

# 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.

**Material & Methods:** sample of 60 nursing students from selected nursing colleges, 30 each in experimental group 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:** findings showed that 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 reveals that there was impact of ginger powder on dysmenorrhea among nursing students in experimental group.

**Keyword -** Ginger powder, dysmenorrhea.

## 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. 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 percent. Of these,

dysmenorrhea is one of the common problems experienced by most of the adolescent girls. 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. 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.

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 recognised as

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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. 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 contractions.

Dysmenorrhea has arisen as a hindrance to the work and progress of nursing students from whom academic excellence and clinical expertise is expected. 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<sub>0</sub>**: 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<sub>1</sub>**: 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 kilogram 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 standardised 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.

**Table 1: Analysis and Interpretation of Data**

Demographic variables	Experi-mental group (n=30)	Control group (n=30)	df	N=60 $\chi^2$
<b>Age (in years)</b>				
17-19	11	12	1	0.07 <sup>NS</sup>
20-22	19	18		
<b>Education of mother</b>				
Illiterate	2	2	3	2.64 <sup>NS</sup>
Upto matric	10	14		
Senior secondary	9	10		
Graduate and above	9	4		
<b>Education of father</b>				
Illiterate	3	2	3	0.68 <sup>NS</sup>
Upto matric	8	9		
Senior secondary	11	9		
Graduate and above	8	10		
<b>Occupation of mother</b>				
a) Working	7	7	1	0.00 <sup>NS</sup>
b) Non-working	23	23		
<b>Family income (i /month)</b>				
≤ 10000	2	4	2	0.75 <sup>NS</sup>
10001-20000	10	9		
> 20000	18	17		
<b>c) Dietary habits</b>				
d) Vegetarian	20	23	2	2.32 <sup>NS</sup>
e) Eggetarian	6	2		
f) Non-vegetarian	4	5		
g)				
<b>h) Type of family</b>				
i) Nuclear family	19	24	2	2.12 <sup>NS</sup>
j) Joint family	8	4		
k) Extended family	3	2		
l)				
<b>Place of residence</b>				
Rural	20	21	1	0.07 <sup>NS</sup>
m) Urban	10	9		
n)				
<b>o) Religion</b>				
p) Hindu	4	9	2	2.50 <sup>NS</sup>
q) Sikh	24	19		
r) others	2	2		
<b>Family history of dysmenorrhea</b>				
Yes	16	14	1	0.26 <sup>NS</sup>
No	14	16		
<b>Nutritional status (as per BMI)</b>				
Underweight	3	2	3	0.22 <sup>NS</sup>
Healthy	25	26		
Overweight	2	2		
Obese	0	0		

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 minimum were working. In both experimental group and control group, majority of students had family income > 20000 and minimum of 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 students 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)**

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

It can be concluded from the above findings 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)**

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

It can be concluded from the above findings 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(c)**

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

It can be concluded from the above findings 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)**

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

It can be concluded from the above findings 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)**

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**
	43.67	9.28	42.6	8.52	58	0.46 <sup>NS</sup>
		t=		t=		
Control Group	df= 58	2.96**	df= 58	7.86**		

NS = Non-significant

\*\* = Significant at  $p < 0.01$  level

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

**Table 3(b)**

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**
	3.47	1.19	3.30	1.18		
		t=		t=		
Control Group	df= 58	0.91**	df= 58	5.37**	58	0.54 <sup>NS</sup>

NS = Non-significant

\*\*= Significant at  $p < 0.01$  level

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

**Table 4(a)**

According to subjective assessment, it can be concluded from the above findings that the relationship of level of dysmenorrhea with demographic variable i.e. age proved statistically significant at  $p < 0.05$  level of significance in posttest. Therefore, it was concluded that these demographic variables had no significant impact on level of dysmenorrhea among nursing students except age.

**Table 4(b)**

According to subjective assessment in pretest and posttest of control group it can be concluded from the above 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 these demographic variables had no significant impact on level of dysmenorrhea among nursing students except age and family income.

**Table 4(c)**

According to objective assessment it can be concluded from the above 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 these demographic variables 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)**

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 these demographic variables 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 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.

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.

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 by Sun LH, Ge JJ, Yang JJ, She YF, Li WL, et. al. Results showed that scores after the treatment in ginger group were significantly lower than those of control group at  $p < 0.01$  level of significance. 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.

## 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.

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