

VARIATIONS OF DYSMENORRHEA DURING STRESS AND NON STRESS CONDITION IN COLLEGE GOING GIRLS IN BELGAUM CITY: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: In India, prevalence of dysmenorrhea varies from 33% to 79.67% 1-5. Dysmenorrhea is the commonest cause of absenteeism among college going girls 6-9. It is related to various factors such as cigarette smoking, alcohol consumption, exercise, dietary habits, physical factors such as Body Mass Index (BMI) and menstrual factors such as age at menarche and duration of menstrual flow and emotional factors such as stress, anxiety and apprehension¹⁰. It is of immense importance to study the factors determining the variations in dysmenorrhea due to stress related conditions.

Objective: To study the variations of dysmenorrhea during stress in college going girls in Belagavi city. With an objective to study the variations of dysmenorrhea during non-stress condition in college going girls in Belagavi city and to study the variations of dysmenorrhea during stressful and non-stressful conditions among college going girls in Belagavi city.

Methods: A total of 400 college going adolescent girls were screened for primary dysmenorrhea and pathological difficulties, malignancy and parity were excluded from the study. Confirmation of Primary Dysmenorrhea was done using Moos Menstrual Distress Questionnaire. Once confirmed, all participants were subjected to counselling, taking into consideration the various risk factors and awareness about diet and regular physical exercise was conducted.

Results: The present study proved that BMI was an independent risk factor among dysmenorrhic girls with the onset of symptoms occurring mostly among the early age group i.e 20.9 years. This study also proved the alternate hypothesis true i.e there was a positive and significant co-relation between each component taken in MMDQ with the mean values peaking mostly in the stress group than in non stress group with the values of 124 and 76.7 respectively.

Conclusion: The present study concluded that there was a significant variation in dysmenorrhea during stress and non stress condition in college going girls.

KEY WORDS: Dysmenorrhea, stress, non stress, college going girls, Menstrual Distress Questionnaire.

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INTRODUCTION

The term dysmenorrhea is the Greek word for difficulty in monthly flow and denotes painful menstruation[1]. In 60-90% of adolescent girls in India, dysmenorrhea is

the major cause for absenteeism from college or restriction of activities of daily living, social interaction, decreased work efficiency and quality of life among affected population [1].

The period of adolescent is the transitional phase from childhood to adulthood which comprises of pubertal development, sexual maturation along with hormonal, psychological, cognitive and physical changes. This is the preparatory phase for a girl encompassing physical and psychological transformation for motherhood [2]. Some literature suggests that lifestyle factors such as cigarette smoking, alcohol consumption, exercise, dietary habits, physical factors such as Body Mass Index (BMI) and menstrual factor such as age at menarche and duration of menstrual flow are associated with premenstrual symptoms, dysmenorrhea and irregular menstrual cycles [3]. After factors affecting dysmenorrhea emotional and behavioral problems may exacerbate menstrual cycle problems and dysmenorrhea. For example, depression or anxiety related symptoms are more prevalent [4].

Dysmenorrhea is classified as primary and secondary dysmenorrhea¹. Primary is also known as Spasmodic dysmenorrhea which is characterized by painful menstruation in absence of pelvic pathology. It is suggested that the basic cause of primary dysmenorrhea is marked by increased uterine contractility with high amplitude contractions [5]. Prostaglandins are responsible for increasing the sensitivity of the nerve endings in [PGE₂], it is a potent vasoconstrictor causing increased myometrial contractility [PGF_{2a}] and also causes vasodilatation, which decreases prior to menstruation, thus leading to ischemia [PGI₂] [1,6-8].

As sympathetic fibers pass from the uterus through posterior roots of T10, T11, T12 and L1 and from the cervix through S2, S3, S4 dysmenorrhea is marked by cramps in the lower abdomen which may radiate upto lower back and upper thighs and is also associated with nausea, headache, diarrhea, fatigue and mood swings [8].

