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An experimental study to evaluate the effectiveness of fenugreek seeds water in regulating menstrual cycles among female students in selected college

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Abstract
Menstrual irregularity is a common gynecological problem among young females and can adversely affect their physical, psychological, and academic well-being. Non-pharmacological and natural remedies are increasingly being explored for the management of menstrual problems due to their safety and accessibility. The present study aimed to evaluate the effectiveness of fenugreek seed water in regulating menstrual cycles among female students of a selected college in Gandhinagar.
An experimental research design was adopted for the study. A total of 30 female students aged 18–25 years with menstrual irregularities were selected using a purposive sampling technique and divided into experimental (n = 15) and control (n = 15) groups. The experimental group received fenugreek seed water daily, while the control group did not receive any intervention. Data were collected using a structured menstrual irregularity assessment scale. Pretest and posttest assessments were conducted for both groups. The collected data were analyzed using descriptive and inferential statistics, including mean, standard deviation, and paired t-test.
The findings revealed a significant reduction in menstrual irregularity scores in the experimental group, with the mean score decreasing from 2.93 ± 2.09 in the pretest to 1.33 ± 0.97 in the posttest. The calculated *t* value (7.48) was greater than the table value (2.14) at 0.05 level of significance, indicating statistical significance. So, research hypothesis H1 is accepted at 0.05 level of significant and null hypothesis is rejected in contrast, the control group showed no significant difference between pretest and posttest scores ($t = 1.7$).
The study concludes that fenugreek seed water is an effective, simple, and economical intervention for regulating menstrual cycles among young female students. The findings support the use of fenugreek seed water as a complementary therapy in managing menstrual irregularities.
The present experimental study was conducted to evaluate the effectiveness of fenugreek seed water in regulating menstrual cycles among female students of a selected college in Gandhinagar. This chapter discusses the major findings of the study in relation to the stated objectives and hypothesis and compares them with findings of previous studies and relevant literature.

Keywords: Fenugreek seed water, menstrual irregularity, female students

Introduction

Menstrual irregularities are a common health concern among females, particularly in the reproductive age group of 18–25 years. These disturbances may manifest as delayed, absent, or excessively frequent menstrual cycles and are often associated with underlying hormonal imbalances, stress, poor nutrition, and lifestyle factors. If left unaddressed, such irregularities can impact reproductive health, emotional well-being, and overall quality of life.
Normally ovarian follicles release a developed egg but in case of PCOS instead of releasing a developed egg, the underdeveloped egg gets trapped that leads to cyst formation inside the swelling follicle (Legge and Ambassador, 2017). Many studies have been done to determine the prevalence of PCOS throughout world. Most of the cases of PCOS are reported in 20s and 30s with the complain of difficulty in becoming pregnant.
Studies suggest that 14% to 25% of women experience irregular menstrual cycles. This can be defined as periods that are shorter or longer than normal, heavier or lighter than normal, or accompanied by other issues like abdominal cramps. The prevalence of menstrual irregularities can vary based on age, country of residence, and occupation. The WHO focuses on highlighting menstruation as a health issue and calls for action to address it from before menarche to after menopause. One study in India documented about 30% prevalence of menstrual irregularities. Other studies report that the prevalence of irregular cycles can range from 5% to 35.6%, and that between 60% and 80% of women may experience at least one menstrual disorder. Fenugreek may regulate estrogen and testosterone levels, which is effective against Polycystic Ovarian Syndrome. In women with polycystic ovary syndrome, fenugreek improved body weight, number of ovarian cysts, ovary size, irregular hair growth, and monthly regularity.

Methods & Tools Used

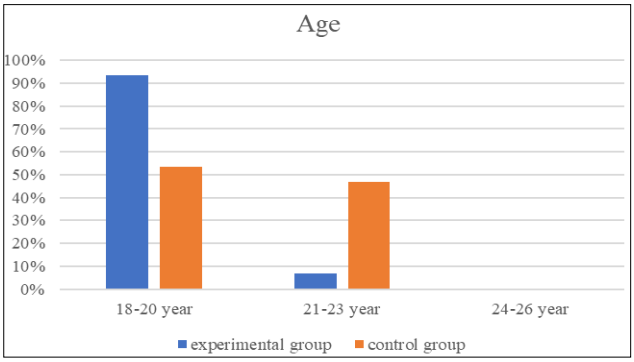
1. **Research Approach:** Quantitative Research Approach
2. **Research Design:** Quasi-experimental one group pre-test post-test research design
3. **Sampling Technique:** Non-probability purposive sampling technique
4. **Sampling Size:**30
5. **Research Setting:** Selected College of Gandhinagar

