

# An Experimental Study to Evaluate the Effectiveness of Ginger Powder on Dysmenorrhea Among High School Students of Selected High School, Hubballi - Dharwad

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## ABSTRACT

**Background:** Dysmenorrhea is one of the most common gynecologic disorders affecting more than half of menstruating girls and women. Home remedies for the treatment of dysmenorrhoea are known to help ease off the pain during painful menstrual periods. Ginger is a herb. Ginger is one of the herbal supplements that has been used for medical purposes since antiquity and is known as a popular herbal medication to treat painful diseases.

**Objective:** To assess the dysmenorrhoea symptoms among high school students. To evaluate the effectiveness of ginger powder on management of dysmenorrhea among high school students. To find out an association between the pre test scores of management of dysmenorrhea among high school students with their selected demographic variables.

**Material and Methods:** A study was conducted to evaluate the effectiveness of ginger powder on dysmenorrhea among high school students of selected High school, Hubballi-Dharwad." The research design used for the study was pre-experimental; one group pre-test, post-test design. The demographic Performa were collected from the high school girls by using Modified menstrual symptom questionnaire. Results-Revealed that in pre-test, majority of the subjects 20(80%) had moderate menstrual symptoms, 10(20%) had severe menstrual scores and none of them had mild symptoms whereas, after administrating the ginger i.e. in

post-test 17(56.6%) had mild menstrual symptoms and 13(43.4%) had moderate menstrual symptoms and none of them had severe menstrual symptoms. And further calculated paired t value ( $t_{cal}= 12.43^*$ ) was greater than the tabulated value ( $t_{tab}=2.05$ ). Hence  $H_1$  was accepted. This indicates that the reduction in mean menstrual symptoms was significant at the rate of 0.05 level of significance. Therefore, the ginger powder was effective in reducing the menstrual symptoms.

**Conclusion:** Therefore, the study concluded that, the overall pre-test menstrual symptom scores were moderate to severe. The post-test menstrual symptom scores of high school girls who were given with ginger powder consecutively during periods with dysmenorrhoea, showed significant reduction in menstrual symptoms.

**Key words:** Dysmenorrhoea, Menstrual symptoms, Ginger Powder, high school girls.

## INTRODUCTION

“Education is the manifestation of the perfection”

-Swami Vivekananda

Menstruation is a periodic discharge of blood and epithelial cells from uterus which occurs every month. It is a stressful developmental period filled with major changes in physical maturity and sexuality, cognitive processes, emotional feelings and

relationship with others. Even though menstruation is a physiological process, many females face various types of menstrual problems among which dysmenorrhea are a commonest one in recent times, dysmenorrhea 87.87% is a common problem in India.

Dysmenorrhea is one of the most common gynecologic disorders affecting more than half of menstruating women. Dysmenorrhea results from the withdrawal of progesterone near the end of a menstrual cycle this withdrawal has been shown to increase the synthesis of prostaglandins. Current evidences suggest that, prostaglandins are released during menstruation due to endometrial cells destruction. PGE<sub>2</sub> stimulates uterine contractions, cervical narrowing and increases vasopressin release, which leads to ischemia and pain<sup>3</sup>. Many adolescent report limitations on daily activities, such as missing school sporting events and other social activities, because of dysmenorrhea. However, only 15% of females seek medical advice for menstrual pain, signifying the importance of screening all adolescent females for dysmenorrhoea.

Home remedies for the treatment of dysmenorrhoea are known to help ease off the pain during painful menstrual periods. Those are simple ways to obtain relief from the symptoms. Some of the home remedies for painful menstrual periods are warm bath, hot water bottle, massage, vitamins, exercise, yoga and ginger tea. Ginger is a herb. The rhizome (underground stem) is used as a spice and also as a medicine. It can be used fresh, dried and powdered, or as a juice or oil. Ginger powder is helpful to reduce the menstrual cramps. It is also helpful in relaxing the muscular spasms and in relieving the pain present during ovulation and during menstrual periods.

### **Objectives of the study**

1. To assess the dysmenorrhoea symptoms among high school students.
2. To evaluate the effectiveness of ginger powder on management of

dysmenorrhea among high school students.

3. To find out an association between the pre test scores of management of dysmenorrhea among high school students with their selected demographic variables.

