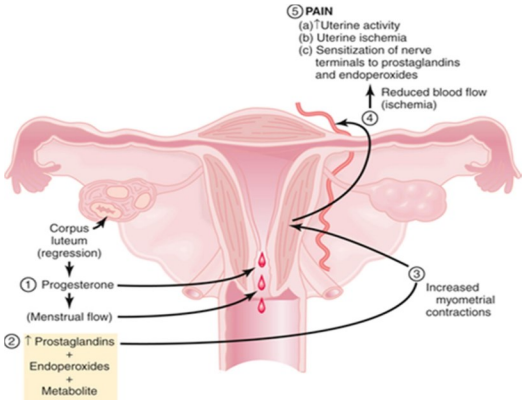

Fig 1: Pathology of Dysmenorrhea

The aetiology of primary dysmenorrhea includes an excess or imbalance in the amount of prostaglandins (PGs) secretion from the endometrium during menstruation. Associated general symptoms, such as nausea, vomiting, lumbago, diarrhoea and headache are the sequel of the influx of PGs and its derivatives into the systemic circulation.[7] When the uterus is about to discharge its peeled intima,the muscle of the uterine wall contracts too painfully, resulting in ischaemia of the uterine wall. Secondary dysmenorrhea which is usually related to diseases of the pelvic cavity, is apt to occur after the age of thirty.

Related factors which include endometriosis, fibrosis, intrauterine polypus, ovarian cystosis, pelvic infection, installation of an intrauterine device etc., have nothing to do with the menstrual cycle.[2]

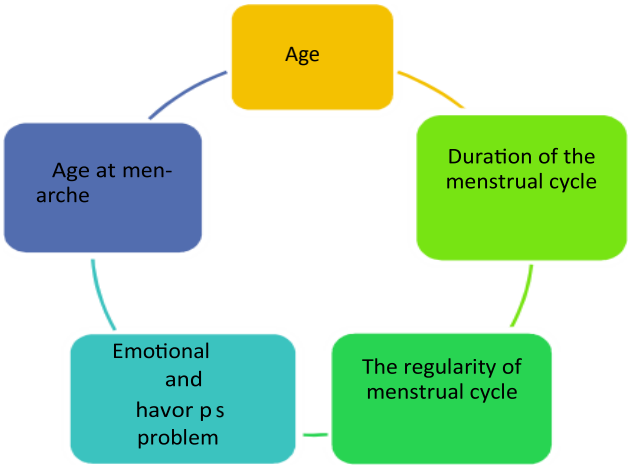

Fig 2: Influencing factors of Dysmenorrhea

Several risk factors affect dysmenorrhoea:

a)Age: older women are generally less likely to experience dysmenorrhoea, although the relationships with marital status or childbirth history remain unclear.

(b)Age at menarche: age at menarche is significantly related to the occurrence of dysmenorrhoea, and women who demonstrate an earlier age at menarche are more likely to experience more severe dysmenorrhoea.[8]

(c)Duration of the menstrual cycle: longer menstrual flow duration is an important predictive factor of dysmenorrhoea.[8]

(d)The regularity of menstrual cycle: women with irregular menstrual cycles are more likely to have dysmenorrhoea.[2]

(e)In terms of lifestyle factors, the results of several studies indicate that smoking and alcohol consumption are risk factors for primary dysmenorrhoea.[9,10]

(f) Low BMI

(g) Emotional and behavioural problems exacerbate menstrual problems.

Prior experience receiving health education on menstruation also influences the circumstances of dysmenorrhea and its treatment, as health education typically influences attitudes toward menstruation. In general, those holding attitudes that were more positive had a lower rate of discomfort during their menstrual period. With respect to the physiology of menstruation, the order of severity of menstrual symptoms is associated with the amount of menstrual bleeding, menstrual cycle duration, menstrual regularity, and age of menarche. In general, obvious symptoms of dysmenorrhea have been found more widely present in cases where the menarche occurred earlier with

