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## Effect of Ginger tea on Dysmenorrhea among nursing students in Indore, Madhya Pradesh, India

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### ABSTRACT

**Background:** Adolescence is a time of moving from childhood to adulthood maturity. These transitions involve a lot of changes as biological, cognitive, and emotional. However, menstruation is a normal physiological phenomenon indicating a woman's capability for procreation. It is often associated with some degree of suffering and embarrassment. As usual, every woman may experiences one or more types of menstrual problems during her lifetime as dysmenorrhoea. It is a medical term of menstrual cramps, caused by uterine contractions. However, the primary one refers to common menstrual cramps, while the secondary results from reproductive organ disorder. Thus, the current study aimed to assess the effect of ginger tea on dysmenorrhoea level; among nursing students. **Materials and Methods:** Study objectives included compare dysmenorrhoea level among nursing students in the experimental and control group after posttest and find out the association between pre-test dysmenorrhoea levels with selected demographic variables as age, education, family history of dysmenorrhea. A quasi-experimental approach was utilized. A study was conducted in Index Nursing College, MP, and India. The sample included 60 nursing students with dysmenorrhea. They were selected by purposive sampling method, GNM students with dysmenorrhea were considered as a control group, and BSc Nursing students with dysmenorrhea as experimental. The data collection tool has consisted of demographic variables, and McCaffery numerical pain intensity scale to assess dysmenorrhoea level. **Results:** Independent “*t*” test was used for testing the significance of the difference between the experimental and control group. Computed *t* value ( $t = 5.987$ ,  $P < 0.05$ ) was greater than the table value, “*t*” = 2.00, concluded that, post-test dysmenorrhea scale of experimental group students was significantly lower than a control group. Chi-square showed no significant association between selected demographic variables as age, course of study/education, and dysmenorrhoea family history for pre-test level. **Conclusion:** It can be concluded that 3 times ginger tea consumption per day was effective in reducing dysmenorrhea **Keywords:** Dysmenorrhea; Ginger tea; Nursing students, Quality of Life (QOL).

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## **INTRODUCTION**

Menarche is an amazing moment of females' life and crowns stages of the female gender. However, a transition from girlhood to womanhood is marked with menarche onset, as an important milestone. It is the first menstrual cycle, or first menstrual bleeding among the female, and is often considered as the central event of female puberty. It usually occurs at an age between 12-13 years old. As well as it may occur early at age of 10 years and late at 16 years old. As evidenced menarche timing varies widely and usually influenced by genetic and environmental factors, as well as nutritional status (D.C Dutta, 2005). However, during menstruation, the body releases a hormone called prostaglandins, which responsible for the uterine contraction for helping the uterus lining process. ( Dhanya S,2012) Dysmenorrhoea is a Greek term meaning "painful menstruation". Menstrual problems are common in adolescents and among them, dysmenorrhea is the leading problem reported in half of the women of childbearing age and 10% of them are experienced incapacitating pain for 1-3 days, every month (Jameison. D.J,1996). Dysmenorrhoea is characterized by cramping lower abdominal pain that may radiate to the lower back and upper thighs, commonly associated with nausea, headache, fatigue, and diarrhea. It can be classified into two subtypes. Primary dysmenorrhea usually occurs when there is an absence of anatomic abnormalities or pelvic pathologic disorders identifiable pelvic disease and it occurs with every ovulatory cycle. Secondary dysmenorrhoea can occur many years after menarche and is usually associated with identifiable pelvic pathological conditions (D.C Dutta, 2005). However, most adolescent's female was suffering from dysmenorrhoea during the 1st three years after menarche. As documented young adult women between ages 17- 24 years are most likely to report dysmenorrhea. It has been estimated that 10% of them with dysmenorrhea usually suffering from severe pain. This is reflected negatively on their Quality of Life QOL

and interferes with their functioning from 1-3 days every month. ( However, these symptoms usually begin with menstruation although some women have discomfort several hours before the menstruation onset. On the other hand, the pain begins with the menstrual flow onset and lasts for 8-48 hours (Wong Hockenberry Wilson, 2004).

### **Aim of the study to:-**

- 1- Assess the effect of ginger tea on dysmenorrhoea level; among nursing students.
- 2- compare the dysmenorrhoea level among experimental and control group students nursing after post-test and find out the association between protest of dysmenorrhoea levels with selected demographic variables as age, education; dysmenorrhoea family history.

