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# A Quasi Experimental Study to Assess the Effectiveness of Ginger Powder on Dysmenorrhea among Nursing Students in Selected Nursing Colleges, Hoshiarpur, Punjab

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## ABSTRACT

**Background**: Primary dysmenorrhea is one of the most common gynecologic disorders affecting more than half of menstruating women that interferes with daily activities. Some studies have found alternative methods such as acupuncture, acupressure, stimulation, massage, aromatherapy and ginger to be fairly effective for treatment of dysmenorrhea. Ginger is a spice that has traditionally been treated as medicine. So, ginger powder was used to assess its effect on dysmenorrhea among nursing students.

**Materials & Methods:** Sample of 60 nursing students from selected nursing colleges, 30 each in experimental and control group were selected by non-probability purposive sampling technique. Subjective and objective assessment of level of dysmenorrhea were done by using modified McGill pain questionnaire and standardized Wong Bakers Faces pain rating scale, respectively. Analysis was done by using both descriptive and inferential statistics.

**Findings**: According to subjective assessment in experimental group, 100% nursing students had mild level of pain, whereas in control group, 46.67% had mild level of pain, On the other hand, according to objective assessment in experimental group 66.7% had mild level of pain whereas in control group 56.7% had moderate pain. Results were found statistically significant at $p < 0.01$ level in experimental group on both subjective and objective assessment.

**Conclusion:** Study revealed that there was impact of ginger powder on dysmenorrhea among nursing students in experimental group.



## KEYWORDS

*Primary Dysmenorrhea, Ginger Powder*


## INTRODUCTION

Puberty is a period of physical growth and sexual maturation is a gradual process that occurs during early adolescence. Girls attain menarche at 10-16 years of age (as per WHO). Menstruation is the visible manifestation of cyclic physiologic uterine bleeding due to shedding of the endometrium[1]. However this normal phenomenon is not an easy one. It is often associated with some degree of sufferings and embarrassment. The prevalence of menstrual disorders has been recorded as high as 87%. Of these, dysmenorrhea is one of the common problems experienced by most of the adolescent girls[2]. Dysmenorrhea means painful menstruation characterized by cramping pain at lower abdomen that may radiate to the lower back and upper thighs, commonly associated with nausea, headache, fatigue and diarrhea[3]. The prevalence of dysmenorrhea is 54% (53% in girls in urban areas and 47% in girls in rural areas). Sickness absenteeism (28-48%), socio economic losses, and perceived quality of life losses are more prevalent among girls in urban areas than in girls in rural areas[2].

Wide spectrums of pharmacologic and non-pharmacologic measures are used for the treatment of dysmenorrhea. Of these it has been widely claimed that exercise and

use of complementary and alternative methods are beneficial for dysmenorrhea. They include calcium and magnesium, thiamine, ginger, fish oil supplements, toki-shakuyaku-san, acupuncture and acupressure. Ginger has been recognized as the "universal medicine" by the ancient orientals of China. The plant has been used in traditional remedy for arthritis and also indicated in ointment form for local application in pain[4]. Ginger is anti-viral and makes a warming cold and flu remedy. Due to its antispasmodic characteristic some people have used it to help ease menstrual cramps as ginger directly affects the gastrointestinal tract, helping to improve muscle tone and prevent abnormally rapid and strong intestinal contractions5.

Dysmenorrhea has arisen as a hindrance to the work and progress of nursing students from whom academic excellence and clinical expertise is expected[6]. Thus, the researcher being in nursing profession felt the need to evaluate the effectiveness of ginger powder on reducing dysmenorrhea among nursing students.

## OBJECTIVES

1. To pre-assess the level of dysmenorrhea among nursing students in experimental group and control group.
2. To post-assess the level of dysmenorrhea among nursing students in experimental group and control group.
3. To compare the pre and post-assessment scores of level of dysmenorrhea among nursing students in experimental group and control group.
4. To find out relationship of level of dysmenorrhea with selected demographic variables.

**HYPOTHESIS**

- $H_0$: There is no significant difference in the level of dysmenorrhea among nursing students in both experimental group and control group at $p < 0.05$ level of significance.
- $H_1$: There is statistically significant difference in the level of dysmenorrhea among nursing students in experimental group as compared to control group at $p < 0.05$ level of significance.

## MATERIALS AND METHODS

**Research approach and design**

A quantitative research approach with quasi experimental pretest – posttest control group research design was used to assess the effectiveness of ginger powder on dysmenorrhea among nursing students having dysmenorrhea in Shri Guru Ram Dass College of Nursing and Rayat Bahara College of Nursing, Hoshiarpur, Punjab.

**Sample and sampling technique**

The total sample selected were 60 nursing students from selected nursing colleges, 30 each in experimental group and control

group. Non-probability purposive sampling technique was used in the study to select the sample who were representative of the population under study.

**Criteria for sample selection**

**Inclusion criteria**

Nursing students who were:

- having dysmenorrhea on first day of menstrual period.
- unmarried at the time of data collection
- in age group of 17-22 years.
- having dysmenorrhea from last 3 months

**Exclusion criteria**

Nursing students who were:

- not willing to participate in the study.
- taking medication or any other therapy for dysmenorrhea.
- having any gynecological/ medical illness.

**Tool**

**Section A-** It included selected demographic variables such as age (in years), education of mother, education of father, occupation of mother, family income (`/month), dietary habits, type of family, religion, family history of dysmenorrhea, nutritional status (as per BMI) and source of information.

**Section B**

**PART 1-** It included modified McGill pain questionnaire and students had to rate it according to their level of dysmenorrhea i.e., subjective assessment.

