

**Effectiveness of fenugreek on dysmenorrhea among students of selected college of nursing, Bengaluru**

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**Abstract**

**Background:** Dysmenorrhea is found to be one of the most common health problems among adolescents and adult women. Many literatures showed that fenugreek has similar anti-inflammatory and anti-histaminic effect which reduces the severity of dysmenorrhea. Thus, the investigator was motivated to do a study to evaluate the effectiveness of fenugreek on dysmenorrhea.

**Objectives**

- To compare the severity of dysmenorrhea before and after administration of fenugreek and
- To determine the association of the pre-test pain scores with the selected baseline variables.

**Materials and methods:** One group pre-test and post-test design was used for the study. The setting was nightingale hostel, St. John’s College of nursing where around 710 students reside. A sample size of 60 was taken using stratified random sampling technique. A proforma for collection of baseline information and numerical pain rating scale was used to assess the pain level on 0, 1st and 2nd day of menstruation for 2

consecutive cycles, one without giving fenugreek and other with fenugreek and their pain level between two cycles were compared.

**Results:** The findings of the study show that there is significant reduction in pain level after the administration of fenugreek. The overall pain score for the 0, 1st and 2nd day was (IQR=2.75-5.25) in pretest and (IQR=0-2) in post-test, significant at 0.001 level. There was also a significant association between age( $p=0.005$ ) and academic year( $p=0.002$ ) at 0.05 level of significance.

**Interpretation & conclusion:** The study findings revealed that administration of fenugreek has helped in reducing pain during menstruation and also that fenugreek is economical and feasible.

**Keywords:** Dysmenorrhea; effectiveness; fenugreek.

**Introduction**

Dysmenorrhea also called as painful menstruation, is a severe, painful cramping sensation in the lower abdomen. It may be accompanied by headache, dizziness, diarrhea, a bloated feeling, nausea and vomiting, backache and leg pain. Dysmenorrhea has a negative effect on adolescent’s

life and it leads to high rate of absence from school and colleges and non-participating in activities. Pharmacological agent such as non-steroidal anti-inflammatory is best drug of choice in management of dysmenorrhea. But NSAIDS drugs have contraindications such as peptic ulcer, and indigestion. Home remedies are reasonably priced when compared to the drug treatment; natural ingredients are easily available, convenient, safe to use, more effective, free from chemical agents and have no side effects. Home remedies for dysmenorrhea such as yoga, meditation and consuming fenugreek seeds, cinnamon, aniseed, ginger, mint, asafetida, aloe vera, etc. consuming natural foods which has natural effect will have positive impact for preventing and management of dysmenorrhea. Among various home remedies fenugreek [*trigonella foenum graecum*] is an oldest herbal medicine. Fenugreek seeds are also used in traditional medicine to relieve common cold, arthritic pain and hyperglycemia. Fenugreek contains phytoestrogen compounds which have similar effect with estrogen. Compared to dexamethasone and ibuprofen, the fenugreek has similar anti-inflammatory and anti-histaminic effect which reduce the duration of dysmenorrhea and premenstrual syndrome. This important role in the management for dysmenorrhea lies mainly in educating and reassuring the patients that dysmenorrhea is a physiological problem and stressing the importance of lifestyle modification and taking natural home remedies for reducing its pain level.

## Materials & Methods

**A. Study Design:** One group pre-test and post-test design

### B. Variables

1. Independent variable - Administration of fenugreek seeds.
2. Dependent variable - Dysmenorrhea

3. Baseline variable - age, diet, academic year, type of family, family income, age of menarche, duration of bleeding, duration of cycle in days, onset of pain during each cycle, any medication taken and family history of menstrual pain.

### C. Setting of The Study

The study was conducted in Nightingale nursing hostel of St. John's College of Nursing, Bengaluru. Nightingale hostel has inmates of 710 nursing students who belong to St. John's College of nursing where there is an intake of 100 students from each batch of B. Sc Nursing & GNM and other courses like PcB.sc has an intake of 40 and M.sc nursing of an intake of 33 seats.

### D. Sample Size

In this study, the sample comprised of 60 nursing students with dysmenorrhea calculated based on a similar study where a mean difference in pain score is  $6.4 \pm 1.83$  with 15% precision and 95% confidence interval.

### E. Sampling Technique

Stratified random sampling technique was used to select samples based on selection criteria.

### F. Inclusion And Exclusion Criteria

#### Inclusion criteria

- Nursing students who have dysmenorrhea
- Unmarried nursing students

#### Exclusion criteria

- Those who have irregular menstruation
- Those students with any gynecological disorders and undergoing treatment.

### G. Development Of The Tool

After an extensive review of literature and discussion with the experts the socio demographic profile was developed. Calibrated manual weighing machine was used to measure the fenugreek seeds powder.

## H. Validity

- The tool was sent for validation to 13 experts (two doctors and 11 nursing experts) from the field of medical surgical nursing out of which 11 experts have sent back the tool after validation.
- No changes were proposed and tool was found to be valid and appropriate for the study

## I. Reliability

The established reliability of numerical pain rating scale was 0.85.

