

# Prevalence of dysmenorrhea among school & college girls and postpartum women

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## ABSTRACT

**Aim:** The aim of the study was to measure the prevalence of dysmenorrhea among school girls, college girls, and postpartum women and to compare the severity of dysmenorrhea between school girls, college girls, and postpartum women. **Background of the Study:** Dysmenorrhea is one of the most common and important health problems among females. It causes absence from classes and work. It badly affects the daily activities and quality of life. Differently aged females suffer accordingly to their age, anatomical, and physiological changes. Hence, this study aimed to measure the prevalence of dysmenorrhea and to compare the severity of dysmenorrhea among three differently aged females. **Materials and Methods:** Once the study is approved by the Institutional Review Board, 150 females were selected from 200 volunteers to participate in the study. The study setting was in and around the Chennai. The source population includes 50 school-going girls with the age of 12–15 years, 50 college-going girls with the age of 19–22 years, and 50 postpartum women with the age of 30–35 years. The study population excludes the female with secondary dysmenorrhea (dysmenorrhea due to disorder in women's reproductive organ). The samples were fully explained about the benefits of participating in the study. They were asked to fill the consent form duly signed by the samples and therapist. Data regarding the female's experience of dysmenorrhea were collected using Cox retrospective menstrual symptom scale and dysmenorrhea severity index (verbal multidimensional scoring system). **Result:** On comparing the prevalence of dysmenorrhea among school girls, college girls, and postpartum women, the collected data show that the prevalence of dysmenorrhea is more among the school girls with painful menstrual symptoms and severity, followed by the college girls and postpartum women.

**KEY WORDS:** Cox retrospective menstrual symptom scale, Dysmenorrhea, Dysmenorrhea severity index (verbal multidimensional scoring system)

## INTRODUCTION

Menstrual period is a natural phenomenon which occurs throughout the reproductive years of every woman. Most females experience certain degree of pain and distress during their menstruation period.<sup>[1]</sup> Dysmenorrhea or painful menstruation is defined as a severe, painful, cramping sensation in the lower abdomen that is often accompanied by other symptoms, such as sweating, headaches, nausea, vomiting, diarrhea, and tremulousness, all occurring just before or during the menses.<sup>[1]</sup> There are two types of dysmenorrhea: Primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea is defined as

painful menses among females with normal pelvic anatomy, frequently beginning during adolescence. It is observed only in ovulatory cycles, frequently emerging within 6–12 months after menarche with no pathology or organic basis. Physiological prostaglandin F<sub>2α</sub> production by the endometrium is increased in primary dysmenorrhea which ultimately leads to the stimulation of uterine contractions and type C pain fibers. Secondary dysmenorrhea is a menstrual pain associated with underlying pathology and its onset might be years after menarche.<sup>[2]</sup>

Dysmenorrhea is considered the most common symptom of all menstrual complaints and poses a greater burden of disease than any other gynecological complaint in developing countries.<sup>[3]</sup> The prevalence of dysmenorrhea worldwide ranges 15.8–89.5%, with higher prevalence rates reported in the adolescent

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population.<sup>[2]</sup> The prevalence of dysmenorrhea in adolescent girls was found to be 79.67%. Most of them, 37.96%, suffered regularly from dysmenorrhea severity. The three most common symptoms present on both days, that is, day before and first day of menstruation were lethargy and tiredness (first), depression (second) and inability to concentrate in work (third), whereas the ranking of these symptoms on the day after the stoppage of menstruation showed depression as the first common symptoms. Negative correlation had found between dysmenorrhea and the General Health Status as measured by the Body surface area.<sup>[4]</sup> Furthermore, in India, dysmenorrhea is a very common problem in Indian adolescent girls, 87.87%.<sup>[6]</sup> More than 50% of all menstruating women experience some abdominal discomfort during their period.<sup>[3]</sup> Being a debilitating condition for many women, it has a major impact on health-related quality of life, work productivity, and health-care utilization.<sup>[5-10]</sup>

Moreover, dysmenorrhea can cause mental problems in some of the females resulting in their loneliness and reduced participation in different social activities. Hence, this study aimed to measure the prevalence of dysmenorrhea and to compare the severity of dysmenorrhea among three differently aged females.

