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COMPARATIVE ASSESSMENT IN NURSING AND MEDICAL STUDENTS FOR BMI AND NUTRITION AS A POTENTIAL FACTOR OF MENSTRUAL DISORDER

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ABSTRACT

Background: Menstruation represents a normal physiological event in life of females, however, at times associated pain and abnormalities can adversely affect the daily routine and can be stressful for the affected females warranting its further exploration.

Aim: The present study was aimed to comparatively assess the nursing and medical students for BMI and nutrition as a potential factor of menstrual disorder.

Methods: The present study assessed 376 female undergraduate students from nursing and medical background of the Institute. All the females were given a preformed structured proforma having various questions on a questionnaire that was used to gather data which was further assessed to attain the results.

Results: The mean age of menarche for medical students was significantly higher compared to nursing students from the study was comparable with p-value of <0.05. The commonly seen menstrual anomalies were premenstrual syndrome, dysmenorrhea, and menstrual irregularities as seen in 70%, 71%, and 15% study subjects respectively. For the correlation of menstrual anomalies to the lifestyle, there was no significant association seen. The most common cause for absent from college in both medical and nursing student was fear of unexpected heavy bleeding and dysmenorrhea.

Conclusion: The present study concludes that despite being from the medical background with comprehensive knowledge about menstruation physiology, nursing and medical student have few associated myths concerning menstruation that are carried with society. Hence, there is a need for programs aimed at public awareness in medical students that will help with better understanding and confidence development along with social awareness in females from the medical background.

Keywords: BMI, Dysmenorrhea, Lifestyle, Medical education, Nutrition, Premenstrual syndrome

INTRODUCTION

Disorders associated with the menstrual cycle are one of the major gynecological concerns seen in adolescent females and is a major reason attributed to anxiety in these females and their families. Menstrual concerns can be seen as premenstrual symptoms, dysmenorrhea, variation in frequency and duration, and irregular cycle. The population affected most by these concerns are school-going adolescent girls. Existing literature data has substantial evidence for these studies. However, data is scarce concerning paramedical and medical background students that are considered well aware and informed to handle these concerns and have better understanding for menstrual problems.¹

These students from medical background are also at higher risk of menstrual irregularities attributed to consumption of junk food, irregular food and exercise habits, variations in sleep patterns, and/or stressful life. The prevalence of menstrual disorders in existing literature from different geographical backgrounds of India has reported varying results from 12% to 88%. Premenstrual syndrome and dysmenorrhea are most commonly encountered menstrual abnormalities in Indian context.²

Menstrual abnormalities can also be linked to various other health concerns as fertility issues, obesity, lipid disorders, polycystic ovarian syndrome, and psycho-social problems as being absent from college or class and/or low self-esteem.³

With better understanding of menstruation concerns on individual basis, it is possible to have timely intervention. With these studies, it is feasible to provide healthy clinicians for the community that can manage similar concerns in surrounding females and can help society at a greater level.⁴ Hence, the present study was aimed to comparatively assess the nursing and medical students for BMI and nutrition as a potential factor of menstrual disorder.

MATERIALS AND METHODS

The present cross-sectional study was aimed to comparatively assess the nursing and medical students for BMI and nutrition as a potential factor of menstrual disorder. The study was conducted in Department of Community Medicine of the Institute. Verbal and written informed consent were taken from all the subjects before study participation.

The present study assessed 376 female undergraduate students from nursing and medical background of the Institute. The study excluded the pregnant or married females that did not give consent for study participation. All the female students gave consent for participation and made the final sample size for the study.

These 376 subjects with the age range of 17-24 years were divided into two groups where group I included 180 medical students and Group II included 196 undergraduate nursing students. All the females were given a preformed structured proforma having various questions on a questionnaire that was used to gather data which was further assessed to attain the results following the previous study by Negi et al from 2018.⁵ The part 1 for questionnaire included questions pertaining to lifestyle and demographic, part 2 included questions for menstrual patterns, and part 3 had myths and facts about menstruation. Questions that assessed knowledge were as either No and Yes. Dysmenorrhea was considered as no pain, mild pain, moderate pain, or severe pain on the NRS (numerical rating scale). The questionnaire was given to students as small group and investigators were available to explain study and help them in completing the questionnaire.

