Effect of Selected Stretching Exercises on the Pain Level of Primary Dysmenorrhea among College Students

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Abstract

Dysmenorrhea is a common gynecological condition with painful menstrual cramps of uterine origin. Primary Dysmenorrhea is widely prevalent, more than 70% of teenagers and 30-50% of menstruating women suffer from varying degree of discomfort. The primary objectives of the study were to assess the effect of selected stretching exercises on pain level of primary dysmenorrhea. Quasi experimental method was used and data was collected from 40 students who have suffered from Primary Dysmenorrhea by purposive sampling technique was used. Data was collected with the help of VAS (Visual Analogue Scale). The result showed pain was significantly reduced after exercise on day 1, day2, day3. i.e. Day 1 shows 43.78% reduction, day 2 shows 53.92% reduction and day 3 shows 80.14% reduction of pain. Significant difference of pain score on day 1 according to age before exercise among college student as $P<0.01$ i.e. as age increases pain decreases significantly. **Conclusion-** **S**elective stretching exercises were found to be effective in the level of dysmenorrhea among college students. It is also proven that pain level is high on first day of menstruation than second and third. Further studies can be conducted to see effects of pain on further aspects of life like psychological effects. Effectiveness of interventions can be check for the association with symptoms to have a broader picture.

Key words- *Effect, Stretching exercise, Pain, Primary Dysmenorrhea, College, students*

Introduction

Common problem among the adolescents and young adult girls is painful menstruation which is termed as dysmenorrhea. The word dysmenorrhea is derived from the Greek words Dys (difficult, painful, or abnormal), meno (month) and rrhea (flow). Dysmenorrhea affects the daily routine activities and quality of life in females. Dysmenorrhea can be divided into two broad categories of primary and secondary.[1]

Primary Dysmenorrhea begins a few years after menarche when ovulatory cycles set in. It is due to PGF2α produced in the endometrium during ovulatory cycles. The pain in the suprapubic and radiates to back and thigh. Associated nausea, vomiting, diarrhea, and syncope are seen in some women. Women with anxiety and stress are more prone to this disorder. Primary dysmenorrhea generally disappears after a few years, especially after a vaginal delivery. Primary Dysmenorrhea is due to increase in the level of Prostaglandin F2 alpha (PGF2α). In ovulatory cycles, Progesterone level rises after ovulation .This causes

an increase in PGF2α in the endometrium, leading to increase the tone of the myometrium and uterine contractions. Levels of Leukotriene's and Vasopressin in the endometrium are also elevated and play a role in Primary Dysmenorrhea.[3] Primary Dysmenorrhoea refers to one that is not associated with any identifiable pelvic pathology. It is now clear that pathogenesis of pain is attributable to a biochemical derangement. It affects more than 50% of postpubescent women in the age groups of 18 to 25 years.[2]

Research question

What will be Effect of selected Stretching Exercises on the Pain level of Primary Dysmenorrhea among College students?

Review of Literature

Kavitha M. (2017), conducted study to assess the effectiveness of muscle stretching exercises on pain and discomfort during primary dysmenorrhea among 50 BSc nursing students in a selected college of nursing at Kannur. 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 dysmenorrhea. Samples were selected by purposive sampling technique .The study result shown that, Muscle Stretching exercises are the effective, simple, non-medicinal measure to reduce the pain and Discomfort during primary dysmenorrhea. [4]

Narges M.T, Marjan A .S , and **Abbas A.(2017) ,**A Randomized Clinical Trial is performed to compared the Effect of Stretching Exercises and Mefenamic Acid on the Reduction of Pain and Menstruation Characteristics in Primary Dysmenorrhea. This randomized clinical trial was conducted on the female students of Mazandaran University of Medical Sciences, Iran, over five months in 2014. This study concluded that, regular exercise can be useful as an easy, accessible, and inexpensive approach to improve dysmenorrhea; however, the quality, intensity, and duration of exercise can influence the results.[5]

Raheela K , Tahir M , Waqar A , Muhammad N. B , Mirza S B. (2016),Randomized controlled trial is conducted to assess the effectiveness of tens versus stretching exercises on Primary dysmenorrhea among 66 students at Royal group of colleges Gujranwala, Pakistan. The ages of them were 16-25 year. sixty six females were divided into two groups. The group A was treated with TENS while group B was treated with stretching exercises. The data was collected from the subjects through structured questionnaire, VAS scale and SF-36. The results shown that TENS is more effective for pain improvement but to improve quality of life stretching exercises are more effective.[6]

Objectives:

1. To find out the pain level of Dysmenorrhea among college students.

2. To assess the effect of selected stretching exercises on pain level of primary dysmenorrhoea.

3. To correlate the pain level of Dysmenorrhea with selected demographic variables.

Research methodology:

Approach: Quantitative research.

