

Effectiveness of Ginger Powder versus Regular Yoga Practices on the Selected Symptoms of Primary Dysmenorrhea among Adolescent Girls

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Abstract: WHO defines 'Adolescents' as people within the 10-19 years age group. There are approximately three hundred and fifty million youngsters comprising about 22% of the population in the countries of the South-East Asia vicinity. Dysmenorrhea is the most common gynecological problem among females and it is defined as cramping ache in the lower abdomen occurring just before or during menstruation. Menstrual symptoms are a broad collection of affective and somatic concerns that occur around the time of menses. The effect and importance of dysmenorrhea is very wide, therefore managing the problem is important. The main objective of the study is to compare the effectiveness of ginger powder v/s regular yoga practices on primary dysmenorrhea among adolescent girls in experimental group I & II. Evaluative approach is used in this study. Non-equivalent two group pretest posttest design used in this study. Adolescent girls with primary dysmenorrhea who are in age group of 12-17 years studying in 7th to 12th standard in selected schools of Gonda district. This study implies that in experimental group I there was only 3(12%) samples had mild pain from moderate and severe pain level after intervention with ginger powder, but in experimental group II there was 18(72%) samples had mild pain from moderate and severe pain level after intervention with yoga. It shows the effectiveness of regular yoga practices is higher than the effectiveness of ginger powder.

Keywords: Adolescents, Dysmenorrhea, Yoga

1. Introduction

WHO defines 'Adolescents' as people within the 10-19 years age group. There are approximately three hundred and fifty million youngsters comprising about 22% of the population in the countries of the South-East Asia vicinity.

Making an investing in the global's 1.2 billion adolescent stand on the crossroads between early life and the adult world. Around two hundred and forty three millions of them live in India (UNICEF, 2011). Adolescents aged 10–19 years represent about one-fourth of India's population and young community aged 10–24 years about one-third of the population.² Report of cross-sectional study in school under Aligarh Muslim university, Uttar Pradesh revealed that majority of the study populace (69.9%) had attained menarche between 12-14 years.³

The menstruation is the visible manifestation of cyclic physiologic uterine bleeding because of shedding of the endometrium following invisible interplay of hormones in particular thru hypothalamo-pituitary-ovarian axis. For the menstruation to arise, the axis ought to be actively coordinated, endometrium ought to be responsive to the ovarian hormones (estrogen and progesterone) and the outflow tract have to be patent.⁴

Menstruation is an important indicator of women's reproductive and endocrine health. Although it is an herbal phenomenon, many women face problems of menstruation which include abnormal bleeding, immoderate bleeding, and painful menstruation. Painful menstruation or dysmenorrhea is a not unusual gynecologic disorder amongst young females. Dysmenorrhea is classified into two categories: primary when pelvic examination and

ovulatory functions are normal and secondary when there is an identifiable gynecological pathology.⁵

2. Need for Study

Dysmenorrhea is the most common gynecological problem among females, and it is defined as cramping ache in the lower abdomen occurring just before or during menstruation. Menstrual symptoms are a broad collection of affective and somatic concerns that occur around the time of menses. The effect and importance of dysmenorrhea is very wide, therefore managing the problem is important.⁶

The health of young women influences not only their own health, but also the health of the future population as one quarter of India's population comprises of girls below 25 years. One of the major physiological changes that take place in adolescent girls is the onset of menarche, which is often associated with problems of irregular menstruation, excessive bleeding, and dysmenorrhea. Dysmenorrhea is a prevalent problem, which adversely affect the day-to-day activities of students. Adolescent girls absent themselves from class and clinicals regularly due to dysmenorrhea. Approximately 30% adolescents use medications to manage dysmenorrhea and about 70% do not use prescription of medication. Several non-pharmaceutical approaches to alleviate the dysmenorrhea exist like pelvic rocking exercises, yoga are being practiced. Alternative and complementary therapy is widely accepted and available.⁷

Assessed the menstrual problems among 655 school going unmarried adolescent girls and their treatment seeking behavior in Chandigarh, India. The finding of the study revealed that out of 655 girls, 36% were attained menarche