**PART 2-** It included standardized Wong Bakers Faces pain rating scale and researcher herself had to fill it i.e.,, objective assessment.

**Intervention**

In this study, 1 kg of ginger was dried and crushed to form powder. 1 gram of this powder was packed in small packets. Pretest was done on 1st day of menstruation with dysmenorrhea using modified McGill pain questionnaire and standardized Wong bakers Faces pain rating scale followed by administration of prepared ginger powder by researcher to the nursing students with dysmenorrhea in the experimental group. It was administered once a day on the start of menstrual period to three days of the menstruation, with warm water after breakfast. Then the posttest was done on 3rd day of menstrual cycle using the same tools.

## ANALYSIS AND INTERPRETATION OF DATA

**TABLE 1- Frequency and percentage distribution of nursing students according to selected demographic variables**

N=60

| Demographic variables | Experi-mental group (n=30) | Control group (n=30) | df | $\chi^2$ |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Age (in years)** | | | | |
| 17-19 | 11 | 12 | 1 | 0.07$^{NS}$ |
| 20-22 | 19 | 18 | | |
| **Education of mother** | | | | |
| Illiterate | 2 | 2 | 3 | 2.64$^{NS}$ |
| Upto matric | 10 | 14 | | |
| Senior secondary | 9 | 10 | | |
| Graduate and above | 9 | 4 | | |
| **Education of father** | | | | |
| Illiterate | 3 | 2 | 3 | 0.68$^{NS}$ |
| Upto matric | 8 | 9 | | |
| Senior secondary | 11 | 9 | | |
| Graduate and above | 8 | 10 | | |
| **Occupation of mother** | | | | |
| Working | 7 | 7 | 1 | 0.00$^{NS}$ |
| Non-working | 23 | 23 | | |
| **Family income (ì /month)** | | | | |
| ≤ 10000 | 2 | 4 | 2 | 0.75$^{NS}$ |
| 10001-20000 | 10 | 9 | | |
| > 20000 | 18 | 17 | | |
| **Dietary habits** | | | | |
| a) Vegetarian | 20 | 23 | 2 | 2.32$^{NS}$ |
| b) Eggetarian | 6 | 2 | | |
| c) Non-vegetarian | 4 | 5 | | |
| **Type of family** | | | | |
| Nuclear family | 19 | 24 | 2 | 2.12$^{NS}$ |
| Joint family | 8 | 4 | | |
| Extended family | 3 | 2 | | |
| **Place of residence** | | | | |
| Rural | 20 | 21 | 1 | 0.07$^{NS}$ |
| d) Urban | 10 | 9 | | |
| **e)** **f) Religion** | | | | |
| g) Hindu | 4 | 9 | 2 | 2.50$^{NS}$ |
| h) Sikh | 24 | 19 | | |
| i) others | 2 | 2 | | |
| **Family history of dysmenorrhea** | | | | |
| Yes | 16 | 14 | 1 | 0.26$^{NS}$ |
| No | 14 | 16 | | |
| **Nutritional status (as per BMI)** | | | | |
| Underweight | 3 | 2 | 3 | 0.22$^{NS}$ |
| Healthy | 25 | 26 | | |
| Overweight | 2 | 2 | | |
| Obese | 0 | 0 | | |

NS = Non-significant

Table 1 depicts that in both experimental group and control group maximum students were in age group of 20-22 years and minimum were in age group of 17-19 years. In both experimental group and control group majority of mothers were educated upto matric and minimum were illiterate. In experimental group, majority of fathers were educated upto senior secondary and minimum were illiterate. In control group, majority of the fathers were educated upto graduate and above and minimum were illiterate. In both experimental group and control group, majority of mothers were non-working and least were working. In both experimental group and control group, majority of students had family income > 20000 and least had family income ≤ 10000. In both experimental group and control group, majority of students were vegetarian and minimum were non-vegetarian in experimental group and eggetarian in control group. In both, experimental group and control group, majority of student's belonged to nuclear family and least belonged to extended family. In both experimental group and control group, majority of the students were residing in rural area and minimum were residing in urban area. In both experimental group and

control group, majority of the students were Sikh and minimum were from other category of religion. In experimental group, maximum students had family history of dysmenorrhea and minimum had no family history of dysmenorrhea. In control group, maximum students had no family history of dysmenorrhea and minimum had family history of dysmenorrhea. In both experimental group and control group, majority of the students were healthy and minimum were overweight. In both experimental group and control group, maximum of the students obtained information from electronic media and minimum from print media.

**Table 2(a) - Frequency and percentage distribution of nursing students in experimental group and control group during pretest of level of dysmenorrhea according to subjective assessment.**

| Levels of pain | Criterion measure | Experi-mental group (n=30) | Control group (n=30) |
|---|---|---|---|
| Mild | 28-38 | 6 | 12 |
| Moderate | 39-63 | 19 | 16 |
| Severe | 64-84 | 5 | 2 |

Maximum score = 84
Minimum score = 28

Table 2(a) depicts that during pretest according to subjective assessment majority of the nursing students had moderate level of pain in both experimental group and control group. Table 2(b) depicts that during pretest according to objective assessment majority of the nursing students had moderate level of pain in both experimental group and control group.

