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Research Article

Effectiveness of Dried Ginger On Dysmenorrhea Associated Symptoms Among Adolescent Girls at A Selected College of a South Indian Town – A Non-Random Pre-Experimental Design Study

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Abstract: Dysmenorrhea influences social, physical, and psychological well-being. Dysmenorrhea causes absenteeism from school, insomnia, nervousness, irritability, depression, and other symptoms. Adolescent girl health promotion is a significant component of the major health programs. Hence a study was planned to assess the effectiveness of dried ginger on dysmenorrhea-associated symptoms among adolescent girls at a selected college, Puducherry. Sixty patients who fit into the diagnosis of dysmenorrhea were selected. Six doses of 500 mg of dried ginger were administered for 48 hours, followed by an assessment of pain scores, and the difference was noted. The fact that there was an association between demographic variables and the intensity of the disease was noted. In the pre-test mean pain score level was 5.2 ±1.2. Whereas in the post-test, after the administration of dried ginger, the mean pain score level was 4.1 ±3.97. The effectiveness was statistically tested by paired t-test (t=1.37), which was found to be highly statistically significant at $p < 0.001$. There is a significant association between Dysmenorrhea associated symptoms with selected demographic variables like Type of family and dietary pattern. Whereas the other demographic variables are not effective with dysmenorrhea-associated symptoms

Keywords: Dysmenorrhoea, Menstrual Symptoms, Ginger Powder, Adolescent Girls

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1. INTRODUCTION

Adolescence is a transition period from childhood to adulthood characterized by a spurt in the physical, endocrinal, emotional, and mental growth.[1] As the direct reproducer of future generations, the health of adolescent girls not only influences their own health,[2] but also the health of the future population. Almost a quarter of India's population comprises girls below 20 years.[3] One of the major physiological changes in adolescent girls is the onset of menarche,[4] which are often associated with irregular menstruation, excessive bleeding, and dysmenorrhea.[5] Of this, dysmenorrhea, recurrent, cramping lower abdominal pain during menstruation, is one of the common problems experienced by many adolescent girls.[5] The term dysmenorrhea is derived from the Greek word "dys" meaning difficult/painful/abnormal, "meno," meaning month, and "rrhoea" meaning flow.[6] Dysmenorrhea refers to the syndrome of painful menstruation. Dysmenorrhea is a painful period of menstrual cramping accompanied by symptoms such as nausea, vomiting, diarrhoea, headache, weakness, and fainting.[7] Dysmenorrhea has an impact on the social, physical, and psychological well-being of adolescents.[8] Dysmenorrhea leads to absenteeism from classes, sleeplessness, nervousness, irritability, depression, etc.[9] Promotion of the health of adolescent girls is a major aspect of the RCH program.[10] This motivated the investigator to take up this study. Moreover, the personal and professional experience of the investigator and the availability of books on the management of dysmenorrhea created interest in the investigator to carry out this study. To reduce the dysmenorrhea-associated symptoms with the use of dried ginger. The need for the study is described as follows. The prevalence of dysmenorrhea is estimated to be present in 25% of women and up to 90% of adolescents.[11] No significant difference exists in the prevalence or incidence between races, though the most common causes of dysmenorrhea differ by age.[12] Although it is not life-threatening, dysmenorrhea can be debilitating and psychologically taxing for many women. A study was conducted to determine the incidence of dysmenorrhea among 1648 adolescent girls in Karnataka.[13] The incidence of dysmenorrhea was 87%. Of these, 46.69% had severe problems of perceived pain during menstruation.[11,12] As dysmenorrhea cannot be identified and confirmed by any tests, the symptoms questionnaires and scale assist in identifying the syndrome. Nearly 50% of adolescent women complain of severe pelvic pain during the first 2-3 days of their menstrual bleeding. The basic severity is difficult to assess; still, the numerical rating scale and the verbal pain scales can approximate the symptomatology. Dysmenorrhea affects many adolescents, but many do not seek care for it even when symptoms are severe or incapacitating. Most girls feel shy to discuss menstrual problems with others, consider the menstrual pain as 'normal,' and hesitate to go to hospitals. They wish to treat symptoms by themselves without consulting a doctor. Knowing the right simple ways to manage dysmenorrhea at home is the 'need' of adolescent girls. Home management measures to relieve painful menstrual cramps are less expensive, safe, and effective, too.[13] Traditionally in India, various Folk medicines have been used to treat minor disorders such as dysmenorrhea, indigestion, and nausea. Among the various folk medicines, ginger is known to have outweighing benefits. Ginger tea helps reduce menstrual cramps. It is also helpful in relaxing muscular spasms and relieving the pain present during ovulation and menstrual periods.[15]Ginger is an herb. The rhizome (underground stem) is used as a spice and medicine. It can be used fresh, dried, powdered, juice, or oil. Ginger tea helps reduce menstrual cramps. It is also helpful in relaxing muscular spasms and relieving the pain present during ovulation and menstrual periods.[16] Alternative therapies and complementary therapies are widely accepted and available. Women have increased access to massage, therapeutic touch, acupressure, acupuncture, herbal medicine, and reiki therapies. Biofeedback, hypnosis, relaxation, and desensitization have all been used to treat dysmenorrhea. Ayurveda has different types of herbal medicines for the treatment of dysmenorrhea. These medicines can treat the disease, its conditions, and its symptoms without side effects. Herbs can also help stimulate the body's self-healing power, counteract the physical symptoms, and be useful to tone organs and nourish blood and tissues. [15,16] Some home remedies for painful menstrual periods are warm baths, hot water bottles, massage, vitamins, exercise, yoga, and ginger tea. Ginger is an herb. The rhizome (underground stem) is used as a spice and medicine. It can be used fresh, dried, powdered, juice, or oil. Ginger tea helps reduce menstrual cramps. It is also helpful in relaxing muscular spasms and relieving the pain present during ovulation and menstrual periods. Dysmenorrhea, also known as menstrual cramps, is a common condition experienced by many women, and it's characterized by severe lower abdominal pain that can also be accompanied by other symptoms such as nausea, headache, and fatigue.Ginger, a common spice and a traditional remedy for various ailments, has been investigated for its potential effectiveness in treating menstrual cramps. Studies have shown that ginger may have anti-inflammatory properties that can help to reduce pain and other symptoms associated with dysmenorrhea. The existing research suggests ginger may be considered a non-pharmacological alternative for managing menstrual pain and other associated symptoms in adolescent girls and women. As a natural remedy, ginger is generally considered safe to consume, and it's widely available in different forms, such as fresh, dried, or powdered, as well as in capsule or extract form. it's important to talk to your healthcare provider before taking any new supplement, and also it's important to consider the amount and form of ginger, as well as possible interactions with other medications