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prior to age of thirteen years. 62.6% of participants having menstrual problems and 10.4% reported excessive menstrual flow. Treatment seeking behaviour of the girls was poor and 25% of girls having menstrual problems approached for treatment. Use of pain killer in the present study was found to be 34.8%.⁸

3.Review of Literature

Primary dysmenorrhea is not unusual menstrual cramps which can be recurrent (come returned) and are not due to other illnesses. Pain generally starts one or two days before, or when menstrual bleeding begins, and is felt in the lower abdomen, back, or thighs. Ache can range from mild to severe, can generally last twelve to seventy-two hours, and may be observed with nausea-and-vomiting, fatigue, and even diarrhea.⁹

A study assessed the knowledge and attitudes of dysmenorrhea among 200 adolescent girls in an urban school in Sri Lanka. They found that 84% of the study population had dysmenorrhea. Paracetamol was the drug of choice for pain relief. There was a statistically significant ($P < 0.05$) association between pain and poor mental health status (66%) of the adolescent girls, but there was no significant association between pain and poor physical health ($P = 0.887$) and poor social health status ($P = 0.395$). Bathing was found to affect pain, as reported by 95% of the students.¹⁰

A study evaluated the exercise and hot water bottle management of dysmenorrhoea in schoolgirls of Chandigarh. A total of fifty-three girls in school 1 and 75 girls in school 2 respectively were enrolled in this study. The finding of the study reveals that the prevalence of dysmenorrhoea was 60.7%. Median age of the schoolgirls was 14 years. The mean VASP score decreased from 5.75 to 2.96 ($P < 0.0001$) and from 5.16 to 2.06 ($P < 0.0001$) at 3 months, in the exercise and hot water bottle group respectively. The mean MDQ score decreased from 14.53 to 7.85 ($P < 0.0001$) and from 14.92 to 8.16 ($P < 0.0001$) at 3 months, in the exercise and hot water bottle group respectively.¹¹

4.Objectives

- 1.To assess the level of primary dysmenorrhea pain among experimental group I and II.
- 2.To compare the effectiveness of ginger powder v/s regular yoga practices on primary dysmenorrhea among adolescent girls in experimental group I & II.
- 3.To analyze the association between dysmenorrhea pain, mean posttest value and demographic variables and menstrual pattern variables among adolescent girls in Experimental groups.

Hypothesis

H₁: There will be a significant association between dysmenorrhea pain mean posttest value and demographic variables and menstrual pattern variables among adolescent girls in Experimental groups.

Delimitations

- 1.Those who are having regular menstrual cycle with dysmenorrhea.
- 2.The study is conducted on the first 3 days of menstruation in experimental group I.
- 3.Data collection period is limited to 5 months only.
- 4.Adolescent girls who are having the age group of 12-17 years studying in 7th to 12th standard.
- 5.Sample size is 50 (25+25) students only

5.Research Methodology

Research Approach: Evaluative approach is used in this study, to compare the effectiveness of ginger powder versus regular yoga practices in reducing of dysmenorrhea pain among adolescent girls.

Research design: Non-equivalent two group pretest posttest design used in this study, which is a type of quasi-experimental design.

Variables: Dependent variable - Primary dysmenorrhea;
Independent variables: Ginger powder, regular yoga practices.

Research Setting

The setting for this study is St. Xavier's School at Gonda district.

Study population

Adolescent girls who are having monthly periods.

Sample

Adolescent girls with primary dysmenorrhea who are in age group of 12-17 years studying in 7th to 12th standard in selected schools of Gonda district.

Sample size

50 adolescent girls with primary dysmenorrhea
25 in experimental group I and 25 in experimental group II

Sampling Technique

Simple Random Probability Sampling Technique

Inclusion Criteria:

Adolescent girls who are,

- 1.Having pain in lower abdomen and pelvis at start of period and continuing 9-72 hours.
- 2.Having lower back pain.
- 3.Having dysmenorrhea pain score moderate and above (4 and above).
- 4.Available during data collection.
- 5.Agree not to use analgesics throughout the data collection period for primary dysmenorrhea.