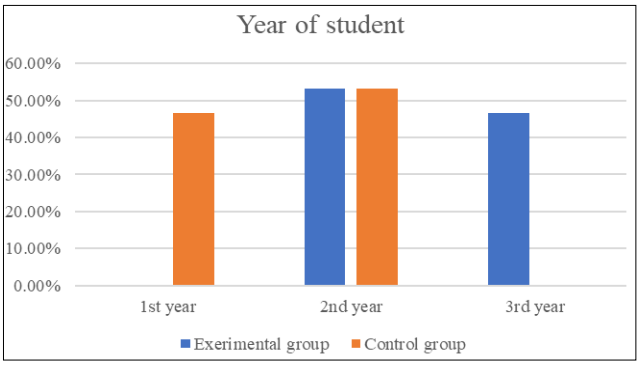
Tool Used: Structured check list to assess the menstrual irregularities

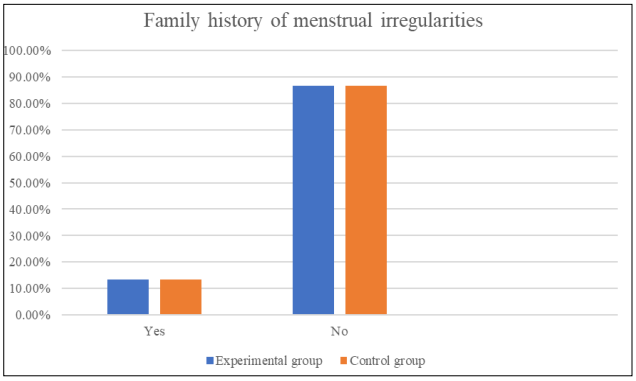
Results

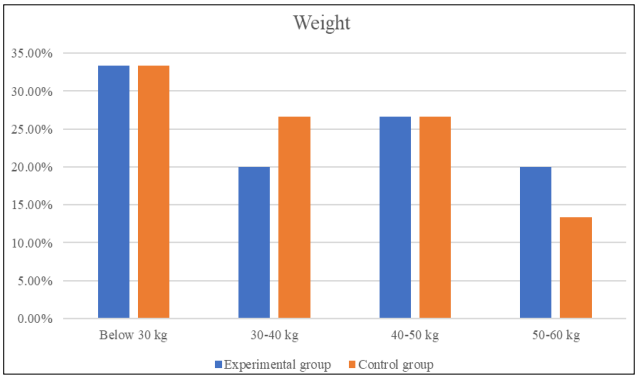
Section-I: Frequency and percentage distribution of demographic variables. N=30

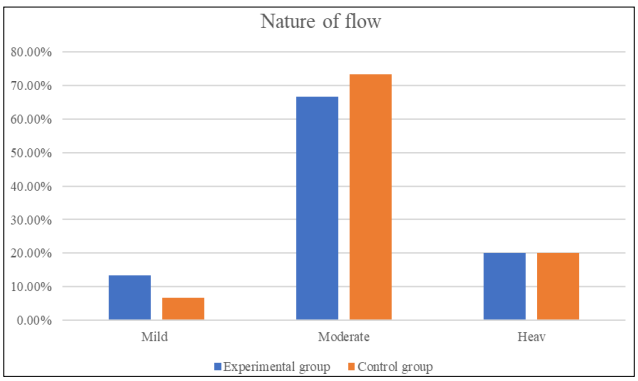
Sr. No.	Demographic Variables	Experimental group (n=15)		Control group(n=15)	
		F	(%)	F	(%)
1	Age				
	18 - 20 year	14	93.33	8	53.33
	21 - 23 year	1	6.66	7	46.66
	24 - 26 year	0	0	0	0
2	Year of students				
	1st year	0	0	7	46.66
	2nd year	8	53.33	8	53.33
	3rd year	7	46.66	0	0
3	Family history of menstrual irregularities				
	Yes	2	13.33	2	13.33
	No	13	86.66	13	86.66
4	Weight				
	Below 30 kg	5	33.33	5	33.33
	30 - 40 kg	3	20	4	26.66
	40 - 50 kg	4	26.66	4	26.66
	50 - 60 kg	3	20	2	13.33
5	Nature of flow				
	Mild	2	13.33	1	6.66
	Moderate	10	66.66	11	73.33
	Heavy	3	20.0	3	20
6	Duration of bleeding				
	<3 days	3	20.0	2	13.33
	3 - 5 days	9	60.0	11	73.33
	>5 days	3	20.0	2	13.33

