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A study to assess the effectiveness of ginger preparation on dysmenorrhea among adolescent girls

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Abstract

“Not all scars show, not all wounds heal.
Sometimes you can't always see the pain that someone feels.”
Laura Tommons (2005)

Adolescence is a transition period from childhood to adulthood. In this period one of the major physiological changes that take place in adolescent girls is the onset of menarche, which is often associated with dysmenorrhea. For this, many use their own pharmacological and non-pharmacological measures to overcome dysmenorrhea. The present study assessed the effectiveness of Ginger preparation on dysmenorrhea among adolescent girls staying in selected Nursing Hostel of Amritsar, Punjab. Sample consisted of 60 adolescent girls residing in Khalsa College of Nursing Hostel in Amritsar, Punjab. Purposive sampling technique was used to select the sample. Dysmenorrhea was assessed by using standardized 0-10 Numerical pain intensity rating scale. The Study findings revealed that majority (46.66%) had moderate level of pre-interventional dysmenorrhea and after administration of ginger preparation majority (38.33%) had mild level of post-interventional dysmenorrhea. Paired 't' test was used to compare the pre-interventional and post-interventional dysmenorrhea and the value ($t=13.717$) was found significant at $p<0.05$. ANOVA was applied to determine the association of pre-interventional and post-interventional dysmenorrhea among adolescent girls with socio-demographic variables such as age (in yrs), age of menarche (in yrs), menstrual cycle (in days), duration of menses (in hrs), duration of dysmenorrhea (in days), and diet. Only one socio-demographic variable i.e. Duration of dysmenorrhea (in days) of adolescent girls was found to have significant association with pre-interventional and post-interventional dysmenorrhea among adolescent girls.

Keywords: Primary dysmenorrhea, ginger preparation, adolescent girls, menarche, home remedies

1. Introduction

Adolescence is characterized by a spurt in physical, endocrinal, emotional and mental growth, with a change from complete dependence to relative independence. The period of adolescence for a girl is a period of physical and psychological preparation for safe motherhood. As direct reproducers of future generations, the health of adolescent girls influences not only their own health, but also the health of future population. Almost a quarter of India's population comprises of girls below 20 years^[1].

Adolescence as the period of transition from childhood to adulthood. WHO has defined adolescence as the age group of 10 to 19 yrs in which menstruation is a normal physiological phenomenon. However this normal phenomenon is not an easy one. It is often associated with some degree of sufferings and embarrassment. Most of the adolescent girls experience one or other type of menstrual problems in her lifetime. The prevalence of menstrual disorders has been recorded as high as 87%^[2].

Adolescence in girls has been recognized as a special period which signifies the transition from girlhood to womanhood. This transitional period marked with the onset of menarche, an important milestone. In 60-90% of adolescent girls, dysmenorrhea is a major cause for absenteeism from school or restriction of activities of daily living or social interaction^[3].

Dysmenorrhoea or painful menstruation is one of the most common gynaecologic problems in woman of all ages. Usually dysmenorrhoea is differentiated as primary or secondary. Primary dysmenorrhoea that occurs in the absence of anatomic abnormalities or pelvic pathologic disorders in which pain begins at the onset of the menstrual flow and lasts for 12-48 hours. It is the occurrence of a physiologic alteration and it usually appears 6 to 12 months after menarche, when ovulation is established which is common in adolescents.

Secondary Dysmenorrhea is more frequent in women in the age group of 20's and 30's. Pain is usually felt in the lower abdomen, which can extend to the lower back and legs. It begins earlier in the menstrual cycle and lasts longer than common menstrual cramps. Not necessarily a continuous pain, it could be periodic cramping, a dull, constant ache or a sharp, stabbing sensation^[4].

Traditionally in India, variety of Folk medicines has been used to treat day-to-day minor disorders such as dysmenorrhoea, indigestion, nausea. Among the various folk medicines, ginger is known to have outweighing benefits. Ginger tea is helpful to reduce the menstrual cramps. It is also helpful in relaxing the muscular spasms and in relieving the pain present during ovulation and during menstrual periods^[5].