### **MATERIALS AND METHODS**

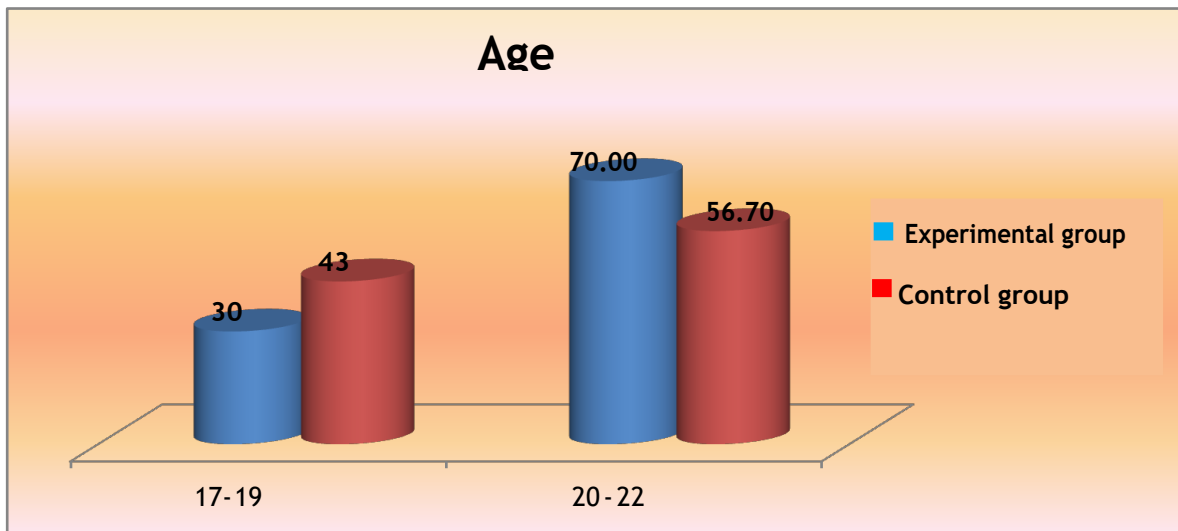
The current study research approach was quantitative evaluative. The research design was a quasi-experimental non-randomized control group design. In this method, there were two groups, experimental and control. The intervention effects were judged by the differences between the pre-test and post-test scores pain scales. The non-randomized control group design involved an experimental treatment and two groups of subjects who were observed before and after the implementation. In this study, there is one experimental and control group. The ginger tea was taken 3 times a day after the pretest assessment of dysmenorrhea. Similarly for the control group placebos is given after pre-test and then post-test was applied one after the intervention both among groups. The independent variable in the current study was ginger tea, given to the participant students, the dependent variable was dysmenorrhea, and the extraneous variables included age, menarche's age, length of the menstrual cycle, and dysmenorrhoea family history. The current study was conducted in Index Nursing College which is located at Indore, in Madhya Pradesh district, India. The setting selection was done based on the feasibility of the study conduction and the subject's availability. The target population of the present study

comprised nursing students who were suffering from dysmenorrhea. The samples for the present study consisted of 60 students with dysmenorrhea from the mentioned setting and residing in the hostel. The sampling technique utilized was purposive sampling. The researcher had taken the list of students with dysmenorrhea and their last menstrual period dates from each batch of GNM and BSc Nursing. The students were asked to report the researcher immediately at the onset of

menstruation without adopting any remedial measures for dysmenorrhoea. GNM students were assigned as a control group and BSc Nursing students as an experimental group. The investigator used a structured questionnaire to collect the baseline data and McCaffery numerical pain intensity scale for assessing the pain severity. Data were later analyzed by using descriptive and inferential statistics

### 3. RESULTS

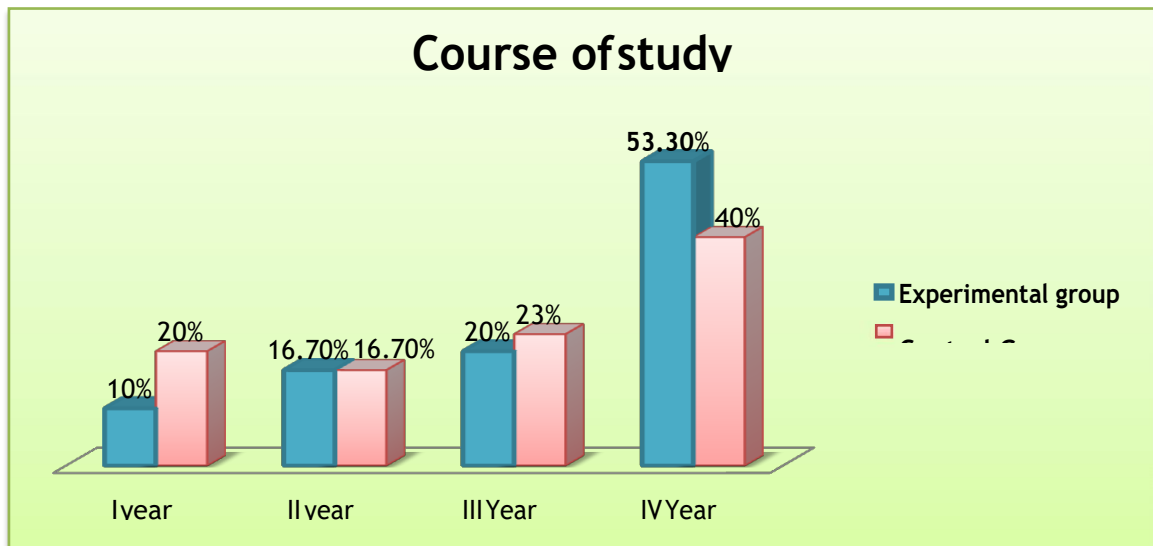
#### Section-I: - Description of nursing students based on the demographic variables among the experimental and control group. (n=60)



**Figure 3.1:**

#### **Distribution of nursing students with dysmenorrhea based on age (Percentage).**

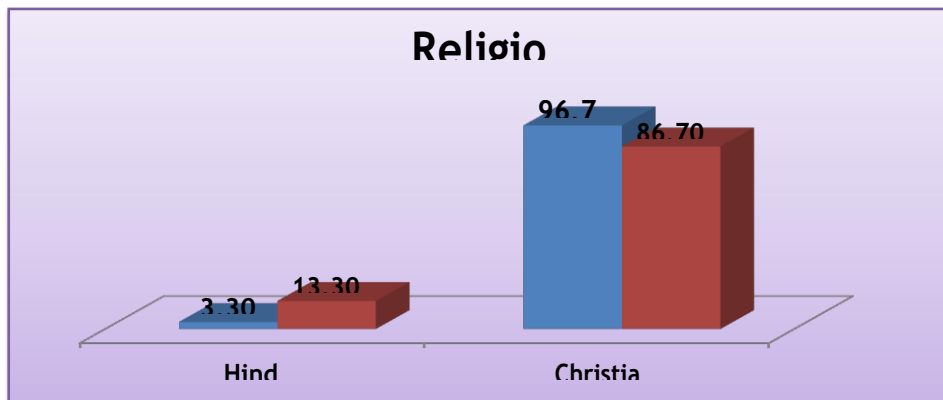
The above figure shows that a high percentage of students, (70%) among the experimental group belongs to the age group of 20-22 years old, and (30%) their age was ranged between 17-19 years old. While, it was noticed that, more than half of them (56.7%) among the control group belongs to age group between 20-22 years old and only (43.3%) of them from age group of 17-19 years old.