## MATERIALS AND METHODS

Once the study is approved by the institutional review board, 150 subjects were selected among 200 volunteers that include 50 school-going girls with the age of 12–15 years, 50 college-going girls with the age of 19–22 years, and 50 postpartum women with the age of 30–35 years. The study setting was from and around Thiruvallur district. Thiruvallur is one of the districts in Tamil Nadu, which has a diverse ethnic population speaking different languages and dialects, practicing different religions such as Hinduism, Christianity, and Islam. The female participants were selected based on certain inclusion criteria such as school girls with the age of 12–15 years, college girls with the age of 19–22 years, postpartum women with the age of 30–35 years, and painful menstruation and exclusion criteria such as secondary dysmenorrhea, known polycystic ovarian syndrome, known endocrine

disorders, h/o chronic disease, h/o chronic medications, including OCPs, h/o irregular cycles, h/o smoking, and alcohol consumption were excluded from the study.

All the participants were given with Cox retrospective menstrual symptom scale and dysmenorrhea severity index (verbal multidimensional scoring system), which had questions related to menstrual symptoms including cramps, vomiting, nausea, leg ache, backache, and severity grading (grade 0, 1, 2, and 3), respectively. All the participants underwent for anthropometric measurements of height, weight, and nutrition status. The samples were fully explained about the benefits of participating in the study. They were asked to fill the consent form duly signed by the samples and therapist. Detail explanation about the questions in the questionnaire has been given. The participants were asked to fill the form.

Statistical analysis was analyzed by SPSS version 21.0, and the statistical significance of the frequency and percentage of dysmenorrhea and its symptoms was tested and  $P < 0.005$  was taken as statistically significant.

### Data Analysis

The collected data using quantitative method were analyzed using SPSS version 21.0. In the study, prevalence and severity of dysmenorrhea were described using mean and standard deviation. Multiple comparison tests were used to find the difference between means, and  $P < 0.05$  and 95% confidence interval (CI) were used as cutoff points for determining the statistical significance of associations among different variables.

### Descriptive Table

Table 1 shows the mean, standard deviation, and 95% confidence intervals for the dependent variable D-scores (dysmenorrhea) for each group (school girls, college girls, and postpartum women).

### ANOVA Table

This ANOVA table shows that the significance value is 0.000 (i.e.,  $P = 0.000$ ) which is  $< 0.05$  and we conclude that there is a statistically significant difference in the mean length of D-score.

**Table 1: Comparison of dysmenorrhea among school girls, college girls, and postpartum women by multiple comparison tests**

D-scores								
Sample groups	N	Mean	Standard deviation	Standard error	95% Confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
School girls	50	98.80	16.504	2.334	94.11	103.49	50	137
College girls	50	62.84	19.383	2.741	57.33	68.35	30	103
Postpartum women	50	32.08	5.788	0.819	30.44	33.72	20	47
Total	150	64.57	31.186	2.546	59.54	69.60	20	137

D-scores					
	Sum of squares	Df	Mean square	F	Sig.
Between groups	111514.293	2	55757.147	245.425	0.000
Within groups	33396.400	147	227.186		
Total	144910.693	149			

### Multiple comparison test: *Post hoc* test

Tukey HSD						
(I) Age group	(J) Age group	Mean difference (I-J)	Standard error	Significance	95% confidence interval	
					Lower bound	Upper bound
School girls	College girls	35.960*	3.015	0.000	28.82	43.10
	Postpartum women	66.720*	3.015	0.000	59.58	73.86
College girls	School girls	-35.960*	3.015	0.000	-43.10	-28.82
	Postpartum women	30.760*	3.015	0.000	23.62	37.90
Postpartum women	School girls	-66.720*	3.015	0.000	-73.86	-59.58
	College girls	-30.760*	3.015	0.000	-37.90	-23.62

Tukey *post-hoc* test reveals that the severity of dysmenorrhea among postpartum women is lower ( $32.08 \pm 5.788$ ) when compared to college girls and the school girls. College girls have mild ( $62.84 \pm 19.383$ ). The severity of dysmenorrhea among school girls is higher than other two groups ( $9.404 \pm 16.504$ ). There is a statistical difference between school girls, college girls, and postpartum women.

## RESULT

On comparing the data values, there is a significant difference between the prevalence of dysmenorrhea and its severity among all the three differently aged females at  $P < 0.005$ . The prevalence and severity of dysmenorrhea are higher among school-going girls, followed by college-going girls and postpartum women.