Research Design: Quasi experimental one group pretest posttest design

Setting: This study was conducted in selected college of Pune city

Duration of study – 1 year.

Study population: Nursing students with primary dysmenorrhea

Sample technique: Purposive sampling technique

Sample size: As per prevalence 40 cases identified out of 150 populations

Calculated sample size was 36 at 95% confidence level

Data collection duration: Training duration -3 days per week, 2 times in a day. Total study duration was 4 weeks

Inclusive criteria:

1. Female who are suffering from primary dysmenorrhea
2. Female who are having regular menses
3. Female with age group of 17-30 years.
4. Female who are willing to participate

Exclusion criteria:

1. Female diagnosed with PCOD and on treatment
2. Female who are regularly practicing yoga and exercises.

Ethical consideration:

Study proposal approved by institutional ethical committee and from university. The study proposal explained to all the participant and Inform consent taken from each participant before data collection.

Data collection tool- self structured questionnaire

1. Section A: Socio Demographic Profile of girls who are having primary dysmenorrhea.

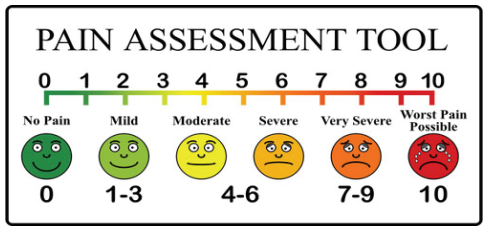
2. Section B: (Visual Analogue Scale)

Description of the tool

1. Section A: Socio Demographic Profile of girls who are having primary dysmenorrhea like, Age Weight, Height, Age of menarche ,Length of menstrual cycle, No. of sanitary pads used per day, Onset of menstrual pain, Drug history.

2. Section B: (Visual Analogue Scale)

VAS (Visual analogue Pain scale)



(Pain was assessed on first, second, and third day of menses before and after the exercise.)

Validity: Tool was validated by nursing experts, Obstetrician, librarian and statistician.

Reliability: In this study standardized tool is used i.e VAS (Visual analogue scale). Reliability was high, ICC = 0.99 [95%CI 0.989 to 0.992].

Data collection method:

a) Permission from concerned authorities:

Formal permission was obtained from the respective Principal of college of nursing. Written informed consent was obtained from subjects before completing the tool and confidentiality was maintained.

b) Period of data collection:

The data collection process began from 1/11/2017 to 31/12/2017. Each subject was explained about the study and its purpose. The data collection was done

strictly under the standard and laid down conditions. The criteria of the study were kept in mind while selecting the samples.

c) Process of data collection:

It was planned to select the subjects for study who have primary Dysmenorrhea. To select the sample needed for the study, the investigator approached the proper authorities for obtaining the necessary permission and cooperation. The nature of the study was briefly explained and it was ensured by the investigator that the normal routine of the students won't be disturbed. Demographic data of the students between 17-30 years were collected. On the first, second and third day of menses pain score was checked with the help of (VAS)visual analogue scale, then Selective stretching exercises were given in complete one menstrual cycle and again pain score was checked on first, second and third day during second menstrual cycle. Data was recorded in the format developed for the purpose.

Plan of data analysis:

The data analysis was planned to include descriptive and inferential statistics and present them in form of tables, graphs and figures. The data was planned to be set in excel file and analysis done by using statistical test.

Results

Organization of Data

The collected data is tabulated, organized and analyze under the following heading.

Section 1: Description of samples according to demographic data of college students.

Section 2: Description of analysis of data to assess the effect of selected stretching exercises on the level of dysmenorrhea among college students.

Section 3: Description of analysis of data to correlate the pain level of Dysmenorrhea with selected demographic variables.

SECTION 1: Description of samples according to demographic data of college students

a) Age –Majority 75% of college students are seen in age group of 21-25yrs, 20% are in age group of <20yrs and only 5% are seen in 26-30 yrs.

b) BMI – majority 70 % college students had BMI in range of 18.5-24.99, while 17.5% in range of 25 and above and only12.5% noticed in <18.5

c) Age of menarche – 67.5% of college students started menarche at age 13-14 years while 32.6 % started menarche at age 15-16 years.

d) Length of menstrual cycle –57.5% college students reported length of menstrual cycle of 29-32 days while 42.5% reported length of menstrual cycle of 25-28 days.

e) No. of sanitary pad used on day 1 at 1st menstrual cycle - 50% college students reported that they were using three sanitary pads, 47.5% were using four sanitary pads and only 2.5% students were using five sanitary pads on first day of first menstrual cycle.

