Effectiveness of Ginger Candy on Dysmenorrhea among Adolescent Girls of a Nursing College at Vadodara

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Background of Study: Adolescence period for a girl is a time of physical and mental preparation for a safe mother. Dysmenorrhea is a painful menstrual cycle. It is characterized as painful pelvic pain that begins shortly before or early in the menstruation and lasts 1 to 3 days. Anxiety and fatigue were ongoing problems for girls with dysmenorrhea. There are a variety of options for treating dysmenorrhea that include a medical and non-medical approach. Ginger is a drug that is found to have a relaxation effect on muscle disorders which is why it can play a positive role in dysmenorrhea.

Materials and Methods: The present study aims to assess the effect of Ginger Candy on dysmenorrhea among adolescent girls at College of Nursing, Parul University, Vadodara. Quasi experimental study design was adopted for the study. A total of 60 samples (30 in experimental group and 30 in control group) were selected using Non probability purposive sampling. The tool consists of socio-demographic variable, menstrual variables and Numerical pain rating scale to assess dysmenorrhea pain. Study participants were explained about the risks and benefits of the study and assured that anonymity and confidentiality will be maintained. Informed consent was obtained from all the participants. Pre-test level of dysmenorrhea was assessed, Ginger candy was

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administered to participants in experimental group (morning and evening for first two days of menstruation). Post-test was conducted to assess dysmenorrhea pain using numeric pain rating scale. The data was arranged and analyzed using descriptive and inferential statistics.

Results: Present study results showed that in experimental group pre-test majority 21(70%) of adolescent girls had severe dysmenorrhea whereas in post-test majority 18(60%) had mild dysmenorrhea. In control group pre-test majority 19(63.3%) had severe dysmenorrhea while in post-test majority 23(76.7%) had moderate dysmenorrhea. Findings revealed that in experimental group post-test mean pain score was 3.37 ± 1.189 and in control group post-test mean score was 5.07 ± 1.202 with mean difference of 1.70 with obtained t value (t=5.509, df=58, p=0.001) was significant at $p<0.05$ level. There was no significant association found between dysmenorrhea and selected demographic variables of adolescent girls.

1. INTRODUCTION

Yesterday's girl is today's adolescent and tomorrow's mother. The word adolescent is derived from the Latin word "Adolescere" meaning "to grow up". Approximately one fifth of the world's population is lies between the age group of 10-19 years as they are passing through a transitional period from childhood to adult hood. Today 1.2 billion adolescents stand at the cross roads between childhood to adult world. Around 243 million of them live in India. Among 71 million were in Tamil Nadu. They are undergoing a lot of physical as well as psychological stress due to changes taking place in the body [1].

Dysmenorrhea is a medical term for painful menstrual periods caused by uterine contractions. Dysmenorrhea is common among college students that affect their daily activities that lead to a imbalance of their social, educational and recreational activities. People have used ginger for many years for both cooking and medicinal purposes. Today, it is a traditional remedy for various ailments, including menstrual cramps. Because it has pain-reliving and anti-inflammatory properties, it can help with both pain and constipation [2].

1.1 Objectives of the Study

1. To assess the degree of dysmenorrhea among experimental group and control group.
2. To assess the effectiveness of ginger candy on dysmenorrhoea among adolescent girls.
3. To find out the association between the degree of dysmenorrhoea among adolescent girls and selected demographic variable.

1.2 Hypotheses

➢ H1- There will be significant difference in the level of dysmenorrhea among adolescent girls between experimental and control group.
➢ H2 – There will be significant association between the level of dysmenorrhea among adolescent girls and selected demographic variable in intervention and control group.

2. METHODOLOGY

Research Approach: Quantitative evaluative approach.

Research Design: Quasi experimental, Pre- test post-test control group design.

Variables under Study:

Independent Variable: Ginger Candy, this will be administering twice a day [Morning & Evening] for two days.

Dependent Variable: Dysmenorrhea.

Demographic Variable: (1) Socio-demographic variables –Age, Religion, Nationality, Diet (2) Menstrual variable - Age at menarche, Duration of menstrual cycle, Regularity, flow of menstrual period, family history of dysmenorrhea, Working ability, Location of cramp, Intensity of pain and days of pain.

Research Setting: The setting selected for this study was Parul nursing college**.**

Population: Girls of selected nursing college**.**

Sample Size: Total 60 samples among 30 will be in experimental group and 30 will be in control group.

