

“A STUDY TO ASSESS THE EFFECTIVENESS OF ORAL INTAKE OF GINGER POWDER ON THE PAIN LEVEL OF DYSMENORRHOEA AMONG THE ADOLESCENT GIRLS”

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Abstract

Background: Prevalence of problems faced due to dysmenorrhea among adolescent girls are high in India and worldwide. Herbs used for the treatment of dysmenorrhea have helped in giving relief to some of these symptoms. Ginger is one of the herbal supplements that are used for medicinal purpose since ancient times.

Objectives: To assess the pain level of dysmenorrhoea among adolescent girls in experimental and control group in pre-test. To assess the pain level of dysmenorrhoea among adolescent girls in experimental and control group in post-test. To find an association between pre-test scores of dysmenorrhoea among adolescents with their demographic variables.

Materials and methods: A study was conducted to evaluate the effectiveness of ginger powder on selected symptoms of dysmenorrhea among the adolescent girls residing at selected hostel of Krishna Institute of Medical Sciences Deemed to be University, Karad, Maharashtra. 60 adolescent girls were selected from the hostel by non-probability purposive sampling technique. Data was collected by using demographic Performa and questionnaires regarding level of pain of dysmenorrhea. Descriptive and inferential statistics were used for data analysis.

Result: The result showed that during pre-test, 86.67% had severe pain and 13.33% had moderate pain in experiment group. Similarly, in the control group 83.33% have severe pain and only 16.67% have moderate pain.

After the intervention that is administering the oral intake of ginger powder it was found that in experimental group 90% of the adolescents had moderate level of pain, 6.67% had severe level of pain and 3.33% had mild level of pain. Whereas, in control group no significant change was found. While comparing the pre and post value of both experimental and control group it was depicted that the effect of ginger powder had significant effect on reduction of severity of pain among adolescent girls having dysmenorrhoea.

Adding to it only age group was significantly associated with level of pain in experiment group.

Conclusion: Oral administration of ginger powder was considered effective on reducing the level of pain of dysmenorrhea in adolescents residing in hostel.

Keywords: Ginger powder, Dysmenorrhoea, Adolescent girls.

Introduction:

Dysmenorrhoea refers to the menstrual pain that may start before menses and continues during the menstruation. It is one the most common problem in an adolescent female that may have alter their daily activity or routine, especially when there are in academic period.

There are two types of dysmenorrhea: Primary dysmenorrhea which is the cramping pain that comes before or during a period caused by natural chemicals called prostaglandins that are made in the lining of the uterus. Secondary dysmenorrhea is caused by a disorder in the reproductive organs.⁸ It has been shown that dysmenorrhea, either primary or secondary, affects women's daily living, influencing their productivity (e.g., work, studies, socialization etc.). Severe pain, which is commonly accompanied by anxiety, depressed mood, and irritability, may result in female students decreased academic performance and social dysfunction, and can have a profound impact upon wellbeing, thereby impairing a woman's quality of life.[1]

Alternative therapies have gained importance in this context. There are many home remedies known to get relief from primary dysmenorrhea (PD). Some of them are dietary modifications, heat application, yoga, exercises, herbs.[2]

Ginger has been classified as a safe herb from The Food and Drug Administration (FDA). The rhizome (underground stem) is used as a spice as well as medicine. It can be used fresh, dried and powdered or as a juice or oil. [3]

Ginger is also known for its anti-inflammatory action by inhibition of prostaglandin synthesis. Therefore, Ginger is worthy of considered as an analgesic remedy in dysmenorrhea mostly in primary.[4]

As a result, to explore the effect of ginger on pain severity of dysmenorrhoea among the adolescents' girls staying in girls' hostel, which may enable them to have a good compliance towards the nutritional status and quality of life?

Statement of problem:

A study to assess the effectiveness of oral intake of ginger powder on the level of pain of dysmenorrhoea among the adolescent girls residing at nursing hostel of KIMSUDU, karad.

Objectives:

- To assess the pain level of dysmenorrhoea among adolescent girls in experimental and control group in pre-test.
- To assess the pain level of dysmenorrhoea among adolescent girls in experimental and control group in post-test.
- To find an association between pre-test scores of dysmenorrhoea among adolescents with their demographic variables.

Materials and method:

Quantitative research approach was considered for the present study. Quasi-experimental research design was adapted.

Ginger powder was considered as independent variable and level of pain was considered as dependent variables.