Dysmenorrhea affects female adolescents significantly and those ones who have this problem are usually comparatively more anxious. Adolescent girls with relatively more negative symptoms also receive more pressure from menstruation. In addition to high rates of absence, female adolescents particularly nurses with dysmenorrhea also appear to be dispirited by it.[2] The main objectives of this study was to:

a. Describe the basic demographic data as well as menstruation characteristics of dysmenorrhoea, knowledge of dysmenorrhoea and attitudes towards menstruation among dysmenorrhoeal and non-dysmenorrhoeal clinical nurses)

b. Analyse the demographic data as well as the menstruation characteristics, knowledge about dysmenorrhoea and attitudes towards menstruation among dysmenorrhoeal and non-dysmenorrhoeal clinical nurses, and identify significant differences between these groups. Examine the risk factors for dysmenorrhoea among clinical nurses.[1]

In this framework, dysmenorrhea is the dependent variable, and age, socio-economic status, age of menarche, the regularity of menstrual cycle, duration of the menstrual cycle, and experience with health education related to dysmenorrheal are independent variables. In addition, the study was designed to examine differences in demographic characteristics between dysmenorrheal and non-dysmenorrheal groups.[2]

METHODS

Study design and Procedures :

This was a cross-sectional study based on structured questionaires for data collection. Convenience sampling was used in this study. Participants were recruited from Nurses School and Centre of Government tertiary health care hospital. All 150 nurses from each batch of nursing faculty were potential participants.

The inclusion criteria for this study were full-time nurses employed at the study hospitals who were between 18 to 25 years of age and agreed to participate in the study after providing informed consent. The research was initiated after obtaining approval from the participating school. Permission was taken from higher authorities to collect the data. Before conducting research, the researcher explained to participants the purpose of the study, the need to conduct the study and their rights as participants. The confidentiality of the participants was maintained in the study. After obtaining agreement from participants to participate in the study, questionnaires were filled by them in their classroom and data was collected. A total of 150 students agreed to participate in this study and everyone completed the questionnaire.

Measurements :

This study included a structured questionnaire and was designed on the basis of study instruments which included the Demographic Data, Visual Analogue Scale and Menstrual Attitude Scale (MAS)/ Menstrual Attitude Questionnaire (MAQ). The Demographic data was designed based on factors that included age, age at menarche, marital and childbirth status, dysmenorrhoea experience, regularity and duration of menstrual cycle, prior health education on dysmenorrhea, prior doctor visit for dysmenorrhea ,medical experience of dysmenorrhoea, three shift rotations, menstrual leave taken due to dysmenorrhea and secondary dysmenorrhea. This socio-demographic data allowed the participants to answer in yes or no or tick options for each question. The severity of dysmenorrheic pain was assessed by using a 10 cm line which represented the continuum of the female student's opinion of the degree of pain. One extremity of the line represented 'unbearable pain' and other extremity represented 'no pain at all' . The participants were asked to rate the degree of pain by making a mark on the line. The scores received from the scale were classified into mild dysmenorrhea if it was between 1-3 points, moderate between 4 to 7 points, and severe between 8 to10 points.

Menstrual Attitude Scale (MAS) consists of 32 items with five dimensions, including menstruation as a debilitating event, menstruation as a bothersome event, menstruation as a natural event, anticipation and prediction of the onset of menstruation, and denial of any effect of menstruation. Each item is scored on a 7 – point Likert Scale from 1 (disagree strongly) to 7 (agree strongly). Total scores range from 32 to 224, with a higher score representing a more positive attitude toward menstruation

Factors :

F1 : menstruation as a debilitating effect F2 : menstruation as a bothersome effect F3 : menstruation as a natural effect

F4 : anticipation and prediction of the onset of menstruation

F5 : denial of any effect of menstruation

DATA ANALYSIS

The data in this study was entered using Microsoft Excel. Graphpad software was used for the statistical analysis. Based on the study variables and objectives, percentages, mean and SD were used to describe participant demographics and menstruation characteristics as well as VAS and MAS score distributions in the dysmenorrhoea and non-dysmenorrhoea groups. We used t-tests to detect differences in demographics, menstruation characteristics, VAS score and MAS score between the two groups.

Finally, Spearman correlation and linear regression analysis was used to examine factors (independent variables) influencing the occurrence of dysmenorrhoea (dependent variable). Independent variables with significant differences were included in the multiple logistic regression analysis.

RESULTS

A total of 150 participants completed the questionnaire. Among them, 106 (71%) had experienced dysmenorrhea in the past 6 months and 44 (29%) had not. Compared with the non-dysmenorrhoea group, participants with dysmenorrhoea were significantly unmarried (98.11%) with no history of childbirth (100%) and more often demonstrated at the early age of menarche (39.62%) , moreover, a higher percentage of participants with dysmenorrhoea worked a three shift rotation (92.22%).

