



# “A Pre-experimental study to assess the effectiveness of ginger decoction in reducing pain among adolescent girls with primary dysmenorrhoea at Puducherry”.

V. Mariamma, M.Sc.,

dept. of community health nursing, College of nursing, East coast institute of medical sciences,  
Puducherry,

## ABSTRACT

A pre-experimental study was conducted in order to evaluate the effectiveness of ginger decoction in relieving pain among adolescent girls with dysmenorrhoea, Puducherry. **The objectives** of the study were

1. To assess the level of menstrual pain among subjects before the administration of ginger decoction.
2. To determine the effectiveness of ginger decoction in reducing pain of primary dysmenorrhoea among subjects.
3. To find out the association between post test level of dysmenorrhoea and selected demographic and menstrual variables.

Quantitative approach, pre-experimental (one group pre-test and post-test) design was chosen to conduct the study. A structured tool with baseline Performa consisting of demographic variables and menstrual variables and menstrual pain assessment scale was used to collect the data, 40 subjects were randomly selected, pre-test was done to assess the level of dysmenorrhoea, for the same group post-test was conducted after administration of ginger decoction (3g of ginger) for 3 days starting from 1st day of menstrual cycle to the 3rd day of cycle. **The result** shown the mean difference in pre and post-test was ( $t= 55.853$ ,  $p=0.000$ ) which is significant indicating that ginger decoction is effective in reducing pain of adolescent girls with primary dysmenorrhoea. **Conclusion:** The study concluded that the Ginger decoction is a simple, easy to implement, easily available, no notable side effects and most acceptable choice to reduce the level of pain among adolescent girls with primary dysmenorrhoea. The results supported the incorporation of herbal medicine to relieve primary dysmenorrhea.

## Introduction

Adolescence in girls has been recognized as a special period which signifies the transition from girlhood to womanhood. In India, the menstrual cycle is a highly respected period, which is an expression of the female connectedness to the cycle of the moon. During menstruation the body releases a hormone called prostaglandins, which causes the uterus to contract in order to help the uterus shed its lining. Researchers believe that this hormone is one of the main causes of menstrual cramps. Most of the females are very used to having a certain amount of pain or cramps during this time which is normal. (Agrawal A, Agrawal AK - **Indian Journal of Community Med.** 2010). However, when these cramps become extremely painful and restrict women's daily movements they are called dysmenorrhoea. Menstrual problems are common in adolescents and among them dysmenorrhea is the leading problem (**Adolescent and youth reproductive health in India policy project, 2007**).

Current evidences suggest that menstruation pain happen due to the myometrial contractions resulting from the secretion of prostaglandins during the secretory phase of endometrium. Prostaglandin F<sub>2</sub>α derived from cyclo-oxygenase (COX)-2 has been reported as the causative agent of the menstruation pain (Hu et al., 2011). Studies have shown that an inhibition of prostaglandin synthesis occurs through inhibition of COX-2 that could be exerted by nonspecific non-steroidal anti-inflammatory drugs (NSAIDs). These drugs have useful effects such as anti-inflammatory, antipyretic and analgesic. Moreover studies have indicated that the conventional treatment for primary dysmenorrhea has a failure rate of 20% to 25% (Zhu X et al., 2007). These procedures may be contradictory or not tolerated by some women with primary dysmenorrheal (Proctor ML, Murphy PA, 2001) One month the cramps might be mild or worse than another. It depends on ovulation. Irrespective of the severity of menstrual cramps, the uneasiness associated with it can make those few days harder.

There are several ways to ease painful menstrual cramps. The most common method adopted universally to get instant relief is by taking painkillers. Medications used mostly for pain are aspirin, brufen, naproxen and meftalspas, primarily non steroidal anti-inflammatory drugs. It acts as a prostaglandin inhibitors to reduce pain. But side effects are common. They are nausea, severe diarrhea, dyspepsia, flatulence and distress (Bensoussan. A, 2007). It is also costly and not advisable to continue for a long duration. Given the contraindications and side effects of NSAIDs as well as their limited efficacy, an investigation of alternative treatments with low toxicity such as herbal products is warranted.