Some of the home remedies for painful menstrual periods are warm bath, hot water bottle, massage, vitamins, exercise, yoga and ginger tea. Ginger is an herb. The rhizome (underground stem) is used as a spice and also as a medicine. It can be used fresh, dried and powdered or as a juice or oil. Ginger tea is helpful to reduce the menstrual cramps. It is also helpful in relaxing the muscular spasms and in relieving the pain present during ovulation and during menstrual periods^[6].

The objectives of the study were a) to assess the pre-interventional dysmenorrhea among adolescent girls, b) to assess the post-interventional dysmenorrhea among adolescent girls, c) to compare the pre-interventional and post-interventional dysmenorrhea among adolescent girls, d) to determine the association of pre-interventional and post-interventional dysmenorrhea among adolescent girls with selected socio-demographic variables.

2. Material & Methods

The research approach adopted for the present study was Experimental research approach with A Pre-experimental (one-group pretest – posttest) design to accomplish the objectives. The study was conducted in Khalsa College of Nursing hostel, GT Road Amritsar, Punjab. The pilot study was conducted at NRI college of Nursing hostel, Loharka road, Amritsar, Punjab. A total sample of 60 adolescent girls were selected by using Purposive sampling technique. The tools used for data collection was standardized Numerical pain intensity rating scale for assessing the intensity of pain. One version of the scale includes a horizontal 1-10 number line in which the left end indicates no pain and the right end indicates severe pain. The subjects were asked to place the mark on the following scale where the current pain of the subject lies. Dysmenorrhea score was categorized into four levels i.e. no pain (0), mild pain (1-3), moderate pain (4-6) and severe pain (7-10). Data collection was done in the month of December 2013 to January 19, 2014. Prior to the data collection procedure the formal permission was obtained from the principal, Khalsa College of Nursing, Amritsar (Punjab). The administered tool was edited by the experts. One month prior to data collection the investigator obtains the detail menstrual history of the subjects. Written & verbal consent was taken from Adolescent girls. After onset of menstruation to subjects on first day, pre-interventional dysmenorrhea among adolescent girls was assessed and after that, ginger preparation was administered for three times a day for 48 hours i.e. six interventions for each subject with interval of 6hrs between each intervention and at the end of sixth i.e. last intervention, post-

interventional dysmenorrhea among Adolescent girls was assessed. The data obtained was analyzed according to objectives and statistical analysis was performed using SPSS version 16 software. Descriptive statistics was performed for sample characteristics i.e. calculating percentage, mean score, mean percentage, standard deviation (SD). Inferential statistics i.e. paired 't'- test was used to assess the effectiveness of ginger preparation and ANOVA was used to assess the association of pre-interventional and post-interventional dysmenorrhea among adolescent girls with socio-demographic variables.

3. Results

3.1 Sample Characteristics

Table 1: Frequency and percentage distribution of sample characteristics N=60

Demographic Variables	n	%
Age (in years)		
17-18	14	23.3
19-20	37	61.6
21	9	15
Age of menarche (in years)		
10-11	3	5
12-13	29	48.3
14-15	25	41.6
>15	3	5
Menstrual cycle (in days)		
<25	3	5
25-28	22	36.6
28-30	32	53.3
>31	3	5
Duration of menses (in hours)		
48	18	30
72	15	25
96	22	36.6
120 & above	5	8.3
Duration of dysmenorrhea (in days)		
1	17	28.3
2	16	26.6
3	27	45
Diet		
Vegetarian	36	60
Non-Vegetarian	24	40