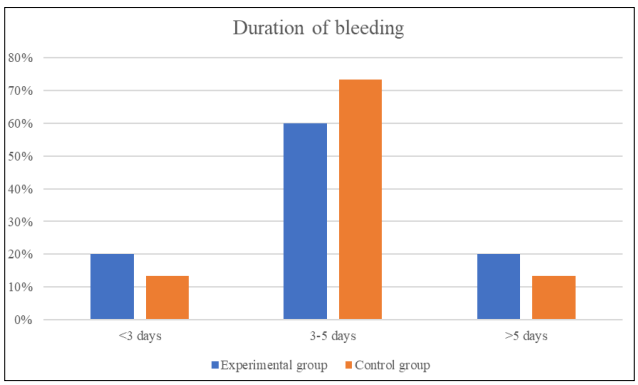












Interpretation
The table presents the distribution of selected demographic and menstrual-related variables among the experimental and control groups, each consisting of 15 students.

Age
In the experimental group, the majority of students (93.33%) belonged to the 18–20 years age group, while only 6.66% were aged 21–23 years. In contrast, the control group showed a more even age distribution, with 53.33% in the 18–20 years group and 46.66% in the 21–23 years group. No participants in either group were aged 24–26 years.

Year of Study
In the experimental group, more than half of the students (53.33%) were studying in the 2nd year, followed by 46.66% in the 3rd year, with no students from the 1st year. In the control group, an equal proportion of students (53.33%) were in the 2nd year, while 46.66% were in the 1st year; none belonged to the 3rd year.

Family History of Menstrual Irregularities
Both groups showed identical distribution regarding family history. Only 13.33% of students in each group reported a positive family history of menstrual irregularities, whereas the majority (86.66%) reported no such history.

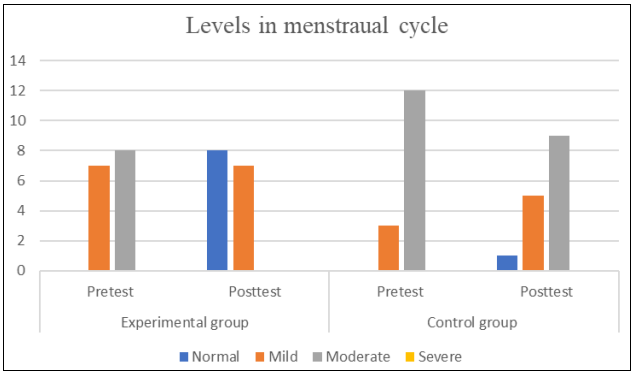
Weight
In both groups, one-third of the students (33.33%) weighed below 30 kg. In the experimental group, 26.66% weighed 40–50 kg, while 20% each fell in the 30–40 kg and 50–60 kg categories. Similarly, in the control group, 26.66% weighed 40–50 kg, 26.66% weighed 30–40 kg, and 13.33% weighed 50–60 kg, indicating a comparable weight distribution between the two groups.

Nature of Menstrual Flow
The majority of students in both groups reported moderate menstrual flow (66.66% in the experimental group and 73.33% in the control group). Heavy flow was reported by 20% of students in both groups, while mild flow was less common (13.33% in the experimental group and 6.66% in the control group).

Duration of Bleeding
Most students in both groups experienced a duration of bleeding between 3–5 days (60% in the experimental group and 73.33% in the control group). A smaller proportion reported bleeding for less than 3 days (20% experimental; 13.33% control) or more than 5 days (20% experimental; 13.33% control).

Section II
Assessment of menstrual cycle chanages

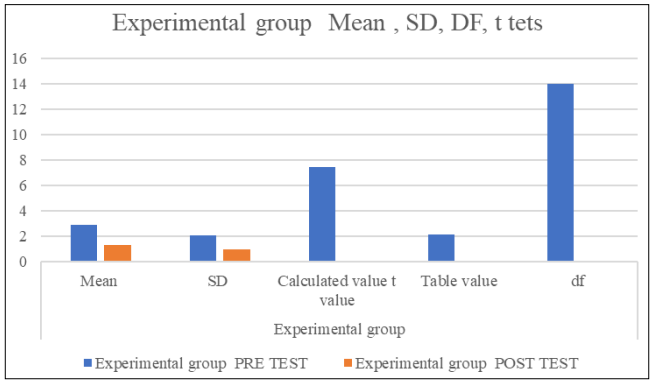
Sr. No.	Categories	Experimental group		Control group	
	Levels in menstrual cycle	Pretest	Posttest	Pretest	Posttest
1	Normal	0	8	0	1
2	Mild	7	7	3	5
3	Moderate	8	0	12	9
4	Severe	0	0	0	0
Total		15	15	15	15