Several studies have demonstrated that ginger has beneficial effects to cancer prevention (Lee SH, Cekanova M, Baek SJ, 2008), dysmenorrhoea, Pregnancy- related nausea and vomiting (Pongrojapaw D, Somprasit C, Chanthasenanont A, 2007) chemotherapy, nausea (Ryan JL, et al., 2011), Nausea and vomiting in post-operative period (Chaiyakunapruk N, et al., 2006) and osteoarthritis (Haghighi M, et al., 2005). The present study aims to evaluate the effect of 3 g of ginger in reducing pain of primary dysmenorrhea

**The objectives** of the study were

- ❖ To assess the level of menstrual pain among subjects before the administration of ginger decoction.
- ❖ To determine the effectiveness of ginger decoction in reducing pain of primary dysmenorrhoea among subjects.
- ❖ To find out the association between post-test level of dysmenorrhoea and selected demographic and menstrual variables.

## **METHODOLOGY AND DATA COLLECTION PROCEDURE**

### **RESEARCH APPROACH**

Quantitative approach was used in this study to find the effectiveness of ginger decoction in reduction of pain among adolescent girls with primary dysmenorrhoea.

### **RESEARCH DESIGN**

The research design selected for the present study was a Pre-experimental design (one group pre-test and post-test design).

### **VARIABLES**

The dependent variable in this study was level of pain during menstruation

Independent variable in this study was Ginger decoction

### **RESEARCH SETTING**

Among 20 students and women hostel in Puducherry the study setting was selected through Simple random sampling method (lot method), The study was conducted in a Government nurses hostel, situated in H.M. Kassim salai, Puducherry. It is 10 kilometer away from college of Nursing, Puducherry and covers about population of 240 students.

### **POPULATION**

The population for the study was adolescent girls with primary dysmenorrhoea at government nurses hostel, Puducherry.

### **SAMPLE & SAMPLE SIZE**

40 Adolescent girls with primary dysmenorrhoea residing at government nurses hostel, puducherry, who met the inclusion criteria were selected for the study.

## SAMPLING CRITERIA

**Inclusion criteria** refers subjects, who

- ✓ were available during the period of data collection & willing to participate in the study
- ✓ were at the age group of 10 – 19 yrs
- ✓ complained of primary dysmenorrhoea and got confirmed diagnosis by the physicians
- ✓ were having the regular menstrual cycle of 24 – 35 days.

**Exclusion criteria** refers subjects, who

- ✓ were having dysmenorrhoea due to pathological condition
- ✓ were not willing to participate
- ✓ were on treatment and hormonal therapy

## SAMPLING TECHNIQUE

In this study simple random technique (lot method) was used to select the subjects. Stage I: Among the 20 Students and women hostel in Puducherry, one hostel(Government nurses hostel, H.M.Kassim salai, Puducherry) was selected randomly by using lot system as study setting.

Stage II: From the adolescent girls with primary dysmenorrhoea at Government nurses hostel, H.M.Kassim salai, puducherry, 40 who satisfied the inclusion criteria were selected randomly as study subjects using the lot system.

## DEVELOPMENT & DESCRIPTION OF THE TOOL

The standardized 0-10 Numerical pain rating scale was modified by the researcher after extensive review of literature, internet search and experts advice which helped the investigator to use the scale for assessing the level of pain among adolescents with dysmenorrhoea. Tool constructed in this study Consists of 2 sections: Section A: Baseline Performa consists of demographic variable and menstrual variable and Section B: consists of menstrual pain assessment scale- A modified 0-10 Numerical Pain rating scale to assess the level of pain during dysmenorrhoea.

Modified 0-10 Numerical pain rating scale was used to measure the intensity of menstrual pain before and after administering ginger decoction. It consists of 10 equal divisions 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 & 10, here the Subjects were asked to encircle the number from 0-10 on the line at a point that corresponds to the level of pain intensity they feel & experience. The pain experience was a subjective experience and the difference between the minimum and maximum pain could be measured objectively with equally divided numerical digits. Totally 5 scales were used to assess the level of menstrual pain.

1. **Scale 1: used to assess the intensity of lower abdominal cramps**
2. **scale 2: used to assess the intensity of backache**

### 3. scale 3: used to assess the intensity of radiating pain to mid-thigh

1st three scales were used to assess the intensity of lower abdominal cramps, backache, and radiating pain to mid thigh, a score of 0 indicates no pain, 1-3 indicates mild pain, 4-6 indicates moderate pain, and 7-10 indicates sever pain.