Physiotherapy exercise can be given like Cat stretch, lower trunk rotation, buttock/hip stretch, abdominal and lower abdominal strengthening like curl up, bridging and electrotherapy interventions such as TENS,

Massage (For lumbosacral, dorsal regions, cervical regions depending upon dysfunction to be treated) [9]. Acupuncture, contrast bath, spinal manipulation, microwave diathermy for severe cases and heat fomentation can be applied especially in the back, lower abdomen and thighs [10]. Homecare advice such as application of castor oil directly on skin for 30-60 minutes, increased intake of fatty acids, fresh fruits, vegetables, proteins, magnesium rich foods, vitamins (E, B Complex) and reduced intake of saturated fat (meat and dairy products) should be given [11]. Special emphasis on stress reduction, regular exercise, proper positioning, frequent meals, maintaining hygiene should be given [12].

Our study implies on correlating stress score, heavy menstrual flow of menstrual pain which predicts pre-menstrual symptoms, while age of menarche and premenstrual symptoms were significant predictors for menstrual pain. With a view to understand the relationship between stress and dysmenorrhea, a Menstrual Distress Questionnaire (MDQ) was developed by Moos in the year 1969 [13] Although there is a growing evidence of association between psychological stress and dysmenorrhea, only a few studies have examined its relationship due to its methodological challenges as stress is difficult to quantify and dysmenorrhea is a condition subjective to self report [11]. The validity of these reports and dysmenorrhea data depends on a subjects ability to recall both events accurately. As very less literature is available regarding this study, the basic aim of this study is to check the variations between dysmenorrhea associated with stressful and non-stressful conditions among college going girls.

MATERIALS AND METHODS

Source of Data: The data was collected from Belgavi city from various courses such as Physiotherapy, Pharmacy, Nursing, Homeopathy, MBBS, Dental, Ayurveda and Engineering.

Study Design: Observational cross sectional study.

Sampling design and sampling allocation:

Sample of convenience / non probability sampling.

Procedure: Ethical clearance was obtained from Institutional Ethical Committee of KLEUIPT. Subjects were screened for inclusion and exclusion criteria. The age group of these students varied from 18 to 24 years. With the prior permission of the college officials, care was taken that the regular timetable of the participants were not hindered. After obtaining consent, all the female students willing to be a part of the study were given Menstrual Distress Questionnaire. All the items in the questionnaire were first explained by the researcher conducting the study in local language. Then they were asked to respond to it in a given time period. Their Body Mass Index (BMI) was measured by formula $\text{Weight (Kg)} / \text{Height}^2$ (meter). They were also asked about presence of any associated symptoms like nausea / vomiting, headache, dizziness or diarrhoea. Privacy and confidentiality was maintained throughout the study.

Outcome measures: Menstrual Distress Questionnaire, With a view to understand the relationship between stress and dysmenorrhea, a Menstrual Distress Questionnaire (MDQ) was developed by Moos in the year 1969. This test is used to analyze the behavioral and affective responses of women associated with premenstrual, menstrual and post-menstrual phases [23,24].

RESULTS

The total no of 400 subjects were screened and the average age of all the subjects in various courses was 20.9 ± 1.8 years .

The average Mean of Height of subjects in various courses was 159.9 ± 7.0 . The average mean of weight was 55.03 ± 9.7 and the BMI of subjects in various courses was 21.4 ± 3.5 . The Mean value of pain in subjects with stress was 21.3 ± 6.2 and non - stress was 13.4 ± 5.3 . Denoting a significant difference between the both the groups with (p- 0.00001) that was statistically highly significant. The Mean of concentration in stress was 23.3 ± 8.3 and non stress was

14.2 ± 4.9 . Denoting a significant difference between the both the groups with (p-0.00001) that was statistically highly significant. The Mean value of behavioural change in subjects with stress was 16.6 ± 5.6 and non - stress was 10.1 ± 4.0 . Denoting a significant difference between the both the groups with (p- 0.00001) that was statistically highly significant. The mean of autonomic reaction was 7.6 ± 3.2 than that of non - stress 4.7 ± 2.0 with (p-0.00001) denoting that autonomic reactions were increased in stress. The Mean of water retention was 9.5 ± 3.7 in stress to that of non - stress was 6.5 ± 2.5 that shows the symptom water retention was more in stress than non - stress with (p-0.00001).

The average Mean of negative affect score was 21.6 ± 7.7 to that of non stress was 13.3. The average Mean of arousal was 12.7 ± 4.9 to that of non stress was 8.1 ± 3.0 . The average Mean of control was 11.1 to that of non - stress was 6.6.