Data were collected from 60 adolescent girls (30 in each control and experimental group) by using non probability purposive technique from selected nursing hostel in KIMSDU, karad.

Data was collected by using demographic Performa and questionnaires on pain level of dysmenorrhea using google form.

Description of the tools:

Part 1: It includes questions based on socio-demographic variables like Age, BMI, Diet pattern, and menstrual variable like Age of Menarche, Length of Menstrual cycle, Duration of menstruation flows in days. Family history of dysmenorrhea, Impact of menstrual cycle on daily or college life, treatment taken to relieve dysmenorrhea and reason for not taking treatment.

Part 2: Symptom questionnaires included numeric pain scale

The respondent had to select the best possible option and the score was calculated after each response in both group after pre-test and post-test.

Method of Data Collection:

Official permission was obtained from institutional ethical committee of Krishna institute of medical sciences “deemed to be “university, karad to initiate the research (protocol number: 264/2020-2021). At the very beginning of day one of pre-test, informed written consent was obtained from the student of hostel after explaining the purpose of the study.

Total 60 hostel students were selected on the basis of inclusion and exclusion criteria by purposive sampling method.

Among 30 were in experimental group and 30 were in control group.

Pre-test were conducted on the 1st day of menstruation to assess the severity of pain of dysmenorrhea, with the help of numerical pain rating scale, for both experimental and control group.

Ginger powder (1/2 teaspoon) with Luke warm water was administered for experimental group for each time (morning, and evening for the first 2 days of menstruation).

Post test was conducted for the both group on the 2nd day evening by using the same questionnaire.

Results:

Raw data was collected and entered in master sheet for the statistical analysis. It was interpreted using descriptive and inferential statistics. The data findings have been organised and presented under the following sections:

Table: 1. Frequency and percentage distribution of the adolescent girls according to their sociodemographic variables in experimental and control group. (N=60)

Sr. no.	Demographic variables	Groups			
		experimental		control	
		f	%	f	%
1	Age in years				
	a) 19 years	4	13.33%	3	10.00%
	b) 20 years	9	30.00%	11	36.67%
	c) 21 years	9	30.00%	10	33.33%
	d) 22 years	8	26.67%	6	20.00%

2	BMI				
	a) Underweight	6	20.00%	8	26.67%
	b) Normal	20	66.67%	17	56.67%
	c) Overweight	4	13.33%	5	16.67%
3	d) Obese	0	0.00%	0	0.00%
	Dietary pattern				
4	a) Non veg	27	90.00%	29	96.67%
	b) Veg	3	10.00%	1	3.33%
5	Age of menarche				
	a) 10-12 years	7	23.33%	8	26.67%
6	b) 13-15 years	23	76.67%	22	73.33%
	Length of menstrual cycle				
	a) 25 days	0	0.00%	2	6.67%
	b) 28 days	21	70.00%	17	56.67%
	c) 35 days	8	26.67%	1	3.33%
7	d) 30 days	0	0.00%	9	30.00%
	e) More	1	3.33%	1	3.33%
	Menstrual flow				
	a) Less than 3 days	2	6.67%	3	10.00%
8	b) 4-6 days	23	76.67%	24	80.00%
	c) 5-7 days	5	16.67%	3	10.00%
	Family history				
9	a) Yes	8	26.67%	8	26.67%
	b) No	17	56.67%	19	63.33%
	c) May be	5	16.67%	3	10.00%
10	Treatment				
	a) Yes	5	16.67%	2	6.67%
	b) No	25	83.33%	28	93.33%
11	Impact of dysmenorrhoea				
	a) Activity intolerance	8	26.67%	2	6.67%
	b) Sleep disturbance	10	33.33%	6	20.00%
	c) Course absenteeism	6	20.00%	15	50.00%
	d) Lack of concentration	6	20.00%	7	23.33%
12	e) None	0	0.00%	0	0.00%
	Reason for not taking any medication				
	a) Not to decrease bleeding	1	3.33%	5	16.67%
13	b) The pain is endurable	0	0.00%	0	0.00%

	c) To avoid side effect	28	93.33%	23	76.67%
	d) Parents don't allow	1	3.33%	2	6.67%

In experimental group, majority of participants i.e.,9(30%) samples were age of 20 and 21, 20(66.67%) had normal body mass index, 27(90%) students were non vegetarian, 23(76.67%) girls had age of menarche between 13-15 years, 21(70%) girls had 28 days of length of menstrual cycle, 23(76.67%) girls had duration of menstrual flow between 4-6 days, 17(56.67%) girls have no family of dysmenorrhoea, 25(83.33%) girls have not taken treatment for dysmenorrhoea.

