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A study to assess the effectiveness of pelvic rocking exercises on dysmenorrhea among adolescent girls

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Abstract
Physical activity is an excellent stress-buster, provides health benefits as well as improves mood and self-image.
(Jon Wickham)
Adolescence is a transition period from childhood to adulthood. In this period one of the major physiological changes that take place in the adolescent girls is the onset of menarche, which is often associated with dysmenorrhea. For dysmenorrhea, many adolescent girls use pharmacological and non-pharmacological measures to overcome it. The present study was aimed to assess the effectiveness of pelvic rocking exercises on dysmenorrhea among adolescent girls staying at selected nursing hostel of Amritsar, Punjab. The sample consisted of 60 adolescent girls staying at SGRD College of Nursing Hostel Vallah, Amritsar, (Punjab). Purposive sampling technique was used to select the sample. Socio-demographic profile and Standardized numerical (0-10) pain intensity rating scale was used to assess the dysmenorrhea among adolescent girls. The comparison of pre-interventional and post-interventional dysmenorrhea was found to be statistically significant with 't' value 12.443 at $p<0.05$ level of significance. Therefore, it was concluded that the pelvic rocking exercises had significant effect on dysmenorrhea among adolescent girls.

Keywords: Dysmenorrhea, Pelvic Rocking Exercises, Adolescent girls

1. Introduction

Primary dysmenorrhea is a common menstrual complaint with a major impact on women's quality of life, work productivity and health-care utilization. The prevalence of primary dysmenorrhea varies between 16% and 91% in women of reproductive age, with severe pain in 2%–29% of the women. The prevalence of dysmenorrhea varies all over the world. On Global scale, more than 50% of post pubescent menstruating women are affected by dysmenorrhea with 10-12% of them having severe dysmenorrhea. In India, dysmenorrhea incidence is 33.5% among adolescent girls [1, 2]. Dysmenorrhea lessen with age and most women experience cramps at one time or another. There are so many ways to treat dysmenorrhea like non-steroidal anti-inflammatory drugs the day before period begins, birth control pills, injections or patches, heating pad or soaked towel in a hot water over the abdomen to relieve the pain of menstrual cramps. Exercises today are an integral part of normal life for many women. Exercises help in reducing pain, relieving stress, elevating mood and improving health. Women who exercise show less severe dysmenorrhea and greater positive effects than women who are sedentary. Exercises reduces menstrual cramps and improves associated symptoms. Health care providers suggest some forms of aerobic exercises such as pelvic rocking and tilting, walking and bicycling beneficial for dysmenorrhea [3, 4]. A study was conducted to determine the effect of pelvic rocking exercises in reducing pain of primary dysmenorrhea. They engaged 30 volunteers females who complained of primary dysmenorrhea. They were exercised 3 months regularly for 20 minutes daily. After three months of intervention, they were evaluated by McGill Pain Questionnaire. The results revealed that pelvic rocking exercises alleviated pain during menstruation as there was statistically reduction of pain from 2.83±0.98 to 0.23±0.43 and pelvic rocking exercises are effective and cost effective methods for reducing dysmenorrheal pain [5]. A study was conducted to find out the effectiveness of pelvic rocking exercises on dysmenorrhea among 30 adolescents in Christhu Jayanthi School at Erode. A self-administered visual analogue scale was used to assess the level of dysmenorrhea among

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adolescent girls. Subjects were given pre-test questionnaire and pelvic rocking exercises were taught to all the samples for 20 minutes. They were advised to practice for a period of 3 weeks. The results showed pre-test score was 8.23 and post-test score was 4.23. The obtained mean difference between pre-test and post-test scores was 4.0. So, the pelvic rocking exercises were effective on dysmenorrhea [6]. A randomized control trial was conducted to assess and evaluate the effectiveness of pelvic rocking exercises in reducing dysmenorrhea among 130 nursing students of Rufaida college of Nursing and Laxmibhai Batra college of Nursing, New Delhi. Sample selected by systematic random sampling with one experimental and one control group. Pelvic rocking exercises practiced from the last day of menstruation till the next menstruation started for 20 minutes daily 5 times a week. The result showed that the mean post-test score (2.66) was less than mean pre-test score (3.63). Thus, pelvic rocking exercises were effective in reducing dysmenorrhea [7].

The objectives of the study were:
1. To assess the pre-interventional dysmenorrhea among adolescent girls.
2. To assess the post-interventional dysmenorrhea among adolescent girls.
3. To compare pre-interventional and post-interventional dysmenorrhea among adolescent girls.
4. To determine the association of post-interventional dysmenorrhea among adolescent girls with selected socio-demographic variables.
5. To prepare and distribute informational booklets regarding management of dysmenorrhea among adolescent girls.

