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A study to assess the effectiveness of muscle stretching exercises on pain and discomfort during primary dysmenorrhoea among b.sc nursing students in a selected college of nursing at Kannur

Kavitha Mole PJ

Professor, OBG Nursing, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

Abstract

A study to assess the effectiveness of muscle stretching exercises on pain and discomfort during primary dysmenorrhoea among BSc nursing in a selected college of nursing at Kannur". One group pretest and posttest design was adopted. Setting of the study was crescent College of Nursing, Kannur. Sample was 50 BSc Nursing students with primary dysmenorrhoea. Sampling technique was Non probability purposive sampling technique. The model of this study was developed from Titler *et al* (2004) Effectiveness model. Menstrual pain perception level was measured by using numerical pain scale and primary dysmenorrhoea discomfort was assessed by primary dysmenorrhea discomfort assessing rating scale. Muscle stretching exercise was given to the subjects five days per week about 30 min, under the supervision of investigator. Result of the study had shown significant effect of muscle stretching exercises on pain and discomfort during primary dysmenorrhoea. This is proved by paired't' test. The paired't' value for pain and exercise was16.09 ($p<0.05$) and the paired't' value for discomfort during primary dysmenorrhoea and exercise was14.08 ($p<0.05$).So it was statistically proved that muscle stretching exercise was effective to reduce pain and discomfort during dysmenorrhoea.

Objectives:

1. To identify the prevalence of primary dysmenorrhoea among B.Sc Nursing students.
2. To assess the degree of pain and discomfort during primary dysmenorrhoea among B.Sc Nursing students.
3. To evaluate the effectiveness of muscle stretching exercise on pain and discomfort during primary dysmenorrhoea.
4. To associate the level of pain and discomfort during primary dysmenorrhoea with selected demographic variables.

Material and methods: The sample size was 50 B.Sc Nursing students. The one group pretest post-test was designed by the investigator to assess the effectiveness of muscle stretching exercises on pain and discomfort during primary dysmenorrhoea among B.Sc Nursing students. Samples were selected by purposive sampling technique. The research tool was developed and adopted after reviewing the relevant literature. The tools were numerical pain scale for measuring pain and primary dysmenorrhoea rating scale for measuring discomfort of primary dysmenorrhoea. The collected data was analyzed by descriptive and inferential statistics based on the formulated objectives of the study. The tested and accepted hypothesis is that there is a significant reduction in primary dysmenorrhoea pain and discomfort after muscle stretching exercises.

Results: Incidence rate of primary dysmenorrhoea among B.Sc Nursing students were 61.25(per cent). According to the pre-test primary dysmenorrhoea pain score more than half (60 percent) of students had the pain score 6 and above 6. But in the post-test pain score only 24 per cent of students had the pain score 4 and above 4.According to the pre-test primary dysmenorrhoea discomfort score more than half (78 per cent) of students had the discomfort score 61 and above 61. But in the post-test discomfort score only 30 per cent of students had the score 49 and above 49. Mean difference of pre-test post-test primary dysmenorrhoea pain score was 3.54.Mean difference of pre-test post-test primary dysmenorrhoea discomfort score was22.2. Mean score of pre-test primary dysmenorrhoea pain was 5.72 mean score of posttest primary dysmenorrhoea pain was 2.18.It shows the subjects had a significant reduction in their pain after muscle stretching exercise intervention. ($P<0.05$.,$t=16.09$) Mean score of pre-test primary dysmenorrhoea discomfort was 67.74,mean score of post-test primary dysmenorrhoea discomfort was 45.54.It shows the subjects had a significant reduction in their discomfort after muscle stretching exercise intervention.($P<0.05$.,$t=14.08$) There no association between pre-test post-test primary dysmenorrhoea pain and discomfort scores with selected demographic variables

Key words: muscle stretching exercise, pain, discomfort, primary dysmenorrhea

Introduction

Menstruation is the periodic and cyclic discharge of blood, mucus and cellular debrisfrom the uterus, this is mainly because of periodic progesterone withdrawal after ovulation in fertile cycles. It is initiated in response to change in the hormonal production from the ovaries and these ovaries are controlled by the pituitary and hypothalamus.