**Figure 3.2: (n=60)**

**This figure representing the nursing student’s distribution with dysmenorrhoea based on their study placement.**

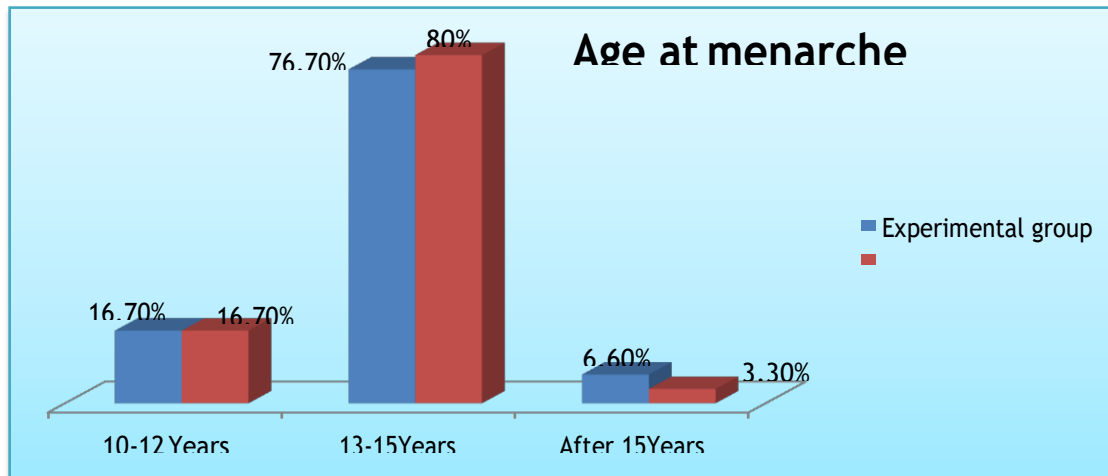
This figure reveals that more than half of the experimental group, (53.3%) belongs to the fourth year and only 3(10%) in the first year. Otherwise, control group nursing students were detected as (40%) belongs to fourth year and (16.7%) at second year.



**Figure-3.3: (n=60)**

**Distribution of nursing students with dysmenorrhoea based on religion.**

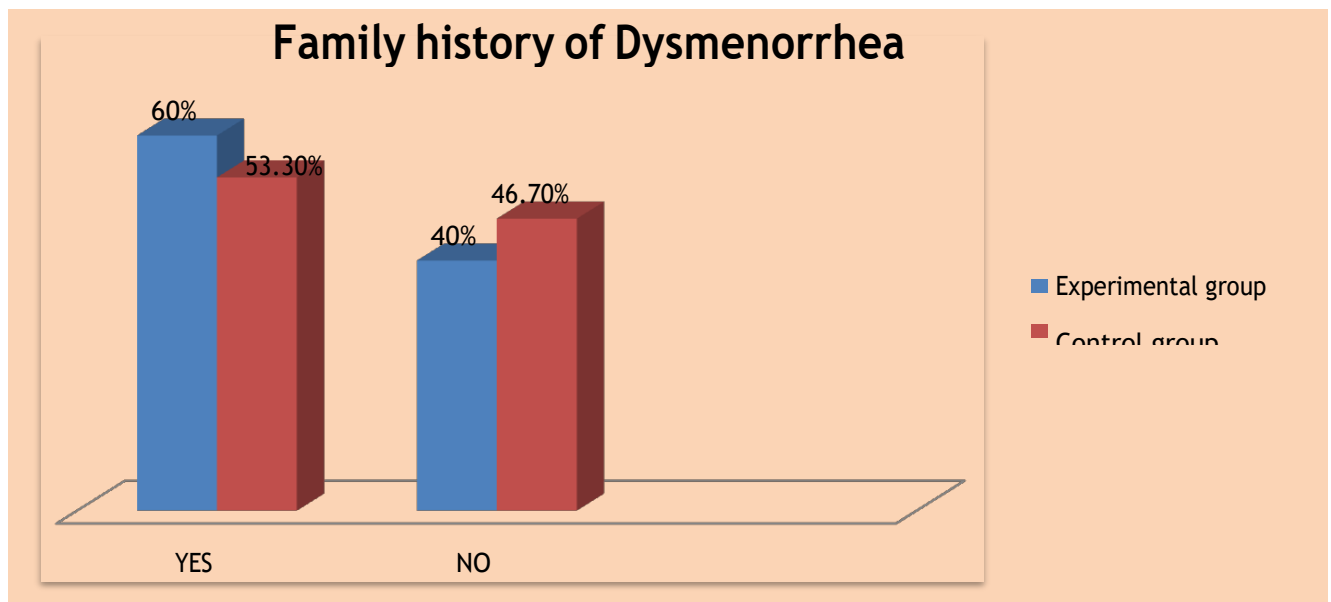
This graph depicts that, the vast majority of the experimental group, (96.7%) belongs to the Christian religion and only 1(3.3%) to the Hindu religion. While it was observed that (86.5%) & (13.3%) belong to the Christian and Hindu religions among the control group respectively.