Questions pertaining to menstruation as college absenteeism, impact on daily activities, associated symptoms, severity of pain (none, mild, moderate and severe), pain during menstruation, amount of bleeding (light, normal or heavy), length and duration of the cycle, regularity of cycle, and age at menarche. Questions were also considered to assess knowledge concerning normal menstrual cycle. Confidentiality and anonymity were given to all the subjects.

The definitions used in the study included definitions from FIGO 2011-12.^{6,7} Frequency of menses was classified as frequent when bleeding was seen in <24 days, normal in 24-38 days, and infrequent when >38 days. Regularity of menses was considered absent when no bleeding, regular for regular (variation of $\pm 2-20$ days), irregular (variation >20 days). Flow duration was considered prolonged, normal, shortened, normal, and light prolonged >8 days, normal (2-8 days) and shortened <2 days, volume of monthly blood loss was considered heavy, normal, and light for >80ml, 5-80ml, and <5ml respectively. Dysmenorrhea was considered as pain onset in 6-12 hours after menses initiation. Pelvic and lower abdominal pain linked to menses onset and lasting 8-72 hours. Mild dysmenorrhea was considered painful dysmenorrhea that usually inhibit normal function and analgesics are usually needed. Moderate dysmenorrhea was painful menstruation affecting daily activities and need analgesics to provide relief. Severe dysmenorrhea was painful menstruation that inhibit daily activities clearly and pain is not relieved by analgesics.

Statistical analysis of the gathered data was done using chi-square test, Fisher's exact test, Mann Whitney U test, and SPSS (Statistical Package for the Social Sciences) software version 24.0 (IBM Corp., Armonk, NY, USA) using ANOVA, chi-square test, and student's t-test. The significance level was considered at a p-value of <0.05.

RESULTS

The present descriptive cross-sectional study was aimed to comparatively assess the nursing and medical students for BMI and nutrition as a potential factor of menstrual disorder. The present study assessed 376 female undergraduate students with the age range of 17-24 years and with the mean age of 21.21 ± 1.45 years from nursing and medical background of the Institute. All the females were given a preformed structured proforma having various questions on a questionnaire. Mean BMI was $21.1 \pm 3.37 \text{ kg/m}^2$ with two groups showing non-significant difference. Majority of participants were from nuclear family. Medical students were majorly from urban background and nursing students from rural background. For lifestyle concerns in two groups, 68% subjects from medical and 73% from nursing had no

addiction for any product used to enhance performance during stress. Overall, there was non-significant difference concerning nutritional status, junk food consumption, and lifestyle in nursing and medical students with $p>0.05$ (Table 1).

It was seen that for menstrual pattern in study subjects, mean age of menarche in nursing and medical students was 12.63 ± 1.22 years and 13.67 ± 1.36 years respectively with significantly higher in medical students with $p=0.000$. Majority of participants had average flow duration and regular cycles. The most common menstrual concern seen was dysmenorrhea in 71% ($n=268$) subjects with pre-menstrual symptoms and irregular cycles being second most common seen in 70% ($n=264$) and 15% ($n=56$) study subjects respectively. Dysmenorrhea was seen in higher number of nursing females compared to medical students with 78% and 64% respectively depicting statistically significant results with $p=0.03$ (Table 2). For prevalence of menstrual disorders, higher proportion of nursing students were absent from college during menstruation with 12% nursing and 5.6% medical students showing non-significant difference with $p>0.05$. Fear of unexpected heavy bleeding and pain from dysmenorrhea were common reasons for being absent from college (Table 3).

The study results showed that for beliefs and knowledge concerning menstruation, 47% students had awareness for correct menarche age. However, when bleeding duration and menstrual cycle length were assessed, more perception was seen in medical students concerning facts with statistically significant results and p -value of <0.000 . The overall knowledge in medical students was better when compared to the nursing students (Table 4).

On assessing the association between menstrual anomalies and lifestyle, for correlation in junk food consumption and irregular cycles, addiction to beverages and chocolates, $BMI\geq 25$ kg/ m², dysmenorrhea, and dieting for weight reduction, there was a non-significant association in these factors. In the similar manner, no significant association was seen in nutritional status to premenstrual syndrome and dysmenorrhea with $p>0.05$ (Table 5).