The primary dysmenorrheal pain starts a few hours prior or just with the onset ofmenstruation. The duration of pain usually lasts for few hours may extend to 24 hours butseldom persists beyond 48 hours. The pain is spasmodic and it mainly located in the lowerabdomen; sometimes radiate to back and medial aspect of thighs. Systemic discomforts likediarrhea, giddiness, fatigue, nausea, vomiting, and headache may be present and it may beassociated with vasomotor changes like pallor, cold sweats or occasional fainting. Rarelysyncope and collapse in severe cases may be associated.

Studies have shown that women with primary dysmenorrhoea

have an elevated resting uterine tone/pressure. This may be mediated by increased prostaglandin levels or elevated levels of vasopressin.

There are many pharmacological and non-pharmacological measures are to relieve pain during menstruation. Therefore the health professional should introduce alternative approaches against the primary dysmenorrhoea. A variety of non – pharmacological measures are used for relaxation and pain relief during menstruation that are breathing exercises, touch and massage, music therapy, heat application, cold application and exercises etc.

Various remedial exercises were advocated for dysmenorrhoea like floor polishing movements, bending, twisting, swaying, and rowing movements and other similar routines. These must be done for at least 15 minutes daily between the periods. These can be done inaddition to or instead of various games. Muscle stretching exercises mean moving the muscles in the different directions from which it normally contracts or work. Stretching can help to gain muscle strength and tone. It also prevents injuries and relives stress. Various types of muscle stretching exercises wereadvocated to reduce dysmenorrhoea. It was also seen that among athletes the incidence of Dysmenorrhoea was lower.

Need for the study

Dysmenorrhoea is one of the commonest gynecological problem about 60 percentages of girls and women are suffering from dysmenorrhoea. Primary dysmenorrhoea is a painful menstruation that occurs in the absence of any significant pelvic pathology. It usually develops after first two years of the menarche. The pain is often severe, cramping and crippling so it causes a major disruption of social activities. Primary Dysmenorrhoea is one of most common problem among adolescents. The prevalence rate primary dysmenorrhoea is about 60 to 93 (per cent). Primary dysmenorrhoea affects the academic performance, social and sports activities of the girl students. The most common effect of primary dysmenorrhoea on daily routine of students is prolonged resting hours followed by inability to study. The cause of primary dysmenorrhoea is not accurately understood. But the physical activity decreases the levels of inflammatory biomarkers like prostaglandin so it will reduce primary dysmenorrhoea.

Physical exercise and primary dysmenorrhoea is interrelated with each other, exercise can decrease the symptoms related to the primary dysmenorrhoea like pain, stress, mood changes and finally exercise improve health status also. Women who exercise show less severe primary dysmenorrhoea and greater positive effects than women who are sedentary. The fact that exercises is effective in reducing and treating the symptoms of primary dysmenorrhoea has revealed many years back it. Behavioral interventions such s exercise may not reduce primary dysmenorrhoea, but also decrease the need for pharmacological methods to control menstrual cramps and other associated symptoms. Exercise today is an important part of normal life of many women. It is proved thing that exercise can make many health benefits for women who exercise regularly. Like exercise improves cardiovascular status, increase bone mineral content, decrease stress and premenstrual syndrome.

Material and Methods

Research Approach: The Quantitative Research Approach is Adopted for the present study.

Research design: The Pre – Experimental research design, one group pretest and posttest design was adopted for this study.

Settings: The study was conducted at Crescent college of Nursing, Kannur.

Population: All B.Sc Nursing students in Crescent College of nursing, Kannur who were screened to have primary dysmenorrhoea.

Sample

Sampling techniques: Non probability purposive sampling technique was adopted for the selection of sample.

Sample size: The total sample size was 50

Sampling criteria

Inclusion criteria

Students with primary dysmenorrhoea and normal, regular menstrual cycle.

Those who experienced primary dysmenorrhoea for the last three months with every menstruation.

Those who was willing to participate in the study.

Exclusion criteria

Those who had the habit doing regular exercise.

Those who had spinal problems.

Those who were diagnosed for having secondary dysmenorrhoea.

Those who were undergoing treatment for secondary dysmenorrhoea.

Those who were taking medications during primary dysmenorrhoea.

Description of the Tool

Tool I: Baseline Data Collecting Questionnaire

Tool II: Primary dysmenorrhoea screening questionnaire

Tool III:

Part 1: Rating scale for assessing the discomforts during primary dysmenorrhoea.

Part 2: Numerical Pain scale for measuring the pain during primary dysmenorrhoea.