### **Hypotheses**

**H<sub>1</sub>:** There will be statistical difference in pre-test and post-test scores regarding dysmenorrheal symptoms among High school students at 0.05 level significance.

**H<sub>2</sub>:** There will be statistical association between the pre-test scores regarding dysmenorrheal symptoms and selected socio demographic variables at 0.05 level of significance.

### **Review of Literature;**

**Section I:** Review of literatures related to Dysmenorrhea

**Section II:** Review of literatures related to Alternative Therapies on Dysmenorrhea

**Section III:** Review of literature related to Ginger effectiveness.

## **RESEARCH METHODOLOGY/ MATERIALS AND METHODS**

❖ **Research approach:** Evaluative research approach.

❖ **Research design:** pre-experimental; one group pre-test, post-test design.

❖ **Variables under study:**

- **Independent Variable:** Ginger powder
- **Dependent Variable:** Menstrual symptoms.

• **Attributive factors:** Socio-demographic variables such as age, religion, habitat, dietary pattern, age at menarche, length of menstrual cycle, previous history of menstrual problems, Family history of dysmenorrheal, Source of information.

❖ **Research setting:** JSS High school, Vidyagiri, Hubballi - Dharwad.

❖ **Research population:** The target population of the study were high school students

- ❖ **Sample:** high school students studying in JSS High School, Vidyagiri, Hubballi- Dharwad.
- ❖ **Sample size:** Thirty (30) high school students.
- ❖ **Sampling technique:** Non-probability : Convenient sampling technique

**Criteria for selection of samples:**

The criteria for selection of samples in this study involves:-

**Inclusion criteria:**

- Studying in JSS High School, Vidyagiri, Hubballi- Dharwad
- Present during the time of data collection
- Willing to participate in the study

**Exclusion criteria:**

- High school students who were sick during the time of data collection

**Description of the tool:**

**Section I: Socio- Demographic Data**

**Section II: Modified menstrual symptom questionnaire.**

**Procedure of data collection**

The research investigators had taken formal permission from the principal of JSS High School, Vidyagiri, Hubballi- Dharwad. The method used for data collection is as follows;

1. The research investigators introduced them-self and explained the purpose of study to high school girls.
2. The written consent was obtained from the subjects.
3. The data was collected by administration of modified menstrual symptom questionnaire to the subjects. Ginger powder was administered to the subjects, following the pretest to the subjects.
4. The post test was carried out after the administration of ginger powder for 3 consecutive days using the same tool.
5. Data collected was then tabulated and analyzed.

**Time table for data collection**

| Subjects   | Pre-test                              | Intervention                    | Post-test                             |
|--|---------------------------------------|---------------------------------|---------------------------------------|
| High school students of JSS School, Hubballi- Dharwad. | From January 3rd to 3rd February 2020 | Administration of Ginger powder | From 6th January to 6th February 2020 |

**RESULTS**

The data presented under the following sections:

**Section-I:** Distribution of sample characteristics according to demographic variables of respondents.

**Section-II:** Analysis and interpretation of menstrual symptom scores of high School students.

**Section- III:** Testing hypotheses.

**Section I: Distribution of sample characteristics according to demographic variables of respondents.**

**Table No 1 reveals that**

Maximum number of subjects i.e. 23(76.6%) were in the age group of 12-14 yrs and 7(23.45%) were in the age group of 15-17 yrs. Majority of the subjects 12(40%) were belongs to Hindu religion, 11(36.6%)

belong to Christian religion and 7(23.4%) belong to Muslim religion. The area of residence for maximum subjects 19(63.3%) was rural and 11 (36.4%) the area of residence was urban. Maximum number of subjects 16(53.4%) were mixed and 14(46.6%) were vegetarian. Maximum count of subjects 20(66.6%) attained menarche at the age of 11-13yrs and 10(33.4%) at the age of 13-15yrs. Maximum subjects 20(66.6%) had 3-4 days length of menstrual cycle and 08(26.6%) had 5-6 days length of menstrual cycle whereas, 2(6.68%) had irregular menstrual cycle. Maximum subjects had 20(66.6%) painful menstruation whereas, 8(26.6 %) had scanty discharge and 2(6.68%) had irregular menstrual cycle. Majority of the subjects 18(60%) had a family history of dysmenorrheal and 12(40%) does not had a

family history of dysmenorrhea. The source of information regarding dysmenorrheal management was obtained by print media

was 18(60%) and 12(40%) by electronic media.

