



# **PRE-EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSCLE RELAXATION TECHNIQUE ON PAIN DURING MENSTRUATION AMONG ADOLESCENT GIRLS FACING DYSMENORRHEA AT SELECTED HIGH SCHOOLS OF KASHMIR.**

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## **ABSTRACT**

*A pain is an unpleasant and sensational stimulus to our body whenever there is damage to any of the tissue and prompts to seek medical advice or home remedies. There are different types of pain that can be related to acute pain, chronic pain, neuropathic pain and menstrual pain etc. But menstrual pain is very commonly experienced by adolescent girls during naturally occurring menstrual cycle in every month during fertility age. Though the adolescent girls are used different measures and methods as well as techniques to get reduction in level of pain during menstruation period. During dysmenorrhea the adolescent girls bearing and facing lot of difficulties while doing their common tasks and other activities. So in order to reduce the level of pain during menstrual period the adolescent girls can use a common technique known as Jacobson's muscle relaxation technique. Even though it is commonly observed that during menstrual pain the adolescent girls get distraction of normal life for example low concentration on their studies, difficulties in accomplishing daily tasks and other activities, school absenteeism, and even the adolescent girls are maintaining physical distances among family members as well as among friends during these days. Dysmenorrhea also limits participation in sports and social activities that is why many women and adolescent girls are nowadays trying to find some basic remedies which can help them to relieve the level of pain during menstruation. Therefore, On the basis of these observations and views a study was conducted to evaluate the effectiveness of muscle relaxation technique on pain during menstruation among adolescent girls facing dysmenorrhea at selected high schools of Kashmir for which 60 subjects were selected by convenient sampling technique. After data collection Numerical pain assessment scale was used to assess the*

*pain among subjects. The data was analyzed by descriptive and inferential statistics by using chi-square and t-test. The findings revealed that the mean posttest pain level score (2.3), standard deviation 1.46, at t value -16.9 was significantly lower than mean pretest pain level score 5.1, standard deviation 1.38 at calculated p value .000001 among study subjects at Calculated cohen's d is 2.3 which indicated that muscle relaxation technique is very useful at large scale to make effect on pain which can be observed easily. The findings also concluded that there were statistically no significant association between demographic variables ( $p=0.000$ ) of adolescent girls with their pre-test knowledge scores at 0.05 level of significance.*

**KEYWORDS:** *Assess, Effectiveness, Muscle relaxation technique, Knowledge, Home Remedies, Dysmenorrhea and Adolescent Girl.*

## 1. INTRODUCTION

The concept of adolescence lacks precision for the adolescent himself/herself and also for others. It is a stage of transition from childhood to adulthood and is marked by the termination of childhood at one end and the beginning of adulthood at other end. The adolescent is yet not free from the secure environment of childhood and yet heading towards achieving adulthood which is unknown. The adolescent is neither down the stairs nor up the stairs. It is in between and there is no specific status which may be a source of problem if proper handlings are not done and proper care is not given. In adolescence, both boys and girls undergo several physiological changes which include body growth, hormonal changes and sudden development of primary and secondary sex characteristics. Often adolescents have psychological reactions to these changes which may differ and may not be equally intense in all the adolescents. Different and contrasting views have been expressed by different psychologists about adolescent's behavior. Much is not known about psychological development of adolescents due to lack of research work in this field.<sup>1</sup>

Puberty is the process of physical changes through which a child's body matures into an adult body capable of sexual reproduction. It is initiated by hormonal signals from the brain to the gonads: the ovaries in a girl, the testes in a boy.<sup>2</sup>

Menstruation is a series of events, occurring regularly in females every 26 to 30 days throughout the childbearing period between menarche and menopause. The cycle consists of series of changes taking place concurrently in the ovaries and uterine lining, stimulated by changes in blood concentrations of hormones. Hormones secreted during the cycle are regulated by negative feedback mechanism. The average length of the cycle is about 28 days. By convention the days of the cycle are numbered from the beginning of the menstrual phase, which usually lasts about 4 days. This is followed by the proliferative phase (approximately 10 days), the by secretory phase (about 14 days).<sup>3</sup>

Menstrual cycle is the cycle of changes that occurs in the uterus and ovary for the purpose of sexual reproduction. The menstrual cycle can be described by the ovarian or uterine cycle. The ovarian cycle describes changes that occur in the follicles of the ovary whereas the uterine cycle describes changes in the endometrial lining of the uterus.<sup>4</sup>