**Figure 3.4: (n=60)**

**Distribution of dysmenorrhoea nursing students based on their menarche age.**

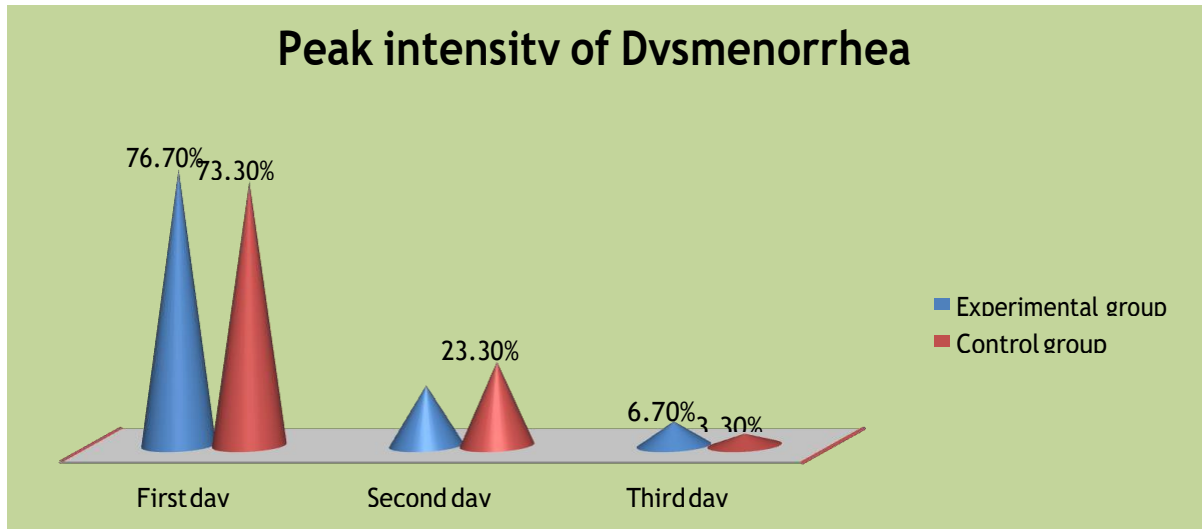
This figure reflected that a high percentage of 23 (76.7%) among the experimental group attained menarche between the age of 13-15 years old and only 2(6.7%) were attained the menarche after the age of 15 years old. On the opposite majority of students (80%) were attained menarche between 13-15 years old and only 1(3.3%) after the age of 15 years old among the control group.



**Figure 3.5: (n=60)**

**Distribution of dysmenorrhoea nursing students based on dysmenorrhoea family history.**

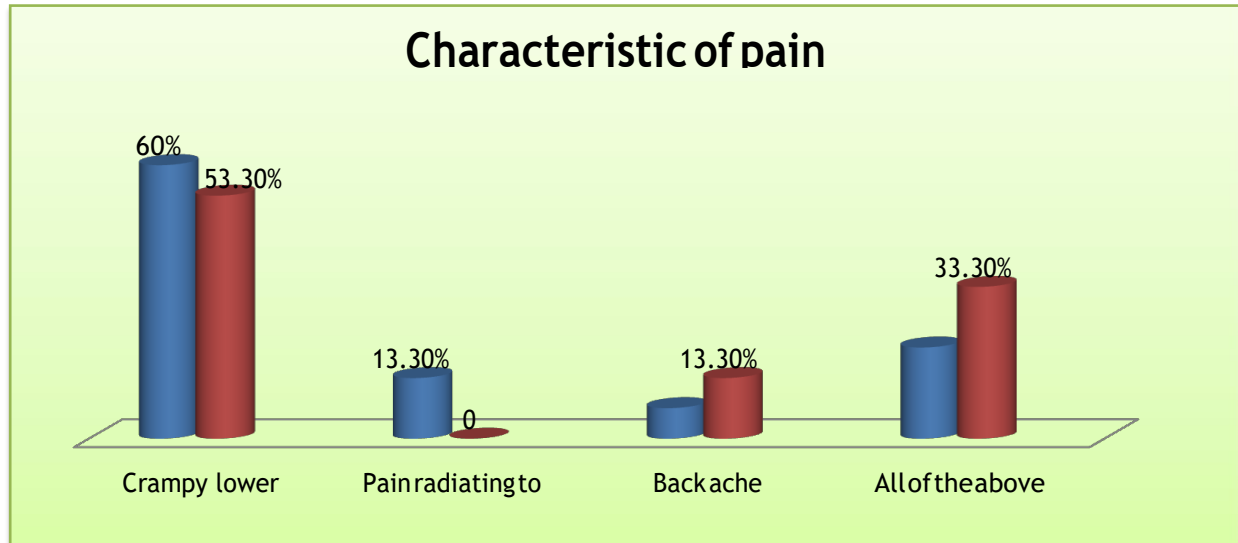
This figure shows that 18 (60%) from the experimental group have a family history of dysmenorrhoea and 12(40%) with a negative history. On the other hand, more than half of the control group, 16 (53.3%) were mentioned that there is a family history of dysmenorrhoea and (46.7%) said no.