1.1 Statement of the problem

A study to assess the effectiveness of dried ginger on dysmenorrhea-associated symptoms among adolescent girls at a selected college, Puducherry.

1.2 The objectives

To assess the grading of dysmenorrhea among adolescent girls. 2. To evaluate the effectiveness of dried ginger on dysmenorrhea-associated symptoms among teenage girls..3.To find out the association between the grading of dysmenorrhea and selected demographic variables. The hypothesis was H1: Dysmenorrhea-associated symptoms differ before and after the administration of dried ginger. H2:There is an association between the grading of dysmenorrhea and selected demographic variables.

2. METHODOLOGY

2.1 Study primer

The population of the study was adolescent girls with dysmenorrhea-associated symptoms. The patients presented to the gynecology department of the medical institute associated with us. The study was conducted according to the declaration of Helsinki. It was a Pre experimental research design study. Sixty samples were selected by simple random sampling based on the inclusion and exclusion criteria of adolescent girls with dysmenorrhea symptoms.

2.2 Inclusion and exclusion criteria

The adolescent girls presented to the gynecology department of Mahatma Gandhi medical college and research institute. The girls should have pelvic menstrual pain without any pathology. Therefore, the above patients were included in the study. Any girl with any pathological disease of the pelvic organs, patients who cannot comprehend scoring and pain scales, unwilling to take the drugs were excluded.

2.3 Ethical considerations

Before starting the data collection, the investigator obtained academic and ethical committee permission. (KGNC/IHEC/2017/0061) from the institute. Informed consent from the study participants was obtained. The patients were informed about blood collection and the pricking pain because the same has been explained. As this study involves a minimal invasion, it can be considered minimal or more than the minimal risk in ICMR guidelines 2017.

2.4 Data collection

The demographic variables were collected from the study participants. A verbal scoring system for pain assessment of dysmenorrhea was used to grade the dysmenorrhea. It was done by a 0- 10-point numerical rating scale. The heaviness and discomfort were the associated symptoms. The verbal rating scores were classified as mild, moderate, and severe according to the patient's expressions. The ginger powder was confirmed by appropriate scientific personnel, and a dried powder was prepared in small sachets of 500 mg using a weighing scale. The girl students diagnosed with dysmenorrhea were instructed to consume 500 mg of dried ginger powder in plain water thrice a day for 48 hours, i.e., six interventions for each student with an interval of 6 hrs. Post-test was done by using the same tool. The pain scores were studied for only a few hours. The values were collected only after 48 hours. This study has no control group as this study did not use a placebo to compare the groups. Any side effects were noted. Bleeding, as per the patient's words, discomfort, and sick leaves were measured.

3. STATISTICAL ANALYSIS

The data analysis was done by using descriptive statistics. The frequency percentage, mean, and standard deviation were fed into the excel sheet and transferred to SPSS software, and analyses were done. The student t-test and the degree of dysmenorrhea concerning pain were done with multiple regression analyses. A p-value of less than 0.05 was considered significant.