Abnormal uterine bleeding may be caused by ovulatory dysfunction, and bleeding patterns can range from amenorrhea to irregular heavy menstrual bleeding. Although ovulatory dysfunction is somewhat physiologic in the first few years after menarche, it can be associated with endocrinopathies due to hypothalamic-pituitary-ovarian axis disturbances, such as polycystic ovary syndrome and thyroid disease, as well as mental stress and eating disorders. Heavy menstrual bleeding, commonly associated with anovulation, also has been associated with the diagnosis of a coagulopathy (including von Willebrand's disease, platelet function disorders, and other bleeding disorders) or other serious problems (including hepatic failure) and, rarely, malignancy for a list of potential causes of abnormal uterine bleeding in adolescents. The diagnosis of pregnancy, sexual trauma, and sexually transmitted infections should be excluded, even if the history suggests the patient has not been sexually active.<sup>5</sup>

Pain associated with menstruation is called dysmenorrhea. More than half of women who menstruate have some pain for 1 to 2 days each month. Usually, the pain is mild. But for some women, the pain is so severe that it keeps them from doing their normal activities for several days a month. Most women have some pain with their menstrual periods. For some women, severe pain comes with other symptoms, including diarrhea, nausea, vomiting, headache, and dizziness. There are two types of dysmenorrhea: primary and secondary. There are different causes for dysmenorrhea which includes Endometriosis, Endometriosis Fibroids, Adenomyosis,

Problems with the uterus, fallopian tubes, and other reproductive organs; certain defects that a woman is born with can result in pain during menstruation. Other conditions like Crohn's disease and urinary disorders. The medical measure can be taken in different methods which include Birth control methods that contain estrogen and progestin, such as the pill, the patch, and the vaginal ring, can be used to treat painful periods. Birth control methods that contain progestin only, such as the birth control implant and the injection, also may reduce period pain. Some of the home remedies are also used during dysmenorrhea which includes Exercise, Apply heat, Taking a warm bath or placing a heating pad or hot water bottle on abdomen can be soothing, Sleep and Relaxation therapies like Meditating or practicing yoga.<sup>6</sup>

Primary dysmenorrhea is thought to be caused by excessive levels of prostaglandins hormones that make uterus contract during menstruation and childbirth. Its pain probably results from contractions of uterus that occur when the blood supply to its lining is reduced. During endometrial sloughing, endometrial cells release prostaglandins as menstruation begins. Prostaglandins stimulate myometrial contractions and ischemia. Women with more severe dysmenorrhea have higher levels of prostaglandins in menstrual fluid and these levels are highest during the first two days of menstruation.<sup>7</sup>

The study on incidence of dysmenorrhea in India revealed that it occurs in 50% menstruating women and about 10% are incapacitated for 1-3 days each month. In the first year after menarche 38% of girls develop dysmenorrhea. In the second and third year after menarche 20% experience pain related to menstruation.<sup>8</sup>

Dysmenorrhea is a painful syndrome that accompanies the menstrual cycles. Although exercise is generally thought to alleviate the dysmenorrhea, the scientific literature display mixed evidence. The main objective of this research was to determine the effects of exercise on primary dysmenorrhea. This study was a randomized clinical trial of 150 high school girl students in Masged Solayman city that were suffering from severe dysmenorrhea. Students were separated in two exercise and non-exercise groups. Then the exercise group was given some exercises and the results of the two periods after the exercise were registered. The descriptive statistics and repeated measure design were used for analyzing the statistical information. The results showed that the intensity of the pain in the exercise group declined from 8.59 to 4.63 in the third period and 2.84 in the fourth period ( $P < 0.01$ ). The average of the duration pain declined from 7.15 to 4.12 in the third period and 2.23 in the fourth period ( $P < 0.01$ ). The average of using sedative tablets also decreased from 1.13 to 0.35 tablets in the third period and 0.0 tablets in the fourth period ( $P < 0.01$ ). The findings revealed that exercise can decrease the duration and severity of dysmenorrhea and also using of the sedative tablets in high school girls.<sup>9</sup>

A cross-sectional study was conducted between 15 March and 15 April 2009 at Dumlupinar University, Kutahya, Health High School, and Western Turkey. The total for the study were 623 female students. The severity of dysmenorrhea was determined with a 10-point visual analog scale. The Short Form-36 (SF-36) form was used to determine health-related quality of life (HRQoL). Chi-square test, Student's *t* test, and logistic regression and variance analyses (ANOVA) were used for statistical analyses. The average age of the study group was  $20.8 \pm 1.8$  years (range 17–30). Prevalence of dysmenorrhea was found to be 72.7% and was significantly higher in coffee consumers, females with menstrual bleeding duration  $\geq 7$  days, and those who had a positive family history of dysmenorrhea when compared to the others ( $P < 0.05$ , for each one). By multivariate analysis, coffee consumption (OR 2.084), menstrual bleeding duration  $\geq 7$  days (OR 1.590), and positive family history of dysmenorrhea (OR 3.043) were important risk factors for dysmenorrhea. Except for social functioning, role-emotional, and mental health domains, the SF-36 points received from the other domains were higher in females with dysmenorrhea (for each one  $P < 0.05$ ). With the exception of the scores received from physical functioning and role-emotional domains, the scores received from the other domains of the SF-36 scale showed a decrease with increasing severity of dysmenorrhea ( $P < 0.05$ , for each one). Dysmenorrhea is a common health problem, having negative effects on the HRQoL among university female students.<sup>10</sup>