### 4. scale 4 : used to assess the level of impairment in education

### 5. Scale 5: used to assess the level of impairment in regular activities.

4th and 5th scales were used to describe the effect of menstrual pain on the level of impairment in education and regular activities, a score of 0 indicates normal activity, 1-3 indicates mildly affected, 4-6 indicates moderately affected, & 7-10 indicates severely affected.

Menstrual pain assessment scale: A modified 0-10 Numerical Pain rating scale

#### Scoring:

0 – No pain,

01-16 – Mild pain,

17-33 – Moderate Pain,

34-50 – Severe pain.

#### DESCRIPTION OF INTERVENTION

**Preparation of ginger decoction:** 3g of ginger root after peeling its skin is grinded well, then boiled with 150 ml of portable drinking water for ten minutes, added a spoon of sugar for sweetness and is administered chill after filtration.

**Administration of ginger decoction:** 100ml of Ginger decoction contains 3g of ginger, which is administered twice a day for 3 days in a divided dose (starting from the 1st day of menstruation to 3rd day of menstruation) after meals.

#### DATA COLLECTIN PROCEDURE

The researcher obtained formal permission from the concerned authority (The chief warden) to conduct study in government nurses hostel, H.M. Kassim salai, Puducherry. **Phase 1:** demographic variable Performa & menstrual pain assessment scale was given to the subjects to be filled-up. And Subjects were rated for pre-test level of dysmenorrhea through menstrual pain assessment scale. **Phase 2:** The researcher administered 100 ml of ginger decoction consisted of 3g of ginger in a two divided doses after having food (i.e. before breakfast at 8.00 am and after dinner at 8.00 pm). It was practiced continuously for 3 days, starting from the first day of menstruation to third day of menstruation. Post test pain score was assessed after the completion of third day of menstrual cycle, there was a marked decrease in the level of dysmenorrhoea was found.



## RESULT

Major findings of the study were: Distribution of demographic variable were as follows as, Regarding Age, majority of the subjects i.e. 24 (60%) were in the age group of 18 yrs of age. with regard to residence, it was found that majority of the subjects i.e. 23 (57.5%) were from rural settings. with respect to religion, majority of them were Hindu, i.e. 23 (57.5%). regard with type of family, the majority of the subjects i.e. 34 (85.5%) were from nuclear family, and marginal number of subjects i.e. 06 (15%) were from joint family.

Distributions of menstrual variable were as follows as, with regard to age of menarche majority of the subjects i.e. 24 (60%) were in the age group of 18 yrs of age. with regard to painful day of menstruation, majority of subjects i.e. 18 (45%) were experienced painful menstruation in the first day of menstruation. Regard with duration of menstruation, the majority of subjects i.e. 37 (92.5%) were getting menstruation for 4-5 days and 3 (7.5%) of them had more than 5 days. In relation to frequency of menstruation, that majority of the subjects i.e. 30 (75%) got menstrual cycle in every 29-30 days and 10 (25%) of them got the menstrual cycle in every 31 -35 days. In the context of flow of menstruation, that the majority of subjects i.e. 29 (72.5%) had heavy menstrual flow. Regarding the nature of menstrual pain, majority of subjects experienced cramping pain i.e. 22 (55%), and 18 (45%) of them were experienced Radiating pain. As far as associated symptoms of dysmenorrhoea is considered, majority of the subjects i.e. 27 (67.5%) didn't experience any associated symptoms of dysmenorrhoea, and marginal number of subjects i.e. 3 (7.5%) of them experienced nausea and vomiting Regarding consumption of medication during dysmenorrhoea majority of the subjects i.e. 31 (77.5%) never takes medications during dysmenorrhoea. with respect to the nature of treatment modalities during dysmenorrhoea, the majority of the subjects i.e. 20 (50%) never adopted any nature of treatment during dysmenorrhoea. Concerning food preferences during dysmenorrhoea, majority of them i.e. 34 (85%) consumed normal diet, and marginal number of subjects i.e. 6 (15%) took soft diet during dysmenorrhoea. Pertaining to familial history of primary dysmenorrhoea, majority of the subjects i.e. 24 (60%) of them had the familial history

With regard to percentage distribution of pre-test and post-test level of menstrual pain of subjects, 10 (25%) of the subjects reported moderate pain and 30 (75%) reported the severe pain in the pre-test, whereas in the post test 37 (92.5%) of them reported mild pain and 3 (7.5%) of them reported moderate pain, none of the subjects experienced severe pain in the

post test. For the effectiveness of ginger decoction in reducing pain among adolescent girls with primary dysmenorrhoea the obtained, "t" value was 55.853 ( $p=0.001$ ), it was statistically highly significant at  $p<0.000$  level. Which clearly depict that there was significant reduction of pain among adolescent girls with primary dysmenorrhoea in the post-test. The demographic and menstrual variables have not shown any statistical significant association with the post-test level of primary dysmenorrhoea.