The table depicts the distribution of participants according to the levels of menstrual cycle changes in the experimental and control groups during the pretest and posttest assessments.
In the experimental group, during the pretest, 7 participants were categorized under *mild* and 8 participants under *moderate* menstrual cycle changes, with no participants in the normal category. Following the intervention, a marked improvement was observed in the posttest, where 8 participants shifted to the normal category and 7 participants remained in the mild category, while no participants were reported in the moderate or severe categories. This indicates a substantial improvement in menstrual cycle regularity after the intervention.
In the control group, the pretest assessment showed 3 participants with mild and 12 participants with moderate menstrual cycle changes, with only 1 participant in the normal category. In the posttest, minimal change was observed, with 5 participants in the mild category, 9 participants remaining in the moderate category, and 1 participant continuing in the normal category. This suggests that there was no significant improvement in menstrual cycle changes among the control group.
Overall, the findings demonstrate that the experimental group showed considerable improvement in menstrual cycle status compared to the control group, supporting the effectiveness of the intervention in reducing menstrual cycle changes.

Section III
Effectiveness of fenugreek seeds water in menstrual irregularities.
Mean and standard deviation, t-test

Group		Mean	SD	Calculated value t value	Table value	df	significance
Experimental group	Pre-test	2.93	2.09	7.48	2.14	14	Significant
	Post test	1.33	0.97				
Control group	Pre-test	6.47	1.18	1.7		14	Non- significant
	Post test	5.93	1.66				



The table presents the comparison of mean and standard deviation of menstrual irregularity scores among the experimental and control groups before and after the intervention.

In the experimental group, the pre-test mean score was 2.93 ± 2.09, which reduced to 1.33 ± 0.97 in the post-test. The calculated *t* value (7.48) was higher than the table value (2.14) at 0.05 level of significance with 14 degrees of freedom, indicating a statistically significant reduction in menstrual irregularity following the administration of fenugreek seeds water. So, research hypothesis H1 is accepted at 0.05 level of significant and null hypothesis is rejected. This demonstrates that fenugreek seeds water was effective in improving menstrual regularity among the experimental group.

In contrast, the control group showed a pre-test mean score of 6.47 ± 1.18 and a post-test mean score of 5.93 ± 1.66. The calculated *t* value (1.7) was less than the table value (2.14) at 0.05 level of significance with 14 degrees of freedom, indicating no statistically significant difference between pre-test and post-test scores. This suggests that there was no notable improvement in menstrual irregularity in the absence of the intervention.

Overall, the findings reveal that fenugreek seeds water was effective in reducing menstrual irregularity, as evidenced by the significant improvement in the experimental group compared to the control group so research hypothesis.

Discussion

The pretest findings revealed that the majority of participants in both the experimental and control groups experienced mild to moderate menstrual irregularities, with none of the participants reporting severe irregularities. These findings are in agreement with previous studies, which have reported that menstrual irregularities are highly prevalent among adolescent girls and young adult females due to factors such as hormonal imbalance, stress, nutritional deficiencies, lifestyle changes, and academic pressure.

Studies conducted among college-going females have consistently shown that menstrual irregularities are common in the age group of 18–25 years, which supports the present study findings where most participants belonged to the 18–20 years age group. Similar findings were reported in earlier research where irregular menstrual cycles were frequently observed among students with moderate menstrual flow and a bleeding duration of 3–5 days.

The present study demonstrated a significant improvement in menstrual cycle regularity among participants in the experimental group after the administration of fenugreek seed water. The posttest results showed a shift of participants from moderate and mild irregularities to a normal menstrual cycle, indicating the effectiveness of the intervention.

These findings are consistent with previous studies that reported the beneficial effects of fenugreek (Trigonella foenum-graecum) in improving menstrual health. Earlier research has shown that fenugreek possesses phytoestrogenic properties, which help in regulating hormonal imbalance and improving menstrual regularity. Studies have also highlighted its anti-inflammatory and antioxidant effects, which contribute to reducing menstrual disturbances.

Conclusion

The study concludes that fenugreek seed water is effective in regulating menstrual cycles among female students. A significant improvement was observed in the experimental group after the intervention, while no significant change was seen in the control group. Fenugreek seed water is a safe, economical, and easily accessible complementary therapy and can be recommended for managing menstrual irregularities.

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