Sampling Technique: Non probability purposive sampling technique.

Sampling Criteria:

Inclusion Criteria: Girls who are (i) having dysmenorrhea (ii) in the age group between 17-23 years (iii) willing to participate in the study.

Exclusion Criteria: Girls who are (i) ginger allergy (ii) diagnosed as diabetic (iii) taking other therapy of dysmenorrhea.

Data collection Technique and Tools: Questionnaire Technique.

Data Collection Tools:

Section 1: Part A: Socio demographic variables - Age, Religion, Nationality, Diet.

Part B: Menstrual variables - Age at menarche, length of menstrual cycle, Regularity flow of menstrual period, family history of dysmenorrhoeal, working ability, Location of cramp, Intensity of pain and days of pain.

Section 2: Standardise numerical Pain rating scale.

3. RESULTS

Table 1 depicts the frequency and percentage distribution of the demographic variables of adolescent girls. As per chi square analysis it shows that there is no significant difference between experimental and control group relate to their demographic characteristics.

Table 2 depicts the frequency and percentage distribution of the menstrual variables of adolescent girls. As per chi square analysis it shows that there is no significant difference between experimental and control group relate to their menstrual characteristics.

Table 3 depicts the distribution of pre-test and post-test level of dysmenorrhea among adolescent girls in experimental group and control group. In experimental group pre-test majority 21(70%) of adolescent girls had severe dysmenorrhea and 9(30%) had moderate dysmenorrhea whereas in post-test majority 18(60%) had mild dysmenorrhea and 12(40%) had moderate dysmenorrhea. In control group pre-test majority 19(63.3%) of adolescent girls had severe dysmenorrhea and 11(36.7%) had moderate dysmenorrhea whereas in post-test, majority (76.7%) had moderate dysmenorrhea, 4(13.3%) had severe dysmenorrhea and 3(10%) had mild dysmenorrhea.

Table 4 illustrates the effect of Ginger candy on dysmenorrhea among adolescent girls in experimental group in experimental group. The mean pre-test pain score was 6.07±1.172 and mean post-test pain score was 3.37±1.189 with mean difference of 2.70. The effect of Ginger candy on dysmenorrhea among adolescent girls in experimental group was tested by using paired t test with obtained t value (t=8.289, df=29, p=0.001) was statistically highly significant at p<0.05 level of significance. Hence the findings revealed that ginger candy was effective on reducing dysmenorrhea among adolescent girls in experimental group.

Table 1. Frequency and percentage distribution of the demographic variables of adolescent girls in experimental and control group (n=60)

Demographic variables		Experimental group		Control Group		Chi value	df	p value
		f	%	F	%			
Age	18-20 years	23	76.7	29	96.7	0.833	1	0.361[NS]
	21-23 years	7	23.3	1	3.3			
	24-26 years	0	0	0	0			
Nationality	Indian	25	83.3	27	90	0.577	1	0.447[NS]
	Outside of India	5	16.7	3	10			
Religion	Hindu	12	40	11	36.7	1.012	2	0.989[NS]
	Christian	5	16.7	5	16.7			
	Muslim	6	20	7	23.3			
	Other	7	23.3	7	23.3			
Food habits	Vegetarian	12	40	8	26.7	2.586	3	0.459[NS]
	Vegan	5	16.7	3	10			
	Non vegetarian	2	6.7	2	6.7			
	Mixed	11	36.6	17	56.6			

Table 2. Frequency and percentage distribution of the menstrual variables of adolescent girls in experimental and control group (n=60)

Demographic variables		Experimental group		Control Group		Chi value	df	p value
		f	%	f	%			
Age of menarche in year	Below 12 years	3	10	9	30	3.756	2	0.152[NS]
	12-13 years	17	56.7	13	43.3			
	14 years or above	10	33.3	8	26.7			
Regularity of menstrual period	Regular	22	73.3	19	63.3	0.693	1	0.405[NS]
	Irregular	8	26.7	11	36.7			
Flow at menstrual period	Mild	7	23.3	8	26.7	0.092	2	0.955[NS]
	Moderate	20	66.7	19	63.3			
	Heavy	3	10	3	10			
	Heavy with clots	0	0	0	0			
Taking medication for dysmenorrhea	Yes	2	6.7	0	0	2.069	1	0.150[NS]
	No	28	93.3	30	100			
Family history of dysmenorrhea	Yes	5	16.7	10	33.3	2.221	1	0.136[NS]
	No	25	83.3	20	66.7			
Rate your working ability during menstrual period.	None	0	0	0	0	0.355	2	0.837[NS]
	Almost never	1	3.3	2	6.7			
	Almost always	24	80	23	76.6			
	Always	5	16.7	5	16.7			
Location of pain	None	0	0	0	0	3.429	2	0.180[NS]
	Lower abdomen	18	60	18	60			
	Back pain	12	40	9	30			
	Thighs	0	0	3	10			
Intensity of pain	Does not hurt	3	10	4	13.3	0.163	2	0.921[NS]
	Hurts a little bit	25	83.3	24	80			
	Hurts little more	2	6.7	2	6.7			
	Hurts a whole lot	0	0	0	0			
Days of pain	1-2	13	43.3	8	26.7	5.219	2	0.073[NS]
	3-4	17	56.7	18	60			
	≥ 5	0	0	4	13.3			