**Figure 3.6: (n=60)**

**Distribution of dysmenorrhoea nursing students based on dysmenorrhoea peak of intensity.**

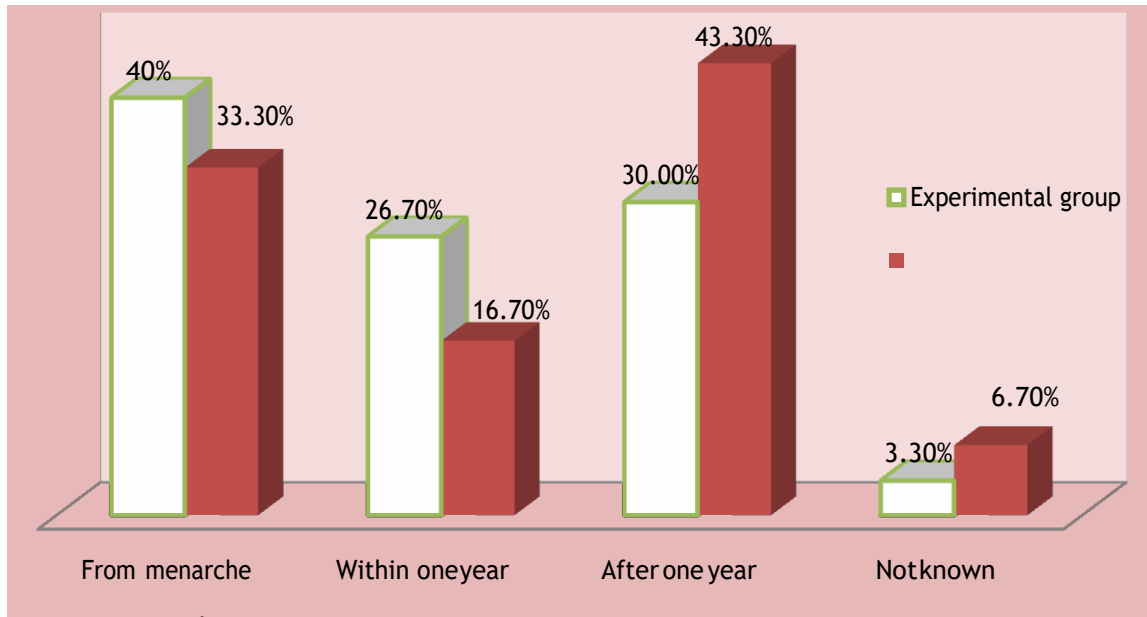
The above figure depicts a high percentage among the experimental group, 23(76.6%) had a peak intensity of dysmenorrhoea on the first menstrual day, and only 1(3.3%) had dysmenorrhoea during all three menstrual days. Otherwise, it was detected that 22(73.3%) from the control group was experienced peak intensity of dysmenorrhoea on the first menstrual day. while only 2(6.7%) were suffering from dysmenorrhoea during all three menstrual days.



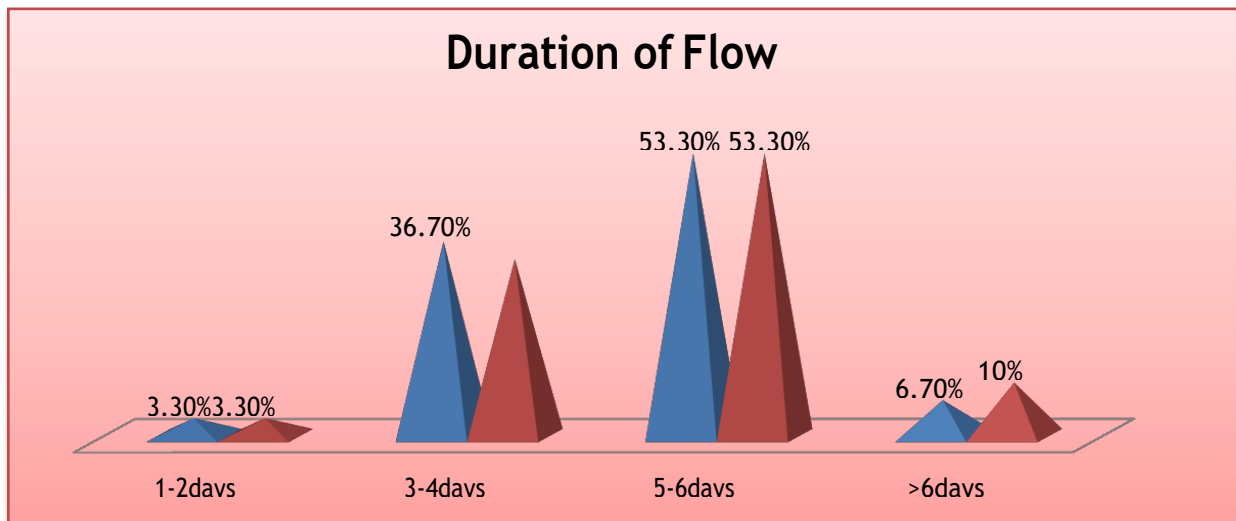
**Figure 3.7: (n=60)**

**Distribution of dysmenorrhoea nursing students based on the type of pain.**

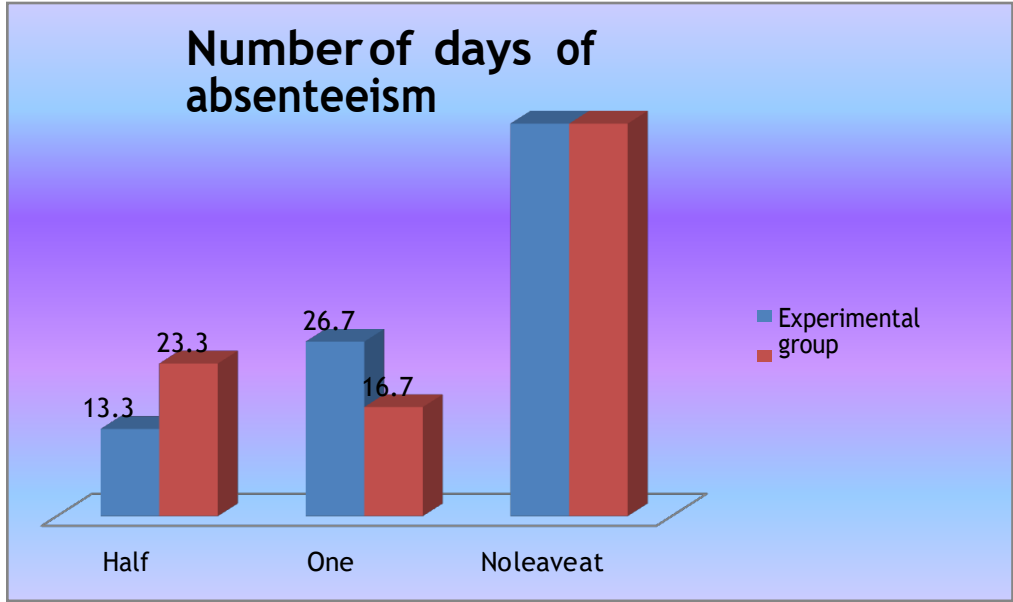
The above graph depicts that, 18(60%) have crampy lower abdominal pain and only 2(6.7%) have pain radiating to the lower limbs on the first menstrual day among the experimental group. As well as more than half of the control group 16(53.3%), have crampy lower abdominal pain and 4(13.3%) only have backache on the first menstrual day.