A study was conducted on "The effect of Jacobson's relaxation technique on dysmenorrhea among adolescent girls" at Mysore. The objective of the study was to assess the effect of Jacobson's relaxation technique on dysmenorrhea among adolescent girls. The size of sample is 80 girls. Convenient sample technique was used. The tool used was structural interview questionnaires scheduled. The max score was 84 and the minor score was 0. The reliability was valued by 5 experts. Correlations-coefficient was  $r=0.56$ . The collected opinion was analyzed by using descriptive and inferential statistics. The study concluded that the Jacobson's relaxation technique for dysmenorrhea.<sup>11</sup>



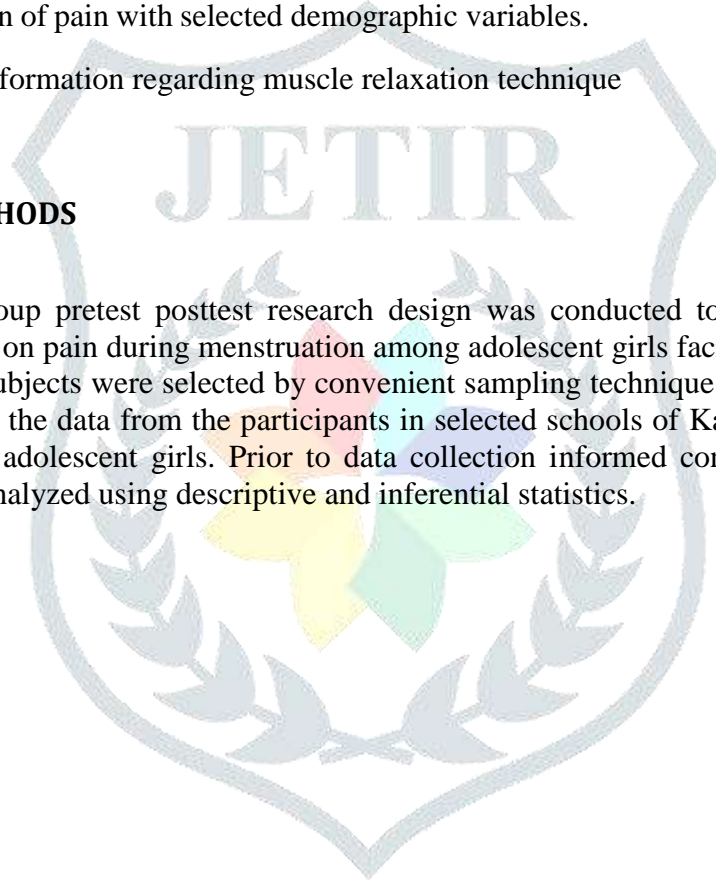
As a part of curriculum during field visit as well as maternity posting in Community health Centre Sumbal, the investigator found that most of adolescent girls are usually facing pain during menstruation cycle. During the period of maternity OPDs the investigator found that pain during menstruation is common among adolescent girls. Finally investigator felt that the adolescent girls can improve their health and feel less pain during menstruation if they have adequate knowledge regarding muscle relaxation technique. Hence the investigator finally decided that there is need to impart health education regarding muscle relaxation technique among adolescent girls facing dysmenorrhea at selected High schools of Kashmir.

## 2. Objectives of study

1. To assess the pre-interventional level of pain.
2. To evaluate the level of pain with muscle relaxation technique among adolescent girls.
3. To find out the association of pain with selected demographic variables.
4. To provide the booklet information regarding muscle relaxation technique