Table 3. Distribution of pre-test and post-test level of dysmenorrhea among adolescent girls in experimental group and control group (n=60)

Dysmenorrhea	Experimental Group				Control Group			
	Pre-test		Post-test		Pre-test		Post-test	
	f	%	f	%	f	%	f	%
Mild	0	0	18	60	0	0	3	10
Moderate	21	70	12	40	19	63.3	23	76.7
Severe	9	30	0	0	11	36.7	4	13.3

Table 4. To evaluate the Effect of Ginger candy on dysmenorrhea among adolescent girls in experimental group (n=60)

Experimental Group	Mean	SD	Mean D	t value	df	p value
Pre-test	6.07	1.172	2.70	8.289	29	**0.001***
Post-test	3.37	1.189				

*P<0.05 level of significance

Table 5. Comparison of pre-test and post-test level of dysmenorrhea among adolescent girls in experimental group and control group (n=60)

Comparison	Experimental group Mean±SD	Control group Mean±SD	Mean D	t value	df	p value
Pre-test	6.07±1.172	5.83±1.289	0.23	0.734	58	**0.466**[NS]
Post-test	3.37±1.189	5.07±1.202	1.70	5.509	58	**0.001***

*P<0.05 level of significance

Table 5 depicts the comparison of pre-test and post-test level of dysmenorrhea among adolescent girls in experimental group and control group. Results showed that in experimental group pre-test mean pain score was 6.07±1.172 and in control group pre-test mean score was 5.83±1.289 with mean difference of 0.23 with obtained t value (t=0.734, df=58, p=0.466) was statistically non-significant. Findings showed that in experimental group post-test mean pain score was 3.37±1.189 and in control group post-test mean score was 5.07±1.202 with mean difference of 1.70 with obtained t value (t=5.509, df=58, p=0.001) was statistically significant at p<0.05 level. Hence the findings revealed that Ginger candy was effective on reducing dysmenorrhea among adolescent girls in experimental group as compared to control group. Hence as per analysis it shows that hypothesis H_1 is proved significant.

Table 6 depicts the association between pre-test dysmenorrhea of adolescent girls with selected demographic variable in experimental group was tested by using chi-square test. The results showed that demographic variables such as age, nationality, religion and food habits of adolescent girls were statistically not significant with pre-test dysmenorrhea.

Table 7 depicts association between pre-test dysmenorrhea of adolescent girls with selected menstrual variable in experimental group which was tested by using chi-square test. Result showed that age at menarche, regularity of menstrual period, flow at menstrual period, taking medication for dysmenorrhea, family history of dysmenorrhea, rate your working ability during menstrual period, location of pain, intensity of pain and days of pain were not significant at p<0.05 level with pre-test level of dysmenorrhea of adolescent girls.

Table 8 depicts the association between pre-test dysmenorrhea of adolescent girls with selected demographic variable in control group which was tested by using chi-square test. Results showed that demographic variables such as age, nationality, religion and food habits of adolescent girls were statistically non-significant with pre-test dysmenorrhea.