Table 1 reveals the frequency and percentage distribution of characteristics of the study subjects. According to age, majority 61.6% of adolescent girls were in age group of 19-20 years followed by 23.3% were in age group 17-18 years and 15% were in the age group of 21 years. According to age of menarche (in years), majority 48.3% of the adolescent girls attained menarche between 12-13 yrs, 41.6% attained between 14-15 yrs and the equal number i.e. 5% each attained menarche at 10-11years and >15 years. As per the menstrual cycle (in days), majority 53.3% of the adolescent girls were having 28-30 days menstrual cycle, 36.6% were having 25-28 days cycle and 5% of them were having less than 25 days and more than 31 days menstrual cycle. In context to duration of menses (in hours), majority of the adolescent girls i.e. 36.6% having 96 hours followed by 30% having 48 hours, followed by 25% having 72 hours and least number i.e. 8.3% adolescent girls having 120 hrs & above duration of menses. As per duration of dysmenorrhea (in days), majority 45% adolescent girls had 3days, followed by 28.3% had 1day and least majority i.e. 26.6% had 2 days of dysmenorrhea. As per the diet,

majority 60% of the adolescent girls were vegetarians and 40% are non-vegetarians.

Hence it was concluded that majority of adolescent girls were in the age group of 19-20 years, whose age of menarche between 12-13years and having 28-30 days of menstrual cycle.

In majority of adolescent girls, duration of menstruation was 96hrs, having 3 days dysmenorrhea and were vegetarians.

4. Objective Wise Analysis

Objective 1: To assess the pre-interventional dysmenorrhea among adolescent girls.

Table 2: Frequency and Percentage distribution of adolescent girls according to level of pre- interventional dysmenorrhea N=60

Pre-interventional Dysmenorrhea	n	%	Mean	SD
No Pain (0)	00	00.00	0.00	0
Mild (1-3)	15	25.00	2.33	0.724
Moderate (4-6)	28	46.66	5.11	0.916
Severe (7-10)	17	28.33	7.29	0.588

Maximum Score = 10
Minimum Score = 0

Table 2 depicts the frequency and percentage distribution of pre-interventional dysmenorrhea among adolescent girls. It shows that 46.66% of adolescent girls had moderate dysmenorrhea, 28.33% had severe dysmenorrhea, followed by 25% had mild dysmenorrhea and whereas none of them were having no dysmenorrhea

Hence, it was concluded that the majority of adolescent girls had moderate level of pre-interventional dysmenorrhea

Objective 2: To assess the post-interventional dysmenorrhea among adolescent girls.

Table 3: Frequency & Percentage distribution of adolescent girls according to level of post-interventional dysmenorrhea N=60

Post-interventional dysmenorrhea	n	%	Mean	SD
No pain (0)	12	20.00	0	0
Mild (1-3)	23	38.33	1.96	0.706
Moderate (4-6)	22	36.66	4.59	0.734
Severe (7-10)	03	05.00	7.00	0

Maximum score= 10
Minimum score= 0

Table 3 depicts the frequency and percentage distribution of post-interventional dysmenorrhea among adolescent girls. It shows that 38.33% of the adolescent girls were suffering with mild dysmenorrhea, whereas 36.66% of adolescent girls were suffering with moderate dysmenorrhea followed by 20% of adolescent girls had no pain and least majority i.e. 5% of adolescent girls had severe dysmenorrhea.

Hence, it was concluded that majority i.e. 38.33% of adolescent girls had relieved from dysmenorrhea after intervention.

Objective 3: To compare the pre-interventional and post-interventional dysmenorrhea among adolescent girls.

Table 4: Comparison of the pre-interventional and post-interventional dysmenorrhea among adolescent girls. N=60

Dysmenorrhea	Mean	SD	df	t
Pre-interventional	5.03	1.983	59	13.717*
Post-interventional	2.78	2.084		

Maximum score= 10

Minimum score= 0

*Significant at P<0.05

Table 4 depicts the comparison of pre-interventional and post-interventional dysmenorrhea among adolescent girls. The pre-interventional Mean ± SD of pre-interventional dysmenorrhea was 5.03 ± 1.983 and Mean ± SD of post-interventional dysmenorrhea was 2.78 ± 2.084 among adolescent girls. The mean difference between pre-interventional and post-interventional dysmenorrhea was calculated by t-test and found statistically significant at P<0.05.