**Table 2(b) - Frequency and percentage distribution of nursing students in experimental group and control group during pretest of level of dysmenorrhea according to objective assessment**

| Levels of pain | Criterion measure | Experi-mental group (n=30) | Control group (n=30) |
|---|---|---|---|
| Mild | 1-2 | 3 | 6 |
| Moderate | 3-4 | 16 | 17 |
| Severe | 5 | 11 | 7 |

Maximum score = 5
Minimum score = 1

**Table 2(c) - Frequency and percentage distribution of nursing students in experimental group and control group during posttest of level of dysmenorrhea according to subjective assessment**

| Levels of pain | Criterion measure | Experi-mental group (n=30) | Control group (n=30) |
|---|---|---|---|
| Mild | 28-38 | 30 | 14 |
| Moderate | 39-63 | - | 15 |
| Severe | 64-84 | - | 1 |

Maximum score = 84
Minimum score = 28

Table 2(c) depicts that during posttest according to subjective assessment all nursing students had mild level of pain in experimental group and moderate level of pain in control group.

**Table 2(d) - Frequency and percentage distribution of nursing students in experimental group and control group according to posttest level of dysmenorrhea according to objective assessment**

| Levels of pain | Criterion measure | Experi-mental group (n=30) | Control group (n=30) |
|---|---|---|---|
| Mild | 1-2 | 20 | 8 |
| Moderate | 3-4 | 10 | 17 |
| Severe | 5 | - | 5 |

Maximum score = 5
Minimum score = 1

Table 2(d) depicts that during posttest according to objective assessment majority of the students had mild level of pain in

experimental group and moderate level of pain in control group.

**Table 3(a) - Comparison of pretest and posttest level of dysmenorrhea among nursing students in experimental group and control group according to subjective assessment.**
**N = 60**

| | Pretest | | Posttest | | | |
|---|---|---|---|---|---|---|
| **Group** | **Mean score** | **SD** | **Mean score** | **SD** | **Df** | **'t'** |
| Experi-mental Group | 50.63 | 8.96 | 30.03 | 2.08 | 58 | 12.27** |
| Control Group | 43.67 | 9.28 | 42.6 | 8.52 | 58 | 0.46 NS |
| | **df**= 58 | **t**= 2.96** | **df**= 58 | **t**= 7.86** | | |

NS = Non-significant

** = Significant at p < 0.01 level

Table 3(a) concluded that Null hypothesis was rejected and research hypothesis was accepted as difference between the mean pretest and posttest score of students in experimental group was statistically significant at p < 0.01 level. Therefore, there was impact of ginger powder on dysmenorrhea among nursing students in experimental group. Table 3(b) concluded that Null hypothesis was rejected and research hypothesis was accepted as difference between the mean pretest and posttest score of students in experimental group was statistically significant at p < 0.01 level. Therefore, there was impact of ginger powder on dysmenorrhea among nursing students in experimental group.

Table 4(a) depicts that according to subjective assessment, it can be concluded from the findings that the relationship of level of dysmenorrhea with only one demographic variable i.e., age proved statistically significant at p < 0.05 level of significance in posttest.

**Table 3(b) - Comparison of pretest and post assess level of dysmenorrhea among nursing students in experimental group and control group according to objective assessment.**
**N = 60**

| | Pretest | | Posttest | | | |
|---|---|---|---|---|---|---|
| **Group** | **Mean score** | **SD** | **Mean score** | **SD** | **Df** | **'t'** |
| Experi-mental Group | 3.73 | 1.08 | 1.73 | 1.08 | 58 | 7.17** |
| Control Group | 3.47 | 1.19 | 3.30 | 1.18 | 58 | 0.54 NS |
| | **df**= 58 | **t**= 0.91** | **df**= 58 | **t**= 5.37** | | |

NS = Non-significant

**= Significant at p < 0.01 level

**Table 4(a) - Relationship of mean pretest and posttest level of dysmenorrhea with selected demographic variables in experimental group according to subjective assessment.**

Hence, demographic variables education of mother, education of father, occupation of mother, family income, dietary habits, type of family, place of residence, religion, family history of dysmenorrhea, nutritional status (as per BMI) and source of information had no significant impact on level of dysmenorrhea among nursing students except age.

**Table 4(b) - Relationship of mean pretest and posttest level of dysmenorrhea with selected demographic variables in control group according to subjective assessment.**

**Table 4(a)** Relationship of mean pretest and posttest level of dysmenorrhea with selected demographic variables in experimental group according to subjective assessment

