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Research article

Evaluate the effectiveness of ginger solution in reducing primary dysmenorrhea among nursing students

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Abstract

The study was conducted to evaluate the effectiveness of ginger solution in reducing primary dysmenorrhea among nursing students and its significant association between the level of pain and demographic variables. **Background:** The onset of menstruation is a part of the biological maturation process. However, variability in menstrual cycle characteristics and menstrual disorders are common. It is estimated that about 50% of women experience some degree of dysmenorrhea with 10% of them incapacitated by it. About 40-70% of women aged 19-22 years suffer from dysmenorrhea and is associated with significant psychological, physical, behavioral and social factors. **Materials and methods:** The study design adopted was a true experimental approach (pretest-posttest control group design). Samples for the study were nursing students who had dysmenorrhea. Simple random sampling technique was used for selection of 50 samples and random allocation was adopted to assign 25 samples to experimental and 25 samples to control group. **Results:** The pre-test data shows that in the experimental group, 5% (1) had a mild level of pain, majority 80% (20) of students had a moderate level of pain and 15%(4) had a severe level of pain and 0% had worst pain. Whereas in control group, 5% (1) had mild pain and the majority of nursing students 75 %(19) had a moderate level of pain and 20 %(5) had a severe level of pain. The post-test data shows that in the experimental group, the majority of nursing students 32% (8) had moderate, 40%(10) had a severe level of pain, 20%(2) had a very severe level of pain and8% (2) had worst level of pain. Whereas in control group, 48 %(12) had moderate pain, 36 %(9) had severe and 16% (4) had a very severe level of pains. **Conclusion:** Dysmenorrhea is the most common gynecologic disorder among female adolescents, with a prevalence of 60% to 93%. Dysmenorrhea was characterized by cramping lower abdominal pain that may radiate to the lower back and upper thighs and was commonly associated with nausea, head ache, fatigue, and diarrhea. The present study assessed the effectiveness of ginger solution on the reduction of pain during menstruation among nursing students. Based on statistical findings, it is evident that the ginger solution was effective in reducing the level of pain among nursing students.

Key words: Ginger solution, primary dysmenorrhea, nursing students, visual analog scale.

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1. Introduction

The adolescent is the period of transition from childhood to adulthood. World health organization has defined adolescence as the age group of 10 to 19years [1]

Adolescence in girls has been recognized as a special period in their life cycle that requires specific and special attention. This period is marked with the onset of menarche. Menstruation is a phenomenon unique to all females. [2]

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 dysmenorrhoea. Of these, dysmenorrhoea, recurrent cramping lower abdominal pain during menstruation is one of the common problems experienced by many adolescent girls. The prevalence of

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dysmenorrhoea among adolescent females ranges from 60 to 83%. Many adolescents reported limitations on daily activities, such as missing school, sporting events, and other social activities, because of dysmenorrhoea. However, only 15 percent of females seek medical advice for menstrual pain, signifying the importance of screening adolescent females for dysmenorrhoea. [3]

Dysmenorrhea is a cyclical lower abdominal or pelvic pain which may also radiate to the back and thighs; it occurs before or during menstruation, or both. [4]. Prevalence rates are as high as 90 percent. Initial presentation of primary dysmenorrhea typically occurs in adolescence [5]. It is the most common gynecologic complaint among adolescent and adult females. [6].

Symptoms, such as a headache, vomiting, tiredness, dizziness, and diarrhea are few commonly experienced menstrual symptoms. Symptoms typically start at the onset of menstrual flow or occur within a few hours before or after onset and last for the first 24-48 hours.

The epidemiology of primary dysmenorrhea is difficult to establish since it is a symptom that is perceived differently by different women and also diversity in diagnostic criteria that is often used. The prevalence estimates range from 25 to 90% among women and adolescents. [7]. Studies from India reported the prevalence range between 50 to 87.8%. [8]

Other studies reported that dysmenorrhea affects up to 90% of women of childbearing age to varying degrees. [9]

Treatment for dysmenorrhea is aimed at relieving symptoms and is best treated with alternative treatment and analgesics that are prostaglandin inhibitors. [10]. The objective of this study was to ascertain the prevalence of dysmenorrhea and menstrual symptoms in Indian college girls, its impact on their performance and alternative treatment approaches such as administration of ginger solution.

An explorative study was conducted to know the mechanism of ginger-partitioned moxibustion in the treatment of cold damp stagnation type primary dysmenorrhea patients. Total 209 participants were taken from Chinese medicine, Hebei Medical University, Shijiazhuang. Moxibustion group (105) who are treated with ginger-partitioned moxibustion and control group (104) who were asked to take the drug. Before and after the treatment the result shows that after treatment of the cases in moxibustion and control group, 52 and 32 cured, 37 and 33 markedly effective, 5 and 24 effective 5 and 15 failed with the effective rates being 95.24% & 85.58% respectively. The study concluded that ginger-partitioned moxibustion was effective in relieving primary dysmenorrhoea. [11]

Most of the nursing students are suffering from primary dysmenorrhea and most of them used to take some measures to reduce the pain such as medication and hot application. Ginger has been used safely for thousands of years in cooking and medically in folk and home remedies. Ginger has known analgesic and anti-inflammatory properties. Ginger also improves blood circulation Students said that they never used ginger home remedies for the treatment of dysmenorrhea and it is useful to ease off the pain during the menstrual period. Ginger is one of the herbs which have been used since ancient times to reduce the dysmenorrhea. It can be used as fresh, dried or powder form or as a juice or oil. Ginger solution is helpful to reduce menstrual cramps. It relaxes the muscular spasm thereby reducing the pain during ovulation and menstrual cycle which is the solution for the management of dysmenorrhea.