## DISCUSSION

The present study was conducted to estimate the prevalence of dysmenorrhea and to compare the prevalence and severity of dysmenorrhea among school-going girls with the mean age of 14 years, college-going girls with the mean age of 21 years, and postpartum women with the mean age of 33 years. It was noticed that all age group female experiences dysmenorrhea and their severity differ. Based on our findings, the prevalence of dysmenorrhea was estimated to be higher among school girls with the mean of 98.08. In previous research, the prevalence of dysmenorrhea worldwide ranges 15.8–89.5%, with higher prevalence rates reported in the adolescent population.<sup>[2]</sup> Moreover, in India, it was reported to be 87.87% among Indian adolescent girls.<sup>[6]</sup> These

findings were in consistent with the results reported in our study. Our result showed that the mean of dysmenorrhea prevalence among school girls, college girls, and postpartum women was 98.80, 62.84, and 32.08, respectively, in dependent variable D-scores.

On analyzing with 95% CI for a mean of three groups revealed that school girls has 94.11 at lower bound and 103.49 at upper bound, college girls has 57.33 at lower bound and 68.35 at upper bound, postpartum women has 30.44 at lower bound and 33.72 at upper bound. This shows that the prevalence of dysmenorrhea among school girls was higher followed by college girls and the college girls followed by postpartum women. Based on the ANOVA between the groups and within in the groups, the F test was 245.425 which is statistically significant at  $P = 0.000$ . On the other hand, the severity grading among the three differently aged females differs. This is because of adaptation to the severity of symptoms with respect to their frequency. The study concluded that severities of dysmenorrhea increased by young chronological age, nulliparity, sexual assault, heavy menstrual bleeding, low BMI and earlier age at menarche. There was no association of severity of dysmenorrhea with blood groups, genotypes, physical exercise and attempted weight loss.<sup>[11]</sup>

The previous study showed that the higher intensity of dysmenorrhea was associated with younger ages, and some previous studies confirmed that the intensity of primary dysmenorrhea decreased as age increased.<sup>[12]</sup> The severity of dysmenorrhea among three groups was measured using Turkey *post hoc* test. This test reveals that the severity of dysmenorrhea among postpartum women is lower ( $32.08 \pm 5.788$ ) when compared to college girls and the school girls. College girls have mild ( $62.84 \pm 19.383$ ). The severity of dysmenorrhea among school girls is higher than other two groups ( $9.404 \pm 16.504$ ). On comparing these data values between the three groups, it reveals that the school girls are suffering more by the severity of dysmenorrhea.<sup>[13]</sup>

Sharma et al concluded that The burden of dysmenorrhoea was found much more than menorrhagia and irregular cycles in our university. A large proportion of young girls suffer from dysmenorrhoea, though only a few seek treatment .High prostaglandin levels, psychosocial factors, young age at menarche, oppressive relationships, menorrhagia and premenstrual syndrome are found associated. However, there is little evidence to explain the aetiology of dymennorrhoea. Dysmenorrhoea is not a trivial complaint, as a result of high prevalence and adverse impact on mental health. It should be considered a target for reproductive health programme.<sup>[14]</sup>

Premenstrual syndrome (67%) and dysmenorrhea (33%) were perceived by the study subjects as the most distressing problems associated with menstruation. The most common effect of menstrual problems on daily routine reported by the study subjects was in the form of prolonged resting hours (54%) followed by inability to study (50%). More than half (52%) of the subjects discussed their problems with their mother, and 60% of the study subjects were opted for allopathic treatment for their menstrual problems.<sup>[15]</sup>

One of the findings revealed a statistically significant relationship between the age of respondents and their healthcare-seeking behavior towards dysmenorrhea. It also indicates the need to design regular reproductive health programs for female undergraduates including information on how to monitor and manage menstrual problems.<sup>[16]</sup> Menstrual pain is a common complaint in Iranian women. The inverse association between fruit and vegetable intake and dysmenorrhea, and reduction of stress and depression need to be further explored and considered in terms of recommendation to reduce dysmenorrhea.<sup>[17]</sup>

The strength of our study is that it includes three differently aged females with the moderate size of samples. This study can be further investigated with a large number of sample and on relation to age of menarche, lifestyle, and dietary pattern. The result suggested that stretching program and pelvic floor muscle strengthening can be used as an alternative for pain relief medicines in primary dysmenorrhea.<sup>[18]</sup>

## CONCLUSION

The result of this study shows that the prevalence of dysmenorrhea among school girls, college girls, and postpartum women is higher in school girls. Moreover, on comparing, the data collected from school girls and college girls show that the frequency of symptom is common and the severity is less in college girl. Comparatively the frequency and severity are less in postpartum women.

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