f) No. of sanitary pad used on day 2 at 1st menstrual cycle – 50% college students reported that they were using three sanitary pads, 37.5 % were using four sanitary pads and only 12.5% were using two sanitary pads on 2nd day of first menstrual cycle.

g) No. of sanitary pad used on day 3 at 1st menstrual cycle – 50% college students were using three sanitary pads, 42.5% were using two sanitary

pads ,5% were using four sanitary pads and only 2.5% were seen of using one sanitary pad on 3rd day of 1st menstrual cycle.

h) No. of sanitary pad used on day 1 at 2nd menstrual cycle – Majority 72.5% college students reported of using three sanitary pads while 27.5 % were using four sanitary pads on 1st day of second menstrual cycle after exercise.

i) No. of sanitary pad used on day 2 at 2nd menstrual cycle - 60% college students were using three sanitary pads, 27.5 % were using four sanitary pads and only 12.5 % were using two sanitary pads on 2nd day of second menstrual cycle after exercise.

j) No. of sanitary pad used on day 3 at 2nd menstrual cycle - 52.5% college students reported that they were using two sanitary pads, 40% were using three sanitary pads ,5% were using four sanitary pads and only 2.5% were using one sanitary pad on 3rd day of 1st menstrual cycle.

k) Onset of menstrual pain – Majority 75% college students reported onset of menstrual pain on first day of menses where as only 25% reported onset on second day.

l) Drug history- Majority 80% college students were not having drug history and only 20 were taking drug to manage pain.

SECTION 2: Analysis of data to assess the effect of selected stretching exercises on the level of dysmenorrhea among college students.

Table 1: Pain level before exercise at 1st menstrual cycle among college students

Pain score	Before exercise at 1st cycle		
	Day 1 (%)	Day 2 (%)	Day 3 (%)
No	0	0	1 (2.5)
Mild	0	1 (2.5)	7 (17.5)
Moderate	14 (35)	32 (80)	32 (80)
Severe	26 (65)	7 (17.5)	0
Total	40 (100)	40 (100)	40 (100)

Table 1 shows that, majority 65% students reported severe pain, 35% moderate pain and no student reported mild pain and no pain on day 1 of 1st menstrual cycle before exercise. Where as on day 2, majority 80% student were having moderate pain, 17.5% were having severe pain and only 2.5% were having mild pain, no student had no pain. And day 3, pain score shows that majority 80% students were having moderate pain, 17.5% were having mild pain and 2.5% were noticed with no pain.

Table 2: Pain level after exercise at 2nd menstrual cycle among college students.

Pain score	After exercise at 2nd cycle		
	Day 1 (%)	Day 2 (%)	Day 3 (%)
No	0	0	15 (37.5)
Mild	4 (10)	31 (77.5)	25 (62.5)
Moderate	36 (90)	9 (22.5)	0
Severe	0	0	0
Total	40 (100)	40 (100)	40 (100)

Above table 2 shows that pain score was recorded after exercise at 2nd menstrual cycle. majority 90% students had moderate pain, 10% had mild pain and no one had severe & no pain on 1st day. Whereas, majority 77.5% students had mild pain, 22.5% had moderate pain and no one had severe and no pain on day 2. On day 3 majority 62.5% had mild pain and 37.5% students had no pain.

Table 3: Comparison of pain level before and after stretching exercise among college students

Pain score at	Before exercise		After exercise		Wilcoxon z value	P Value
	Mean	SD	Mean	SD		
Day 1	7.88	0.883	4.43	0.813	5.55	<0.0001
Day 2	6.25	1.256	2.88	0.911	5.56	<0.0001
Day 3	4.03	1.368	0.80	0.723	5.49	<0.0001

Above table 3 shows the comparison of pain score before and after stretching exercise among college students. It showed that pain was significantly reduced after exercise on day 1, day2, day3. i.e. Day 1 shows 43.78% reduction, day 2 shows 53.92% reduction and day 3 shows 80.14% reduction of pain.

Section 3: Description of analysis of data to correlate the pain level of dysmenorrhea with selected demographic variables

Table. 4 Association between pain level and age before exercise among college students

Age (Yrs)	N	Pain score on day1		Pain score on day2		Pain score on day3	
		Mean	SD	Mean	SD	Mean	SD
≤20	8	8.63	.518	6.88	1.458	4.13	1.553
21 – 25	30	7.73	.868	6.17	1.177	4.07	1.337
26 – 30	2	7.00	.000	5.00	.000	3.00	1.414
F Value		5.17		2.17		0.58	
P Value		0.01		0.13		0.56	

Above table 4 shows that, there is significant difference of pain score on day 1 according to age before exercise among college student as P<0.01 i.e. as age increases pain decreases significantly where as not significant difference of pain score on day 2, day3 according to age as P>0.05 i.e. as age increase pain decrease but not statistical significant.