The researcher has reviewed many kinds of literature, which explained the benefits of the ginger solution in this aspect with fewer side effects when compared to allopathic management. Hence the researcher is interested to apply their knowledge in nursing care management as a part of pain management.

2. Materials and methods

The research design selected for the present study was a true experimental approach (one group pretest-posttest control group design). The present study was conducted in the Global college of nursing (GCN), Bangalore. Population for the present study was female nursing students studying in Global College of Nursing, Bangalore. Nursing students who fulfill the inclusion criteria were considered as the sample. Simple random sampling technique was used for the selection of 50 samples, and random allocation was adopted to assign 25 samples to experimental and 25 samples to control group by the use of a table of random numbers.

The information regarding the demographic Performa was collected from the nursing students by questionnaire and Visual Analogue Scale (VAS) was used to measure the level of dysmenorrhea. The pre-test was done to assess the level of pain in both the groups using VAS. Thereafter, nursing students in the experimental group were given a ginger solution in the form of tea. Method of preparation (0.25 gm dried ginger powder mixed in 200 ml of boiling water). Nursing students in the control group were given only normal care. Post-test was done in the experimental group and as well as in the control group after 30 min of the pre-test. Data obtained in these areas were analyzed by frequency percentage, paired t-test, independent t-test.

3. Results:

The findings are discussed under the following headings.

Section 1: Demographic Characteristics of the nursing students

Table no 1: Distribution of samples according to demographic Characteristics

Demographic variables		Experimental group n = 25		Control group n = 25	
		f	%	f	%
Age	18-19 years 20-21 years 2 1-22 years	9 7 9	36 28 36	11 04 10	44 16 40
Education	GNM B.Sc	9 16	36 64	08 17	32 68
Religion	Hindu Muslim Christian	9 9 7	36 36 28	11 10 04	44 40 16
Diet pattern	Vegetarian Non-Veg Mixed	4 3 18	16 12 72	4 4 17	16 16 68
Source of information	Friends Journal Internet	6 14 6	24 56 24	7 13 5	28 52 20

Table 1: Reveals the distribution of respondents according to the age.

The table indicate that 36%of the female respondents in the experimental age group belonged to the age group of 18-19 years followed by 28%found with the age of 20-21 years, followed by 36%found with the age of 21-22 years with that of the control group 44%belonged to the age group of 18-19 years followed by 16% found with the age of 20-21 years, followed by 40% found with the age of 21-22 years. The findings also indicate that 36% of the respondents were in the experimental age group were from GNM followed by 64% were from B.Sc. The findings also indicate that 32% of the respondents were in the experimental age group were from GNM followed by 68% were with B.Sc. From the present study, it was evident that in the experimental group majority (36%) of respondents were Hindus followed by 9% Muslims and 7% Christians. And in the control group majority (44%) of respondents were Hindus followed by 40% Muslims and 16% were Christians.

From the present study, it was evident that majority (72%) of respondents in the experimental group were following mixed diet by 12% non-vegetarian and 16% vegetarian diet and majority (68%) of respondents in the control group were following mixed diet and 16 % were non-vegetarian and 16% were a vegetarian diet. Source of information 56% obtained the information in the experimental group through journal 24% of the respondents obtained the information from friends, 24% obtained the information through the internet. 52% of the respondents in the control group obtained the information through the journal, 28% obtained the information through friends and 20% obtained the information through the internet.

Section 2: Clinical data of the nursing students

Table no 2: Mean and standard deviation in relation to pain

Clinical Data	Experimental group				Control group			
	Pre-test		Post -test		Pre-test		Post- test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pain	4.20	1.11	2.10	1.0	4.05	1.00	7.95	1.5

The mean knowledge score (4.20) with standard deviation (1.11) was found in the pretest of the experimental group and the posttest mean knowledge score was (2.10) with standard deviation (1). The mean knowledge score of (4.05) with standard deviation (1) was found in the pretest scores of the control group and the posttest mean knowledge score was (7.95) with a standard deviation of (1.5)

Section 3: Analysis of subjective pain parameters of the nursing students.

The pre-test data shows that in the experimental group, 5% (1) had a mild level of pain, majority 80% (20) of students had a moderate level of pain and 15%(4) had a severe level of pain, and 0% had worst pain. Whereas in control group, 5% (1) had mild pain and the majority of nursing students 75% (19) had a moderate level of pain and 20% (5) had a severe level of pain.