2. Material & Methods

For the present study, Quantitative experimental research approach was used. one-group pretest–posttest design was used to achieve the objectives of study. The research setting was SGRD College of Nursing Hostel, Vallah, Amritsar, Punjab. The sample consisted of 60 subjects. Purposive sampling technique was used to select the sample. Prior to the data collection procedure the formal permission was obtained from the Principal of the SGRD College of Nursing, Amritsar, Punjab. Socio-demographic profile was used to collect personal information and standardized numerical (0-10) pain intensity rating scale was used to assess the severity of dysmenorrhea. Socio-demographic profile included items like age (in years), age of menarche (in years), menstrual cycle (in days), duration of flow (in days) and dietary pattern. Standardized numerical (0-10) pain intensity rating scale was found to be useful in assessing the intensity of pain. The scale includes a horizontal 0-10 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 was collected from 16th December, 2015 to 30th January, 2016. The sample consisted of 60 subjects. The time taken by each respondent to fill the tool was 10-15 minutes. Pre-interventional dysmenorrhea of each adolescent girl was assessed on 1st day of her menstrual period at the time of data collection by using standardized numerical (0-10) pain intensity rating scale. Pelvic rocking exercises were initiated

in each adolescent girl on next day after she completed her menstrual period, daily in the morning for 20 minutes for 21 days regularly in multi-purpose hall of the hostel and thereafter post-interventional dysmenorrhea was assessed in each adolescent girl on the 1st day of her next menstrual period by using same scale. Informational booklets regarding dysmenorrhea were distributed among adolescent girls to encourage the practice of pelvic rocking exercises to reduce dysmenorrhea.

Then data was analyzed using the latest version of SPSS and interpreted using descriptive statistics by calculating frequency and percentage, mean, standard deviation (SD) and inferential statistics i.e. Chi square and t-test.

3. Results

Table 1 reveals the frequency and percentage distribution of sample characteristics of the study subjects. Distribution of study subjects, according to age of the adolescent girls showed that maximum (35%) of adolescent girls were between 19-20 years followed by 30% adolescent girls were in between 18-19 years, 26.7% were in between age 20-21 years and only 8.3% were in age between 17-18 years. Distribution of study subjects according to age of menarche, equal percentage (46.7%) of subject's attained menarche between 12-13 years and 14-15 years of age and only 6.6% attained menarche above 15 years of age. As per menstrual cycle, maximum (61.6%) of adolescents were having 28 days menstrual cycle, 21.7% were having 30 days cycle and only 16.7% of the adolescent girls were having above 30 days menstrual cycle. In context to the duration of flow, maximum (45%) were having 5 days and above menstrual flow followed by 36.7% were having 4 days menstrual flow, along with 11.7% adolescent girls were having 3 days menstrual flow and remaining (6.6%) were having 2 days menstrual flow. As per the dietary pattern, majority (76.7%) of the adolescent girls were vegetarian and remaining (23.3%) were non-vegetarians.

Table 1: Frequency and percentage distribution of sample characteristics according to demographic variables

Demographic Variable	n	%
Age (in years)		
17-18	5	8.3
18-19	18	30
19-20	21	35
20-21	16	26.7
Age of menarche (in years)		
10-11	-	-
12-13	28	46.7
14-15	28	46.7
Above15	4	6.6
Menstrual cycle (in days)		
28	37	61.6
30	13	21.7
Above 30	10	16.7
Duration of flow (in days)		
2	4	6.6
3	7	11.7
4	22	36.7
5& above	27	45
Dietary pattern		
Vegetarian	46	76.7
Non-vegetarian	14	23.3

Table 2 depicts frequency, percentage and mean distribution of adolescent girls according to pre-interventional dysmenorrhea. It shows that maximum (45%) of adolescent girls had moderate dysmenorrhea followed by 41.7% had severe dysmenorrhea and remaining (13.3%) had mild dysmenorrhea. Hence, it can be concluded that maximum of adolescent girls had moderate dysmenorrhea.

Table 2: Frequency, percentage and mean distribution of adolescent girls according to the pre-interventional dysmenorrhea N=60

Pre-interventional Dysmenorrhea	n	%	Mean	SD
No Pain (0)	-	-		
Mild (1-3)	8	13.3		
Moderate (4-6)	27	45	5.87	2.087
Severe (7-10)	25	41.7		

Table 3 depicts the frequency, percentage and mean distribution of adolescent girls according to post-interventional dysmenorrhea. It depicts that maximum (45%) of adolescent girls had mild dysmenorrhea followed by 31.7% of adolescent girls had moderate dysmenorrhea, 20% had no dysmenorrhea and very few (3.3%) had severe dysmenorrhea after intervention. Hence, it can be concluded that maximum of adolescent girls had mild dysmenorrhea after intervention.