Content validity of the tool

Content validity of the tool was obtained from nursing and medical subject experts. The tool was given to experts in the field of nursing and medicine. The tool was reconstructed based on the suggestions obtained from the experts.

Reliability

Split-half reliability was used to check the reliability of primary dysmenorrhoea discomfort rating scale and score (correlation co-efficient, r = 0.72) shown that the primary dysmenorrhoea discomfort rating scale is reliable in assessing discomfort during menstruation.

Pilot Study

Pilot study is a small scale version or trial run of the major study. Its function is to obtain information on improving the project or for assessing its feasibility. The principal focus was the assessment of the adequacy of the, measurement. Pilot study was conducted among ten students with primary

dysmenorrhoea in crescent College of nursing at Kannur and the study was found to be feasible. No further changes were made in the tool after the pilot study and the investigator proceeded for the main study.

Data collection instrument

Data collection was done on the basis of the objectives of the study.

The tool consists of

Tool I: Baseline Data Collecting Questionnaire

Tool II: Primary dysmenorrhoea screening questionnaire

Tool III: **Part 1**

Rating scale for assessing the discomforts during primary dysmenorrhoea.

Part 2

Numerical Pain scale for measuring the pain during primary dysmenorrhoea.

Tool I: To assess the baseline characteristics of subjects consisted of 7 items seeking information about background of subjects. (Age in years, year of study, age at menarche, height, weight, BMI, and LMP.)

Tool II: Primary dysmenorrhoea screening questionnaire: To screen out the students with primary dysmenorrhoea from total population and this questionnaire consisted of 10 items seeking information about primary dysmenorrhoea. The alternative gave as normal, mild, moderate, and severe and these responses were scored by 0, 1, 2, and 3.Final scoring of primary dysmenorrhoea screening questionnaire:

Score

Mild primary dysmenorrhoea: 8-14

Moderate primary dysmenorrhoea: 15-22

Severe primary dysmenorrhoea: 23-30

Does not have primary dysmenorrhoea: 0-7

Tool III

Part 1

Rating scale helps to detect discomforts of primary dysmenorrhoea. The tool consisted of 36 items. The alternative gave as frequently, one to three times, never and these responses were scored by 3, 2, and 1.Each answer scored based on alternative responses as 3, 2, 1 and the total score was108.

Part 2

Numerical pain scale: The scale consisted of ranked choices that are no pain, mild pain, moderate pain, severe pain very severe pain and worst possible pain. The pain scale is divided into 10 parts. Each choice was assigned by a corresponding number.

Results

Primary dysmenorrhoea prevalence rate among B.Sc Nursing students N=351

Table 1

S.NO	Year of study	Prevalencerate	Total Prevalence rate among BSc Nursing Students
1	First Year	57.14	61.25
2	Second Year	57.17	
3	Third Year	72.84	
4	Fourth Year	64.37	

Comparison of mean pain and discomfort during primary dysmenorrhoea scores before and after muscle stretching exercise**. N=50**

Table 2

Area	Pre - Test		Post -Test		' t' value
	Mean	SD	Mean	SD	
Pain	5.72	1.6	2.18	1.79	16.09
Discomfort	67.74	10.11	45.54	8	14.08

't'(49)=2.021,P<0.05

Association between pretest pain score and demographic characteristics of the subject N= 50

Table 3

S. N	Variables	Degree of pain			X^2	df	P Value	In ference
		Up to5	6 To 7	8 & above				
1	Age				5.561	2	0.062	NS
	Up to 20	12	15	10				
	21 and above	8	5	0				
2	Year of study				6.703	6	0.349	NS
	1st year	4	4	2				
	2ndYear	3	6	4				
	3rd year	5	4	4				
	4th year	8	6	0				
3	Age at menarche				1.087	2	0.581	NS
	Up to 13	12	9	6				
	14 and above	8	11	4				

4	Body Mass Index				0.703	4	0.951	NS
	Up to 18	6	5	2				
	18.1 to 20	7	8	5				
	20.1 and above	7	7	3				

NS – Non significant

Association between pretest discomfort score and demographic characteristics of the subject N =50