Table 9 depicts association between pre-test dysmenorrhea of adolescent girls with selected menstrual variable in control group which was tested by using chi-square test. The result showed that days of pain of adolescent girls were found significant association at p<0.05 level with

Table 6. Association between pre-test level of dysmenorrhea of adolescent girls with selected demographic variable in experimental group (n=30)

Demographic variables		Experimental group Pre-test		Chi value	df	p value
		Moderate	Severe			
Age	18-20 years	14	9	3.913	1	0.058[NS]
	21-23 years	7	0			
	24-26 years	--	--			
Nationality	Indian	17	8	0.286	1	0.593[NS]
	Outside of India	4	1			
Religion	Hindu	10	2	1.404	3	0.493[NS]
	Christian	3	2			
	Muslim	3	3			
	Other	5	2			
Food habits	Vegetarian	8	4	0.722	3	0.868[NS]
	Vegan	4	1			
	Non vegetarian	1	1			
	Mixed	8	3			

Table 7. Association between pre-test level of dysmenorrhea of adolescent girls with selected menstrual variable in experimental group (n=30)

Demographic variables		Pre-test		Chi value	df	p value
		Moderate	Severe			
Age of menarche in year	Below 12 years	2	1	0.719	2	0.698[NS]
	12-13 years	11	6			
	14 years or above	8	2			
Regularity of menstrual period	Regular	15	7	0.130	1	0.719[NS]
	Irregular	6	2			
Flow at menstrual period	Mild	5	2	1.023	2	0.989[NS]
	Moderate	14	6			
	Heavy	2	1			
	Heavy with clots	--	--			
Taking medication for dysmenorrhea	Yes	2	0	0.918	1	0.338[NS]
	No	19	9			
Family history of dysmenorrhea	Yes	4	2	1.040	1	0.841[NS]
	No	17	7			
Rate your working ability during menstrual period.	Almost never	1	0	0.675	2	0.714[NS]
	Almost always	17	7			
	Always	3	2			
Location of pain	Lower abdomen	13	5	0.106	1	0.745[NS]
	Back pain	8	4			
	Thighs	--	--			
Intensity of pain	Does not hurt	1	2	2.825	2	0.243[NS]
	Hurts a little bit	18	7			
	Hurts little more	2	0			
	Hurts a whole lot	--	--			
Days of pain	1-2	11	2	2.334	1	0.127[NS]
	3-4	10	7			
	≥ 5	--	--			

Table 8. Association between pre-test level of dysmenorrhea of adolescent girls with selected demographic variable in control group (n=30)

		Pre-test		Chi value	df	p value
Demographic variables		Moderate	Severe			
Age	18-20 years	18	11	0.599	1	0.439[NS]
	21-23 years	1	0			
	24-26 years	--	--			
Nationality	Indian	17	10	1.016	1	0.900[NS]
	Outside of India	2	1			
Religion	Hindu	5	6	4.722	3	0.193[NS]
	Christian	5	0			
	Muslim	4	3			
	Other	5	2			
Food habits	Vegetarian	5	3	1.324	3	0.724[NS]
	Vegan	2	1			
	Non vegetarian	2	0			
	Mixed	10	7			

NS - Not significant

dysmenorrhea. The other menstrual variables such as age at menarche, regularity of menstrual period, flow at, menstrual period, taking medication for dysmenorrhea, family history of dysmenorrhea, rate your working ability during menstrual period, location of pain, and intensity of pain were not significant at $p<0.05$ level with pre-test level of dysmenorrhea of adolescent girls. Hence as per analysis it shows that hypothesis H_1 is accepted.

Table 9. Association between pre-test level of dysmenorrhea of adolescent girls with selected menstrual variable in control group (n=30)

Demographic variables		Pre-test		Chi value	df	p value
		Moderate	Severe			
Age of menarche in year	Below 12 years	6	3	0.850	2	0.654[NS]
	12-13 years	9	4			
	14 years or above	4	4			
Regularity of menstrual period	Regular	11	8	0.660	1	0.417[NS]
	Irregular	8	3			
Flow at menstrual period	Mild	6	2	0.725	2	0.696[NS]
	Moderate	11	8			
	Heavy	2	1			
	Heavy with clots	--	--			
Taking medication for dysmenorrhea	Yes	--	--	NA	NA	NA
	No	19	11			
Family history of dysmenorrhea	Yes	6	4	1.072	1	0.789[NS]
	No	13	7			
Rate your working ability during menstrual period.	Almost never	1	1	0.212	2	0.899[NS]
	Almost always	15	8			
	Always	3	2			
Location of pain	Lower abdomen	11	7	2.010	2	0.366[NS]
	Back pain	5	4			
	Thighs	3	0			
Intensity of pain	Does not hurt	3	1	0.395	2	0.821[NS]
	Hurts a little bit	15	9			
	Hurts little more	1	1			
	Hurts a whole lot	--	--			
Days of pain	1-2	1	7	12.83	2	0.002*
	3-4	14	4			
	≥ 5	4	0			