**Figure 3.8: Distribution of dysmenorrhoea nursing students based on the first onset of dysmenorrhoea.** This picture shows that less than half 12(40%) of the experimental group had dysmenorrhoea from menarche onwards, and 1(3.3%) only didn't know about the dysmenorrhoea onset. While, 13 (43.3%) among the control group, were developed the dysmenorrhoea one year after menarche, and 2(6.7%) didn't know the dysmenorrhoea onset.



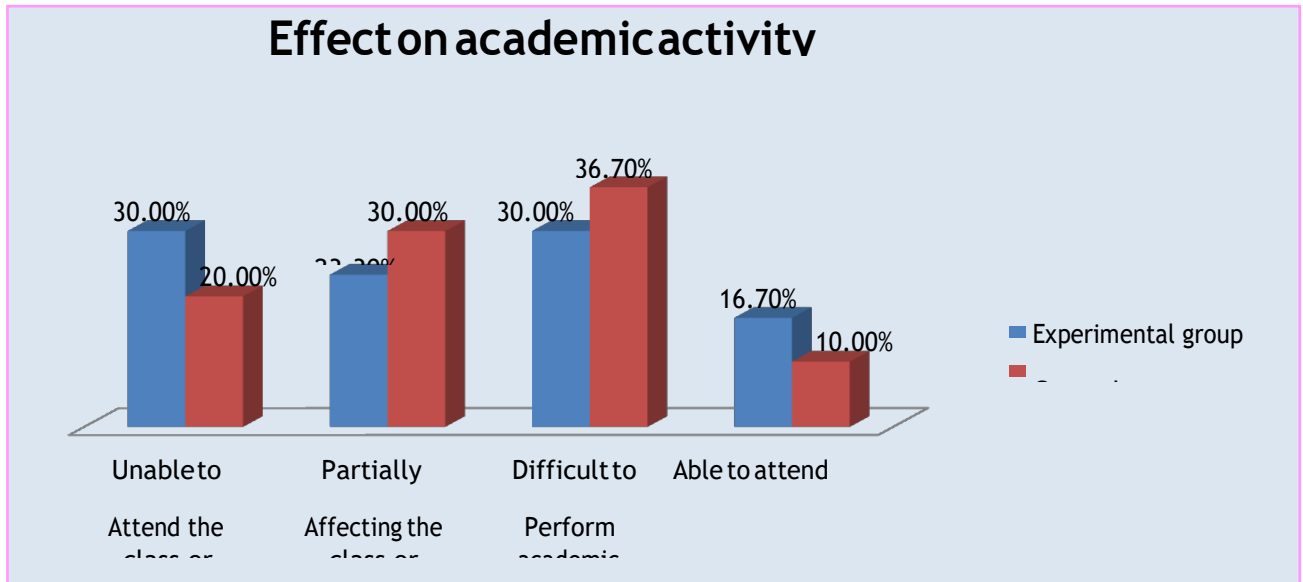
**Figure 3.9: (n=60)**  
**Distribution of dysmenorrhoea nursing students based on the duration of menstrual flow.**  
 Figure 3.9 reveals that more than half of the experimental group 16(53.3%) have 5-6 days of menstrual flow, and only 1(3.3%) mentioned that their menstrual flow 1-2 days and As regards the control group,16(53.3%) of students mentioned that, their menstrual flow from 5-6 days and only 1(3.3%) their menstrual flow from 1-2 days usually.



**Figure 3.10: (n=60)**

**Distribution of dysmenorrhoea nursing students based on absenteeism number of days.**

Figure 3.10: shows that 18 (60%) among the experimental and control group, have not taken the leave at all. As well as 4(13.3%)& 5(16.7%)have taken half day leave among experimental and control group respectively.