## CONCLUSION

Dysmenorrhea is a major health problem faced by the adolescent girls, which need a non-pharmacological healing approach. The study concluded that the Ginger decoction is a simple, easy to implement, easily

available, no notable side effects and most acceptable choice to reduce the level of pain among adolescent girls with primary dysmenorrhoea. The results supported the incorporation of herbal medicine to relieve primary dysmenorrhea

## RECOMMENDATIONS

This study can be conducted:

- on larger sample to generalize the results.
- among different groups like adolescents, young women, married women, teenagers etc.
- in different settings with similar facilities.
- on the quality of life of women with dysmenorrhea.
- Comparative study on the effectiveness of pharmacological agents (brufen, meftalspas and cyclopam) and non-pharmacological agents (rose water, green tea etc.) can be conducted.

## SECTION - I: DEMOGRAPHIC VARIABLES OF ADOLESCENT GIRLS WITH PRIMARY DYSMENORRHOEA

TABLE 4.1: DISTRIBUTION OF DEMOGRAPHIC VAREIABLES OF SUBJECTS

Sl. No.	Demographic Variables	No. (n= 40)	Percentage
1.	<b>Age</b>		
	16 yrs	0	0.00
	17 yrs	0	0.00
	18 yrs	24	60.00
	19 yrs	16	40.00
2.	<b>Residence</b>		
	Urban	23	57.50
	Semi-urban	10	25.00
	Rural	7	17.50
3.	<b>Religion</b>		
	Hindu	23	57.50
	Christian	10	25.00
	Muslim	7	17.50
4.	<b>Type of family</b>		
	Nuclear	34	85.00
	Joint	6	15.00
	Extended	0	0.00

**SECTION II: MENSTRUAL VARIABLES AMONG ADOLESCENT GIRLS WITH PRIMARY  
DYSMENORRHOEA**

**TABLE 4.2. DISTRIBUTION OF AGE OF MENARCHE OF SUBJECTS**

Sl. No	Menstrual Variables	No.	Percentage
5.	<b>Age of menarche</b>	<b>n=40</b>	
	<12 yrs	4	10.00
	12 - 13 yrs	24	60.00
	14 - 15 yrs	12	30.00
6.	<b>Painful day of menstruation</b>		
	1st day	18	45.00
	2nd day	5	12.50
	3rd day	3	7.50
	Throughout Menstruation	14	35.00
7.	<b>Duration of menstruation</b>		
	2 - 3 days	0	0.00
	4 - 5 days	37	92.50
	>5 days	3	7.50
8.	<b>Frequency of menstruation</b>		
	Once in 28 days	0	0
	29 - 30 days	30	75.00
	31 - 35 days	10	25.00
9.	<b>Flow of menstruation</b>		
	Scanty	0	0.00
	Moderate	11	27.50
	Heavy	29	72.50
10.	<b>Nature of menstrual pain</b>		
	Pricking	0	0.00
	Cramping	22	55.00
	Radiating	18	45.00
	Squeezing	0	0.00
11.	<b>Associated symptoms of dysmenorrhoea</b>		