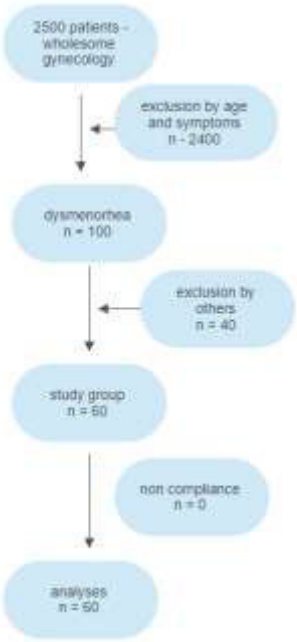

Fig 1 Consort flow diagram

4. RESULTS

All sixty samples completed the study. There were no dropouts. The percentage distribution of the demographic variables of Adolescent girls was as follows. Age 36(60%) belongs to the age group of 19-20 years. In Religion, 44(73.3%) adolescent girls were Hindus in most of the samples. Out of 60 samples, 40(66.6%) resided in rural areas. In the Type of family, most samples, 50(83.3%), belong to the nuclear family. In the diet pattern, 44(73.3%) samples belong to non-vegetarians. Concerning age at menarche, 29(48.3%) attained menarche in the age group of 12-13 years. In the menstrual cycle length, out of 60 samples, 32(53.3%) had 28-30 day cycles. Regarding the menstrual cycle duration, 30(50 %) had 5-6 days of the cycle. Regarding impaired menstrual cycle, 24(40%) have limitations in daily activities during menstruation. Pre and post-test grading of dysmenorrhea-associated symptoms among adolescent girls depicts in **Fig 1**. In pre test, out of 60 samples, 12(20%) had mild pain, 40(66.6%) had moderate pain and 8(13.4%) had severe pain and In post test 30(50%)had mild pain ,25(41.6%) had moderate pain and 5(13.4%) had severe pain. In the post-test majority of the samples, 30(50%), had mild pain.

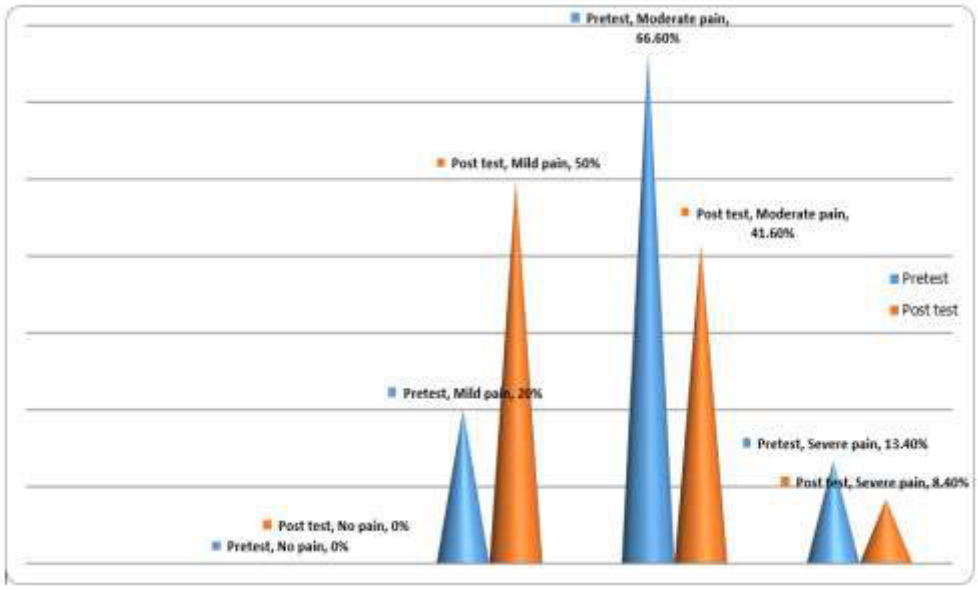

Fig 2 shows pre and post-test verbal scores.

Fig 2 : Percentage distribution of Pre-test and Post-test grading of dysmenorrhea-associated symptoms among adolescent girls

On comparison of pre-test and post-test levels of mean and SD. In the pre-test mean pain score level was 5.2 ±1.2. In the post-test after the administration of dried ginger, the mean pain score level was 4.1 ±3.97. The effectiveness was statistically tested by paired t-test (t=1.37), which was found to be highly statistically significant at $p < 0.001$. It indicates that Dried ginger was effective in the reduction of dysmenorrhea-associated symptoms. Furthermore, there is a significant association between Dysmenorrhea associated symptoms with selected demographic variables like family and dietary pattern; the coefficient of correlation was statically significant for a positive effect with a non-vegetarian diet and a nuclear family (p-value less than 0.05). In comparison, the other demographic variables were not significant with dysmenorrhea-associated symptoms. In this analysis, the pain and dysmenorrhea symptoms of discomfort were the independent variable during the age, type of family, Type and duration of the cycle, the onset of menarche, Type of diet, and Type of family.