## 3. MATERIALS AND METHODS

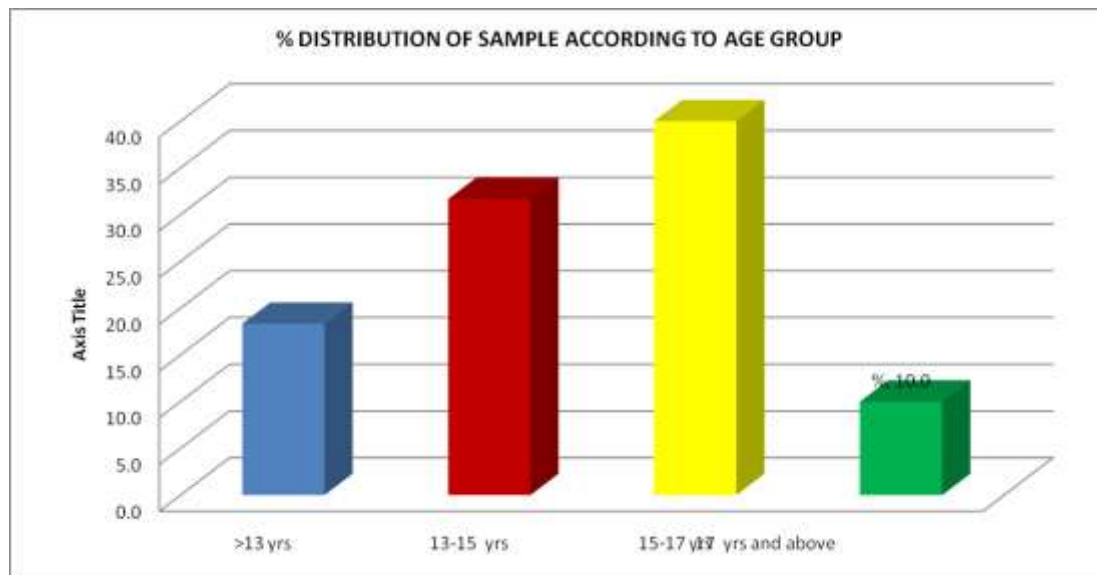
A pre-experimental one group pretest posttest research design was conducted to assess the effectiveness of muscle relaxation technique on pain during menstruation among adolescent girls facing dysmenorrhea in selected schools of Kashmir. Sixty subjects were selected by convenient sampling technique. Numerical pain assessment scale was adopted to collect the data from the participants in selected schools of Kashmir. The tool consisted of demographic variables and adolescent girls. Prior to data collection informed consent was obtained from the participants. The data was analyzed using descriptive and inferential statistics.