Discussion

Finding of the study it can be concluded that there was a significant reduction in the pain level during the menstruation. Investigator identified that selective stretching exercises was found to be effective in the level of dysmenorrhea among college students. It is also proven that pain level is high on first day of menstruation than second and third. Study also showed the significant association of age and pain level of dysmenorrhea, as age increases women's are adapting pain. But no significant difference found with other demographic variables such as BMI, age of menarche, length of menstrual cycle, Number of sanitary pads used, onset of menstrual pain and drug history.

Following study also supports the present study

Shabnam O, Fatemeh Bi, Fatemeh N. A, and Khyrunnisa B (2016) A Cross-sectional study was conducted on Primary Dysmenorrhea and Menstrual Symptoms in 1000 Indian Female Students aged 11-28: Prevalence, Impact and Management. Standardized Self-reporting questionnaires were used to obtain relevant data. Pain intensity was assessed by using the Numerical Pain Scale (NPS). Study results showed that Prevalence of dysmenorrhea was 70.2%. Majority of the subjects experienced pain for one- or 1-2-days during menstruation. 23.2% of the dysmenorrheic girls experienced pain for 2-3 days.

Shahnaz S.J, Rahman S.H, Maghsoud E.G. (2012), conducted study on Effects of stretching exercises on primary dysmenorrhea in 179 single adolescent girls aged 15-17 years with moderate-to-severe primary dysmenorrhea. The participants were randomly divided into 2 groups: an experimental group (n = 124) and a control group (n = 55). In the

intervention group, the subjects were requested to complete an active stretching exercise for 8 weeks (3 days per week, 2 times per day, 10 minutes each time) at home. In the pre-test, all of subjects were examined for pain intensity (10-point scale), pain duration, and the use of sedative tablets in 2 continuous menstruation cycles. The post-test was examined 8 weeks later. The study revealed that, exercises are effective in reducing pain intensity, pain duration, and the amount of painkillers used by girls with primary dysmenorrhea.

Nahal H ,Mary S.L., Wan Y, Rejali Z(2015) A cross sectional study was conducted on Prevalence of Primary Dysmenorrhea and Factors Associated with Its Intensity Among 311 Undergraduate female students aged 18 to 27 years in Isfahan University of Medical Sciences, Iran. Socio-demographic characteristics and menstrual factors were obtained through interviews with the help of a pretested questionnaire. Results showed that higher intensity of dysmenorrhea was associated with younger ages, and some previous studies confirmed that the intensity of primary dysmenorrhea decreased as age increased.[7]

Marzieh A, Naeimeh T, and Maliheh A (2017), cross sectional study is conducted on The Relationship between Age at Menarche and Primary Dysmenorrhea in Female Students of Shiraz Schools. Questionnaire was applied on 2000 female students. The result shown that about 69.3% of the participants had experienced at least 1 episode of menstrual bleeding. Among postmenarcheal subjects, 77.7% had dysmenorrhea, while 22.3% did not. Study concluded that although two-thirds of students suffered from primary dysmenorrhea, no significant relationship was found with age at menarche.[8]

Implication of the study

The implication of the study can be discussed in five broad areas namely; clinical nursing practice, nursing education, nursing research and in community setting.

Clinical practice:

· This study provided evidence for practicing the selective stretching exercises on level of dysmenorrhea.

· Practicing the selective stretching exercises is cost effective for womens who comes in Gynaecology OPD with the complaints of primary dysmenorrhea and easy for the nurses to measure the pain level with the help of visual analogue scale. It can be prevent disturbances in daily activities.

Nursing education:

· The education curriculum must include imparting knowledge as well as emphasize on developing skills which are required to identify and prevent complications.

· Nursing education should help in inculcating values and sense of responsibility in practicing cost effective method to reduce the pain of primary dysmenorrhea.

Nursing research:

· It contributes in delivering quality care to our clients. The findings and design of this study can be utilized for conducting further collaborative or interdisciplinary studies.

Community:

· Measuring pain by using visual analogue scale is easy and fast.

· All community worker as well as nurses will advice to practice selective stretching exercises for

the level of dysmenorrhea.

Recommendations:

· A comparative study can be conducted with control group.

· Further studies can be conducted to see effects of pain on further aspects of life like psychological effects.

· Effectiveness of interventions can be check for the association with symptoms to have a broader picture.

· **Sources of Financial Support:** Self funding

· **Conflict of Interest :** Nil

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