**N = 60**

| | **Experimental group** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Pretest** | | | | **Posttest** | | | |
| **Demographic variables** | **N** | **Mean score** | **SD** | **df** | **Test value** | **Mean score** | **SD** | **df** | **Test value** |
| **Age (In years)** | | | | | | | | | |
| 17-19 | 11 | 47.82 | 3.95 | 28 | t= 1.33$^{NS}$ | 29.18 | 1.08 | 28 | t= 1.77$^{*}$ |
| 20-22 | 19 | 52.26 | 10.63 | | | 30.53 | 2.37 | | |
| **Education of mother** | | | | | | | | | |
| Illiterate | 2 | 56.50 | 2.121 | 26, 3 | | 30.0 | 0 | 26,3 | |
| Upto matric | 10 | 47.80 | 10.74 | | F= 0.94$^{NS}$ | 29.70 | 2.63 | | F= 1.27$^{NS}$ |
| Senior secondary | 9 | 49.67 | 9.07 | | | 29.30 | 1.5 | | |
| Graduate and above | 9 | 53.44 | 7.06 | | | 31.11 | 1.90 | | |
| **Education of father** | | | | | | | | | |
| Illiterate | 3 | 44.33 | 11.02 | 26,3 | | 28.67 | 1.15 | 26,3 | |
| Upto matric | 8 | 52.75 | 11.91 | | F= 1.14$^{NS}$ | 30.25 | 2.55 | | F= 1.28$^{NS}$ |
| Senior secondary | 11 | 48.64 | 6.42 | | | 29.55 | 1.57 | | |
| Graduate and above | 8 | 53.63 | 7.63 | | | 31 | 2.27 | | |
| **Occupation of mother** | | | | | | | | | |
| Working | 7 | 51.43 | 5.03 | 28 | t = 0.26$^{NS}$ | 30 | 1 | 28 | t= 0.05$^{NS}$ |
| Non-working | 23 | 50.39 | 9.93 | | | 30.04 | 2.33 | | |
| **Family income (`/month)** | | | | | | | | | |
| ≤ 10000 | | | | | | | | | |
| 10001-20000 | 2 | 47.5 | 2.12 | 27,2 | F= 0.85$^{NS}$ | 28.5 | 0.71 | 27,2 | F= 0.60$^{NS}$ |
| > 20000 | 10 | 53.60 | 10.01 | | | 30 | 2.26 | | |
| | 18 | 49.33 | 8.68 | | | 30.2 | 2.07 | | |
| **Dietary habits** | | | | | | | | | |
| Vegetarian | | | | | | | | | |
| Eggetarian | 20 | 50.60 | 10.29 | 27,2 | | 29.9 | 2.19 | 27,2 | F= 1.26$^{NS}$ |
| Non-vegetarian | 6 | 48.67 | 2.160 | | F= 0.37$^{NS}$ | 29.5 | 1.05 | | |
| | 4 | 53.75 | 8.770 | | | 31.5 | 2.38 | | |
| **Type of family** | | | | | | | | | |
| Nuclear family | | | | | | | | | |
| Joint family | 19 | 51.63 | 8.31 | 27,2 | | 30.21 | 2.09 | 27,2 | F= 0.21$^{NS}$ |
| Extended family | 8 | 48.50 | 11.60 | | | 29.63 | 2.33 | | |
| | 3 | 45 | 8.66 | | F= 0.83$^{NS}$ | 30 | 1.73 | | |
| **Place of residence** | | | | | | | | | |
| Rural | | | | | | | | | |
| Urban | 20 | 50.60 | 9.87 | 28 | | 29.90 | 2.10 | 28 | t= 0.49$^{NS}$ |
| | 10 | 50.70 | 7.27 | | | 30.30 | 2.11 | | |
| **Religion** | | | | | t= 0.08$^{NS}$ | | | | |
| Hindu | | | | | | | | | |
| Sikh | 4 | 50.75 | 8.73 | 27,2 | | 30.25 | 2.63 | 27,2 | F= 0.02$^{NS}$ |
| Others | 24 | 50.38 | 9.42 | | | 30 | 2.11 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2 | 53.50 | 6.36 | | F= 0.12$^{NS}$ | 30 | 1.41 | | |
| **Family history of dysmenorrhea** | | | | | | | | | |
| Yes | | | | | | | | | |
| No | 16 | 50.13 | 8.28 | 28 | | 29.38 | 1.78 | 28 | t= 1.94$^{NS}$ |
| | 14 | 51.21 | 9.96 | | | 30.79 | 2.19 | | |
| | | | | | t= 0.33$^{NS}$ | | | | |
| **Nutritional status (as per BMI)** | | | | | | | | | |
| Underweight | 3 | 52.33 | 14.29 | 26,3 | F= 0.82$^{NS}$ | 30 | 2 | 26,3 | F= 0.22$^{NS}$ |
| Healthy | 25 | 49.84 | 8.63 | | | 29.96 | 2.19 | | |
| Overweight | 2 | 58.0 | 0 | | | 31 | 0 | | |
| **Source of information** | | | | | | | | | |
| Electronic media | 15 | 52.53 | 9.85 | 26,3 | | 30.53 | | 26,3 | |
| Print media | 2 | 50.0 | 7.07 | | F= 0.49$^{NS}$ | 29 | 2.39 | | F= 0.61$^{NS}$ |
| Peer group, parents and teachers | 9 | 47.89 | 8.98 | | | 29.67 | 1.41 | | |
| Health professionals | 4 | 50.0 | 7.07 | | | 29.5 | 1.94 | | |
| | | | | | | | 1.29 | | |

Table 4(b) depicts that according to subjective assessment in pretest and posttest of control group it can be concluded from the findings that the relationship of level of dysmenorrhea with two demographic variables i.e., age and family income proved statistically significant at $p < 0.01$ level of significance. Therefore, it was concluded that education of mother, education of father, occupation of mother, dietary habits, type of family, place of residence, religion, family history of dysmenorrhea, nutritional status as per BMI and source of information had no significant impact on level of dysmenorrhea among nursing students except age and family income.

**Table 4(c) - Relationship of mean pretest and posttest level of dysmenorrhea with selected demographic variables in experimental group according to objective assessment.**

Table 4(c) depicts that according to objective assessment it can be concluded from the findings that the relationship of level of dysmenorrhea with two demographic variables i.e., family history of dysmenorrhea and nutritional status as per BMI proved statistically significant at $p < 0.01$ level of significance only in posttest. Therefore, it was concluded that

**Table 4(b)** Relationship of mean pretest and posttest level of dysmenorrhea with selected demographic variables in control group according to subjective assessment