**Table 1: Frequency and percentage distribution of high school girls according to their socio-demographic variables n=30**

| SL.NO    | Demographic Variables                        | Frequency (f) | Percentage (%) |
|----------|--|---------------|----------------|
| <b>1</b> | <b>Age (In Year)</b>                         |               |                |
|          | a. 12-14 years                               | 23            | 76.66          |
|          | b. 15-17 years                               | 07            | 23.4           |
| <b>2</b> | <b>Religion</b>                              |               |                |
|          | a. Hindu                                     | 12            | 40             |
|          | b. Muslim                                    | 07            | 23.4           |
|          | c. Christian                                 | 11            | 36.6           |
|          | d. Others                                    | 00            | 00             |
| <b>3</b> | <b>Habitat</b>                               |               |                |
|          | a. Rural                                     | 19            | 63.3           |
|          | b. Urban                                     | 11            | 36.7           |
| <b>4</b> | <b>Dietary Pattern</b>                       |               |                |
|          | a. Vegetarian                                | 16            | 53.4           |
|          | b. Mixed                                     | 14            | 46.6           |
| <b>5</b> | <b>Age at Menarche</b>                       |               |                |
|          | a. 11-13 years                               | 20            | 66.6           |
|          | b. 13-15 years                               | 10            | 33.4           |
| <b>6</b> | <b>Length of menstrual cycle</b>             |               |                |
|          | a. 1-2 days                                  | 02            | 6.68           |
|          | b. 3-4 days                                  | 20            | 66.62          |
|          | c. 5-6 days                                  | 08            | 26.6           |
|          | d. More than 6 days                          | 00            | 00             |
| <b>7</b> | <b>Previous history of menstrual problem</b> |               |                |
|          | a. Irregular menstrual cycle                 | 02            | 6.68           |
|          | b. Scanty discharge                          | 08            | 26.6           |
|          | c. Painful menstruation                      | 20            | 66.6           |
|          | d. Heavy menstrual bleeding                  | 00            | 00             |
|          | e. Others                                    | 00            | 00             |
| <b>8</b> | <b>Family history of dysmenorrhea</b>        |               |                |
|          | a. Yes                                       | 18            | 60             |
|          | b.No   | 12            | 40             |
| <b>9</b> | <b>Source of Information</b>                 |               |                |
|          | a. Print media                               | 18            | 60             |
|          | b. Electronic media                          | 12            | 40             |
|          | c. Peer group                                | 00            | 00             |
|          | d. Health Professional                       | 00            | 00             |

## Section II: Analysis and interpretation of menstrual symptom scores of high School students.

**Table 2: Mean Median, Mode, Standard Deviation and Range of menstrual symptom scores of subjects. n=30**

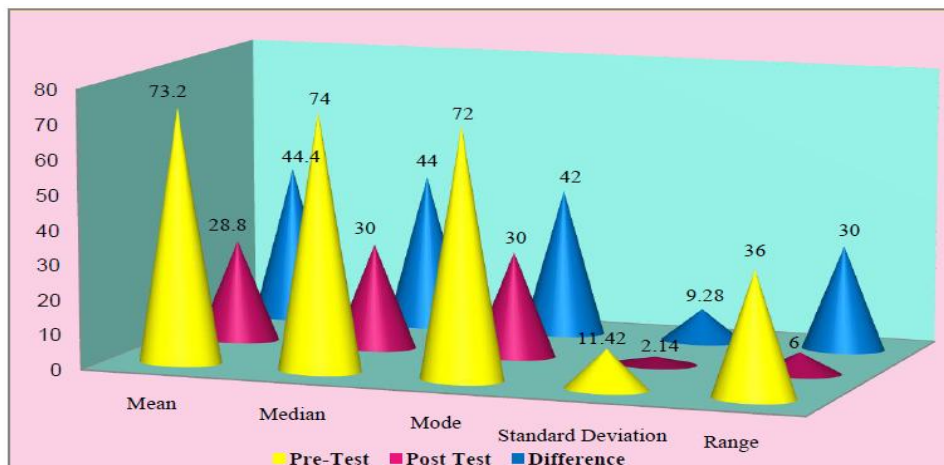
| Area of Analysis | Mean | Median | Mode | Standard Deviation | Range (H-L) |
|------------------|------|--------|------|--------------------|-------------|
| Pre-test         | 73.2 | 74     | 72   | 11.42              | 36          |
| Post-test        | 28.8 | 30     | 30   | 2.14               | 06          |
| Difference       | 44.4 | 44     | 42   | 9.28               | 30          |