Table 1 shows the values of pain and demographics with p values.

	pre-test	Post-test	P value
NRS score pre-test	5.2	4.1	**0,001**
Moderate symptoms	80%	43.4 %	
Severe symptoms	20%	56.6%	
Mild symptoms	0 %	0%	
Nuclear family	83%	-	**0.005**
Vegetarian	27.7 %	-	**0.04**
Menstrual cycle 5-6 days	50 %	- -	-

Table 2 shows different variables.			
Variables	**Pre**	**Post**	**Remarks**
Bleeding	Moderate	Minimal	Less not statistically significant
Discomfort	Moderate	Decreased	P< 0.05
Activity reduction	moderate	Minimal	P<0.05
Resource reduction	More	Less	P < 0.05

The study showed that pain reduction is not the only use, but as an aftermath of such pain reduction, there is less discomfort and more working days with fewer holidays and leaves during working hours.

5. DISCUSSION

This study was carried out to evaluate the effectiveness of dried ginger on dysmenorrhea-associated symptoms among adolescent girls. Additionally, the present study's findings achieved and supported the research question. A study was conducted to evaluate the effectiveness of ginger powder on dysmenorrhea among high school students of a selected High school, Hubballi-Dharwad." The research design used for the study was pre-experimental, one group pre-test, and post-test design. The results revealed that in the pre-test, the majority of the subjects, 80% had moderate menstrual symptoms, and 20% had severe menstrual scores. However, none of them had mild symptoms. In the post-test, after administering the ginger, i.e., 56.6% had mild menstrual symptoms, 43.4% had moderate menstrual symptoms, and none had severe menstrual symptoms. [14]The present study findings 83.3% of students belong to the nuclear family, and 50% of the adolescent girls have a duration menstrual cycle of 5-6 days. These are more relevant to a study by Padmavathi (2012)[17], who stated that 60% of adolescent girls belong to the nuclear family and more than half of 57% of adolescents have 5-7 days of duration of the menstrual cycle. In the present study, the pre-test means the value was 5.2. Whereas in the post-test, after the administration of dried ginger, the mean pain score level was 4.1. The present study's result aligned with the findings by Divya Rohit (2018)[18], who observed that the mean pre-interventional dysmenorrhea in the experimental group was 5.40 and the mean post-interventional dysmenorrhea was 1.40. The present study findings revealed a significant association between Dysmenorrhea associated symptoms with selected demographic variables like Type of family and dietary pattern. These findings match the report given by Padmavathi (2012)[16], who stated that Type of family is associated with dysmenorrhea-associated symptoms. In comparison, the other demographic variables were not significant with dysmenorrhea-related signs, which agreed with the findings of Dhanya (2011)[19], who reported no significant association between the selected demographic variables.The researcher has derived the following implications from the study, which are of primary concern in nursing practice, nursing education, nursing administration, and nursing research. Nursing practice: The study's finding clearly pointed out that dried ginger effectively reduced dysmenorrhea symptoms among adolescent girls. Nurses have a significant role in managing dysmenorrhea symptoms. It can be facilitated by motivating the new staff nurse to learn hot natural remedies and encourage using this as an adjunct to pharmacological therapy. Nursing Education**:** Evidence-based practice is essential in promoting quality care. The nurse must know the importance of managing the intensity of dysmenorrhea-associated pain among adolescent girls. So the nurse educator should motivate other healthcare professionals about the various health benefits of natural remedies. Nursing Administration: Periodical Conduction of an in-service education program on alternative therapies. It can be used in a healthcare setting as a cost-effective method and helps to reduce side effects. Nursing Research**:** On the evidence of the review, more research is to be conducted, and disseminate the findings through conferences, seminars, publications, and national and international journals. The limitations of the study were that the study is not a controlled study, and symptoms may come down naturally within days after menstrual onset, which was challenging to address. The possible future impact on such result and outcomes are large multicentric randomized trials are needed to establish the fact.

6. CONCLUSION

In a simple non, random pre-experimental study of girls suffering from dysmenorrhea, the administration of 500 mg of dried ginger in six doses spread over 48 hours significantly decreased pain. In addition, the severity of symptoms correlated well with increased association with the nuclear family and non-vegetarian diet. However, further randomized controlled clinical trials are needed to validate our results.

7. AUTHOR CONTRIBUTION STATEMENT

Lavanya.S, Annie Annal M, Umamaheswari. R, Poongodi.V contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript

8. CONFLICT OF INTEREST

Conflict of interest declared none.

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