Exclusion Criteria:

Adolescent girls,

1. Who are not willing to participate in regular yoga practices.
2. Who are having irregular cycle.
3. Who had surgery within last 6 months.
4. Who are having congenital disorders like heart defects, muscular and bone defects.
5. Who are taking medications and other form of treatments (like homeo and siddha) for primary dysmenorrhea.

Description of the instrument:

The tool consists of 2 parts, they are

Part 1 consists of 2 sections. **Section A** consisted of demographic variables; **Section B** consisted of menstrual pattern variables. **Part: 2** Numeric pain intensity scale to assess the dysmenorrhea pain level. Scale is having 11 points (0 -10) to indicate pain. **Scoring procedure are** 0 - No pain, 1- 3 - Mild pain, 4-6 - Moderate pain, 7-10 - Severe pain.

6.Results**Table 1:** Frequency and percentage distribution of socio and clinical variables

S.N.	Socio demographic Variables	n=25+25			
		Experimental Group I		Experimental Group II	
		F	%	F	%
1)	Residential area				
	a) Urban	6	24	8	32
	b) Rural	19	76	17	68
2)	Age in years				
	a) 12 to 13	7	28	8	32
	b) 14 to 15	8	32	7	28
	c) 16 to 17	10	40	10	40
3)	Religion				
	a) Hindu	9	36	10	40
	b) Muslim	8	32	8	32
	c) Christian	4	16	4	16
	d) Any other	4	16	3	12
4)	Standard				
	a) 7 to 8	7	28	8	32
	b) 9 to 10	8	32	8	32
	c) 11 to 12	10	40	9	36
5)	Age at menarche in years				
	a) 11 - 12	0	0	0	0
	b) 13 - 14	9	36	9	36
	c) 15 to 16	12	48	11	44
	d) >=17	4	16	5	20
6)	Dietary habits				
	a) Vegetarian	11	44	10	40
	b) Non-vegetarian	5	20	6	24
	c) Both	9	36	9	36
7)	Mother's educational status				
	a) No education	2	8	2	8
	b) Primary school	6	24	6	24
	c) Middle school	5	20	6	24
	d) High school	4	16	4	16
	e) Graduate and above	5	20	4	16
	f) Post-graduate and above	3	12	3	12
8)	Mother's occupation				
	a) Housewife	8	32	7	28
	b) Private job	4	16	5	20
	c) Government employee	3	12	4	16
	d) Coolie	7	28	6	24
	e) Business	3	12	3	12
9)	Type of family				
	a) Nuclear family	6	24	7	28
	b) Joint family	19	76	18	72
10)	Height in centimetres (cm)				
	a) 140-145	8	32	9	36
	b) 145-150	11	44	10	40
	c) 150-155	6	24	6	24
11)	Weight in kilogram (kg)				

						n=25+25	
				Experimental Group I		Experimental Group II	
S.N.	Socio demographic Variables			F	%	F	%
	a)	45-50		15	60	16	64
	b)	50-55		10	40	9	36
12)	Body mass index						
	a)	<18.5		4	16	5	20
	b)	18.5-24.9		9	36	8	32
	c)	25-29.9		7	28	7	28
	d)	>29.9		5	20	5	20
13)	Daily exercise routine						
	a)	Regular		8	32	10	40
	b)	Irregular		11	44	11	44
	c)	Not doing any exercise		6	24	4	16
14)	Are you allergic to ginger?						
	a)	Yes		0	0	0	0
	b)	No		25	100	25	100