### Table No 2 Reveals that

The mean pretest menstrual symptom score was 73.2, median was 74, mode was 72, standard deviation was 11.42 and range was 36, where as in post test the mean menstrual symptom score was 28.8, median was 30, mode was 30, standard

deviation was 2.14 and range was 6. The overall difference in mean menstrual symptom score was 44.4, median was 44, mode was 42, standard deviation was 9.28 and range was 30.

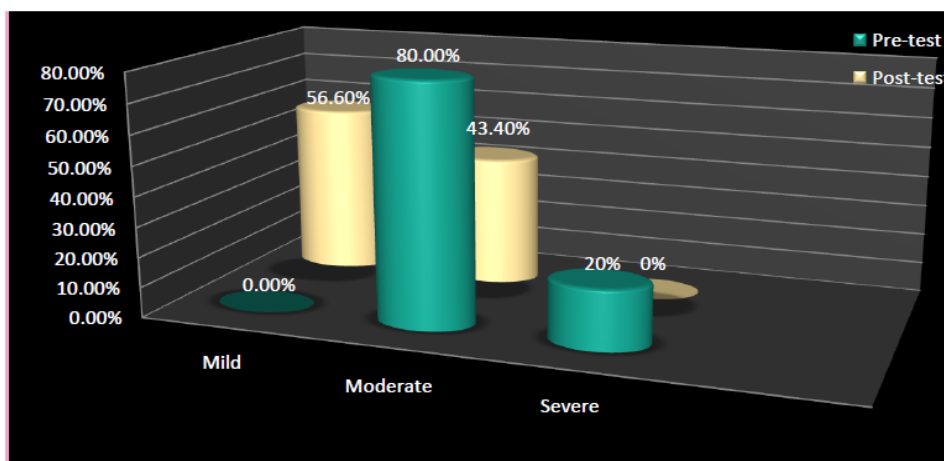
Table No 3 Reveals that, in pre-test, majority of the subjects 20(80%) had moderate menstrual symptoms, 10(20%) had severe menstrual scores and none of them had mild symptoms whereas, after administrating the ginger i.e. in post-test 17(56.6%) had mild menstrual symptoms and 13(43.4%) had moderate menstrual symptoms and none of them had severe menstrual symptoms.



Graph 1: Multiple Cone graph showing Mean, Median, Mode, Standard deviation and Range of high school girls

Table 3: Frequency and Percentage distribution of menstrual symptom scores of subjects regarding dysmenorrhea n=30

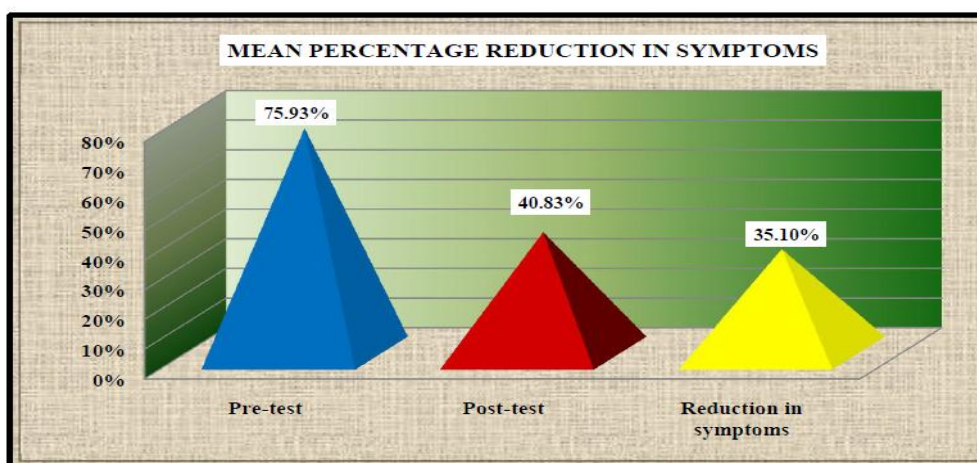
| Menstrual symptom score | Pre-test      |                | Post test     |                |
|-------------------------|---------------|----------------|---------------|----------------|
|                         | Frequency (f) | Percentage (%) | Frequency (f) | Percentage (%) |
| Mild                    | 00            | 00             | 17            | 56.6           |
| Moderate                | 20            | 80             | 13            | 43.4           |
| Severe                  | 10            | 20             | 00            | 00             |