Table 1 : Comparison of demographic and menstruation characteristics between the dysmenorrhea and non dysmenorrhea group

Variable		**Dysmenorrhea Group (n=106)**		**Non- dysmenorrhea group (n=44)**		**t**	**p**
		n	%	n	%		
Marital status	a)married	2	1.88	2	4.54	0.628	0.581
	b)unmarried	104	98.1	42	95.45		
Age of menarche	a) <12 years	42	39.62	9	20.45	0.210	0.024
	b) >12 years	64	60.37	35	79.54		
Childbearing?	a) yes	0	0	0	0	0.643	--
	b) no	106	100	44	100		
Regularity of menses ?	a) yes	98	92.4	41	93.1	0.590	1.000
	b) no	8	7.54	3	6.81		
Duration of the cycle?	a) <4	38	35.8	23	52.2	0.993	0.3590
	b) 5 to 6	62	58.4	19	43.1		
	c) >7	6	5.66	1	2.27		
	d) missing	0	0	1	2.27		
Prior health education on dysmenorrhea?	a) yes	81	76.4	33	75	0.411	0.8368
	b) no	25	23.5	11	25		
Experience of dysmenorrhea?	a) yes	106	100	0	0	0.643	<0.0001
	b) no	0	0	44	100		
Prior doctor visit for dysmenorrhea	a) yes	37	34.9	3	6.8	0.338	0.0002
	b) no	69	65	41	93.1		
Three shift rotation?	a) yes	102	92.2	37	84	0.606	0.0154
	b) no	4	3.77	7	15.9		
How often do you take menstrual leave ?	a) often	13	12.2	3	6.81	1.126	0.3232
	b) sometimes	25	23.5	12	27.2		
	c) never	68	64.1	29	65.9		
Secondary dysmenorrhea?	a) yes	9	8.49	2	4.54	0.586	0.5094
	b) no	97	91.5	42	95.4		

A t-test or Chi-square test or Fisher' exact tests was used to examine the differences in each variable between the two sets. The domains : age of menarche (P value: 0.0248), experience of dysmenorrhea (P-value : <0.0001), prior doctor visit for dysmenorrhea (P value : 0.0002),three shift rotation (P value : 0.0154) are considered statistically extremely significant.

Table 2: Interpretation of Visual Anlogue Scale

Grades	n	%
Mild (0 to 3)	38	25.33%
Moderate (3 to 7)	68	45.33%
Severe (7 to 10)	44	29.33%

Prevalence

Prevalence = number of students having dysmenorrhea (all cases new and existing) x 100 Total population during the same time period

71 % =106/150 x 100

Prevalence of dysmenorrhea of nurses in the nurse's school of government tertiary care hospital is 71% Regarding attitudes towards menstruation, after standardising, the highest scoring dimension was 'considering menstruation as a debilitating event' (43.3207) and (38.795) among both the groups. The lowest scoring dimension in both groups was 'menstruation as a bothersome event' (20.660 in the dysmenorrhoea group and 18.5 in the non-dysmenorrhoea group). With respect to knowledge about dysmenorrhoea, there was a significant difference between the two groups (P=0.0426) using unpaired t-test. The 95% confidence interval of the difference: -16.524 to -0.2826 With respect to pain severity (VAS) about dysmenorrhea , there was an extremely significant difference between both the groups P= <0.0001) using unpaired t-test .

The 95% confidence interval of the difference: -3.314 to -1.616.

Table 3. Comparison of dysmenorrheic pain, attitudes towards menstruation between the dysmenorrhea and non- dysmenorrhea groups.

Variables	Dysmenorrhea group		Non dysmenorrhea group		t value	P value
	Mean	SD	Mean	SD		
VAS	5.9877	2.546	3.5227	1.986	5.735	<0.0001
MAQ	148.971	22.999	140.568	22.709	2.045	0.0426
F1	43.3207	9.146	38.7954	9.385	2.738	0.0069
F2	20.6603	6.055	18.5	5.845	2.010	0.0463
F3	30.6037	6.730	29.8636	6.923	4.523	<0.0001
F4	28.2452	6.038	26.6363	6.258	1.470	0.1437
F5	26.7641	6.433	26.7727	6.545	0.9941	0.0073

Table 4: Spearman correlation between groups

	Best-fit	Standard	95% confidence interval	
Parameter	Value	Error	from	to
Slope	-0.3881	0.2216	-0.8355	0.05929
Y intercept	201.12	34.737	130.99	271.26
X intercept	518.20			

Spearman correlation and linear regression analysis using dysmenorrhoea and non-dysmenorrhoea as dependent variables, which yielded significant differences in the variables of demographics, menstruation characteristics, VAS score and MAS score between the two groups. Correlation coefficient (r) = -0.2609. r squared = 0.06806 . Standard deviation of residuals from line (Sy.x) = 22.182.

