

Relationship between BMI (Body mass index) and Dysmenorrhea among Adolescents in a College of Nursing at Puducherry, India

Margaret. A* and Manjubala Dash

Dept. of OBG, College of Nursing, MTPG and RIHS, Puducherry, India
magijoe08@gmail.com

Available online at: www.isca.in, www.isca.me

Received 3rd March 2016, revised 18th March 2016, accepted 28th March 2016

Abstract

Adolescent girls undergo many physiological changes in their body and attain menarche which is frequently associated with dysmenorrhea, the main cause of women missing work, school and other activities. BMI considered as one of the risk factor for experiencing dysmenorrhea was reported by many researchers. Objective: to assess the relationship between BMI and dysmenorrhea among adolescents. Methods: A correlational study was conducted among adolescents in college of nursing, MTPG and RIHS, Puducherry. Purposive sampling technique was used to select 100 samples for the study. The history related to menstruation, menstrual pain and associated symptoms was obtained through a self-structured questionnaire which consist of questions related to the demographic data, verbal analogue scale for pain, modified quality of life scale and their BMI was measured. Statistics: Chi square and correlation coefficient for relationship. Results and conclusion: Out of the 100 students 73(%) had dysmenorrhea and 27(%) had no dysmenorrhea and in 51(%) of the students there was a positive family history of dysmenorrhea. 65(%) of the students were with normal body mass index, 27(%) of the students were underweight, 7(%) were overweight and 1% was obese. BMI does not demonstrate any significant association and correlation with dysmenorrhea.

Keywords: Menarche, Dysmenorrhea, Adolescent Girls.

Introduction

Adolescence is a transition period from childhood to adulthood and a period of physical and psychological preparation for safe motherhood. This transition with many physiological changes is particularly stressful for adolescent girls, with the onset of menarche frequently associated with dysmenorrhea¹. Menarche is the first menstrual cycle, and the mean age of menarche varies from population to population and for most girls it is found to be between 10 and 16 years². Menstrual pain usually starts a day or two days before the menstrual flow and tends to cease after one or two days of menstruation. It is also known as primary dysmenorrhea. Women get menstrual pain due to the release of prostaglandins from the uterine lining which contracts the uterus leading to spasm and causing pain³.

Body Mass Index (BMI) was calculated by the formula Weight in Kg/ Height² in meter² and based on the BMI criteria by WHO the students were classified under underweight <18, normal 18-24.9, overweight 25-29.9 and obese >30.

Due to the increased frequency of dysmenorrhea among the adolescent girls in India and based on the research findings of many studies, dysmenorrhea is one of the most common health issue in young adolescent girls as it affects 50-90% of general population. This study was taken up to find out the relationship between incidence of dysmenorrhea and body mass index.

Materials and Methods

100 female students of age 18 to 21 years from college of nursing was selected for this study. After obtaining informed consent, data was collected through a questionnaire which addressed demographic data, detailed menstrual history- age at menarche, length of the cycle, regularity, menstrual flow, presence of dysmenorrhea, severity of pain and associated physical and psychological symptoms and family history of dysmenorrhea. The severity of pain was assessed through verbal analogue scale and verbal multidimensional scoring system. BMI was calculated from height and weight using standard formula. Subjects with BMI < 18.5 were considered as underweight and with BMI 18.5-24.9 were considered normal and subjects with BMI = 25 -29.9 were considered overweight and BMI >30 as obese as per the standard protocol used by WHO for measuring obesity statistics since 1980 . Data was statistically analysed by Pearson chi square test and correlation coefficient.

Results and Discussion

73% of the students experience dysmenorrhea and 27% did not experience dysmenorrhea. (Table 1) 65% of the students were with normal body mass index, 27% of the students were underweight, 7% were overweight and 1% was obese. (Table-1) The mean age at menarche was 13.3 and 13.4 years in the students with and without dysmenorrhea respectively and also

the mean BMI was 20.40 and 19.5 kg/m² among the students of both the groups (Table-2).

The verbal Analogue score for pain shows, 27% of the students reported no pain, 28% have mild pain, 31% have moderate pain and only 14% have severe pain (Figure-1). The mean age and Mean BMI were more or less similar in both the groups and there was no relationship between BMI and presence of dysmenorrhea on statistical analysis by Pearson chi square ($p > 0.5$) and (chi square value = 1.515) (Table-3).

Discussion: The incidence of dysmenorrhea is high in our study which is consistent with previous studies reporting rates between 28%- 89.5%. This indicates that dysmenorrhea is a public health problem. The mean age at menarche was 13.3 and 13.4 years in the students of both the groups. In a study

conducted by Maitri shah et al in Gujarat, similar findings were reported⁴.

Table-2 and 3 depicts that neither the age nor the height and weight of the subjects marks dysmenorrhea. The findings were supported by the studies of Anil K Agarwal et al and Sundell et al^{5,6}.

In the present study, the prevalence of physical symptoms like headache, backache, tiredness, nausea, breast heaviness, etc were high (82%) when compared to the psychological symptoms like anxiety, disturbed sleep, lack of concentration which was only 31%. Gulsen Eryilmaz et al reported in their study that prevalence of nausea was 12.2%, diarrhea 8.1%, dizziness 8.1% and headache 17.7%⁷.