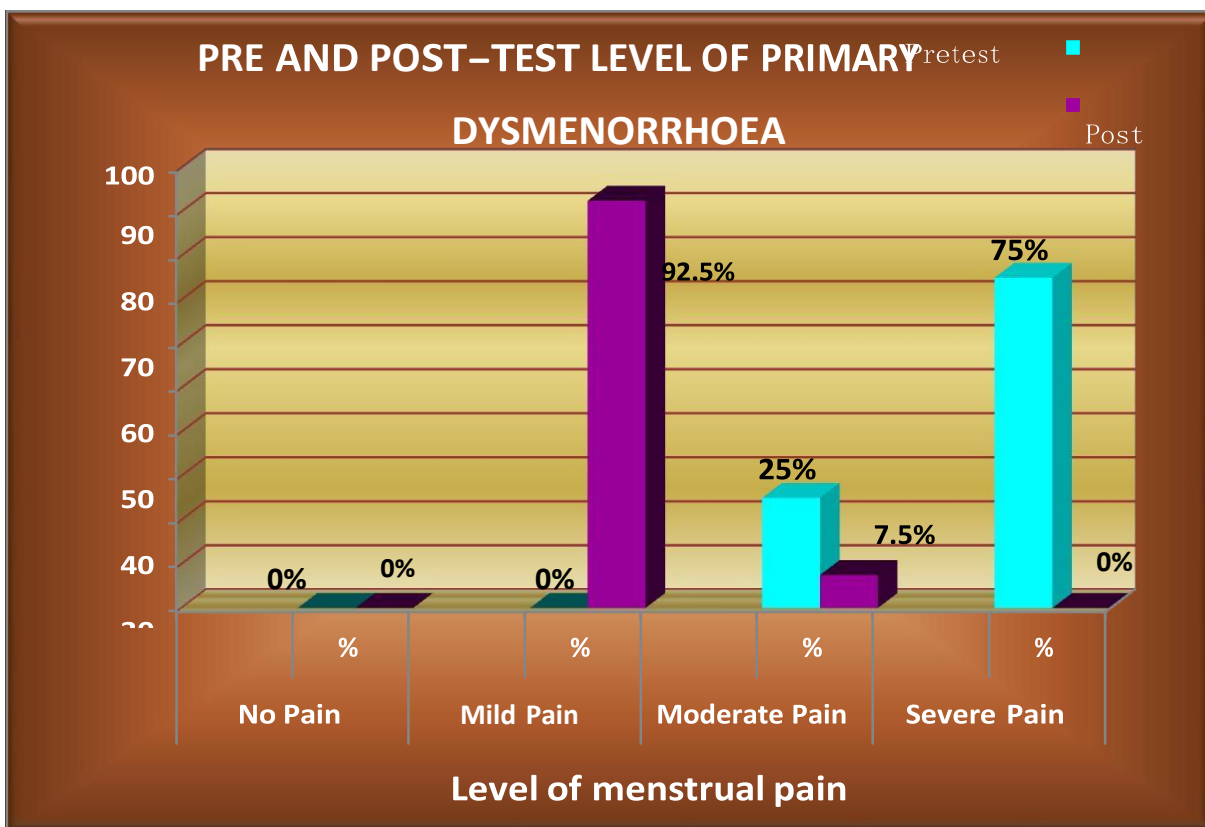
	No symptom	27	67.50
	Nausea & vomiting	3	7.50
	Diarrhea	0	0.00
	Giddiness	10	25.00
<b>12.</b>	<b>Medication taken</b>		
	Taken always	0	0.00
	Taken often	6	15.00
	Taken sometimes	3	7.50
	Never takes	31	77.50
<b>13.</b>	<b>Nature of treatment modalities</b>		
	Never taken	20	50.00
	Allopathic	8	20.00
	Homeopathy	0	0.00
	Home remedies	12	30.00
<b>13.</b>	<b>Food preferences</b>		
	Bland diet	0	0.00
	Soft diet	6	15.00
	Normal diet	34	85.00
	I never eat	0	0.00
<b>14.</b>	<b>Family members experience</b>		
	Yes	24	60.00
	No	16	40.00