DISCUSSION

The average age of participants of this study was 18 to 25 years and the average age of menarche was 12.6 +_ 1.07.[2] According to this study, there was a significant difference between the groups with dysmenorrhea and non- dysmenorrhea, which showed that people who have their menarche earlier face a higher rate of dysmenorrhea. According to recent studies, the reported dysmenorrhea more prevalent in nurses who faced early menarche (84.51%) and another reported rate of (76.12%). These results favour early menarche being a significant risk factor for dysmenorrhea.

In terms of marital status, the ratio of unmarried to married women in the dysmenorrhoea group was 2.74 times that of the non-dysmenorrhoea group, indicating a high dysmenorrhoea occurrence rate among unmarried women. This study also discovered no significant differences between those whose menstrual duration was 4 to 6 days and those with greater or lesser durations in the dysmenorrheal and non-dysmenorrheal groups.[11] This study did not have any women with childbearing status positive. Hence it did not yield any significant result either. Some of the previous studies have reported that prior health education on dysmenorrhea has significant difference in an attempt to reduce pain along with psychological acceptance of the upcoming painful event. However, according to this study it revealed that there was no significant difference between the two groups with regard to the prior health education.

Out of 150 students, 106 (71%) students experienced dysmenorrhea while the remaining 44 (29%) did not. There was significant difference between the two groups.The prevalence rate of dysmenorrhea is 71% . The prevalence rate of dysmenorrhea worldwide is between 50.9% to 87.4%. According to previous studies the dysmenorrheic rates were 90.2% and 73.3% respectively. A study in hospital nurses in Taiwan reported a prevalence rate of 90.7%[12] indicating the rates are quiet high worldwide and therefore, empowering these female adolescents is important to improve their self-care abilities to maintain and promote comfort and quality of life during menstruation periods.[2] According to previous studies it has been reported that 20.8% of nursing population have seeked doctor's visit for dysmenorrhea. Few participants in this study had sought the help of doctors for dysmenorrhea (34.90%) which yielded a significant difference between the two groups.In terms of work, the rate of dysmenorrhea was more in the population working in three shift rotations. This indicates that work type (eg, rotating nightshifts) is a risk factor for dysmenorrhoea in nurses.[1] Based on previous studies the nurses working in night shifts presented with higher rate of dysmenorrheic pain (91.25%). They experienced more discomfort and irritability owing to disturbed cycle and unbearable menstrual cramps.

This study revealed significant difference between two groups with rate of 92.22% of nurses experiencing dysmenorrhea with regard to the night shifts/rotation. Owing to the nature of nursing work, most nurses need to work rotating night shifts, and the graveyard shift can easily cause uncomfortable menstrual cycles or obvious irregularities. Owing to nurses' day/night activities and sleep patterns, along with the increased pressure of working night shifts, menstrual discomfort may be more common in those with frequent rotation changes.Regarding attitudes towards menstruation, after standardising, the highest scoring dimension was 'considering menstruation as a debilitating event' (43.3207) and (38.795) among both the groups.[1]

The lowest scoring dimension in both groups was 'menstruation as a bothersome event' (20.660 in the dysmenorrhoea group and 18.5 in the non dysmenorrhoea group). With regard to the pain severity,45.33% students have moderate pain while 29.33% have severe pain indicating the excruciating discomfort faced by women every month.[1]

CONCLUSION

Major study results found that dysmenorrheal and non-dysmenorrheal nursing female students displayed significant differences in terms of age of menarche, the experience of dysmenorrhea, prior doctor visit for dysmenorrhea and three shift rotations. Also, the majority of the students out of the total population experienced dysmenorrhea (71%).