						n=25+25	
				Experimental Group I		Experimental Group II	
S.N.	Clinical Variables			F	%	F	%
1	Regularity of menstrual on						
	a)	Regular		18	72	16	64
	b)	Irregular		7	28	9	36
2	Onset of dysmenorrhea						
	a)	Starts before menstruation, continues upto 24 hrs. of menstruation		4	16	3	12
	b)	Start with the onset of menstruation continues upto 48 hours		13	52	12	48
	c)	Start before menstruation, continues throughout menstruation		5	20	6	24
	d)	Starts after 24 hours of menstruation and continue throughout the menstruation		3	12	4	16
3	Flow of the menstruation on						
	a)	Mild		3	12	4	16
	b)	Moderate		10	40	10	40
	c)	Heavy bleeding		12	48	11	44
4	Family history of dysmenorrhea						
	a)	Yes		16	64	15	60
	b)	No		9	36	10	40
5	Duration of menstruation						
	a)	Less than 3 days		3	12	5	20
	b)	3 to 6 days		13	52	11	44
	c)	More than 6 days		9	36	9	36
6	Do you have pain during menstruation?						
	a)	always		21	84	20	80
	b)	sometimes		4	16	5	20
	c)	rarely		0	0	0	0
	d)	None of the above		0	0	0	0
7	How long does menstrual pain usually last?						
	a)	Less than one day		1	4	2	8
	b)	1- 2 days		6	24	6	24
	c)	3-4 days		10	40	8	32
	d)	More than 4 days		8	32	9	36
8	Where do you experience pain?						
	a)	Lower abdomen		14	56	14	56
	b)	Lower back		7	28	6	24
	c)	Thighs		2	8	3	12

				n=25+25	
		Experimental Group I		Experimental Group II	
S.N	Clinical Variables	F	%	F	%
	d) Legs	2	8	2	8
9	What do you do to get relief from your menstrual pain?				
	a) Bed rest	8	32	7	28
	b) Use heating pad/ hot water bottle	6	24	6	24
	c) Take medicines prescribed by the doctor	2	8	3	12
	d) Take medicines by myself	5	20	4	16
	e) Take herbal medicines/ drinks	4	16	5	20
10	Have you ever consulted a doctor for your menstrual pain?				
	a) Yes	10	40	11	44
	b) No	15	60	14	56
11	Have you ever been hospitalized for the management of your menstrual pain?				
	a) Yes	2	8	4	16
	b) No	23	92	21	84
12	Have you ever missed a school day because of your menstrual pain?				
	a) sometimes	11	44	9	36
	b) rarely	6	24	8	32
	c) None of the above	8	32	8	32
13	Do you get disrupted sleep during the menstrual on?				
	a) Yes	18	72	16	64
	b) No	7	28	9	36
14	Mode of information regarding menstrual pain relief?				
	a) Parents	11	44	12	48
	b) Health professionals	3	12	4	16
	c) Friends	5	20	4	16
	d) Media	2	8	2	8
	e) Neighbour	4	16	3	12

Table 2: Pain level in experimental group I

Pain level	Pretest		Posttest	
	Frequency	Percentage	Frequency	Percentage
Mild	0	0.0	3	12.0
Moderate	14	56.0	13	52.0
Severe	11	44.0	9	36.0

Pain level in experimental group I, in pretest the maximum 14(56.0%) samples were having moderate pain, and 11(44%) samples were having severe pain, none of the samples were having mild level of pain. In posttest the maximum 13(52%) samples were having moderate pain, 9(36%) samples were having severe pain, and 3(12%) samples were having mild pain.

Table 3: Pain level in experimental group II

Pain level	Pretest		Posttest	
	Frequency	Percentage	Frequency	Percentage
Mild	0	0.0	18	72.0
Moderate	15	60.0	6	24.0
Severe	10	40.0	1	4.0

Pain level in experimental group II, in pretest the maximum 15(60%) samples were having moderate pain, and 10(40%) samples were having severe pain, and none of the samples were having mild pain. In posttest the maximum 18(72%) samples were having mild pain, 6(24%) samples were having moderate pain, and 1(4%) sample were having severe pain. It shows that in experimental group, there was effectiveness in the practice of yoga to reduce menstrual pain.

Table 4: Compare the effectiveness of ginger powder v/s regular yoga practices on primary dysmenorrhea among adolescent girls in experimental group I & II

Pain level	Experimental group I				Experimental group II			
	Pretest		Posttest		Pretest		Posttest	
	F	%	F	%	F	%	F	%
Mild	0	0.0	3	12.0	0	0.0	18	72.0
Moderate	14	56.0	13	52.0	15	60.0	6	24.0
Severe	11	44.0	9	36.0	10	40.0	1	4.0

In experimental group I there was only 3(12%) samples had mild pain from moderate and severe pain level after intervention with ginger powder, but in experimental group II there was 18(72%) samples had mild pain from moderate and severe pain level after intervention with yoga. It shows the effectiveness of regular yoga practices is higher than the effectiveness of ginger powder.