### SECTION III: PRETEST AND POST TEST LEVEL OF MENSTRUAL PAIN AMONG ADOLESCENT GIRLS WITH PRIMARY DYSMENORRHOEA

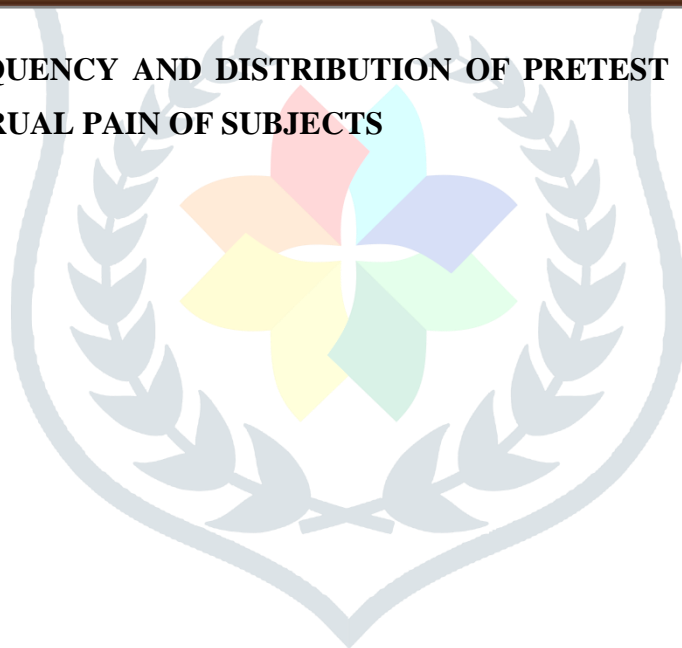
**TABLE 4. 13, FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRETEST AND POST TEST LEVEL OF MENSTRUAL PAIN OF SUBJECTS**

Pain	No Pain		Mild Pain		Moderate Pain		Severe Pain	
	No.	%	No.	%	No.	%	No.	%
Pretest	0	0	0	0	10	25.0	30	75.0
Post Test	0	0	37	92.5	3	7.5	0	0

Table 4.13, shown the frequency and percentage distribution of pre-test and post-test level of menstrual pain of subjects, in the pre-test majority of the subjects i.e. 30 (75%) had the severe pain whereas in the post test majority of them i.e. 37 (92.5%) of them reported mild pain.



**FIGURE 4.13, FREQUENCY AND DISTRIBUTION OF PRETEST AND POST TEST LEVEL OF MENSTRUAL PAIN OF SUBJECTS**



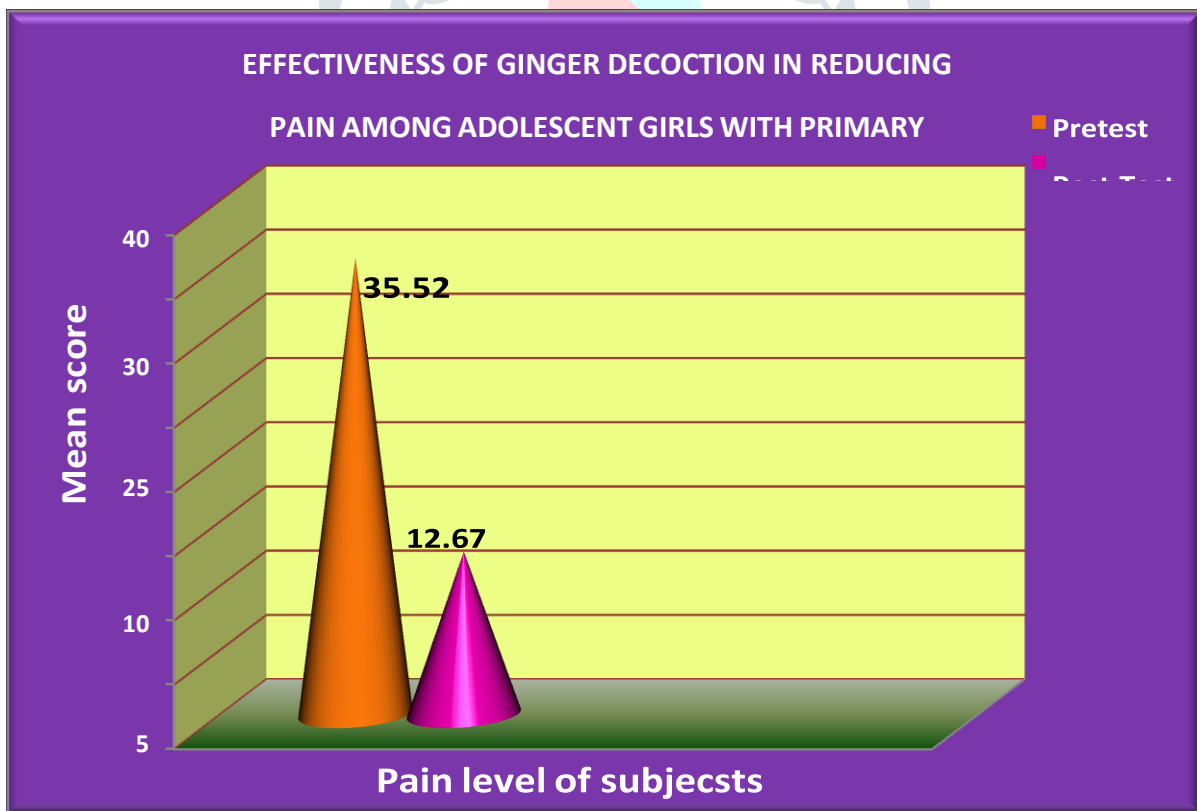
**SECTION IV: EFFECTIVENESS OF GINGER DECOCTION IN REDUCING PAIN AMONG ADOLESCENT GIRLS WITH PRIMARY DYSMENORRHOEA.**