The post-test data shows that in the experimental group, the majority of nursing students 32% (8) of had moderate, 40%(10) had a severe level of pain, 20% (5) had a very severe level of pain and8% (2) had worst level of pain. Whereas in control group, 48%(12) had moderate pain 36%(9) had severe 16% (4) very severe level of pain.

Section 4: Comparison of pain scores within the experimental and control group.

Table no 3: Comparison of VAS between experimental group and control group using paired‘t’ test

n=25

	Mean	SD	Mean Difference	‘t’ value	df	p value
Pre-test	4.20	1.11	1.10	7.028*	24	0.001
Post-test	2.10	1.00				

* Significant p<0.05 Table value (2.010)

Table no 4: Comparison of VAS in experimental group and control group using paired‘t’ test.

	Group	Mean	SD	Mean difference	‘t’ value	df	p-value
Pre-test	Experimental group n=25	4.20	1.11	0.15	0.5020	48	0.6180
	Control group n=25	4.05	1.00				
Post-test	Experimental group n=25	2.10	1.0	5.85	16.22*	48	0.0001
	Control group n=25	7.95	1.5				

* Significant p<0.05 Table value (2.009)

Section 5: Association between levels of pain with demographic variables.

Table no 5: Association between the level of pain using visual analogue Scale pain score of the experimental group with their demographic variables.

Variables		VAS		p-value
		Moderate	Severe	
Age in years	18-19 years	4	5	0.997 NS
	20-21 years	3	4	
	21 years and above	4	5	
Course	GNM	5	4	0.317 NS
	B.Sc.	12	4	
Dietary pattern	Vegetarian	2	2	0.294 NS
	Non-Vegetarian	1	3	
	Mixed	12	5	
Previous source of information	Friends	12	04	0.752 NS
	Journal	01	03	
	Internet	02	03	

NS: Nothing significant

4. Discussion

In this study, ginger solution was effective in reducing primary dysmenorrhea. A comparative study was conducted to know the effectiveness of ginger, mefenamic acid and ibuprofen on pain in women with primary dysmenorrhea.

Participants were 150 students from the two Medical Universities who were alternatively divided into three equal groups. Students in the ginger group took 250mg capsules of ginger powder three times a day for three days from the start of their menstrual period. Members of the other received 250mg of mefenamic acid or 400mg ibuprofen capsules respectively. A verbal multidimensional scoring system was used for assessing the severity of primary dysmenorrhea. The result shows there was a no significant difference between groups in baseline characteristics. At the end of the treatment, severity of the dysmenorrhea pain relief and satisfaction with the treatment was assessed. No severe side effects occurred. [12]

To determine the prevalence of dysmenorrhea, impact on daily activity, quality of life, and knowledge of management among Siriraj nurses. Four hundred ninety three female nurses in the Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand a cross-sectional descriptive study was done at Siriraj Hospital, Bangkok, Thailand Subjects were asked to complete a questionnaire (32 items) and a Short form-36. The questionnaire included demographic data, menstrual pattern, age at dysmenorrhea, severity of dysmenorrhea, pain score, and impact of dysmenorrhea on daily activity, and method and knowledge of medications to treat dysmenorrhea. Evaluation of the quality of life using short form-36 questionnaire was also asked. The prevalence of dysmenorrhea was 70.2%. The prevalence of mild, moderate, and severe dysmenorrhea was 29.6%, 38.9%, and 1.6% respectively. Dysmenorrhea was significantly associated with age of participants, amount of menses, and the family history of dysmenorrhea. Nurses who had moderate to severe dysmenorrhea reported the impact on daily activities as limited sport activity (93%), limited social activity (66%), affected their concentration (81%), and absenteeism from work (16.5%). The mean total score of short form-36 in moderate and severe dysmenorrhea group was 69.9, significantly lower than mild and no dysmenorrhea group (75.2). Eighty-one percent and 68% of nurses with moderate and severe dysmenorrhea used paracetamol and mefenamic acid for pain relief respectively. The prevalence of dysmenorrhea among nurses was high and it had a negative impact on daily activities and quality of life. Most of the subjects knew that paracetamol and mefenamic acid can relieve dysmenorrhea. The hospital administrators should be concerned with this problem in nurses and nursing students working in their hospital. [13]

The study concluded that a ginger was as effective as mefenamic acid, paracetamol and ibuprofen in relieving pain in primary dysmenorrhea. The findings of this study shows that the mean of pain severity was significantly different between the experiment group and the control group. The result concluded that there was a significant reduction of pain.

Recommendation

- A similar study can be conducted in a larger sample
- A similar study can be done by other home remedies like parsley, sesame, aloe vera with large samples.
- A similar study can be conducted in colleges, working area, government and private schools, urban and rural area.
- A similar study can be conducted between different age groups.

Conclusion

Dysmenorrhea is the most common gynecologic disorder among female adolescents, with a prevalence of 60% to 93%. Dysmenorrhea was characterized by cramping lower abdominal pain that may radiate to the lower back and upper thighs and was commonly associated with nausea, headache, fatigue, and diarrhea. The present study assessed the effectiveness of ginger solution on the reduction of pain during menstruation among nursing students. Based on statistical findings, it is evident that the ginger solution was effective in reducing the level of pain among female nursing students.

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