Table 3: Assess the effectiveness of intervention between pretest and posttest in experimental group I and II (n=25+25)

Groups	Standard Error Mean	Mean	SD	df	Students' paired t-test
Experimental group I	0.472	1.080	2.361	24	2.287; p=0.031; S*
Experimental group II	0.369	2.640	1.846	24	7.152; p=0.000 S***

S*=Significant; S***=Highly Significant; SD= Standard deviation

The effectiveness of intervention between the pretest and posttest in experimental group II is highly significant. It shows the regular yoga practices on primary dysmenorrhea among adolescent girls in experimental group II is highly effective than the ginger power intervention in experimental group I, therefore the H₁ is accepted at 0.01 level of significance.

Table 5: Assess the effectiveness between ginger powder and regular yoga practice on primary dysmenorrhea among adolescent girls in experimental group I & II (n=25+25)

Test	Experimental groups	Mean difference	SE difference	Independent t test
Pretest	I	0.880	0.425	2.071; p=0.044; S*
	II			
Posttest	I	2.440	0.461	5.291; p=0.000 S***
	II			

S*=Significant; S***=Highly Significant; SE= Standard error

There is a significant difference found in the effectiveness between ginger powder and regular yoga practice on primary dysmenorrhea among adolescent girls in experimental group I & II, but Experimental group II difference is highly significant, and it shows the regular yoga practices on primary dysmenorrhea among adolescent girls in experimental group II is highly effective. Therefore, the H₂ is accepted at 0.01 level of significance.

Table 6: Analyze the association between dysmenorrhea pain mean posttest value and demographic variables and menstrual pattern variables among adolescent girls in Experimental groups I

Socio-demographic Variables							<median	>=median	Total	Df	Chi-Square	n=25 Inference	
1)	Residential area												
	a)	Urban						3	3	6	1	0.637	P>0.05; NS
	b)	Rural						10	9	19			
2)	Age in years												
	a)	12 to 13						3	4	7	2	5.712	P>0.05; NS
	b)	14 to 15						2	6	8			
	c)	16 to 17						8	2	10			
3)	Religion												
	a)	Hindu						4	5	9	3	16.582	P<0.05; S
	b)	Muslim						7	1	8			
	c)	Christian						1	3	4			
	d)	Any other						1	3	4			
4)	Standard												
	a)	7 to 8						3	4	7	2	5.97	P>0.05; NS
	b)	9 to 10						2	6	8			
	c)	11 to 12						8	2	10			
5)	Age at menarche in years												
	a)	11 - 12						0	0	0	3	2.297	P>0.05; NS
	b)	13 - 14						3	6	9			
	c)	15 to 16						8	4	12			
	d)	≥17						2	2	4			