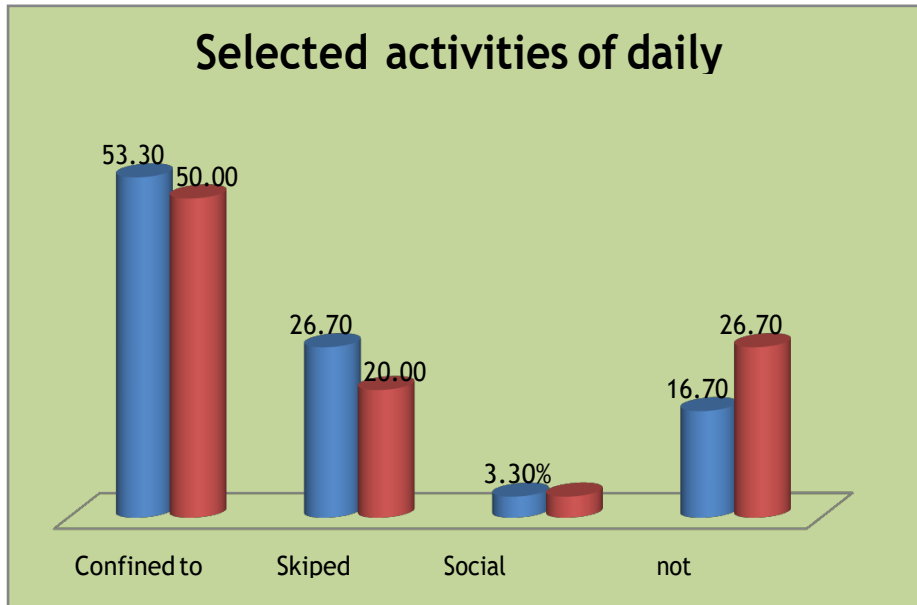


**Figure 3.11: (n=60)**

**Distribution of nursing students based on dysmenorrhoea effect on their academic activity**

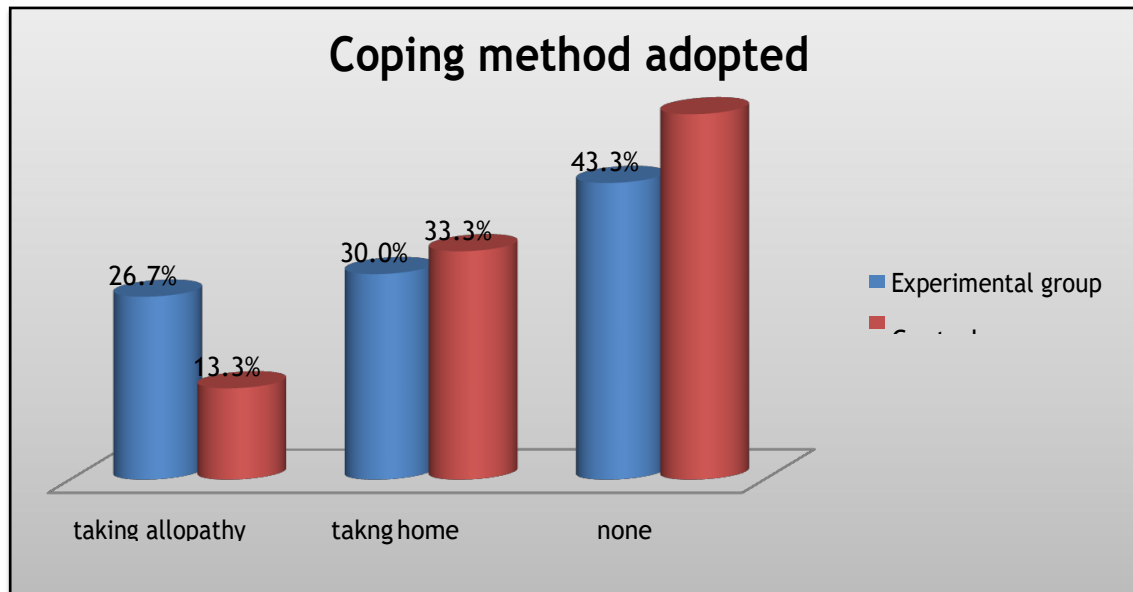
the figure depicts that around 1/3 from the experimental group, 9(30%) were unable to attend the class or clinical and the same ratio had difficulty to perform the ward/class activities, as well as only 5(16.7%) were able to attend the class or clinical during menstruation. As regards the control group, it was detected that more than 1/3 11(36.7%) had difficulty in performing their activities and only 3(10%) were able to attend the class or clinical.





**Distributions of nursing students according to dysmenorrhoea effect on selected activities of daily living.**

The above figure shows, that more than half of the experimental group, 16(53.3%) were confined to bed, and only 1(3.3%) had shown, usually social withdrawal during the first menstrual day. As well as 15(50%) among the control group, were confined to bed and while,1(3.3%) had shown social withdrawal.



**Figure 3.13: (n=60) distribution of nursing students with dysmenorrhoea based on the coping method.**

It was noticed that in the experimental group, 13(43.3%) does not take any treatment and 8(26.7%) only was follow the pharmacological management with or without a prescription for dysmenorrhoea. While 16(53.3%) among the control group does not take any treatment and 4(13.3%) only followed the pharmacological management with or without prescription.

**SECTION-II**

**Comparison, level dysmenorrhoea among nursing students of experimental and control group after the ginger tea administration.**

**Table. 3.1: Summary of „t“ test on pain score of dysmenorrhea among experimental and control group. (n=60)**

<b>Group</b>	<b>Frequency</b>	<b>Mean post-test</b>	<b>SD</b>	<b>df</b>	<b>t</b>	<b>P-value</b>
<b>Experimental</b>	<b>30</b>	<b>1.30</b>	<b>0.7117</b>	<b>58</b>	<b>5.987*</b>	<b>0.00*</b>
<b>Control</b>	<b>30</b>	<b>2.29</b>	<b>0.5668</b>			

**\*Significant at 0.05 level  $t_{58}=2.00$**

The trial for detection of the effectiveness of ginger tea in reducing the dysmenorrhea among experimental group independent „t“ test was utilized. The current data in table I revealed that the computed t value (t=5.987, p<0.05) was greater than the table value (t=2.00). Thus the research hypothesis H1 was accepted. Hence it can be concluded that providing 2gm of ginger tea 3 times a day (6gm/day) was effective in dysmenorrhoea reduction.