**TABLE.4.14, EFFECTIVENESS OF GINGER DECOCTION IN REDUCING PAIN AMONG ADOLESCENT GIRLS WITH PRIMARY DYSMENORRHOEA.**

Level of Dysmenorrhoea	Mean	S.D	Paired t – test & p - value
Pretest	35.52	3.16	t = 55.853 p = 0.000***, S
Post Test	12.67	2.62	

Note- \*\*\*p<0.001, S - Significant

Table 4.14, shown that the mean pre-test level of dysmenorrhoea among subjects was 35.52 with standard deviation of 3.16, and mean post-test was 12.67 with standard deviation of 2.62 and the obtained „t“ value was 55.853 which was significant at p=0.000 level.



**FIGURE.4.14, EFFECTIVENESS OF GINGER DECOCTION IN REDUCING PAIN AMONG ADOLESCENT GIRLS WITH PRIMARY DYSMENORRHOEA.**

**SECTION V: ASSOCIATION OF POST TEST LEVEL OF DYSMENORRHOEA WITH  
DEMOGRAPHIC & MENSTRUAL VARIABLES**

**TABLE.4.15. ASSOCIATION OF POST TEST LEVEL OF DYSMENORRHOEA  
WITH DEMOGRAPHIC & MENSTRUAL VARIABLES**

**4.15. (a) Association of age with post test level of dysmenorrhoea among subjects**

Demographic variable	Chi-square value	Level of significance
Age	0.060	0.806 N.S

df=1, table value 3.84 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (a), shown that the demographic variable age was not significant with the post test level of dysmenorrhoea

**4.15. (b) Association of residence with post test level of dysmenorrhoea among subjects**

Demographic variable	Chi-square value	Level of significance
Residence	0.574	0.751 N.S

df=2, table value 5.99 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (b), shown that the demographic variable residence was not significant with the post test level of dysmenorrhoea

**4.15. (c) Association of religion with post test level of dysmenorrhoea among subjects**

Demographic variable	Chi-square value	Level of significance
Religion	3.149	0.207 N.S

df=2, table value 5.99 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (c), shown that the demographic variable religion was not significant with the post test level of dysmenorrhoea

**4.15. (d) Association of type of family with post test level of dysmenorrhoea among subjects**

Demographic variable	Chi-square value	Level of significance
Type of family	3.149	0.027 N.S

df=2, table value 5.99 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (d), shown that the demographic variable type of family was not significant with the post test level of dysmenorrhoea

**4.15. (e) Association of age of menarche with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Age of menarche	0.360	0.835 N.S

df=2, table value 5.99 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (e), shown that the menstrual variable age of menarche was not significant with the post test level of dysmenorrhoea

**4.15. (f) Association of painful day of menstruation with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Painful day of menstruation	1.676	0.642 N.S

df=3, table value 7.82 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (f), shown that the menstrual variable painful day of menstruation was not significant with the post test level of dysmenorrhoea

**4.15. (g) Association of duration of menstruation with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Duration of menstruation	0.263	0.608 N.S

df=1, table value 3.84 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (g), shown that the menstrual variable duration of menstruation was not significant with the post test level of dysmenorrhoea

**4.15. (h) Association of frequency of menstruation with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Frequency of menstruation	1.081	0.298 N.S

df=1, table value 3.84 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (e), shown that the menstrual variable frequency of menstruation was not significant with the post test level of dysmenorrhoea

**4.15. (i) Association of flow of menstruation with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Flow of menstruation	0.055	0.814 N.S

df=1, table value 3.84 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (i), shown that the menstrual variable flow of menstruation was not significant with the post test level of dysmenorrhoea.