## J. Ethical Clearance

Ethical clearance was obtained from Ethics Committee of the institution.

## K. Pilot Study

Administrative approval was obtained from principal of St. John's nursing college, warden of the nightingale hostel and from the class coordinator of 1st year B.SC nursing. List of the first year B.SC nursing was taken. They were interviewed one to one and those with the dysmenorrhea were identified. Sampling frame was made from the selected students and from this frame 10 subjects were taken using lot method. The selected subjects were informed about the study and consent was obtained. They were instructed to inform on their 0 day of their menstruation. Pre-test was done on 0, 1st and 2nd day of menstruation. Next menstrual cycle was followed up for each subject and their pain was assessed using numerical pain rating scale after the administration of 2.5gm of fenugreek drinks each on the morning 6.30am and evening 6.30pm for the 0, 1<sup>st</sup> and 2<sup>nd</sup> day. The data was analyzed and study was found to be feasible.

## L. Data Collection Procedure

- Ethical approval was taken from IEC
- Administrative approval was obtained from principal of St. John's nursing college, warden of the nightingale hostel and from the class coordinator of

2nd year & 3rd year B.SC nursing and 2nd year & 3rd year GNM.

- List of the 2nd year & 3rd year B.SC nursing and 2nd year & 3rd year GNM nursing students was taken. They were interviewed one to one and those with the dysmenorrhea were identified.
- Sampling frame was made from the selected students and from this frame 80 subjects were taken using lot method.
- The selected subjects were informed about the study and consent was obtained.
- They were instructed to inform on their 0 day of their menstruation.
- Pre-test was done on 0, 1st and 2nd day of menstruation.
- Next menstrual cycle was followed up for each subject and their pain was assessed using numerical pain rating scale after the administration of 2.5gm of fenugreek drinks each on the morning 6.30am and evening 6.30pm for the 0, 1<sup>st</sup> and 2<sup>nd</sup> day.
- And opinionnaire was taken regarding the palatability of the fenugreek.

## Statistical Method

### Descriptive statistics

- Frequency and percentage distribution were used to describe the sociodemographic variables
- Range, median and interquartile range for the pretest and post test scores.

### Inferential statistics

- Wilcoxon's test was used to compare the severity of dysmenorrhea before and after the administration of fenugreek.
- Kurskal Wallis test and Mann Whitney test was used to find out the association of the pre-test pain score with the baseline variables.

**Results**

**Description of the baseline variables**

In the study, 88.33% of the subjects were in the age group of 17-21 years and only 11.7% were in the age group of 22-26 years with a mean of 20.15. 95% of them are non-vegetarian and 5% of them are vegetarian. 26.7% are 2nd year B.Sc. nursing students 21.7% are 2nd year GNM students 25% are 3rd year B.Sc. nursing students and 21.7% are 3rd year GNM students. 78.4% of the subjects belong to the family income <25,000. The mean age of menarche is 13.2. 61.66% of them have duration of menstruation less than 4 days and 38.34% of them have more than 4 days. 23.33% of them have the duration of menstrual cycle less than 28 days 68.3% of them have duration of 28-30 days and 8.34% of them have duration of more than 30 days.

**Comparison of the severity of dysmenorrhea before and after administration of fenugreek**

Table 1: Range, Median, Interquartile range, Wilcoxon’s test and ‘p’ value for comparison of the overall pretest and post-test pain scores for the three days.

n= 60

	Range	Median	IQR	Wilcoxon test	‘p’ value
Pretest pain scores	0-9	4	2.75-5.25	1243.5	< 0.001
Post-test pain scores	0-4	2	0-2		

Table 1 shows that there is significant reduction in pain level after the administration of fenugreek. The pain score was pre-test (2.75-5.25) and post-test (0-2), significant at 0.001 level.

Table 2 : Range, Median, Interquartile range, Wilcoxon’s test and ‘p’ value for comparison of the pretest and post-test pain scores of ‘0’ day.

n=60

	Range	Median	IQR	Wilcoxon test	‘p’ value
Pretest pain scores (0day)	0-8	0	0-2	248	0.297
Post-test pain scores (0day)	0-4	0	0-2		

Table 2 shows that there is no significant reduction in pain level after the administration of fenugreek on the 0 day of menstruation. The pain score for the 0 day was pretest (0-2), post-test (0-2), significant at a level of 0.297.

Table 3 : Range, Median, Interquartile range, Wilcoxon’s test and ‘p’ value for the comparison of the pretest and post-test pain scores of 1<sup>st</sup> day.

n=60

	Range	Median	IQR	Wilcoxon test	‘p’ value
Pretest pain scores(1 <sup>st</sup> day)	0-10	6	5-8	1433.5	<0.001
Post-test pain scores (1 <sup>st</sup> day)	0-7	4	3-5		

Table 3 shows that there is significant reduction in pain level after the administration of fenugreek. The pain scores were pretest(5-8), post-test(3-5), significant at p<0.05 level (p value is <0.001).