P<0.05 level of significance

4. DISCUSSION

4.1 The First Objective of the Study was to Assess the Level of Dysmenorrhea in Experimental Group and Control Group

Present study results showed that the pre-test level of dysmenorrhoea in experimental group majority 21(70%) of adolescent girls had severe dysmenorrhea and 9(30%) had moderate dysmenorrhea whereas in post-test majority 18(60%) had mild dysmenorrhea and 12(40%) had moderate dysmenorrhea. In control group, majority 19(63.3%) of adolescent girls had severe dysmenorrhea and 11(36.7%) had moderate dysmenorrhea whereas in post-test majority 23(76.7%) had moderate dysmenorrhea, 4(13.3%) had severe dysmenorrhea and 3(10%) had mild dysmenorrhea.

Similar study was conducted by Kavuluru P to assess the effectiveness of ginger preparation on dysmenorrhea among adolescent girls. Results revealed that in pre-test, majority (46.66%) of adolescent girls had moderate dysmenorrhea, 28.33% had severe dysmenorrhea, followed by 25% had mild dysmenorrhea whereas in post-test 38.33% of the adolescent girls were suffering with mild dysmenorrhea, 36.66% of adolescent girls were suffering with moderate dysmenorrhea and 20% of adolescent girls had no pain [3].

4.2 The Second Objective of the Study was to Evaluate Effect of Ginger Candy on Experimental Group

Results revealed that in experimental group mean pre-test pain score was 6.07±1.172 and mean post-test pain score was 3.37±1.189 with mean difference of 2.70. The effect of Ginger candy on dysmenorrhea among adolescent girls in experimental group was tested by using paired t test with obtained t value (t=8.289, df=29, p=0.001) was statistically highly significant at

p<0.05 level of significance. Findings revealed that Ginger candy was effective on reducing dysmenorrhea among adolescent girls in experimental group.

The similar study was supported by Rohit D, Tiwari A (2018) conducted a quasi-experimental study to assess the effectiveness of ginger tea on dysmenorrhea among adolescent girls. The study finding revealed that pre-test mean score in experimental group was 5.40±2.074 and post-test mean score was 1.40±2.074 with mean difference of 4.0 with t=9.45 statistically significant at p<0.05 level. Findings in control group showed that pre-test mean value was 5.40±2.074 and post-test mean value was 3.60±1.342. The mean value of post experiment significantly higher than mean value of pre-experiment level of dysmenorrhea on 1st day and dysmenorrhea on 3rd day at 95% confidence interval which indicated that ginger tea has statistical significance effect over dysmenorrhea in adolescent girls [4].

4.3 The Third Objective of the Study was to find Out Association between Selected Demographic Variable with Pre-Test in Both Groups

The results showed that intensity of pain was statistically significant association with pre-test level of dysmenorrhea at p<0.05 level. The other demographic variables such as age, nationality, religion and food habits of adolescent girls were statistically non-significant with pre-test dysmenorrhea. Menstrual variables such as age at menarche, regularity of menstrual flow, flow at menstrual period, taking medication for dysmenorrhea, family history of dysmenorrhea, working ability during menstrual period and location of pain were statistically not significant with pre-test level of dysmenorrhea in both groups.

Rad Adib H et al. conducted a study to assess the effect of ginger on dysmenorrhea among girl students aged 18-26 years. Findings showed that age of girls was significant with dysmenorrhea. Other variables such as BMI, Residential area, menstrual status, age at menarche, duration of menstruation was non-significant with dysmenorrhea of girl students [5].

5. CONCLUSION

Dysmenorrhea is a common problem experienced by adolescent girls and in women of reproductive age. The present study results showed that ginger candy was effective in reducing dysmenorrhea pain in experimental group as compared to control group. The study findings concluded that Ginger is one of the most important and most powerful god gifted natural home remedy for dysmenorrhea without of undue side effects. This will help to improve the productivity and quality of life in adolescents and women of reproductive age to cope with discomforts due to dysmenorrhea.

ETHICAL CLEARANCE AND CONSENT

Ethical clearance was obtained from the ethical committee of Parul University Approval Number: PUIECHR/PIMSR/00/081734/3508. Individual consent was taken from the sample before data collection. Participants were also assured for the confidentiality of the information provided. Prior to data collection, formal permission was obtained from the Principal of selected Nursing College, Vadodara. Participants were informed about the nature and purpose of the study and informed consent was obtained.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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