DISCUSSION

The present study assessed 376 female undergraduate students with the age range of 17-24 years and with the mean age of 21.21 ± 1.45 years from nursing and medical background of the Institute. All the females were given a preformed structured proforma having various questions on a questionnaire. Mean BMI was 21.1 ± 3.37 kg/m² with two groups showing non-significant difference. Majority of participants were from nuclear family. Medical students were majorly from urban background and nursing students from rural background. For lifestyle concerns in two groups, 68% subjects from medical and 73% from nursing had no addiction for any product used to enhance performance during stress. Overall, there was non-significant difference concerning nutritional status, junk food consumption, and lifestyle in nursing and medical students with $p>0.05$. These data were comparable to the previous studies of Karaot N et al⁸ in 2016 and Sommer M et al⁹ in 2013 where authors assessed subjects with BMI and nutritional level comparable to the present study in their studies for menstruation related anomalies.

The study results showed that for menstrual pattern in study subjects, mean age of menarche in nursing and medical students was 12.63 ± 1.22 years and 13.67 ± 1.36 years respectively with significantly higher in medical students with $p=0.000$. Majority of participants had average flow duration and regular cycles. The most common menstrual concern seen was dysmenorrhea in 71% ($n=268$) subjects with pre-menstrual symptoms and irregular cycles being second most common seen in 70% ($n=264$) and 15% ($n=56$) study subjects respectively. Dysmenorrhea was seen in higher number of nursing females compared to medical students with 78% and 64% respectively depicting statistically significant results with $p=0.03$ (Table 2). For prevalence of menstrual disorders, higher proportion of nursing students were absent from college during menstruation with 12% nursing and 5.6% medical students showing non-significant difference with $p>0.05$. Fear of unexpected heavy bleeding and pain from dysmenorrhea were common reasons for being absent from college. These results were consistent with the findings of Yalew M et al¹⁰ in 2021 and Wang L et al¹¹ in 2004 where results for menstrual pattern similar to the results by authors were seen in present study.

It was seen that for beliefs and knowledge concerning menstruation, 47% students had awareness for correct menarche age. However, when bleeding duration and menstrual cycle length were assessed, more perception was seen in medical students concerning facts with statistically significant results and p -value of <0.000 . The overall knowledge in medical students was better when compared to the nursing students. These findings were in agreement with the results of Najafi N et al¹² in 2018 and Baval DA et al¹³ in 2016 where results for beliefs and knowledge concerning menstruation comparable to the present study was also reported by the authors in their studies.

Concerning the assessment of the association between menstrual anomalies and lifestyle, for correlation in junk food consumption and irregular cycles, addiction to beverages and chocolates, $BMI\geq 25$ kg/ m², dysmenorrhea, and dieting for weight reduction, there was a non-significant association in these factors. In the similar manner, no significant association

was seen in nutritional status to premenstrual syndrome and dysmenorrhea with $p > 0.05$. These results correlated with the findings of Ali A et al¹⁴ in 2020 and Vlachou E et al¹⁵ 2019 where results for association between menstrual anomalies and lifestyle reported by the authors were comparable to the results of the present study.

CONCLUSION

Considering its limitations, the present study concludes that despite being from the medical background with comprehensive knowledge about menstruation physiology, nursing and medical student have few associated myths concerning menstruation that are carried with society. Hence, there is a need for programs aimed at public awareness in medical students that will help with better understanding and confidence development along with social awareness in females from the medical background.