6)		Dietary habits							
	a)	Vegetarian	4	7	11	2	3.744	P>0.05; NS	
	b)	Non-vegetarian	2	3	5				
	c)	Both	7	2	9				
7)		Mother's educational status							
	a)	No education	1	1	2	5	18.774	P<0.05; S	
	b)	Primary school	2	4	6				
	c)	Middle school	1	4	5				
	d)	High school	3	1	4				
	e)	Graduate and above	5	0	5				
	f)	Post-graduate and above	1	2	3				
8)		Mother's occupation							
	a)	Housewife	3	5	8	4	19.141	P<0.05; S	
	b)	Private job	1	3	4				
	c)	Government employee	1	2	3				
	d)	Coolie	7	0	7				
	e)	Business	1	2	3				
9)		Type of family							
	a)	Nuclear family	3	3	6	1	0.637	P>0.05; NS	
	b)	Joint family	10	9	19				
10)		Height in centimetres (cm)							
	a)	140-145	3	5	8	2	1.22	P>0.05; NS	
	b)	145-150	6	5	11				
	c)	150-155	4	2	6				
11)		Weight in kilogram (kg)							
	a)	45-50	5	10	15	1	15.235	P<0.05; S	
	b)	50-55	8	2	10				
12)		Body mass index							
	a)	<18.5	2	2	4	3	6.52	P>0.05; NS	
	b)	18.5-24.9	2	7	9				
	c)	25-29.9	6	1	7				
	d)	>29.9	3	2	5				
13)		Daily exercise routine							
	a)	Regular	3	5	8	2	1.22	P>0.05; NS	
	b)	Irregular	6	5	11				
	c)	Not doing any exercise	4	2	6				
14)		Are you allergic to ginger?							P>0.05; NS
	a)	Yes	0	0	0	1	0		
	b)	No	13	12	25				
15)		Regularity of menstrual on							
	a)	Regular	8	10	18	1	1.47	P>0.05; NS	
	b)	Irregular	5	2	7				
16)		Onset of dysmenorrhea							
	a)	Starts before menstruation, continues upto 24 hrs. of menstruation	2	2	4	3	5.995	P>0.05; NS	
	b)	Start with the onset of menstruation continues upto 48 hours	5	8	13				
	c)	Start before menstruation, continues throughout menstruation	5	0	5				
	d)	Starts after 24 hours of menstruation and continue throughout the menstruation	1	2	3				
17)		Flow of the menstrual on							
	a)	Mild	2	1	3	2	16.904	P<0.05; S	
	b)	Moderate	2	8	10				
	c)	Heavy bleeding	9	3	12				
18)		Family history of dysmenorrhea							
	a)	Yes	6	10	16	1	3.744	P>0.05; NS	
	b)	No	7	2	9				
19)		Duration of menstruation							
	a)	Less than 3 days	2	1	3	2	5.002	P>0.05; NS	
	b)	3 to 6 days	4	9	13				
	c)	More than 6 days	7	2	9				
20)		Do you have pain during menstruation?							
	a)	Yes, always	11	10	21	3	0.672	P>0.05; NS	
	b)	Yes, sometimes	2	2	4				
	c)	Yes, rarely	0	0	0				
	d)	Never	0	0	0				
21)		How long does menstrual pain usually last?							
	a)	Less than one day	1	0	1	3	4.033	P>0.05; NS	
	b)	1- 2 days	2	4	6				
	c)	3-4 days	4	6	10				

	d)	More than 4 days	6	2	8			
22)	Where do you experience pain?							
	a)	Lower abdomen	4	10	14	3	19.547	P<0.05; S
	b)	Lower back	7	0	7			
	c)	Thighs	1	1	2			
	d)	Legs	1	1	2			
23)	What do you do to get relief from your menstrual pain?							
	a)	Bed rest	3	5	8	4	15.143	P<0.05; S
	b)	Use heating pad/ hot water bottle	1	5	6			
	c)	Take medicines prescribed by the doctor	2	0	2			
	d)	Take medicines by myself	5	0	5			
	e)	Take herbal medicines/ drinks	2	2	4			
24)	Have you ever consulted a doctor for your menstrual pain?							
	a)	Yes	3	7	10	1	3.232	P>0.05; NS
	b)	No	10	5	15			
25)	Have you ever been hospitalized for the management of your menstrual pain?							
	a)	Yes	1	1	2	1	0.74	P>0.05; NS
	b)	No	12	11	23			
26)	Have you ever missed a school day because of your menstrual pain?							
	a)	Yes, sometimes	4	7	11	2	2.783	P>0.05; NS
	b)	Yes, rarely	3	3	6			
	c)	Never	6	2	8			
27)	Do you get disrupted sleep during the menstrual on?							
	a)	Yes	8	10	18	1	1.47	P>0.05; NS
	b)	No	5	2	7			
28)	Mode of information regarding menstrual pain relief?							
	a)	Parents	4	7	11	4	15.795	P<0.05; S
	b)	Health professionals	0	3	3			
	c)	Friends	5	0	5			
	d)	Media	2	0	2			
	e)	Neighbour	2	2	4			

There is significant association between post-test pain score with selected demographic variables such as religion, mother's educational status, mother's occupation, weight in kilogram (kg), and menstrual pattern variables such as flow of the menstrual on, pain experience, doing pain relief from menstrual pain and mode of information as the chi-square value is higher ($p>0.05$) than the tabulated value. Therefore, the H_2 is accepted for the above-mentioned variables.