Graph 2: The cylindrical diagram represents the distribution of the subjects according to their menstrual symptom scores.

Table no 4: Pre-test and Post-test mean percentage of menstrual symptom scores regarding dysmenorrhea of high school girls.

| Items                    | Total score | Mean % of menstrual symptom scores of subjects |           |                      |
|--------------------------|-------------|--|-----------|----------------------|
|                          |             | Pre-test                                       | Post-test | Reduction insymptoms |
| Menstrual symptom scores | 3600        | 75.93%   | 40.83%    | 35.1%                |



Graph 3: The pyramid graph represents the mean percentage reduction in symptoms according to their menstrual symptom scores.

### Section III: Testing of hypotheses.

**H<sub>1</sub>:** There will be statistical difference in pre-test and post-test scores regarding dysmenorrheal symptoms among High school students at 0.05 level significance.

Table 5: Mean difference (d), standard error of difference and paired 't' values of menstrual symptom scores regarding dysmenorrhea. n=30

| Mean difference (d) | Standard error of difference | Paired 't' Values |           |
|---------------------|------------------------------|-------------------|-----------|
|                     |                              | Cal value         | Tab value |
| 35.1                | 15.44                        | 12.43*            | 2.056     |

\* Significant at 5% level

Table no 5: Reveals that the calculated paired t value ( $t_{cal}= 12.43^*$ ) was

greater than the tabulated value ( $t_{tab}=2.05$ ). Hence H<sub>1</sub> was accepted. This indicates that the reduction in mean menstrual symptoms was significant at the rate of 0.05 level of significance. Therefore, the ginger powder was effective in reducing the menstrual symptoms.

**H<sub>2</sub>:** There will be statistical association between the pre-test scores regarding dysmenorrheal symptoms and selected socio demographic variables at 0.05 level of significance.

Table no 6: Association between menstrual symptom scores of high school girls with their selected demographic variables n=30