Table 4: Range, Median, Interquartile range, Wilcoxon’s test and ‘p’ value for comparison of the pretest and post-test pain scores of 2<sup>nd</sup> day  
n=60

	Range	Median	IQR	Wilcoxon test	‘p’ value
Pretest pain scores (2 <sup>nd</sup> day)	0-10	4	2-6	1216	<0.001
Post-test pain scores (2 <sup>nd</sup> sday)	0-5	0	0-2		

Table 4: shows that there is significant reduction in pain level after the administration of fenugreek. The pain scores was pretest (2-6), post-test (0-2), significant at p<0.05 level (p value is <0.001)

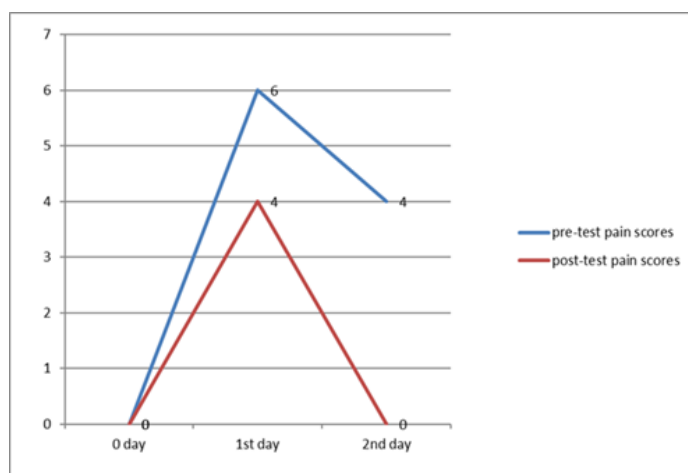


Figure1: pretest and post-test pain scores for the 0 day, 1<sup>st</sup> day and 2<sup>nd</sup> day.

From the figure 1, it is evident that on 0day there is no change in the pain scores before and after the intervention but on the 1<sup>st</sup> day of menstruation the median pretest pain scores is 6 while the median post-test pain scores is 4 and on the 2<sup>nd</sup> day of menstruation the median pretest pain scores is 4 while the median post-test pain scores is 0.

## Discussion

The findings of the study are discussed with reference to the objectives and results obtained by related studies.

### Section I: findings related to baseline variables

In the present study the mean age of menarche is 13.2 which was similar to a study done in Saudi where mean age at menarche was 12.36 ± 1.15 years and also in another study done in Mangalore on 560 female medical students where the mean age was 12- 14 years of age. In the present study 8.4% had onset of pain 2days before, 13.33% have pain on the 0 day, 68.33% have pain on the first day of menstruation and about 10% have pain on their second day where in a study done in Karnataka where most of the adolescent girls 66(45.2%) were having severe pain during their first day of menstruation. Another supporting study was done in selected districts of Karnataka where 63% of girls experienced dysmenorrhea before the onset of bleeding ( 0day) and 37% experienced after the onset of bleeding(1st &2nd day). In the present study 88.33% of the subjects were in the age group of 17-21 years and only 11.7% were in the age group of 22-26 years with a mean of 20.15. 16.7% of the students were taking medicines during the dysmenorrhea and 83.3% of them does not take. Similar findings were observed in a study done in Vadodara city where for relief only 5% girls consulted the doctor, 28% girls resorted self-medications whereas almost 65% of girls resorted to self-help techniques such as rest and home remedies. 58.3% of them had the family history of dysmenorrhea while 51.7 of them had no family history of dysmenorrhea which was supported by a study done in Vadodara city where it showed that the prevalence of dysmenorrhea was (75%) higher among the girls with family history of dysmenorrhea.

## Section II: Discussion related to the effect of fenugreek on dysmenorrhea

In the present study that there was significant reduction in pain level after the administration of fenugreek. The median pretest pain score was 4 and median post-test pain score was 2, significant at ( $p < 0.001$ ) and the interquartile range for the pre-test was 2.75-5.25 where the interquartile range for the post-test was 0-2. A similar study was done in Tehran, Iran where the fenugreek group experienced significantly larger pain reduction ( $p < 0.001$ ), no meaningful difference between the two cycles in the placebo group ( $p = 0.07$ ) but in the fenugreek group, the duration of pain decreased between the two cycles ( $p < 0.001$ ).

## Section III: Association of pre-test pain score with the baseline variables.

The study revealed a statistically significant association between the age and academic years with dysmenorrhea. In variables age showed the significant association with pre-test pain scores where the age group of 17-21 years old have higher prevalence of dysmenorrhea than others age group and in academic years 2nd year B.Sc. and 3rd year B.Sc. students have higher prevalence of dysmenorrhea than others. A similar study was done at Faridabad to assess the effect of fenugreek seeds on reducing menstrual pain intensity. In this study they used fenugreek seeds as a remedy to relieve dysmenorrhea symptoms and it showed that dysmenorrhea was more among age group 18-24. The study showed significant association between age and dysmenorrhea ( $p < 0.001$ ).

## Conclusion

The finding of the study showed that fenugreek drinks was effective in reducing the pain level (dysmenorrhea) during menstruation. Fenugreek was significantly effective in reducing the dysmenorrhea to a significant level.

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