**SECTION-III**

**Association between pre-test dysmenorrhoea levels with selected demographic variables**

**Table 3.2:**

Association between pre-test dysmenorrhoea level with selected demographic variables as age, education, and family history

Demographic Variable	Posttest Dysmenorrhea Score			$\chi^2$	P-value
	Mild	Moderate	Severe		
<b>1-Age group</b>					
• 17-19yrs	2	20	0	2.569	p>0.05
• 20-22yrs	6	29	3		
• 23-25	0	0	0		
<b>2-Course of study</b>					
• First-year	0	9	0	6.042	p>0.05
• Second-year	2	9	0		
• Third-year	2	12	0		
• Fourth-year	4	19	3		
<b>3-Family history of dysmenorrhea</b>					
Yes	5	27	2	0.282	p>0.05
• No	3	22	1		
<b>Age at menarche</b>					
• 10- 12 yrs	0	9	2	9.162	P<0.05
• 13-15 yrs	3	39	4		
• >15 yrs	0	1	2		
<b>How many days you tend to take leave during Dysmenorrhea?</b>					
• Half-day	0	10	2	4.676	p>0.05
• One day	0	8	3		
• Two days	0	1	0		
• No, leave at all	3	30	3		

**Table 3.2:** Revealed that nearly half of the students 29(48%) were experienced moderate pain, while only 3(10%) were experienced severe dysmenorrhoea belongs to the age group of 20-22 years old. The computed  $\chi^2$  value 2.569 was less than the table value of 5.99 at 0.05 level. So there is no statistically significant difference was noticed between age and pre-test dysmenorrhoea level.

**4. DISCUSSION**

The first objective of the current study was to compare the dysmenorrhoea level among

nursing students in the experimental and control groups after the ginger tea consumption. In the present study independent “t” test was utilized to test the significant difference between the experimental and control groups. As represented in table 3.1 it was noticed that, the computed t value (t = 5.987, P<0.05) is more than the table value t=2.00. Based on this, research hypothesis (H<sub>1</sub>) was accepted that in post-test dysmenorrhoea scores among the experimental group will be significantly lower than the control group. So it can be concluded that 2gm of ginger tea three times per day was effective in

dysmenorrhoea reduction. These findings are supported by the study conducted at Cherran's College of Nursing, Coimbatore in 2010 that, assessing the effectiveness of ginger tea on dysmenorrhoea among adolescent girls with dysmenorrhoea. As well as it concluded that ginger tea was effective for reducing the pain and discomfort during menstruation. (Anil K Agarwal, 2010) Furthermore, the current study results were agreed with the comparative study results conducted in Iran regarding the effect of ginger, ibuprofen, and mefenamic acid on dysmenorrhoea as reported that, ginger was effective like Ibuprofen and mefenamic acid. This can be attributed to the gingerol action. It is the principal ingredient in ginger that has an anti prostaglandin effect that great effect on reducing pain associated with dysmenorrhoea. (Rahnama P, 2012)

**Another objective for the study was to find out the association between pretest levels of dysmenorrhea with selected demographic variables such as age, education, family history.**

Assuming that baseline variable could probably influence the dysmenorrhea, attempts were made to find the association of baseline variables with dysmenorrhea. Association was computed between pre-test score of dysmenorrhea with selected baseline variables like age, course of study, and dysmenorrhoea family history.

It was observed that nearly half of samples 29(48%) were experienced moderate pain, while, only 3(10%) experienced severe dysmenorrhoea among a group of age between 20-22 years old. The computed  $\chi^2$  value **2.569** was less than the table value **5.99** at **0.05** levels. So there is no significant association was noticed between age and pre-test level of dysmenorrhea. Regarding the course of study, moderate dysmenorrhoea was reported among fourth-year students, around  $\frac{1}{3}$  (31.6%), and mild dysmenorrhoea 2(3.3%) only among second and third-year nursing students. However, the present study results were consistent with a study conducted in Apollo college of nursing Chennai in 2011 with 40 BSc Nursing students with dysmenorrhea who resided in a hostel. Two

consecutive menstrual cycles were assessed with data collection tools. The first menstrual cycle was taken as a pre-test in which the level of dysmenorrhea was assessed without administration of ginger tea. Consecutive cycle as post-test in which ginger tea 100ml /day for five days was given as 50ml in morning and 50ml in the night, after food, starting from 2 days before the onset of menstruation to the third day of the menstrual cycle. Association between the selected demographic variables upon the level of pain and dysmenorrhea symptoms among students before and after intake of ginger tea was assessed. It reveals that there was no significant association between the selected demographic variables and level of pain among students before and after administration of ginger tea (Dhanya, 2011)

**Conclusion:** Menstrual disorders are a common presentation in late adolescence, 75% of girls experience discomforts associated with menstruation. Dysmenorrhea is a common problem in women of reproductive age. In day-to-day nursing practice, the nurses identify women with dysmenorrhea both in clinical as well as community settings which can be handled well to cope with menstrual pain. Most of them are left untreated. Many studies conducted in India and abroad show that ginger is an effective complementary therapy to reduce dysmenorrhea and to improve the quality of life during menstruation. The result of the present study showed that there was a great need for the health personnel to implement this method to educate the people in the community as well as in the hospitals. Therefore this home remedy (Ginger tea) will help to improve the productivity and quality of life in adolescents and women of reproductive age to cope with discomforts dysmenorrhoea.

**Recommendations:**

Based on the current study findings it is recommended that:

1. This study can be done on a large sample for more valid generalization.

2. There is an urgency for other studies conducting regarding the effectiveness of ginger preparation v/s other methods as pelvic exercise on dysmenorrhoea.

4. Other studies must be conducted to assess the nurses' knowledge regarding complementary and alternative therapies on dysmenorrhoea or pain reduction.

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