**N=60**

| **Control group** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Pretest** | | | | | | **Posttest** | | | |
| **Demographic variables** | **n** | **Mean score** | **SD** | **df** | **Test value** | **Mean score** | **SD** | **df** | **Test value** |
| **Age (In years)** | | | | | | | | | |
| 17-19 | 12 | 48.42 | 6.99 | 28 | t= 2.48* | 47.42 | 7.22 | 28 | t= 2.81* |
| 20-22 | 18 | 40.5 | 9.42 | | | 39.39 | 7.93 | | |
| **Education of mother** | | | | | | | | | |
| Illiterate | 2 | 48.0 | 16.97 | 26, 3 | F= 0.18NS | 46.50 | 12.02 | 26,3 | F= 0.26NS |
| Upto matric | 14 | 43.43 | 9.83 | | | 41.86 | 9.22 | | |
| Senior secondary | 10 | 43.50 | 8.19 | | | 42 | 8.88 | | |
| Graduate and above | 4 | 45.25 | 5.38 | | | 44.75 | 5.38 | | |
| **Education of father** | | | | | | | | | |
| Illiterate | 4 | 41.0 | 4.24 | 26, 3 | F = 0.91NS | 41.00 | 4.243 | 26, 3 | F= 1.30NS |
| Upto matric | 29 | 39.78 | 10.07 | | | 38.22 | 8.39 | | |
| Senior secondary | 2 | 45.44 | 10.58 | | | 45.22 | 9.86 | | |
| Graduate and above | 9 | 46.10 | 7.71 | | | 44.50 | 7.25 | | |
| **Occupation of mother** | | | | | | | | | |
| Working | 10 | 46.14 | 10.73 | 28 | t= 0.80NS | 43.43 | 9.48 | 28 | t = 0.29NS |
| Non-working | 20 | 42.92 | 8.92 | | | 42.35 | 8.42 | | |
| **Family income (`/month)** | | | | | | | | | |
| ≤ 10000 | 7 | 34.25 | 4.35 | 27, 2 | F= 5.67* | 33.50 | 5.972 | 27,2 | F= 6.08* |
| 10001-20000 | 23 | 40.22 | 8.54 | | | 39.56 | 8.805 | | |
| > 20000 | 49 | 47.71 | 8.36 | | | 46.35 | 7.293 | | |
| | 17 | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Dietary habits** | | | | | | | | | |
| Vegetarian | 23 | 43.83 | 10.09 | 27,2 | F= 0.19$^{NS}$ | 43.13 | 9.28 | 27, 2 | F= 0.27$^{NS}$ |
| Eggetarian | 2 | 46.50 | 12.02 | | | 43 | 7.07 | | |
| Non-vegetarian | 5 | 41.80 | 4.49 | | | 40 | 5.48 | | |
| **Type of family** | | | | | | | | | |
| Nuclear family | 24 | 43.08 | 9.48 | 27,2 | F= 0.49$^{NS}$ | 41.83 | 8.75 | 27, 2 | F= 0.60$^{NS}$ |
| Joint family | 4 | 48.00 | 10.19 | | | 47 | 9.59 | | |
| Extended family | 2 | 42.00 | 5.66 | | | 42 | 5.66 | | |
| **Place of residence** | | | | | | | | | |
| Rural | 21 | 42.57 | 9.99 | 28 | t= 0.99$^{NS}$ | 41.48 | 9.01 | 28 | t= 1.12$^{NS}$ |
| Urban | 9 | 46.22 | 7.21 | | | 45.22 | 7.03 | | |
| **Religion** | | | | | | | | | |
| Hindu | 9 | 47.78 | 8.27 | 27,2 | F= 1.47$^{NS}$ | 46.11 | 8.40 | 27, 2 | F= 1.24$^{NS}$ |
| Sikh | 19 | 41.53 | 9.73 | | | 40.79 | 8.71 | | |
| Others | 2 | 45.5 | 0.71 | | | 44.0 | 0 | | |
| **Family history of dysmenorrhea** | | | | | | | | | |
| Yes | 14 | 43.14 | 8.19 | 28 | t= 0.25$^{NS}$ | 41.93 | 6.96 | 28 | t = 0.39$^{NS}$ |
| No | 16 | 44 | 10.37 | | | 42.19 | 9.89 | | |
| **Nutritional status (as per BMI)** | | | | | | | | | |
| Underweight | 2 | 44.50 | 14.85 | 26,3 | F= 0.47$^{NS}$ | 41.00 | 9.89 | 26, 3 | F = 0.23$^{NS}$ |
| Healthy | 26 | 44.19 | 8.63 | | | 43 | 8.88 | | |
| Overweight | 2 | 38.0 | 2.828 | | | 39 | 1.41 | | |
| **Source of information** | | | | | | | | | |
| Electronic media | | | | | | | | | |
| Print media | 21 | 42.67 | 8.91 | 26,3 | F= 0.76$^{NS}$ | 41.38 | 7.78 | 26,3 | F= 1.33$^{NS}$ |
| Peer group, parents and teachers | 25 | 42 | 12.78 | | | 40 | 8.49 | | |
| Health professionals | 2 | 49.40 | 4.95 | | | 49.40 | 11.46 | | |
| | | 41.50 | | | | 41 | 4.24 | | |

age, education of mother, education of father, occupation of mother, family income, dietary habits, type of family, place of residence, religion and source of information had no significant impact on level of dysmenorrhea among nursing students except family history of dysmenorrhea and nutritional status as per BMI.