Based on the pain severity, most of the population (45.33%) experienced a moderate level of intensity of pain followed by (29.33%) of the population with severe pain. Also with regard to the attitude of pain, 'menstruation as debilitating event' resulted in the highest score.

SUGGESTIONS

We assessed the various factors influencing the occurrence of dysmenorrhoea by assessing their pain severity, demographic data and

attitude towards menstruation with the aim of helping nursing managers to offer appropriate assistance for high risk groups and build a caring and friendly work environment for at risk hospital nurses. These were as follows :

a.to set work schedule for the nurses to accommodate their working hours on the basis of their menstrual cycle.

b. Arrangement or creating supportive work place or separate rooms allowing nurses to take a break and apply hot compressions, rest or drink hot beverages enabling them to work more efficiently.

c. Allowing flexibility in taking menstrual leave or scheduling menstrual leave, thereby integrating menstrual self -care into the annual occupational safety and health training;

d. providing spaces at work for nurses to take short breaks and offering physiotherapeutic measures, such as thermotherapy, massage, electrical stimulation (TENS) to relieve associated back pain, relaxation techniques and other measures. Such measures will enable nurses to care for themselves at work, thus improving their workplace comfort levels and increasing their work satisfaction and performance. This study revealed the prevalence rate of 71% of nursing female population experiencing dysmenorrhea which is high rate for which immediate treatment protocol should be taken to ease their discomfort and promote healthy life for our nurses who work day and night for the welfare of the hospital, patients and ease the work burden of the doctors.

LIMITATIONS OF THE STUDY

There were very few married women in the population making the marital status category insignificant to be commented on.

This study could not comment and analyse on the childbearing category in the demographic data as the population did not have any childbearing woman.

This study was limited in terms of analysing the BMI and effects of lifestyle choices, such as smoking and alcohol consumption as these too have reported to be risk factors for dysmenorrhea.

REFERENCES

1. Chiu MH, Hsieh HF, Yang YH, Chen HM, Hsu SC, Wang HH. Influencing factors of dysmenorrhoea among hospital nurses: a questionnaire survey in Taiwan. BMJ open. 2017 Dec 1;7(12):e017615.
2. Chiou MH, Wang HH. Predictors of dysmenorrhea and self-care behavior among vocational nursing school female students. Journal of Nursing Research. 2008 Mar 1;16(1):17-25.
3. Bargiota S, Bonotis K, Garyfallos G, Messinis I, Angelopoulos N. The Psychometric Properties of Menstrual Attitudes Questionnaire: A validity Study in Greek Women. International Journal of Innovative Research in Science, Engineering and Technology. 2016;5 (2):1754-65.
4. 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. Upsala journal of medical sciences. 2010 May 1;115(2):138-45.
5. Coco AS. Primary dysmenorrhea. American family physician. 1999 Aug;60(2):489-96.
6. Cady RK, Diamond ML, Diamond MP, et al. Sumatriptan-naproxen sodium for menstrual migraine and dysmenorrhea: satisfaction, productivity, and functional disability outcomes. Headache 2011;51:664–73.
7. Taniguchi F, Ota I, Iba Y, Toda T, Tagashira Y, Ohata Y, Kurioka H, Endo Y, Sunada H, Noma H, Azuma Y. The efficacy and safety of dydrogesterone for treatment of dysmenorrhea: An open-label multicenter clinical study. Journal of Obstetrics and Gynaecology Research. 2019 Jan;45(1):168-75.
8. Loto OM, Adewumi TA, Adewuya AO. Prevalence and correlates of dysmenorrhea among Nigerian college women. Aust N Z J Obstet Gynaecol. 2008;48:442–4.
9. Perry M. Treatment options for dysmenorrhoea. Practice Nurs 2012;23:195–8.
10. Ju H, Jones M, Mishra GD. Smoking and trajectories of dysmenorrhoea among young Australian women. Tob Control 2016;25:195–202.

11. Chung FF, Yao CC, Wan GH. The associations between menstrual function and life style/working conditions among nurses in Taiwan. J Occup Health 2005;47:149–56
12. Palmer D. "To help a million sick, you must kill a few nurses": nurses' occupational health, 1890-1914. Nurs Hist Rev 2012;20:14–45

How to cite this article: Divya Potdar, Bharti Asgoankar. **Prevalance of Dysmenorrhea in Students of Nursing School**. VIMSJPT .2019;1(1):23-31