## 4. RESULTS

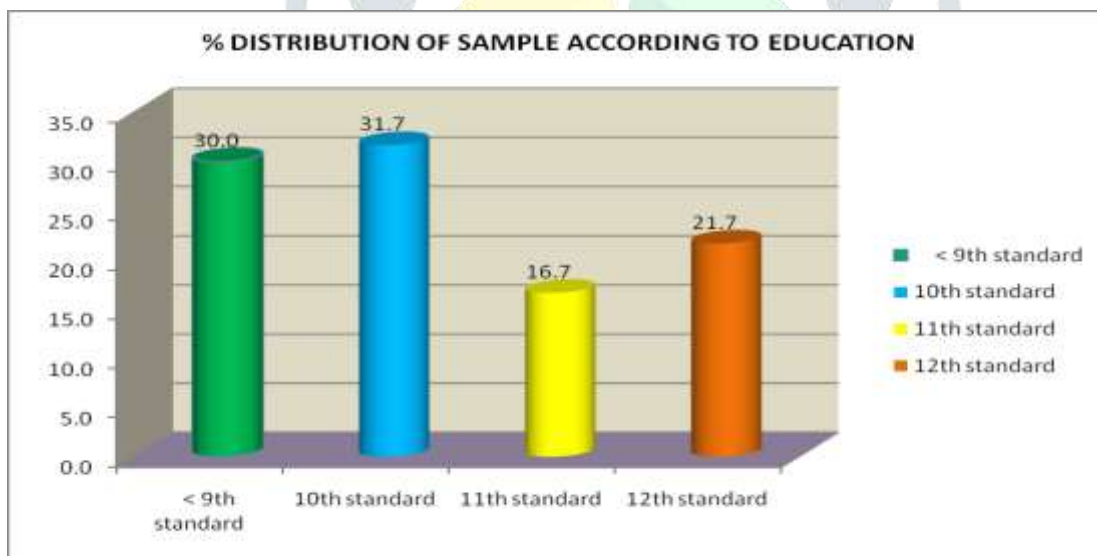
### SECTION 1

**Fig-1:- Frequency Distribution of Subjects According To Their Age.**

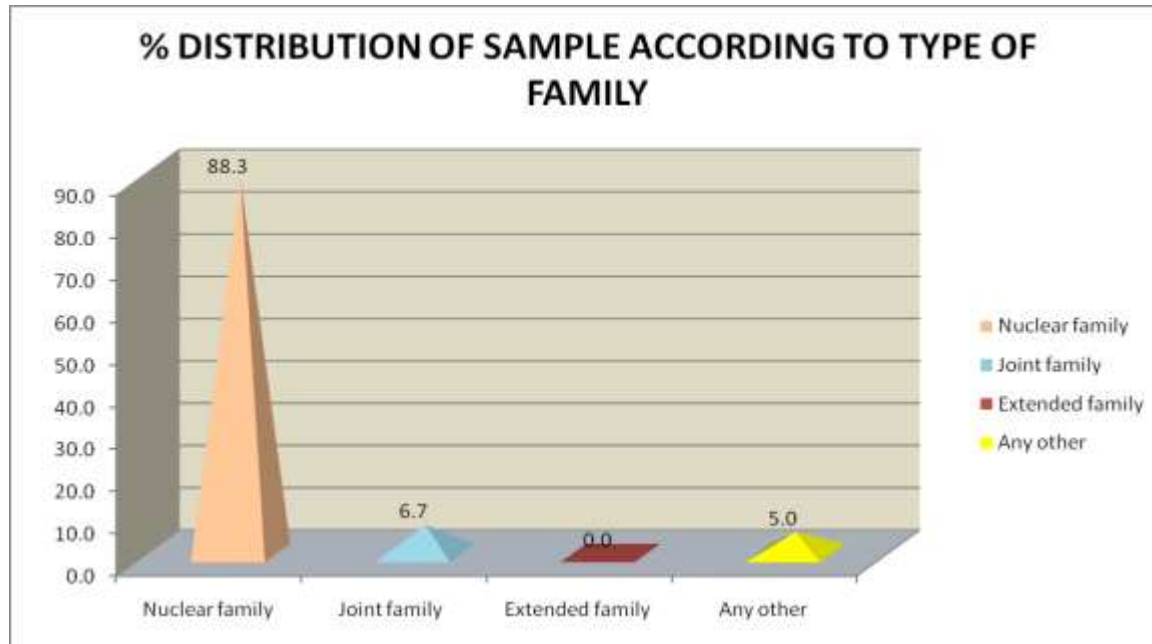


The data presented in fig. 1 depicted that most of the study subjects 24(40%) were 15-17 years of age, 19(31.7%) subjects were 13-15 years of age, 11(18.3%) subjects were greater than 13 years of age and 6(10%) subjects were 17 and above years of age respectively.

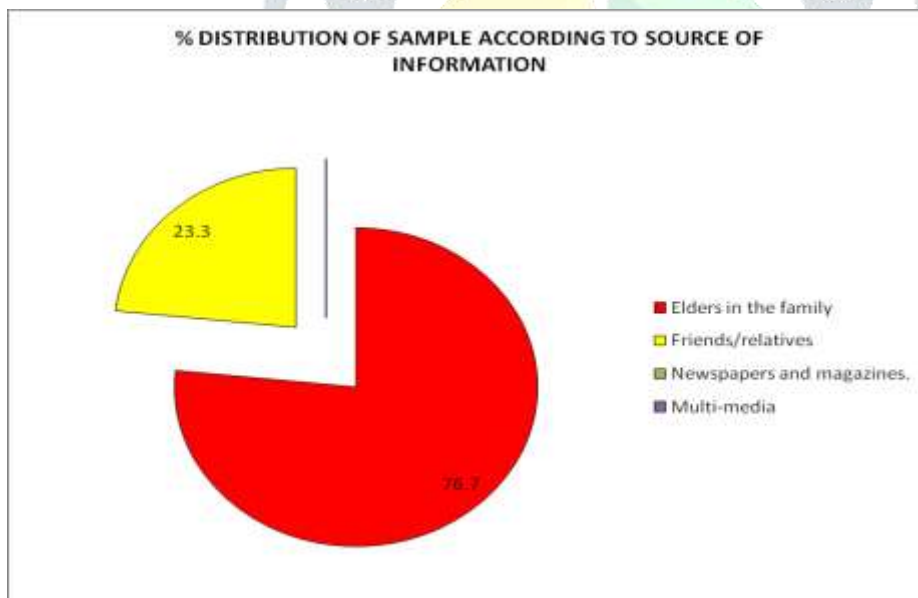
**Fig-2:- Frequency Distribution of Subjects According To Their Education.**



The data presented in figure 2 revealed that most of the study subjects 19(31.7%) were belonged to 10<sup>th</sup> standard, 18(30%) were belonged to 9<sup>th</sup> standard, 13(21.7%) were belonged to 12<sup>th</sup> standard and 10(16.7%) were belonged to 11<sup>th</sup> standard of education respectively.