| Sl. No    | Demographic variables                         | Menstrual Symptoms |          |        | Chi -square |            |    |
|-----------|---|--------------------|----------|--------|-------------|------------|----|
|           |   | Mild               | Moderate | Severe | Cal. Value  | Tab. Value | df |
| <b>1.</b> | <b>Age ( in yrs)</b>                          |                    |          |        |             |            |    |
|           | a. 12-14 yrs                                  | 00                 | 15       | 08     | 0.13        | 5.59       | 02 |
|           | b. 15-17 yrs                                  | 00                 | 05       | 02     |             |            |    |
| <b>2.</b> | <b>Religion</b>                               |                    |          |        |             |            |    |
|           | a. Hindu                                      | 00                 | 12       | 00     | 11.5        | 12.59      | 06 |
|           | b. Muslim                                     | 00                 | 02       | 05     |             |            |    |
|           | c. Christian                                  | 00                 | 06       | 05     |             |            |    |
|           | d. Others                                     | 00                 | 00       | 00     |             |            |    |
| <b>3.</b> | <b>Habitat</b>                                |                    |          |        |             |            |    |
|           | a. Rural                                      | 00                 | 14       | 05     | 1.13        | 5.99       | 2  |
|           | b. Urban                                      | 00                 | 06       | 05     |             |            |    |
| <b>4.</b> | <b>Dietary pattern</b>                        |                    |          |        |             |            |    |
|           | a. Vegetarian                                 | 01                 | 12       | 04     | 1.06        | 5.99       | 2  |
|           | b. Mixed                                      | 00                 | 08       | 06     |             |            |    |
| <b>5.</b> | <b>Age at menarche</b>                        |                    |          |        |             |            |    |
|           | a. 11-13yrs                                   | 00                 | 14       | 06     | 0.28        | 5.99       | 2  |
|           | b. 13-15yrs                                   | 00                 | 06       | 04     |             |            |    |
| <b>6.</b> | <b>Length of menstrual cycle</b>              |                    |          |        |             |            |    |
|           | a. 1-2 days                                   | 00                 | 02       | 00     | 2.16        | 12.59      | 6  |
|           | b. 3-4 days                                   | 00                 | 14       | 06     |             |            |    |
|           | c. 5-6 days                                   | 00                 | 04       | 04     |             |            |    |
|           | d. More than 6 days                           | 00                 | 00       | 00     |             |            |    |
| <b>7.</b> | <b>Previous history of menstrual problems</b> |                    |          |        |             |            |    |
|           | a. Irregular menstrual cycle                  | 00                 | 02       | 00     | 2.16        | 15.51      | 8  |
|           | b. Scanty discharge                           | 00                 | 04       | 06     |             |            |    |
|           | c. Painful menstruation                       | 00                 | 14       | 04     |             |            |    |
|           | d. Heavy menstrual bleeding                   | 00                 | 00       | 00     |             |            |    |
|           | e. Others if any                              | 00                 | 00       | 00     |             |            |    |
| <b>8.</b> | <b>Family history of dysmenorrhea</b>         |                    |          |        |             |            |    |
|           | a. Yes  | 00                 | 12       | 06     | 0           | 5.59       | 2  |
|           | b. No   | 00                 | 08       | 04     |             |            |    |
| <b>9.</b> | <b>Source of information</b>                  |                    |          |        |             |            |    |
|           | a. Print media                                | 00                 | 14       | 04     | 2.49        | 12.59      | 6  |
|           | b. Electronic media                           | 00                 | 06       | 06     |             |            |    |
|           | c. Peer group                                 | 00                 | 03       | 01     |             |            |    |
|           | d. Health professional                        | 00                 | 00       | 00     |             |            |    |

Table No. 6: Reveals that there was no association between pretest menstrual symptom scores and selected demographic variables. Hence H<sub>2</sub> was rejected.

## DISCUSSION

The mean pretest menstrual symptom score was 73.2 with standard deviation of 11.42, where as in post test the mean menstrual symptom score was 28.8 with standard deviation of 2. The overall

difference in mean menstrual symptom score was 44.4 with standard deviation of 9.28. These findings were supported through study conducted by Satyajit K I, observed that the mean pretest menstrual symptom score was 79.9 with standard deviation of 3, where as in post-test, mean post-test menstrual symptom score was 12.5 with standard deviation of 2.3. The overall difference in mean menstrual symptom score was 67.4 with standard deviation of 0.7.

The calculated paired t value ( $t_{cal}=12.43^*$ ) was greater than the tabulated value ( $t_{tab}=2.05$ ). Hence  $H_1$  was accepted. This indicates that the reduction in mean menstrual symptoms was significant at the rate of 0.05 level of significance. Therefore, the ginger powder was effective in reducing the menstrual symptoms. These findings were supported through study conducted by Satyajit K I, observed that the calculated 't' value was ( $t_{cal}=13.19^*$ ) was greater than the tabulated value ( $t_{tab}=2.09$ ).

## RECOMMENDATIONS

On the basis of study findings the following recommendations have laid;

- A similar study can be undertaken for a large sample for a longer period of time, thus broader generalization can be done.
- A similar study can be replicated in different settings.
- A similar study can be conducted on attitude of adolescent girls towards management of dysmenorrhea.
- A comparative study can be done between ginger powder and mint extract on dysmenorrhea.
- A similar study can be conducted to compare and evaluate the effectiveness of various other home remedies for dysmenorrhea.

## CONCLUSION

*Based on the findings of the study, the following conclusions were drawn:*

1. The overall pre-test menstrual symptom score were moderate to severe.

2. The post-test menstrual symptom scores of high school girls who were given with ginger powder consecutively during periods with dysmenorrhoea, showed significant reduction in menstrual symptoms.

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