Table 7: Analyze the association between dysmenorrhea pain mean posttest value and demographic variables and menstrual pattern variables among adolescent girls in Experimental groups II

		Socio-demographic Variables	<median	>=median	Total	Df	Chi-Square	Inference
								n=25
1)	Residential area							
	a)	Urban	3	3	6	1	0.637	P>0.05; NS
	b)	Rural	10	9	19			
2)	Age in years							
	a)	12 to 13	6	2	8	2	5.712	P>0.05; NS
	b)	14 to 15	5	3	8			
	c)	16 to 17	7	2	9			
3)	Religion							
	a)	Hindu	4	5	9	3	6.582	P>0.05; NS
	b)	Muslim	7	1	8			
	c)	Christian	1	3	4			
	d)	Any other	1	3	4			
4)	Standard							
	a)	7 to 8	6	2	8	2	5.97	P>0.05; NS
	b)	9 to 10	5	3	8			
	c)	11 to 12	7	2	9			
5)	Age at menarche in years							
	a)	11 - 12	0	0	0	3	2.297	P>0.05; NS
	b)	13 - 14	3	6	9			
	c)	15 to 16	8	4	12			
	d)	≥17	2	2	4			
6)	Dietary habits							
	a)	Vegetarian	7	3	10	2	3.744	P>0.05; NS
	b)	Non-vegetarian	4	2	6			
	c)	Both	7	2	9			

7)		Mother's educational status							
	a)	No education	1	1	2	5	18.774	P<0.05; S	
	b)	Primary school	2	4	6				
	c)	Middle school	1	4	5				
	d)	High school	3	1	4				
	e)	Graduate and above	5	0	5				
	f)	Post-graduate and above	1	2	3				
8)		Mother's occupation							
	a)	Housewife	3	5	8	4	9.141	P>0.05; NS	
	b)	Private job	1	3	4				
	c)	Government employee	1	2	3				
	d)	Coolie	7	0	7				
	e)	Business	1	2	3				
9)		Type of family							
	a)	Nuclear family	3	3	6	1	0.637	P>0.05; NS	
	b)	Joint family	10	9	19				
10)		Height in centimetres (cm)							
	a)	140-145	3	5	8	2	1.22	P>0.05; NS	
	b)	145-150	6	5	11				
	c)	150-155	4	2	6				
11)		Weight in kilogram (kg)							
	a)	45-50	5	10	15	1	15.235	P<0.05; S	
	b)	50-55	8	2	10				
12)		Body mass index							
	a)	<18.5	2	2	4	3	6.52	P>0.05; NS	
	b)	18.5-24.9	2	7	9				
	c)	25-29.9	6	1	7				
	d)	>29.9	3	2	5				
13)		Daily exercise routine							
	a)	Regular	3	5	8	2	1.22	P>0.05; NS	
	b)	Irregular	6	5	11				
	c)	Not doing any exercise	4	2	6				
14)		Are you allergic to ginger?							
	a)	Yes	0	0	0	1	0	P>0.05; NS	
	b)	No	13	12	25				
15)		Regularity of menstrual on							
	a)	Regular	8	10	18	1	1.47	P>0.05; NS	
	b)	Irregular	5	2	7				
16)		Onset of dysmenorrhea							
	a)	Starts before menstruation, continues upto 24 hrs. of menstruation	2	2	4	3	5.995	P>0.05; NS	
	b)	Start with the onset of menstruation continues upto 48 hours	5	8	13				
	c)	Start before menstruation, continues throughout menstruation	5	0	5				
	d)	Starts after 24 hours of menstruation and continue throughout the menstruation	1	2	3				
17)		Flow of the menstrual on							
	a)	Mild	2	1	3	2	16.904	P<0.05; S	
	b)	Moderate	2	8	10				
	c)	Heavy bleeding	9	3	12				
18)		Family history of dysmenorrhea							
	a)	Yes	6	10	16	1	3.744	P>0.05; NS	
	b)	No	7	2	9				
19)		Duration of menstruation							
	a)	Less than 3 days	2	1	3	2	5.002	P>0.05; NS	
	b)	3 to 6 days	4	9	13				
	c)	More than 6 days	7	2	9				
20)		Do you have pain during menstruation?							
	a)	Yes, always	11	10	21	3	0.672	P>0.05; NS	
	b)	Yes, sometimes	2	2	4				
	c)	Yes, rarely	0	0	0				
	d)	Never	0	0	0				
21)		How long does menstrual pain usually last?							
	a)	Less than one day	1	0	1	3	4.033	P>0.05; NS	
	b)	1- 2 days	2	4	6				
	c)	3-4 days	4	6	10				
	d)	More than 4 days	6	2	8				
22)		Where do you experience pain?							
	a)	Lower abdomen	4	10	14	3	9.547	P>0.05; NS	
	b)	Lower back	7	0	7				