**Fig-3:- Frequency Distribution of Subjects According To Type of Family.**

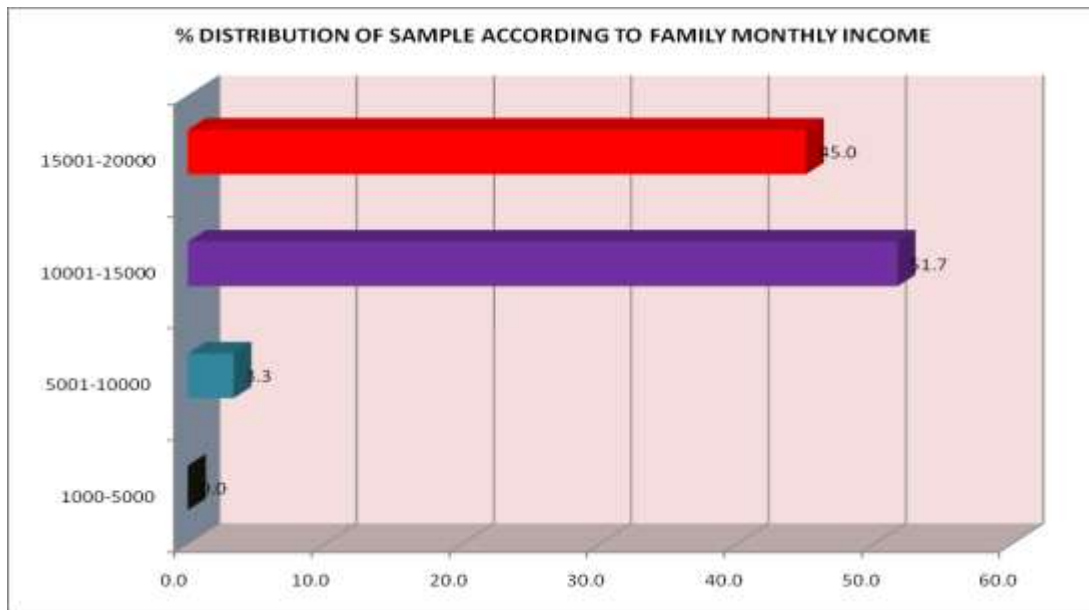
The data presented in figure 3 depicted that most of the study subjects 53(88.3%) were belonged to nuclear family, 4(6.7%) were belonged to joint family, 3(5%) were belonged to other families respectively.

**Fig-4:- Frequency Distribution of Subjects According To source of information.**

The data presented in figure 4 revealed that 46(76.7%) had received the information from their elders in family, 14(23.3%) had received information from friends and relatives and none of them received information from multimedia and newspapers/magazines respectively.

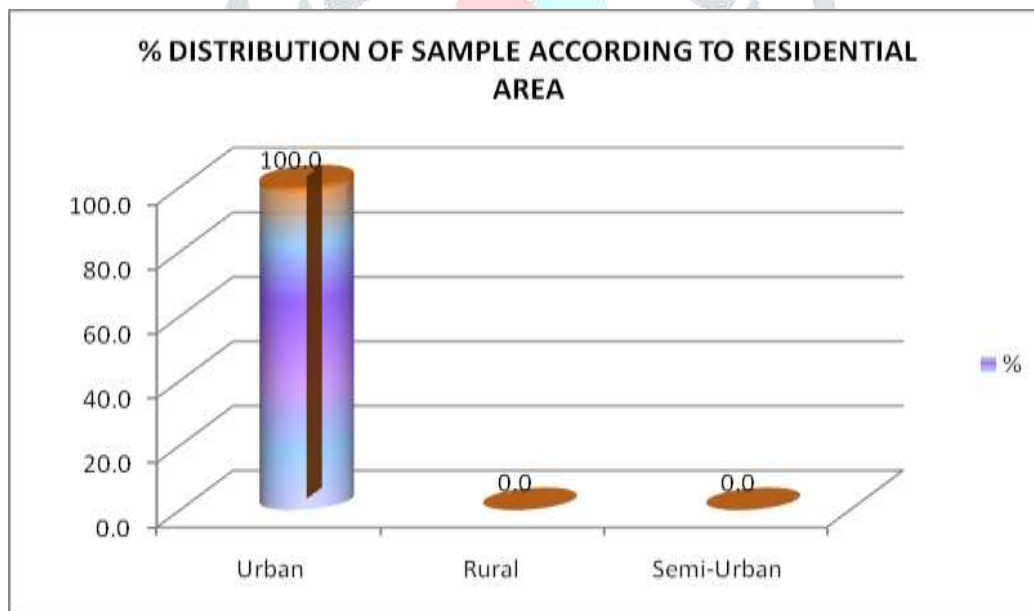
**Fig-5:- Frequency Distribution of Subjects According To Monthly Family Income.**

The data presented in figure 5 revealed that study subjects **31(51.7%)** had monthly income 10001-15000,



**27(45%)** had monthly income 15001-20000, **2(3.3%)** had monthly income 5001-10000 income and **0(0%)** had monthly income 1000-5000 respectively.