Table-1
Distribution of the demographic variable: Dysmenorrhea

Variables		Frequency (n=100)	Percentage
Dysmenorrhea	Present	73	73%
	Absent	27	27%
	<18(underweight)	27	27%
BMI	18 – 24.9 (normal)	65	65%
	25 – 29.9(overweight)	7	7%
	>30 (obese)	1	1%

Table-2
Mean age and Mean BMI of the students

Variables (BMI)	Dysmenorrhea	
	Present (73)	Absent (27)
Mean age at menarche	13.3	13.4
Mean BMI	20.40	19.5

Table-3
Relationship between BMI and Dysmenorrhea

Variables (BMI)	Dysmenorrhea	
	Present	Absent
<18(underweight)	18	9
18 – 24.9 (normal)	47	17
25 – 29.9(overweight)	6	1
>30 (obese)	1	-

Chi square value = 1.515. p value = 0.5, Correlation coefficient r value = - 0.55.

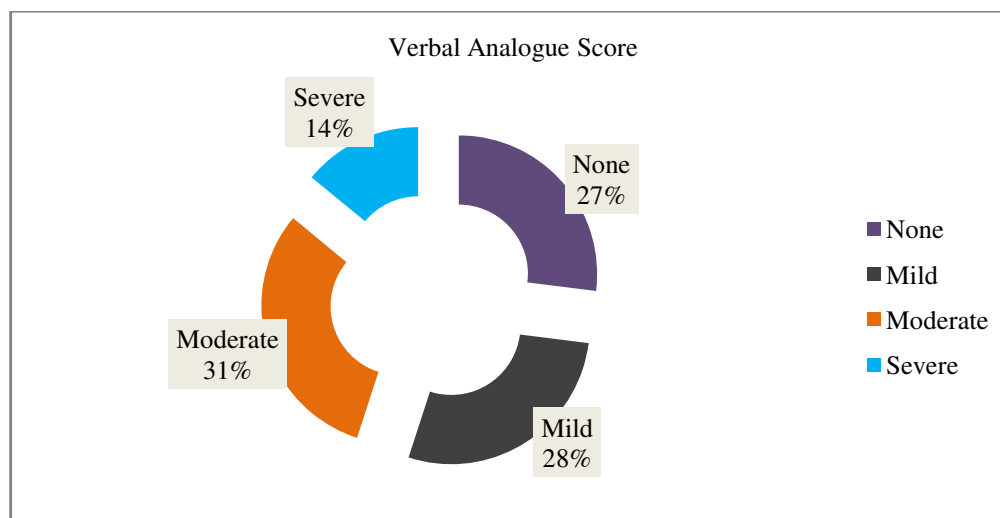


Figure-1
Distribution of verbal analogue score for pain

In order to quantify pain which was a subjective symptom, various scoring systems like VAS (Verbal analogue scale) and VMDSS (Verbal multidimensional scoring system) have been found by researchers. In our study Figure-1 reveals that 28% had mild pain, 31% had moderate pain and 14% of students had severe menstrual pain. The verbal multidimensional scoring system for dysmenorrhea was also used to assess the working ability of the students. It revealed that 52% of the students fall under Grade 1(Mild) which denotes that the working ability is rarely affected. 16% has Grade 2(Moderate) dysmenorrhea which denotes that the working ability is moderately affected and 5% of the students had Grade 3 (Severe) dysmenorrhea denoting that in only 5% of the students the working ability was clearly inhibited. Ortiz MI revealed in a study that dysmenorrhea was mild in 36.1%, moderate in 43.8% and severe in 20.1% students⁸.

Conclusion

The high prevalence of dysmenorrhea in our study population clearly denotes that dysmenorrhea is a significant public health problem among young adolescent girls. Though there was no relationship between Dysmenorrhea and body mass index, the prevalence of dysmenorrhea reveals that some kind of education among adolescent school and college girls becomes necessary to cope with dysmenorrhea and lead a better productive life.

References

1. Anice G.J. (2005). Effect of yoga therapy on dysmenorrheal in adolescent girls. Proceeding of international conference of health science on integrated health care towards global well being, Mahavidyapeetha Mysore. 25-35. (<http://www.we.asc.org/anice>).
2. Desalegn Tegabu Zegeye (2009). Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. BMC women's health.
3. Varney's. Text book of Midwifery. All India publishers and distributor regd, 4th edition, 382-383.
4. Maitri Shah, Anuradha Monga, Sangita Patel, Malay Shah and Harsh Bakshi (2013). A study of prevalence of primary dysmenorrhea in young students: A cross-sectional study. *Health Line*, 4(2).
5. Agarwal A.K. and Agarwal A. (2010). A study of dysmenorrhea during menstruation in adolescent girls. *Indian J Community Med.*, 35(1), 159-64.
6. Sundell G., Milsom I. and Andersch B. (1990). Factors influencing the prevalence and severity of dysmenorrhoea in young women. *BJOG*, 97, 588-589.
7. Eryilmaz G., Ozdemir F. and Pasinlioglu T. (2010). Dysmenorrhea prevalence among adolescents in eastern Turkey: its effects on school performance and relationships with family and friends. *Journal of pediatric and adolescent gynecology*, 23(5), 267-72.
8. MI O (2010). Primary dysmenorrhea among Mexican university students: Prevalence, impact and treatment. *Eur J Obstet Gynecol Reprod Biol.*, (152), 73-7.