Regarding the impacts of dysmenorrhea 8(26.67%) girls had activity intolerance, 10(33.33%) girls had sleeping disturbance, 6(20%) girls had course absenteeism and 6(20%) sample had lack of concentration.

With respect to not taking medication or any treatment because 3.33% of the participants had fear of decrease bleeding in menstruation,93.33% avoid any side effects, 3.33% of participant's parents don't allow.

On the other hand,in control group, 36.67% girls were age of 20 years, 56.67% had normal body mass index, 96.67% were non vegetarian, 73.33% have age of menarche at 13-15 years.56.67%samples have 28 days of length of menstrual cycle, 80%samples have duration of menstrual flow between 4-6 days, 17 samples have no family of dysmenorrhoea, 93.33% never took treatment for dysmenorrhoea.

Regarding the impacts of dysmenorrhea, 6.67% samples have activity intolerance due to dysmenorrhoea, 6(20%) samples have sleeping disturbance due to dysmenorrhoea, 15(50%) samples have course absenteeism due to dysmenorrhoea and 7(23.33%) sample have lack of concentration due to dysmenorrhoea.

For the reason behind not taking any medication was found to be, 16.67%o of them wanted avoid decrease bleeding in menstruation,23(76.67%) of them wantedto avoid any side effects, 2(6.67%) participant's parents didn't allow.

Table 2: pre-test score for pain severity of dysmenorrhoea among adolescent girls.

(N=60)

Sr. No.	Symptoms	Pre-test			
		Experimental		Control	
		f	%	f	%
1	Pain				
2	No Pain	0	0.00%	0	0.00%
3	Mild	0	0.00%	0.0	0.00%
4	Moderate	4	13.33%	5.0	16.67%
5	Severe	26	86.67%	25.0	83.33%

Table 2 shows that majority of sample 86.67% have severe pain and 13.33% have moderate pain in experimental group and in control group 83.33% have severe pain, 16.67% have moderate pain.

**Table 3: Post-test score for pain severity of dysmenorrhoea among adolescent girls.
(N=60)**

Sr. No.	Symptoms	Post-test			
		Experimental		Control	
		f	%	f	%
1	Pain				
2	No pain	0	0.00%	0	0.00%
3	Mild	1.0	3.33%	0	0.00%
4	Moderate	27.0	90.00%	4	13.33%
5	Severe	2.0	6.67%	26	86.67%

Data in table 3 shows that in experimental group, 90% have moderate level of pain, 6.67% have severe level of pain and 3.33% have mild level of pain and in control group 86.67% have severe pain, 13.33% have moderate pain.

**Table 4: Comparison of pre and post-test level of pain in dysmenorrhea of experimental and control group.
(N=60)**

	Pre test	Post test	Mean difference	Paired T value	P value
Experimental	Mean =8.0667 (SD=1.337)	Mean =4.6 (SD=1.1337)	3.467	9.516	<0.0001
Control	Mean =7.066 (SD=0.9801)	Mean =7.703 (SD=1.103)	-0.407	1.739	0.093
Mean difference	-1	-3.067			
Unpaired T value	3.303	10.670			
P value	0.0016	<0.0001			

Table 4 shows the comparison of pre-test and post-test mean score, standard deviation, mean difference, paired t value and unpaired t value of effect of ginger powder in control of pain level in dysmenorrhoea between experimental and control group.

In experimental group the mean score in the pre-test was 8.0667(SD=1.337) as compared to post test 4.6(SD=1.1337).and in the control group the mean score in the pre-test was 7.066(SD=0.9801) as compared to post test mean score 7.703(SD=1.103)

The calculated paired t value of experimental group was 9.516 at (p<0.0001) which was statistically considered extremely significant.

The calculated unpaired t value of post-test scores of each group was 3.303 at (p<0.0001) which was statistically considered extremely significant.

This showed that the effect of ginger powder had significant effect reduction of level of pain among adolescent girls having dysmenorrhoea.