	c)	Thighs	1	1	2			
	d)	Legs	1	1	2			
23)	What do you do to get relief from your menstrual pain?							
	a)	Bed rest	3	5	8	4	10.143	P>0.05; NS
	b)	Use heating pad/ hot water bottle	1	5	6			
	c)	Take medicines prescribed by the doctor	2	0	2			
	d)	Take medicines by myself	5	0	5			
	e)	Take herbal medicines/ drinks	2	2	4			
24)	Have you ever consulted a doctor for your menstrual pain?							
	a)	Yes	3	7	10	1	3.232	P>0.05; NS
	b)	No	10	5	15			
25)	Have you ever been hospitalized for the management of your menstrual pain?							
	a)	Yes	1	1	2	1	0.74	P>0.05; NS
	b)	No	12	11	23			
26)	Have you ever missed a school day because of your menstrual pain?							
	a)	Yes, sometimes	4	7	11	2	2.783	P>0.05; NS
	b)	Yes, rarely	3	3	6			
	c)	Never	6	2	8			
27)	Do you get disrupted sleep during the menstrual on?							
	a)	Yes	8	10	18	1	1.47	P>0.05; NS
	b)	No	5	2	7			
28)	Mode of information regarding menstrual pain relief?							
	a)	Parents	4	7	11	4	14.795	P<0.05; S
	b)	Health professionals	0	3	3			
	c)	Friends	5	0	5			
	d)	Media	2	0	2			
	e)	Neighbour	2	2	4			

There is significant association between post-test pain score with selected demographic variables such as mother's educational status, weight in kilogram (kg), and menstrual pattern variables such as flow of the menstrual on, and mode of information regarding menstrual pain relief as the chi-square value is higher ($p>0.05$) than the tabulated value. Therefore, the H_2 is accepted for the above-mentioned variables.

7. Discussion

This study implies that in experimental group I there was only 3(12%) samples had mild pain from moderate and severe pain level after intervention with ginger powder, but in experimental group II there was 18(72%) samples had mild pain from moderate and severe pain level after intervention with yoga. It shows the effectiveness of regular yoga practices is higher than the effectiveness of ginger powder.

A related study also found, which was done by Ponlapat Y et al (2017). The aim of the study was to investigate effect of specially designed yoga program on the menstrual pain. Thirty-four volunteers were randomly assigned into control and yoga groups. Menstrual pain were evaluated at baseline and at the end of the 12-week study period. The yoga group was asked to practice yoga for 30 min per day, twice a week, for 12 weeks at home, while the control group did not receive any form of exercise over the study period. There were significantly improve in menstrual pain in the yoga group more than the control group. Therefore, this specially designed yoga program may be a possible complementary treatment for primary dysmenorrhea.¹³

8. Conclusion and Summary

Dysmenorrhea is the most common gynecological problem among females, and it is defined as cramping ache in the lower abdomen occurring just before or during menstruation. Menstrual symptoms are a broad collection of affective and somatic concerns that occur around the time of menses. The effect and importance of dysmenorrhea is very wide, therefore managing the problem is important (Shabnam Omidvar, 2016). This study implies that in experimental group I there was only 3(12%) samples had mild pain from moderate and severe pain level after intervention with ginger powder, but in experimental group II there was 18(72%) samples had mild pain from moderate and severe pain level after intervention with yoga. It shows the effectiveness of regular yoga practices is higher than the effectiveness of ginger powder.

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