The total score of MMDQ was significantly more in stress group then in non - stress group that suggest that the data was statistically significant and proves the alternate hypothesis is true.

Fig. 1: Comparison of stress and non-stress groups with MOOS Total Scores.

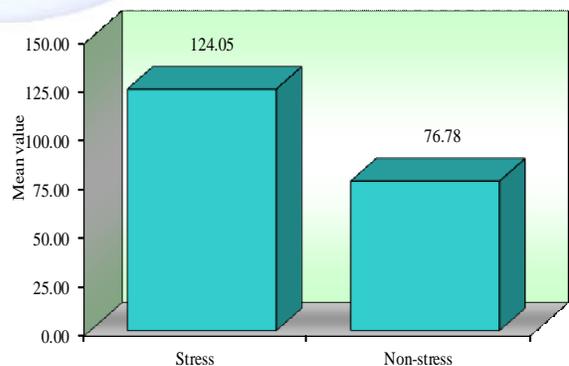


Table 1: Comparison of stress and non-stress groups with Grand Total scores.

Group	N	Mean	t-value	p-value
Stress	400	124.05±36.20	22.5916	0.00001*
Non-stress	400	76.78±21.00		

DISCUSSION

The present study aimed to compare the variation of dysmenorrhea in stressful and non stressful condition in college going girls

in Belgavi city. Dysmenorrhea has not only become exceedingly common but also has become the number one cause for sick leave or absenteeism among the college going girls [15,16,23-25]. A study conducted on stress and dysmenorrhea: A population based prospective study suggested similar findings. The present study population included 400 adolescent girls of various professional courses. A study conducted on BMI and dysmenorrhea consisting of 400 subjects was carried out which proves that the sample size of this value is significant in determining the present study [17].

The present study demonstrated that dysmenorrhea was more common in stressful condition than in non stressful condition in the age group of 18 to 24 years with the mean of 20.9 years. Whereas a study conducted by S. Kumbhar et al suggests that subjects in the study with the history of early age at menarche (13 to 14 years) had more prevalence of dysmenorrhea but it was statistically not significant [2]. In another study conducted in semi rural town of West Turkey, it was determined that the prevalence of dysmenorrhea decreases as age group increases indicating that primary dysmenorrhea peaks in late adolescence and the early 20's and the incidence falls with increasing age [18].

The relation of BMI and dysmenorrhea suggests that, lower the BMI, more is the dysmenorrhea. A study done on Relationship between BMI and Dysmenorrhea among Adolescent girls, showed similar findings. This may be due to poor nutritional status of underweight adolescent girls [19]. On the contrary, a study conducted by Harlow et al concluded that overweight was an important factor for dysmenorrhea and doubled the odds of having a long pain episode [23]. Even though above studies have a co-relation between BMI and dysmenorrhea, the present study has no such co-relation as the target population seemed to be in the normal range of BMI. (Mean 21.4 ± 3.5). Clarvit et al did not find any association between stress and dysmenorrhea in a group of medical students, which suggest that the relation between

stress and dysmenorrhea may differ among groups of women [20]. A prospective population based cohort study on Chinese women was done where they found that significant dose-response and temporal associations between perceived stress in one menstrual cycle, with the occurrence of dysmenorrhea in the subsequent cycle [21,22]. Present study used A Moos Menstrual Distress Questionnaire. MMDQ is one of the most reliable and valid scale. It was developed by Moos in the year 1969 [13,14]. The prostaglandin theory is the most widely accepted theory suggested by Pickles (1960) which states that prostaglandin synthetase inhibitors are used to alleviate dysmenorrhea, reduce menstrual fluid, prostaglandin concentration and decrease uterine contractility [1,6-8]. The component of behavioural change showed increased prevalence in stress condition. A study done on assessment of anxiety and depression in adolescents with primary Dysmenorrhea - a case control study concluded that primary dysmenorrhea is strongly linked with positive scores for depression and anxiety [23]. special emphasis on stress reduction, regular exercise, proper positioning, frequent meals, maintaining hygiene was advised [15].

CONCLUSION

To conclude, the present study has demonstrated that early awareness and intervention along with counselling and proper ergonomic advice accompanied by diet management showed improved results and proved significant in reducing stress.

Conflicts of interest: None

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