**Fig-6:- Frequency Distribution of Subjects According To Socio-Economic status.**

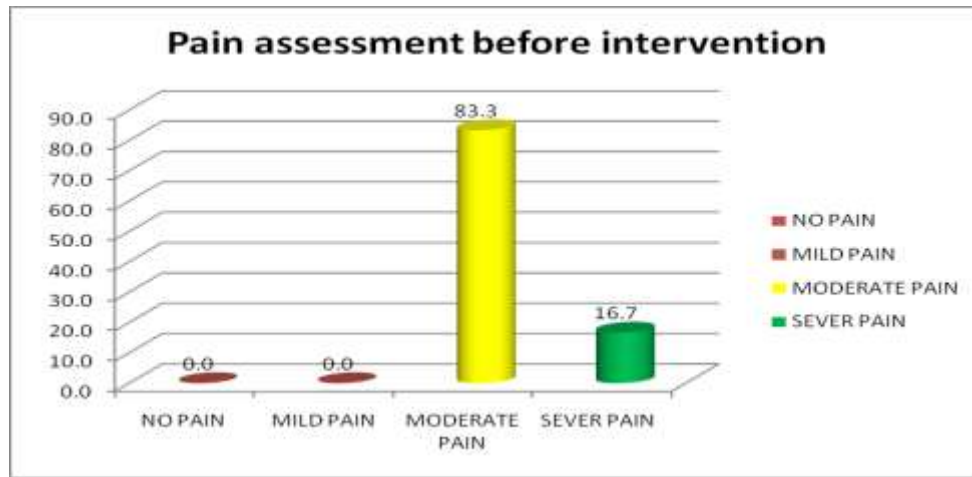


The data presented in figure 6 revealed that most of the study subjects **60 (100%)** were residing in urban area, whereas none of the study subject belonged to rural area respectively.

**SECTION 2**

**Table 1: Frequency Distribution of Subjects according To Pain Assessment before intervention.**

Pain level	No-60	
	NO.	Percentage
NO PAIN	00	0.0
MILD PAIN	00	0.0
MODERATE PAIN	50	83.3
SEVER PAIN	10	16.7
<b>TOTAL</b>	<b>60</b>	<b>100</b>

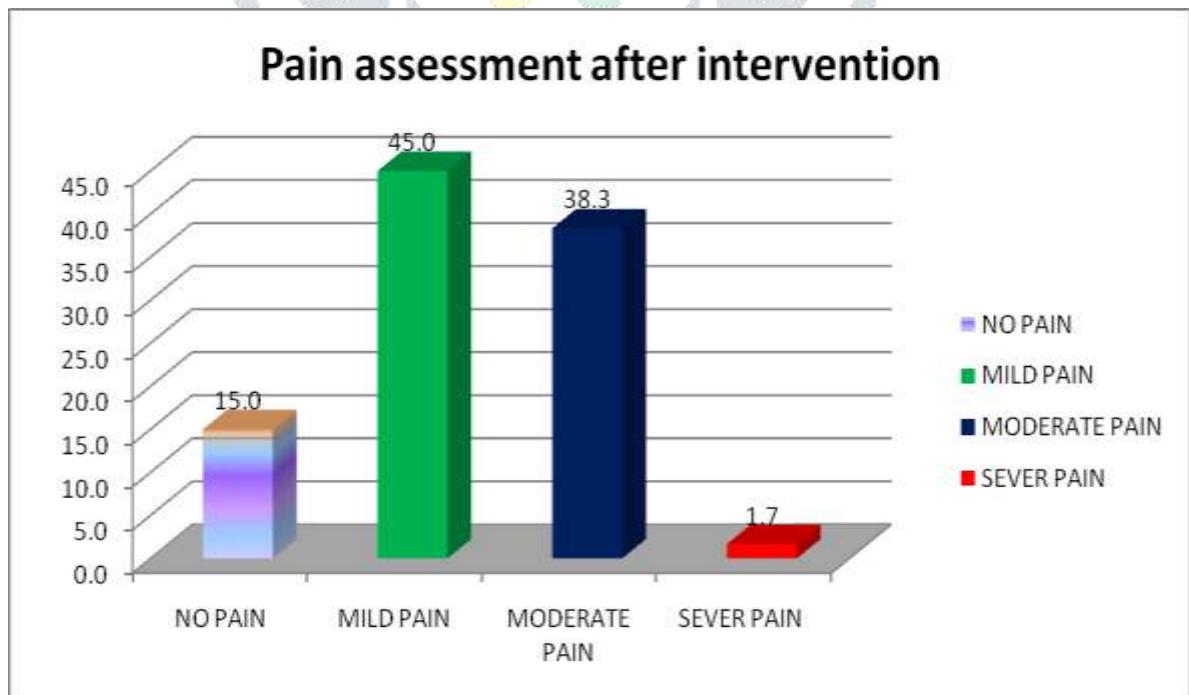


The data presented in Table 1 and in figure 7 revealed that most of the study subjects **50(83.3%)** had moderate pain, **10(16.7%)** had severe pain whereas none of had mild and no pain respectively.