**Table 4(d) - Relationship of mean pretest and posttest level of dysmenorrhea with selected**

**demographic variables in control group according to objective assessment.**

**Table 4(c)** Relationship of mean pretest and posttest level of dysmenorrhea with selected demographic variables in experimental group according to objective assessment

**N=60**

| **Experimental group** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Pretest** | | | | **Posttest** | | | |
| **Demographic variables** | **n** | **Mean score** | **SD** | **df** | **Test value** | **Mean score** | **SD** | **df** | **Test value** |
| **Age (In years)** | | | | | | | | | |
| 17-19 | 11 | 3.45 | 0.82 | 28 | t = | 1.36 | 0.81 | 28 | t = |
| 20-22 | 19 | 3.89 | 1.19 | | $1.08^{NS}$ | 1.95 | 1.18 | | $1.45^{NS}$ |
| **Education of mother** | | | | | | | | | |
| Illiterate | 2 | 4.0 | 1.41 | 26, | | 2.0 | 1.41 | 26, | |
| Upto matric | 10 | 3.60 | 1.17 | 3 | F = | 1.70 | 1.16 | 3 | F = |
| Senior secondary | 9 | 3.44 | 1.01 | | $0.65^{NS}$ | 1.22 | 0.67 | | $1.38^{NS}$ |
| Graduate and above | 9 | 4.11 | 1.05 | | | 2.22 | 1.20 | | |
| **Education of father** | | | | | | | | | |
| Illiterate | 3 | 2.67 | 0.58 | | | 1.0 | 0 | | |
| Upto matric | 8 | 4.0 | 1.19 | 26, | F = | 1.88 | 1.25 | 26, | F = |
| Senior secondary | 11 | 3.55 | 1.04 | 3 | $1.72^{NS}$ | 1.55 | 0.93 | 3 | $0.96^{NS}$ |
| Graduate and above | 8 | 4.13 | 0.99 | | | 2.13 | 1.25 | | |
| **Occupation of mother** | | | | | | | | | |
| Working | 7 | 3.86 | 1.07 | | | 2.0 | 1.29 | | |
| Non-working | 23 | 3.70 | 1.11 | | t = | 1.65 | 1.03 | | t = |
| | | | | 28 | $0.34^{NS}$ | | | 28 | $0.74^{NS}$ |
| **Family income (`/month)** | | | | | | | | | |
| ≤ 10000 | | | | | | | | | |
| 10001-20000 | 2 | 3.5 | 0.71 | | | 1.0 | 0 | | |
| > 20000 | 10 | 4.0 | 0.94 | | F = | 1.70 | 1.16 | | |
| | 18 | 3.61 | 1.19 | 27, | $0.45^{NS}$ | 1.83 | 1.09 | 27, | F = |
| | | | | 2 | | | | 2 | $0.52^{NS}$ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Dietary habits** | | | | | | | | | |
| Vegetarian | 20 | 3.65 | 1.14 | 27,2 | F = | 1.70 | 1.13 | 27,2 | F = |
| Eggetarian | 6 | 3.83 | 0.98 | | $0.19^{NS}$ | 1.67 | 1.03 | | $0.13^{NS}$ |
| Non-vegetarian | 4 | 4.0 | 1.16 | | | 2.0 | 1.16 | | |
| **Type of family** | | | | | | | | | |
| Nuclear family | 19 | 3.89 | 1.10 | 27,2 | F = | 1.79 | 1.08 | 27,2 | F = |
| Joint family | 8 | 3.38 | 1.06 | | $0.64^{NS}$ | 1.63 | 1.19 | | $0.07^{NS}$ |
| Extended family | 3 | 3.67 | 1.16 | | | 1.67 | 1.16 | | |
| **Place of residence** | | | | | | | | | |
| Rural | 20 | 3.90 | 1.17 | 28 | t = | 1.90 | 1.17 | 28 | t = |
| Urban | 10 | 3.20 | 1.03 | | $1.61^{NS}$ | 1.40 | 0.84 | | $1.20^{NS}$ |
| **Religion** | | | | | | | | | |
| Hindu | 4 | 3.0 | 0 | 27,2 | | 1.0 | 0 | 27,2 | |
| Sikh | 24 | 3.83 | 1.13 | | F = | 1.83 | 1.13 | | F = |
| Others | 2 | 4.0 | 1.41 | | $1.09^{NS}$ | 2.0 | 1.41 | | $1.09^{NS}$ |
| **Family history of dysmenorrhea** | | | | | | | | | |
| Yes | 16 | 3.50 | 0.89 | 28 | | 1.25 | 0.68 | 28 | |
| No | 14 | 4.0 | 1.24 | | t = | 2.29 | 1.20 | | $t = 2.95^{*}$ |
| | | | | | $1.29^{NS}$ | | | | |
| **Nutritional status (as per BMI)** | | | | | | | | | |
| Underweight | 3 | 3.3 | 1.53 | 26,3 | | 1.0 | 0 | 26,3 | |
| Healthy | 25 | 3.68 | 1.03 | | | 1.68 | 1.03 | | $F = 4.13^{*}$ |
| Overweight | 2 | 5.0 | 0 | | F = | 3.5 | 0.71 | | |
| | | | | | $1.69^{NS}$ | | | | |
| **Source of information** | | | | | | | | | |
| Electronic media | | | | | | | | | |
| Print media | 15 | 4.0 | 1.0 | 26,3 | F = | 1.87 | 1.125 | 26, | F = |
| Peer Group, parents and | 2 | 3.0 | 0.0 | | $0.88^{NS}$ | 1.0 | 0 | 3 | $0.369^{NS}$ |
| teachers | 9 | 3.67 | 1.225 | | | 1.67 | 1.0 | | |
| Health professionals | | | | | | | | | |
| | 4 | 3.25 | 1.258 | | | 1.75 | 1.50 | | |

Table 4(d) depicts that according to objective assessment it can be concluded from the above findings that the relationship of level of dysmenorrhea with three demographic variables i.e., age, place of residence and religion proved statistically significant at $p < 0.01$ level of significance. Therefore, it was concluded that education of mother, education of father, occupation of mother, family income, dietary habits, type of family, family history of dysmenorrhea, nutritional status as per BMI and source of information had no significant impact on level of dysmenorrhea among nursing students except age and family income.