Hence, it was concluded that ginger preparation had significant effect in relieving primary dysmenorrhea among adolescent girls.

5. Discussion

In this chapter, an attempt has been made to discuss the finding of the study in accordance with the objective of the study.

5.1 To assess the pre-interventional dysmenorrhea among adolescent girls: The analysis of data revealed that majority 46.66% adolescent girls had moderate dysmenorrhea, 28.33% had severe dysmenorrhea and 25% had mild level of pre-interventional dysmenorrhea. This findings of study were supported by Rahma Al-Kindi *et al* (2011) who conducted a study to assess the prevalence of primary dysmenorrhea among adolescent girls. The findings show that majority 41% of subjects had moderate dysmenorrhea, 32% had severe dysmenorrhea and 27% had mild dysmenorrheal [7].

5.2 To assess the post-interventional dysmenorrhea among adolescent girls:

The analysis of data revealed that majority 38.33% of the adolescent girls had mild dysmenorrhea, 36.66% had moderate dysmenorrhea, 20% had no pain and 5% of adolescent girls had severe post-interventional dysmenorrhea. The Mean±SD of post-interventional dysmenorrhea was 2.78±2.084 among adolescent girls. These findings of study were supported by Rima Gupta *et al.* (2012) who conducted a comparative study to assess effect of acupressure and ginger on primary dysmenorrhea: a randomized controlled trial among adolescent girls. The findings after giving intervention i.e. post-interventional dysmenorrhea shows that the Mean ± SD was 3.85±2.45 among adolescent girls [8].

5.3 To compare the pre-interventional and post-interventional dysmenorrhea among adolescent girls:In comparing the pre-interventional and post-interventional dysmenorrhea among adolescent girls, analysis revealed the Mean ± SD of pre-interventional dysmenorrhea level was 5.03±1.983 and the Mean ± SD post-interventional dysmenorrhea level was 2.78±2.084. These findings of study were supported by Ensiyeh Jenabi (2006) who conducted a study to assess the effectiveness of ginger on primary dysmenorrhea. The findings show that the Mean ±

SD of pretest dysmenorrhea score was 7.08 ± 1.02 and the Mean \pm SD of posttest dysmenorrhea score was 4.81 ± 1.70 [9].

5.4 To determine the association of pre-interventional and post-interventional dysmenorrhea among adolescent girls with selected socio-demographic variables: The ANNOVA was computed and the analysis of data regarding the relationship between pre-interventional and post-interventional dysmenorrhea with selected socio-demographic variables revealed that there was no significant association between pre-interventional and post-interventional dysmenorrhea among adolescent girls with selected demographic variables at $p(0.05)$ level of significance. These findings were supported by Parvin Rahnama *et al* (2012) who conducted a randomized controlled trial of ginger capsules in the treatment of primary dysmenorrhea. This study results showed that there was no association of pre-test and post-test dysmenorrhea with baseline characteristics at $p < 0.05$ level of significance [10].

6. Conclusion

It concludes that dysmenorrhea i.e. painful menstruation affects approximately 50% of menstruating adolescent girls and 10% are incapacitated for up to 3 days. Painful menstruation is the leading cause of lost time from school and work among adolescent girls. Ginger preparation was an easily available and effective home remedy which has significant effect in relieving primary dysmenorrhea. So, it is important to enhance the usage of natural and home remedies for management of dysmenorrhea with less expensive, less side effects and easily available methods.

7. Recommendations

On the basis of findings of the study it is recommended that:

1. A Similar study can be under-taken on a large sample for making a more valid generalization.
2. A comparative study can be conducted regarding effectiveness of ginger preparation v/s pelvic rocking exercise on dysmenorrhea.
3. Similar study can be conducted on different population in different setting.
A true experimental study can be done on coping strategies of dysmenorrhea.
4. An effect of structured teaching program can be assessed regarding primary dysmenorrhea and its management and home remedies among adolescent girls.

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