**4.15. (j) Association of nature of menstrual pain with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Nature of menstrual pain	0.615	0.433 N.S

df=1, table value 3.84 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (j), shown that the menstrual variable nature of menstrual pain was not significant with the post test level of dysmenorrhoea

**4.15. (k) Association of associated symptoms of dysmenorrhoea with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Associated symptoms of dysmenorrhoea	0.334	0.846 N.S

df=2, table value 5.99 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15.(k), shown that the menstrual variable associated symptoms of dysmenorrhoea was not significant with the post test level of dysmenorrhoea

**4.15. (l) Association of medication taken during dysmenorrhoea with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Medication taken during dysmenorrhoea	3.421	0.181 N.S

df=2, table value 5.99 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (l), shown that the menstrual variable medication taken during dysmenorrhoea was not significant with the post test level of dysmenorrhoea

**4.15. (m) Association of nature of treatment modalities adopted during dysmenorrhoea with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Nature of treatment modalities adopted during dysmenorrhoea	3.363	0.186 N.S

df=2, table value 5.99 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (m), shown that the menstrual variable nature of treatment modalities adopted during dysmenorrhoea was not significant with the post test level of dysmenorrhoea

**4.15. (n) Association of food preferences with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Food preferences	0.572	0.449 N.S

df=1, table value 3.84 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (n), shown that the menstrual variable food preferences was not significant with the post test level of dysmenorrhoea

**4.15. (o) Association of familial history with post test level of dysmenorrhoea among subjects**

Menstrual variable	Chi-square value	Level of significance
Familial history	2.162	0.141 N.S

df=1, table value 3.84 at 5% level of significance (p<0.05, N.S-Not Significant)

Table 4.15. (o), shown that the menstrual variable familial history was not significant with the post test level of dysmenorrhoe

**REFERENCES**

1. Lippincott, (2006), *Manual of Nursing Practice* Lippincott Williams and Wilkins, Philadelphia; (8th ed.), Pg.No: 398-400, 1153-1155.
2. 25. Littleton, Y. Linna., & Engebretson, C. Joan. (2005). *Maternity Nursing Care*. Canada: Thomson Delmar Learning. 752-60.
3. Park K, (2009). Preventive and Social Medicine, (20th ed.). Jabalpur: Banarsidas Bhanot, 379- 382, 792 – 794, 778 – 779
4. Park, K. (2007), Park's Textbook of Preventive and Social Medicine, (19th ed.), Jabalpur : Banarsidas Bhanot, 650 – 657.
5. Phipps, (2007), Medical-Surgical Nursing, Mosby Publications, USA, (8th ed.), pg.no: 399-420.
6. Pillitteri, A. (2010). Maternal and child health nursing (6th ed.). Lippincott Williams & Wilkins Publications, Missouri.1395-1397
7. Polit, D. F. & Beck, C.T. (2010). Nursing Research (8th ed.). Lippincott Williams and Wilkins. Philadelphia. 260 – 270, 452 – 457, 595 – 600.
8. Prabhakara, G.N. (2006). Biostatistics (1st ed.). New Delhi: Jaypee Brothers Medical Publishers. 162 –170
9. Rao, Bhaskara T, (2006). Textbook of community Medicine, (2nd ed.). Hyderabad: Paras, 614 – 616, 759 – 76
10. Rao, P. S. S. Sundar., & Richard, J. (2006). Introduction to Biostatistics and Research Methods. (4th ed.). New Delhi: Prentice Hall of India. 35-38.

**JOURNALS**

1. Agarwal, A. & Agrwal, A. (2010). "A study of dysmenorrhea during menstruation in adolescent girls", Indian journal of community medicine. 35(1),159-14.
2. Campbell MA, Mcgrath PJ, (1999), "Non pharmacological strategies used by adolescence", J Clin Pain, 14(3):313-15
3. Chaiyakunapruk N, Kitikannakorn N, Nathisuwan S, Leeprakobboon K, Leelasettagool C. (2006), "The efficacy of ginger for the prevention of postoperative nausea and vomiting: a meta-analysis", Am J Obstet Gynecol, 194:95–99.
4. Daniels SE, Torri S, Desjardins PJ, (2006), "Valdecoxib for Treatment of Primary Dysmenorrhea, A Randomized, Double-blind Comparison with Placebo and Naproxen", J Gen Intern Med, 20:62–67.
5. Dany S.(2009), "Effectiveness of acupuncture on reducing dysmenorrhea", NNT, 5(6):29-30