Table 3

S. N	Variables	Degree Of Discomfort			X^2	Df	P Val Ue	In Fer Ence
		Up To 60	61 To 70	71 & Above				
1	Age				0.082	2	0.960	Ns
	Up To 20	8	13	16				
	21 And Above	3	4	6				
2	Year Of Study				5.912	6	0.433	Ns
	1st Year	2	3	5				
	2nd year	1	7	5				
	3rd Year	5	2	6				
	4th Year	3	5	6				
3	Age At Menarche				0.485	2	0.785	Ns
	Up To 13	5	10	12				
	14 And Above	6	7	10				
4	Body Mass Index				7.967	4	0.093	Ns
	Up To 18	4	2	7				
	18.1 To 20	1	10	9				
	20.1 And Above	6	5	6				

NS – Non significant

Discussion

The major findings of the study were analyzed statistically and discussed below based on objectives:

1. The total incidence rate of primary dysmenorrhoea among B.Sc Nursing studentswere 61.25(per cent).It shows the students had dreadful pain and discomfort during primary dysmenorrhea
2. According to the pre-test primary dysmenorrhoea pain score more than half (60percent) of students had the pain score 6 and above 6. But in the post-test primary dysmenorrhoea pain score only 24 per cent of students had the pain score 4 and above 4

Association between posttest pain score and demographic characteristics of the subject N= 50

Table 4

S. N	Variables	Degree of pain			X^2	df	P Value	In ference
		Up to 1	2 to 3	4 & above				
1	Age				2.096	2	0.351	NS
	Up to 20	12	17	8				
	21 and above	6	3	4				
2	Year of study				5.561	6	0.474	NS
	1st year	2	6	2				
	2ndYear	6	5	2				
	3rd year	3	5	5				
	4th year	7	4	3				
3	Age at menarche				0.103	2	0.950	NS
	Up to 13	10	11	6				
	14 and above	8	9	6				
4	Body Mass Index				1.948	4	0.745	NS
	Up to 18	4	7	2				
	18.1 to 20	7	8	5				
	20.1 and above	7	5	5				

NS – Non significant

3. According to the pre-test primary dysmenorrhoea discomfort score more than half
   (78 per cent) of students had the discomfort score 61 and above 61. But in the post-test primary dysmenorrhoea discomfort score only 30 per cent of students had the pain score 49and above 49.
4. Mean difference of pre-test post-test primary dysmenorrhoea pain score was 3.54.Mean difference of

pre-test post-test primary dysmenorrhoea discomfort score was22.2.

5. Mean score of pre-test primary dysmenorrhoea pain was 5.72,mean score of posttest primary dysmenorrhoea pain was 2.18.It shows the subjects had a significant reduction in their pain after muscle stretching exercise intervention.(P<0.05.,t=16.09)
6. Mean score of pre-test primary dysmenorrhoea discomfort was 67.74,mean score of post-test primary dysmenorrhoea discomfort was 45.54.It shows the subjects had a significant reduction in their discomfort after muscle stretching exercise intervention.(P<0.05.,t=14.08)
7. There was no association between pre-test post-test primary dysmenorrhoea pain and discomfort scores with selected demographic variables.

Association between post - test discomfort score and demographic characteristics of the subject N = 50

Table 6

S. N	Variables	Degree Of Discomfort			X^2	Df	P Val Ue	In Fer Ence
		Up To40	41 to 48	49& Above				
1	Age				2.319	2	0.314	NS
	Up To 20	8	16	13				
	21 And Above	5	6	2				
2	Year Of Study				7.477	6	0.279	NS
	1st Year	1	6	3				
	2nd year	3	3	7				
	3rd Year	4	6	3				
	4th Year	5	7	2				
3	Age At Menarche				4.361	2	0.113	NS
	Up To 13	7	15	5				
	14 And Above	6	7	10				
4	Body Mass Index				5.301	4	0.258	NS
	Up To 18	4	4	5				
	18.1 To 20	3	9	8				
	20.1 And Above	6	9	2				

NS – Non Significant

Conclusion

The following conclusion is made on the light of above findings that most of the Students suffer moderate to severe pain and discomfort during menstruation. Muscle Stretching exercises are the effective, simple, non-medicinal measure to reduce the pain and Discomfort during primary dysmenorrhoea. This research can make an awareness regarding How to manage primary dysmenorrhoea pain and discomfort among nursing students, college lecturers and parents. Muscle stretching exercises are the effective, safe, less time consuming Form of therapy for students with primary dysmenorrhoea. It can be implemented into clinical Practice and health education in order to increase the quality of life for students with primary Dysmenorrhoea.

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