## DISCUSSION

According to the first objective i.e., to pre-assess level of dysmenorrhea among nursing students in experimental group and control group, result of the present study concluded that according to subjective assessment majority of the students had

**Table 4(d)** Relationship of mean pretest and posttest level of dysmenorrhea with selected demographic variables in control group according to objective assessment

**N=60**

| **Control group** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Pretest** | | **Posttest** | | | | | | | |
| **Demographic variables** | **n** | **Mean score** | **SD** | **df** | **Test value** | **Mean score** | **SD** | **df** | **Test value** |
| **Age (In years)** | | | | | | | | | |
| 17-19 | 12 | 4.33 | 0.78 | 28 | t= 3.99* | 4.17 | 0.72 | 28 | t= 4.08* |
| 20-22 | 18 | 2.88 | 1.07 | | | 2.72 | 1.07 | | |
| **Education of mother** | | | | | | | | | |
| Illiterate | 2 | 3.5 | 2.12 | 26, 3 | F= 0.88NS | 3.50 | 2.12 | 26, 3 | F= 0.63NS |
| Upto matric | 14 | 3.5 | 1.02 | | | 3.43 | 1.02 | | |
| Senior secondary | 10 | 3.1 | 1.37 | | | 2.90 | 1.29 | | |
| Graduate and above | 4 | 4.25 | 0.96 | | | 3.75 | 1.26 | | |
| **Education of father** | | | | | | | | | |
| Illiterate | 29 | 3.0 | 0 | 26, 3 | F= 2.64NS | 3.0 | 0 | 26, 3 | F= 2.23NS |
| Upto matric | 9 | 2.67 | 1.22 | | | 2.56 | 1.13 | | |
| Senior secondary | 10 | 3.89 | 1.05 | | | 3.56 | 1.01 | | |
| Graduate and above | 2 | 3.9 | 1.10 | | | 3.80 | 1.23 | | |
| **Occupation of mother** | | | | | | | | | |
| Working | 10 | 3.86 | 1.46 | 28 | t= 0.99NS | 3.71 | 1.38 | 28 | t= 1.06NS |
| Non-working | 7 | 3.35 | 1.12 | | | 3.17 | 1.11 | | |
| **Family income (`/month)** | | | | | | | | | |
| ≤ 10000 | 23 | 2.75 | 1.5 | 27, 2 | F= 2.00NS | 2.50 | 1.29 | 27, 2 | F= 2.09NS |
| 10001-20000 | 4 | 3.11 | 1.16 | | | 3.0 | 1.0 | | |
| > 20000 | 9 | 3.82 | 1.07 | | | 3.65 | 1.17 | | |
| | 17 | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Dietary habits** | | | | | | | | | |
| Vegetarian | 23 | 3.43 | 1.27 | 27,2 | F= 0.34$^{NS}$ | 3.22 | 1.24 | 27,2 | F= 0.55$^{NS}$ |
| Eggetarian | 2 | 3.00 | 1.09 | | | 3.80 | 1.09 | | |
| Non-vegetarian | 5 | | | | | | | | |
| **Type of family** | | | | | | | | | |
| Nuclear family | 24 | 3.42 | 1.29 | 27,2 | F= 0.13$^{NS}$ | 3.21 | 1.25 | 27,2 | F= 0.38$^{NS}$ |
| Joint family | 4 | | 0.96 | | | 3.75 | 0.96 | | |
| Extended family | 2 | | 0.71 | | | 3.50 | 0.71 | | |
| **Place of residence** | | 3.75 | | | | | | | |
| Rural | 21 | 3.50 | 1.24 | 28 | t= 2.45$^{*}$ | 3.0 | 1.23 | 28 | t= 2.28$^{*}$ |
| Urban | 9 | | 0.67 | | | 4.0 | 0.71 | | |
| **Religion** | | | | | | | | | |
| Hindu | 9 | 3.14 | 0.93 | 27,2 | F= 3.81$^{*}$ | 3.89 | 1.05 | 27,2 | F= 3.95$^{*}$ |
| Sikh | 19 | | 1.18 | | | 2.89 | 1.10 | | |
| Others | 2 | 4.22 | 0.71 | | | 4.5 | 0.71 | | |
| **Family history of dysmenorrhea** | | | | | | | | | |
| Yes | 14 | 4.11 | 1.09 | 28 | t= 1.41$^{NS}$ | 3 | 1.18 | 28 | t= 1.32$^{NS}$ |
| No | 16 | 3.05 | 1.24 | | | 3.56 | 1.15 | | |
| **Nutritional status (as per BMI)** | | 4.5 | | | | | | | |
| Underweight | 2 | | 0 | 26,3 | F= 0.91$^{NS}$ | 3 | 0 | 26,3 | F= 1.47$^{NS}$ |
| Healthy | 26 | | 1.24 | | | 3.42 | 1.12 | | |
| Overweight | 2 | 3.14 | 0 | | | 2 | 0 | | |
| | | 3.75 | | | | | | | |
| | | 3 | | | | | | | |
| | | 3.57 | | | | | | | |
| | | 2.5 | | | | | | | |
| **Source of information** | | | | | | | | | |
| Electronic media | 21 | 3.24 | 1.22 | 26,3 | F= 1.02$^{NS}$ | 3.05 | 1.20 | 26,3 | F= 1.19$^{NS}$ |
| Print media | 2 | 4.00 | 1.30 | | | 4.0 | 1.23 | | |
| Peer group, parents and teachers | 5 | 4.2 | | | | | | | |
| Health professionals | 2 | 3.5 | 0.71 | | | 3.50 | 0.71 | | |

moderate level of pain in both experimental group and control group. Whereas, according to objective assessment majority of the students had moderate level of pain in both experimental group and control group. Similar findings were reported by Awed H, SaidyTE, Amro T. The result had shown that majority of the sample i.e., 56.7 and 51.4 % had moderate dysmenorrhea in the experimental group on subjective and objective assessment respectively. Whereas in control group 58.3% and 56.3% had moderate dysmenorrhea on subjective and objective assessment respectively[7].