Table 3: Frequency, percentage and mean distribution of adolescent girls according to the post-interventional dysmenorrhea N=60

Post-interventional dysmenorrhea	n	%	Mean	SD
No pain (0)	12	20		
Mild (1-3)	27	45	3.28	2.202
Moderate (4-6)	19	31.7		
Severe (7-10)	2	3.3		

Table 4 depicts the comparison between pre-interventional and post-interventional dysmenorrhea among adolescent girls. It shows that the Mean ± SD (5.87 ± 2.087) of pre-interventional dysmenorrhea was more than Mean ± SD (3.28 ± 2.202) of post-interventional dysmenorrhea among adolescent girls. The comparison of pre-interventional and post-interventional dysmenorrhea was calculated by t-test and found to be statistically significant at $p<0.05$ level of significance. Hence, it can be concluded that pelvic rocking exercises had significant effect in reducing dysmenorrhea among adolescent girls. Thus, null hypothesis was rejected.

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

Dysmenorrhea	Mean	SD	df	t
Pre-interventional	5.87	2.087	59	12.443*
Post-interventional	3.28	2.202		

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

4.1 Objective: To assess the pre-interventional dysmenorrhea among adolescent girls.
The analysis of data revealed that maximum (45%) of adolescent girls had moderate dysmenorrhea, 41.7% had severe dysmenorrhea and 13.3% had mild level of pre-interventional dysmenorrhea. These findings of study are consistent with the study conducted to assess the prevalence of primary dysmenorrhea among adolescent girls in Muscat, Oman. A self-administered questionnaire was used to collect information on demographic data, prevalence of dysmenorrhea, severity and its impact. The findings showed that maximum (41%) of subjects had moderate dysmenorrhea, 32% had severe dysmenorrhea and 27% had mild dysmenorrheal [8].

4.2 Objective: To assess the post-interventional dysmenorrhea among adolescent girls.
The Mean±SD of post-interventional dysmenorrhea was 3.28±2.202 among adolescent girls. These findings of study are consistent with the study conducted to assess the effect of pelvic stretching exercises on primary dysmenorrhea among physiotherapy girls in Ahmadabad, Gujarat. Visual analog scale and Multi-dimensional scoring was used to collect data related to dysmenorrhea. The findings after giving intervention i.e. post-interventional dysmenorrhea show that the Mean ± SD was 3.80±1.14 among physiotherapy girls [9].

4.3 Objective: To compare the pre-interventional and post-interventional dysmenorrhea among adolescent girls.
The comparison between pre-interventional and post-interventional dysmenorrhea among adolescent girls had significant difference with the 't' value (12.443) at $p<0.05$ level of significance. A similar study on effect of 8 weeks of aerobic training on primary dysmenorrhea revealed that there was significant difference between pre-interventional and post-interventional dysmenorrhea with the 't' value (5.074) at $p<0.05$ level of significance [10].

4.4 Objective: To determine the association of post-interventional dysmenorrhea among adolescent girls with selected socio-demographic variables.
In order to find the association of post-interventional dysmenorrhea among adolescent girls with socio-demographic variables revealed that there was no significant association between post-interventional dysmenorrhea among adolescent girls with selected socio-demographic variables such as age (in years), age of menarche (in years), menstrual cycle (in days), duration of flow (in days) and dietary pattern at $p<0.05$ level of significance. These findings were supported by a study which is a randomized control trail to assess and evaluate the effectiveness of pelvic rocking exercises in reducing dysmenorrhea This study results showed that there was no association of post-test dysmenorrhea with baseline characteristics like age, age of menarche, duration of menstrual cycle at $p<0.05$ level of significance [7].

5. Conclusion
It was concluded that dysmenorrhea i.e. painful menstruation is a common problem among menstruating adolescent girls. Painful menstruation is the leading cause of lost time from school and work among adolescent girls. As study findings showed that large number of adolescent girls manifested mild dysmenorrhea, who were exhibiting moderate dysmenorrhea before intervention. So, pelvic rocking exercises are an effective, simple and non-

pharmacological measure to reduce dysmenorrhea. On the other hand, these exercises can be done at all places, do not need any cost and are natural method of pain reduction.

6. 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 better generalizations of findings.
2. A study can be conducted to assess the effectiveness of pelvic rocking exercises v/s Ginger therapy on dysmenorrhea.
3. A similar study can be conducted on different population in different setting.
4. A teaching programme can be organized regarding primary dysmenorrheal, its management and alternate measures among adolescent girls.

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