REFERENCES

1. Hashim RT, Alkhalifah SS, Alsalman AA, Alfaris DM, Alhussaini MA, Qasim RS, Shaik SA. Prevalence of primary dysmenorrhea and its effect on the quality of life amongst female medical students at King Saud University, Riyadh, Saudi Arabia. A crosssectional study. Saudi Med J. 2020;41:283–9.
2. Amaza D, Sambo N, Zirahei J, Dalori M, Japhet H, Toyin H. Menstrual Pattern among Female Medical Students in University of Maiduguri, Nigeria. Journal of Advances in Medicine and Medical Research. 2012;2:327–37
3. Kural M, Noor NN, Pandit D, Joshi T, Patil A. Menstrual characteristics and prevalence of dysmenorrhea in college going girls. J Family Med Prim Care. 2015;4:426–31.
4. Karout N, Hawai SM, Altuwajri S. Prevalence and pattern of menstrual disorders among Lebanese nursing students. East Mediterr Health J. 2012;18:346–52.
5. Negi P, Mishra A, Lakhera P. Menstrual abnormalities and their association with lifestyle pattern in adolescent girls of Garhwal. India J Family Med Prim Care. 2018;7:804–8.
6. Munro MG, Critchley HO, Fraser IS. The FIGO systems for nomenclature and classification of causes of abnormal uterine bleeding in the reproductive years: Who needs them? Am J Obstet Gynecol. 2012;207:259–65.
7. Fraser IS, Critchley HO, Broder M, Munro MG. The FIGO recommendations on terminologies and definitions for normal and abnormal uterine bleeding. Semin Reprod Med. 2011;29:383– 90.
8. Karout N. Knowledge and beliefs regarding menstruation among Saudi nursing students. J Nurs Educ Pract. 2016;6:23–30.
9. Sommer M, Sahin M. Overcoming the taboo: advancing the global agenda for menstrual hygiene management for schoolgirls. Am J Public Health. 2013;103:1556–9
10. Yalew M, Adane B, Arefaynie M, Kefale B, Damtie Y, Mitiku K, Agmas A, Biset G, Alene TD, Adane M, Addisu E, Dewau R. Menstrual hygiene practice among female adolescents and its association with knowledge in Ethiopia: A systematic review and meta-analysis. PLoS ONE. 2021;16:e0254092.
11. Wang L, Wang X, Wang W, Chen C, Ronnennberg AG, Guang W, Huang A, Fang Z, Zang T, Wang L, Xu X. Stress and dysmenorrhoea: a population based prospective study. Occup Environ Med. 2004;61:1021–6
12. Najafi N, Khalkhali H, Moghaddam Tabrizi F, Zarrin R. Major dietary patterns in relation to menstrual pain: a nested case control study. BMC Womens Health. 2018;18:69.
13. Babil DA, Dolatian M, Mahmoodi Z, Baghban AA. Comparison of lifestyles of young women with and without primary dysmenorrhea. Electron Physician. 2016;8:2107–14
14. Ali A, Khalafala H, Fadlalmola H. Menstrual Disorders among Nursing Students at Al Neelain University, Khartoum State. Sudan JMS. 2020;15:2.
15. Vlachou E, Owens DA, Lavdaniti M, et al. Prevalence, Wellbeing, and Symptoms of Dysmenorrhea among University Nursing Students in Greece. Diseases. 2019;7:5.

S. No	Variables	Nursing students (n=196)	Medical students (n=180)	p-value
1.	Mean age (years)- 17-24 years range	21.02±1.37	21.41±1.51	0.07
2.	Mean BMI (kg/m ²)	21.03±3.52	21.65±3.19	0.16
a)	Normal weight	130 (66%)	116 (64)	>0.05

b)	Underweight	44 (22.4)	34 (19)	
c)	Overweight	16 (8)	30 (16.7)	
d)	Obese	6 (3.1)	0	
3.	Junk food habit	122 (62)	130 (72)	>0.05
4.	Junk food frequency			
a)	1 day/week	110 (56)	82 (45.6)	
b)	2-3 days/week	64 (33)	80 (44.4)	>0.05
c)	4-7 days/week	22 (11)	18 (10)	
5.	Weight reduction and dieting history	46 (23.5)	52 (29)	>0.05
6.	Food consumption (fussy)	64 (33)	68 (38)	>0.05
7.	Addiction			
a)	Chocolate	14	18	
b)	Coffee	12	12	
c)	Tea	52	20	
d)	Others	60	42	
8.	Increased addiction during stress	144 (73.4)	122 (68)	>0.05
9.	Stress			
a)	Very often	-	-	
b)	Fairly often	-	-	
c)	Sometimes	174 (89)	160 (89)	>0.05
d)	Almost never	12	16	
e)	Never	10	4 (2.2)	
10	Consider exercise	176 (90)	166 (92)	
11	Exercise frequency			
a)	1-2 days/week	60 (31)	54 (30)	
b)	2-3days/week	84 (43)	64 (36)	>0.05
c)	4-7 days/week	50 (25.5)	58 (32)	
d)	None	2 (1)	4 (2.2)	
12	Exercise duration			
a)	>30 min	70 (36)	50 (28)	
b)	<30 min	126 (64)	130 (72)	>0.05
13	Sleep (hours)			
a)	<8	116 (59)	88 (49)	
b)	8-10	78 (40)	88 (49)	
c)	>10	2 (1)	4 (2.2)	