According to the objective i.e., to post-assess level of dysmenorrhea among nursing students in experimental group and control group, result of the present study concluded that according to subjective assessment all students had mild level of pain in experimental group and moderate level of pain in control group. Whereas, according to objective assessment majority of the students had mild level of pain in experimental group and moderate level of pain in control group. Similar findings were reported by Rizk SA. The results showed that majority of the students had mild level of pain i.e., 80% and 65.2 % in experimental group on subjective and objective assessment respectively. Whereas, in control group 55% and 45.9 % of the sample had moderate level of pain on subjective and objective assessment respectively[8].

According to subjective assessment in experimental group, mean pretest score was 50.63 and mean posttest score was 30.03. The difference between mean pretest and posttest score was statistically significant at $p < 0.01$ level. In control group, the mean pretest score of students was 43.67 and posttest score was 42.60. The difference between mean pretest and posttest score was statistically not significant at $p < 0.05$ level.

According to objective assessment in experimental group of students, mean pretest score was 3.73 and mean posttest score was 1.73. The difference between mean pretest and posttest score was statistically significant at $p < 0.01$ level. In control group, the mean pretest score of students was 3.47 and posttest score was 3.30. The difference between mean pretest and posttest score was statistically not significant at $p < 0.05$ level. Thus, research hypothesis was accepted at $p < 0.01$ level.

Similar findings were reported in a study conducted by Sun LH, Ge JJ, Yang JJ, She YF, Li WL, *et.al*. Study results showed that pain scores after the treatment in ginger group were significantly lower than those of control group at $p < 0.01$ level of significance9. Therefore, it was concluded

that there was impact of ginger powder on dysmenorrhea among nursing students in experimental group.

The objective of the study was to find out the association of level of dysmenorrhea among nursing students with selected demographic variables.

According to subjective assessment, only age during posttest in experimental group whereas, age and family income in control group had impact on level of dysmenorrhea at $p < 0.05$ and $p < 0.01$ level respectively.

According to objective assessment, family history of dysmenorrhea and nutritional status during posttest in experimental group whereas, age, place of residence, religion in control group had impact on level of dysmenorrhea at $p < 0.01$ level.

These results were inconsistent with the study conducted by Ensiyeh Jenabi on effect of ginger on primary dysmenorrhea. Results of this study showed that age and BMI were not statistically associated with dysmenorrhea[10].

## CONCLUSION

It was concluded that ginger powder was effective in reducing level of dysmenorrhea among nursing students.

**RECOMMENDATIONS**

Recommendations are made on the basis of the study-

1. The study can be replicated on large sample to validate and for better generalization.
2. Nurses should encourage adolescents with severe dysmenorrhea to consult a doctor in order to find some underlying medical disorders such as pelvic inflammatory disease and endometriosis.
3. The study can be replicated to assess the knowledge and attitude of nurse midwives on complementary and alternative therapies for management of dysmenorrhea.

## REFERENCES


1. Dutta DC. Text Book of Gynecology including Contraception. 6th ed. New Delhi: New Central Book Agency; Nov 2013. Pp 49-50, 82, 179-81.

2. Avasarala KA, Panchangam S. Dysmenorrhea in different settings: rural-urban. IJCM. Oct 2008; 33(4): 246-9, http://www.ijcm.org.in/article.asp?Issn=0970-0218;year=2008;volume=33;issue=4;spage=246;epage=249;aulast=avasarala

3. Jesveena M. A study on the prevalence of pms among b.sc. Nursing students of selected nursing colleges at mangalore. Unpublished thesis of department community health nursing, Rajiv Gandhi University, 2009. www.rguhs.ac.in/cdc/onlinecdc/uploads/05_n193_2122.doc

4. Us department of commerce: Statistical Abstract of United States, 2012. http://www.census.gov/compendia/statab/ Reviewed on 12/04/2014.

5. Ginger roots in folk medicine, 2010. http://merrilynhope.com/ginger-roots-in-folk-medicine/. Reviewed on 19/04/2014.

6. Ginger root benefits. Herbwisdom.com- the number 1 source of herb information. http://www.herbwisdom.com/herb-ginger-root.html

7. Awed H. Saidy TE. Amro T. The use of fresh ginger herbs as a home remedy to relieve primary dysmenorrhea. JRNM. Dec 2013; 2(8): 104-13. http://www.interesjournals.org/full-articles/the-use-of-fresh-ginger-herbs-as-a-home-remedy-to-relieve-primary-dysmenorrhea.pdf?View=inline

8. Rizk SA. Effect of abdominal massage using peppermint versus ginger oils on primary dysmenorrhea among adolescent girls. J Am sci. 2013; 9(11): 497-505. http://www.jofamericanscience.org/journals/amsci/am0911/063_21852am0911_497_505.pdf

9. Sun LH. Ge JJ. Yang JJ. She YF. Li WL. et. al. Randomized controlled clinical study on ginger-partitioned moxibustion for patients with cold-damp stagnation type primary dysmenorrhea. Acupuncture research. 2009; 34(6): 398-402. www.ncbi.nlm.nih.gov/pubmed/20209976

10. Jenabi E. The effect of ginger for relieving of primary dysmenorrhea. JPMA. Jan 2013; 63(8). http://www.jpma.or