Table 5: Association between selected demographic variables with the pain level of dysmenorrhoea in experimental group. (N=60)

Sr. No.	Demographic variables	Pain				chi square	p value	result
		No	Mild	moderate	severe			
1	Age							
	19 years	0	0	0	4	21.722	<0.0001	S
	20 years	0	0	1	0			
	21 years	0	0	2	0			
	22 years	0	0	1	22			
2	BMI							
	Underweight	0	0	1	5	0.7212	0.6973	NS
	Normal	0	0	3	17			
	Overweight	0	0	0	4			
3	Dietary pattern							
	Non vegetarian	0	0	4	23	0.5128	0.4739	NS
	Vegetarian	0	0	0	3			
4	Age of menarche							
	Age 10-12 years	0	0	1	6	0.00716	0.9325	NS
	Age 13-15 years	0	0	3	20			
5	Length of menstrual cycle							
	1. 25 days	0	0	0	0	0.1751	0.9162	NS
	2. 28 days	0	0	3	18			
	3. 35 days	0	0	0	0			
	4. 30 days	0	0	1	7			
	5. more	0	0	0	1			
6	Menstrual flow							
	Less than 3 days	0	0	0	2	1.405	0.4954	NS
	4-6 days	0	0	4	19			
	5-7 days	0	0	0	5			
7	Family history of dysmenorrhoea							
	Yes	0	0	2	6	1.951	0.3769	NS
	No	0	0	1	16			
	Maybe	0	0	1	4			

8	Treatment taken for dysmenorrhoea							
	Yes	0	0	1	4	0.2308	0.631	NS
	No	0	0	3	22			
9	Impact of dysmenorrhoea							
	Activity intolerance	0	0	2	6	5.481	0.1398	NS
	Sleep disturbance	0	0	0	10			
	Course absenteeism	0	0	2	4			
	Lack of concentration	0	0	0	6			
	None	0	0	0	0			
10	Reasons for not taking treatment							
	Not to decrease bleeding	0	0	0	1	0.1657	0.6839	NS
	To avoid any side effect	0	0	4	24			
	Parents don't allow	0	0	0	0			

The above table shows that in the experimental group the pain level of dysmenorrhea is associated with Age at $p < 0.0001$ level of significance and there was no association with other demographic variables such as BMI, dietary pattern, Age at Menarche, Length of Menstrual cycle, Duration of menstruation flows in days. Family history of dysmenorrhea, impact of dysmenorrhoea, treatment taken for dysmenorrhoea and reasons for not taking any medication.

Table 6: Association between selected demographic variables with the pain level of dysmenorrhoea in control group. (N=60)

Sr. No.	Demographic variables	Pain				chi square	p value	Result
		No	Mild	Moderate	Severe			
1	Age							
	19 years	0	0	0	4	3.295	0.3484	NA
	20 years	0	0	1	10			
	21 years	0	0	2	8			
	22 years	0	0	2	3			
2	BMI							
	Underweight	0	0	1	7	1.676	0.4325	NA
	Normal	0	0	4	13			
	Overweight	0	0	0	5			
3	Dietary pattern							
	Non vegetarian	0	0	5	24	0.0206	0.6492	NA
	Vegetarian	0	0	0	1			

4	Age of menarche							
	Age 10-12 years	0	0	2	6	0.5455	0.4602	NA
	Age 13-15 years	0	0	3	19			
5	Length of menstrual cycle							
	1. 25 days	0	0	0	2	0.7832	0.8534	NA
	2. 28 days	0	0	3	14			
	3. 35 days	0	0	0	1			
	4. 30 days	0	0	2	7			
	5. More	0	0	0	0			
6	Menstrual flow							
	Less than 3 days	0	0	0	3	1.5	0.4724	NA
	4-6 days	0	0	5	19			
	5-7 days	0	0	0	3			
7	Family history of dysmenorrhoea							
	Yes	0	0	2	6	7.579	0.0226	NA
	No	0	0	1	18			
	May be	0	0	2	1			
8	Treatment taken for dysmenorrhoea							
	Yes	0	0	0	2	2.5	0.1138	NA
	No	0	0	5	3			
9	Impact of dysmenorrhoea							
	Activity intolerance	0	0	1	1	4.32	0.2289	NA
	Sleep disturbance	0	0	2	4			
	Course absenteeism	0	0	2	13			
	Lack of concentration	0	0	0	7			
	None	0	0	0	0			
10	Reasons for not taking treatment							
	Not to decrease bleeding	0	0	1	4	1.857	0.3951	NA

	To avoid any side effect	0	0	3	20			
	Parents don't allow	0	0	1	1			

Table 6 shows that in control group the pain level of dysmenorrhea has no association with demographic variables such as age, BMI, dietary pattern, Age at Menarche, Length of Menstrual cycle, Duration of menstruation flows in days, Family history of dysmenorrhea, treatment taken for dysmenorrhoea, impact of dysmenorrhoea and reasons for not taking any medication