Table 1: Lifestyle and demographic variables in study subjects

S. No	Parameters	Medical students (n=180)	Nursing students (n=196)	Total (n=376)	p-value
1.	Mean menarche age	12.63±1.22	13.67±1.36		0.000
2.	Cycle type				
a)	Irregular	40 (22.2)	16 (8)	56 (15)	0.007
b)	Regular	140 (78)	180 (92)	320 (85)	
3.	Flow amount				
a)	Mild	78 (43)	88 (45)	166 (44)	
b)	Moderate	98 (54)	104 (53)	202 (54)	
c)	Severe	4 (2.2)	4 (2)	8 (2.1)	
4.	Flow duration (days)				
a)	<2	8 (4.4)	6 (3)	14 (3.7)	
b)	3-8	166 (92)	186 (95)	294 (78)	
c)	>8	6 (3.3)	4 (2)	10 (2.6)	
5.	Length of the cycle (days)				
a)	<24	8 (4.4)	10 (5)	18 (5)	

b)	24-38	148 (82)	176 (90)	324 (86)	
c)	>38	24 (13)	10 (5)	34 (9)	
6.	Dysmenorrhea	116 (64)	152 (78)	268 (71)	0.03
7.	Dysmenorrhea severity				
a)	No pain	64 (35)	44 (22.4)	108 (29)	
b)	Mild	36 (20)	42 (21.4)	78 (21)	
c)	Moderate	54 (30)	80 (44.4)	134 (36)	
d)	Severe	26 (14.4)	30 (15.3)	56 (15)	
8.	Premenstrual symptoms	126 (70)	138 (70.4)	264 (70)	0.931
9.	Needed analgesics	74 (41)	70 (35.7)	144 (38)	

Table 2: Pattern of menstruation in nursing and medical students

S. No	Variables	Medical students (n=180)	Nursing students (n=196)	p-value
1.	Absent from college	10 (5.6)	28 (14.3)	0.107
2.	Work inhibition	8 (4.4)	68 (34.7)	0.427
3.	Moderately affected	68 (38)	62 (31.6)	0.356
4.	Rarely affected	58 (32)	68 (35)	0.716
5.	Unaffected	36 (20)	28 (14.3)	0.276

Table 3: Effects of menstrual disorders on work life of nursing and medical students

S. No	Response	Medical students (n=180)	Nursing students (n=196)	p-value
1.	Weak from blood loss (no)	80 (52)	134 (68)	0.0008
2.	Cranky (yes)	122 (68)	164 (84)	0.01
3.	Make female capable of bearing child (yes)	144 (80)	180 (92)	0.01
4.	Cleans dirty blood from body (no)	138 (76.8)	108 (55)	0.001
5.	In beginning, inter-cycle period can prolong (yes)	176 (98)	162 (83)	0.0004
6.	Normal cycle length (24-38 days)	102 (56.7)	44 (22.4)	0.00001
7.	Normal blood flow duration (3-8 days)	74 (41)	36 (18.4)	0.004
8.	Normal menarche age (12-13 years)	88 (49)	88 (45)	0.526

Table 4: Myths and fact awareness in two groups of study subjects for menstruation

S. No	Nutrition parameters	PMS (n=264)	p-value	Dysmenorrhea (n=268)	p-value	Irregular cycle (n=56)	p-value
1.	BMI		0.06		0.212		0.841
a)	Yes	26		30		8	
b)	No	238		238		48	
2.	Addiction		0.336		0.111		0.336
a)	Yes	170		172		32	
b)	No	94		96		24	
3.	Dysmenorrhea		0.02		-		0.703
a)	Yes	202		-		38	
b)	No	62		-		18	
4.	Dieting to reduce weight		0.715		0.275		0.514
a)	Yes	66		66		12	
b)	No	198		202		44	
5.	Junk food intake		0.713		0.459		0.259
a)	Yes	174		199		42	
b)	No	90		90		14	

Table 5: Association in PMS, dysmenorrhea, and irregular periods in two groups of study subjects