Discussion:

Majority of the adolescent girls from experimental group belongs to age of 21 years (30%) and in control group belongs to age of 20 years (36.67%). In the experimental group majority of girls have normal weight (66.67%) and in control majority of girls have normal weight (56.67%). Majority of the girls in experimental group are non-vegetarian (90%) and in control group are non-vegetarian (96.67%). Majority of the girls in experimental group have age of menarche at 13-15 years (76.67%) and in control group have age of menarche at 13-15 years (73.33%). Majority of the girls in experimental group have 28 days of length of menstrual cycle (70%) and in control group have 28 days of length of menstrual cycle (56.67%). Majority of the girls in experimental group and control group have menstrual flow of 4-6 days (76.67% in experimental group and in control group 80%). Majority of the girls in experimental group and control group have no family history of dysmenorrhoea (56.67%in experimental group and in control group 63.33%). Majority of the girls in experimental group and control group have not taken any treatment for dysmenorrhoea (83.33%in experimental group and in control group 93.33%). Majority of the girls in experimental group have sleep disturbance due to dysmenorrhoea (33.33%) and in control group have course or class absenteeism (50%). Majority of the girls in experimental group and control group have not taken any kind of medications to avoid side effects (93.33% in experimental group and (76.67%) in control group. The results are supported by Satyajit, Ishmeet Kaur have done A Quasi Experimental Study to Assess the Effectiveness of Ginger Powder on Dysmenorrhea among Nursing Students in Selected Nursing Colleges, Hoshiarpur, Punjab In both experimental group and control group, majority of students were vegetarian and minimum were non-vegetarian in experimental group and vegetarian in control group. 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. [5]

In pre-test majority of sample 86.67% have severe pain and 13.33% have moderate pain in experimental group and in control group 83.33% have severe pain, 16.67% have moderate pain. In post test, in experimental group, 90% have moderate level of pain, 6.67% have severe level of pain and 3.33% have mild level of pain and in control group 86.67% have severe pain, 13.33% have moderate pain. re-assess level of dysmenorrhoea 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.

Pain in experimental group the mean score in the pre-test was 8.0667(SD=1.337) as compared to post test 4.6(SD=1.1337). and in the control group the mean score in the pre-test was 7.066(SD=0.9801) as compared to post test mean score 7.703(SD=1.103) The calculated paired t value of experimental group was 9.516 at ($p < 0.0001$) which was statistically considered extremely significant. The calculated unpaired t value of post-test scores of each group was 3.303 at ($p < 0.0001$) which was statistically considered extremely significant. This showed that the effect of ginger powder had significant effect reduction of level of pain among adolescent girls having dysmenorrhoea.

It was found that only age was significantly associated with level of pain in experimental group. Apart from it none of the other socio demographic variables or menstrual variables was associated in both experimental and control group. The results are supported by Satyajit, Ishmeet Kaur findings they have done A Quasi Experimental Study to Assess the Effectiveness of Ginger Powder on Dysmenorrhoea among Nursing Students in Selected Nursing Colleges, Hoshiarpur, Punjab the result shows that the age is statistically significant at $p < 0.05$ level of significance in post-test. [5] Also the results are supported by Divya Talawar, Asha H Bhatakhande, Sanjay M Peerapur done An Experimental Study to Evaluate the Effectiveness of Ginger Powder on Dysmenorrhoea Among High School Students of Selected High School, Hubballi - Dharwad [6]

Conclusion:

The result of this study shows that oral intake of ginger powder is an effective method for reducing the severity of symptoms of dysmenorrhoea among adolescent girls. Ginger powder is an effective, non-invasive, cost-effective method that can be used. Ginger powder has no side effect when compared with other pharmacological treatment.

Today, there is an increasing need for quality and holistic care, this study can help the nurse administrator to improve the knowledge regarding complementary and alternative therapies. It also encourages the nurse administrator to conduct in service education programmes on various types of non – pharmacological treatment in reducing symptoms of dysmenorrhoea. Nurse administrators

can create awareness among nurses and public about the benefits of ginger on health. Continue nursing education programmes can be initiated on other non-pharmacological management for dysmenorrhoea.

Finding of this study can be used to educate adolescents girls from different background and education level

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Ethical approval:

The institutional ethical committee of Krishna Institute of medical science “deemed to be university”, karad issued an ethical clearance certificate (Ref. No. KIMSDU/IEC/02/21)

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