**Section 3**

**Table 2: Frequency Distribution of Subjects according To Pain Assessment After Intervention. N-60**

Pain level	Frequency	Percentage
No pain	09	15.0
Mild pain	27	45.0
Moderate pain	23	38.3
Sever pain	01	1.7
<b>TOTAL</b>	<b>60</b>	<b>100.0</b>



The data presented in table 2 and in figure 8 that most of the study subjects **27(45%)** had mild pain, **23(38.3%)** had moderate pain, **9(15%)** had no pain and **1(1.7%)** had severe pain after intervention respectively.



## Section 4

**Table 3- Evaluation of Effectiveness of Muscle Relaxation Technique on Pain Management.**

	Mean	SD	t value	D.F.	P value	cohen's d
pre test	5.1	1.38				
post test	2.3	1.46	-16.9	58	<.00001.	2.3

The data presented in the table 3 revealed that the mean post-test (2.3) was lower than mean in pre-test (5.1) at p value .000001 which indicated that there was significant difference between posttest pain level and pre-test pain level management. The calculated cohen's d is 2.3 which indicated that the muscle relaxation technique also causes large effect on pain and can be observed easily.

## Section 5

**Table 4: Analysis of Association Of pain assessment score among adolescent girls facing dysmenorrhea with their selected demographic variables.**

Demographic data	D.F.	CHI-SQUARE	P VALUE	INFERENCE
Age:	9	8.27	.508	NS
Education	9	13.28	1.49	NS
Type of family	9	3.7	.92	NS
Source of information	9	1.36	.99	NS
Monthly Family income	9	6.3	.70	NS
Residential area	6	0	1	NS

The data presented in table 4 depicted that there were statistically no association between pre intervention pain assessment score with selected demographic variables (age, education, type of family, source of information, monthly family income and residence) at  $p < 0.05$ . So research hypothesis is rejected and null hypothesis is accepted at 0.05 level of significance.

## 5. RECOMMENDATIONS:

1. A similar study can be conducted on a large sample in order to draw more definite conclusions and generalizations.
2. A similar study can be replicated on large sample with different demographic characteristics.
3. A similar study can be recommended by using different method of teaching and techniques.
4. A similar study can be recommended to compare effectiveness of relaxation technique and other methods.
5. A comparative study can be conducted between rural and urban areas.
6. An experimental study can be undertaken with control group.

## 6. CONCLUSION:

The following conclusions were drawn on the basis of the findings of the study.

- The present study concluded that Jacobson muscles relaxation technique was used reduce the level of pain during menstruation dysmenorrhea in adolescents.
  - Pre interventional pain assessment score was higher than post interventional pain assessment score related muscle relaxation technique among adolescent girls facing dysmenorrhea.
  - The Jacobson muscle relaxation technique was found effective in lowering the pain during dysmenorrhea as it was evident from post intervention of pain assessment score, when compared with pre-interventional pain assessment score.
7. There were statistically no significant association between age, education, type of family, source of information and monthly family income with their pre-interventional pain assessment score at ( $p > 0.05$ ). So null hypothesis was accepted at 0.05 level of significance. This indicated that muscle relaxation technique can remain effective if provided regular basis to adolescent girls during their menstrual cycle facing dysmenorrhea.

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## 9. REFERENCES

1. Gulani K.K, Community Health Nursing, Principles And Practices, Second Edition, Kumar Publishing House, Page No. 460-465.)
2. Wikipedia,  
[https://www.google.com/search?q=puberty&rlz=1C1OKWM\\_enIN889IN889&oq=&aqs=chrome.0.35i39i36217j69i59i450.7393336j0j15&sourceid=chrome&ie=UTF-8](https://www.google.com/search?q=puberty&rlz=1C1OKWM_enIN889IN889&oq=&aqs=chrome.0.35i39i36217j69i59i450.7393336j0j15&sourceid=chrome&ie=UTF-8).
3. Waugh A, Grant A, Ross and Wilson Anatomy and Physiology in health and illness. 12th edition, Churchill livindstone Elsevier, Page No.: 455-460.
4. Narwal A, Gangadharan H, MSc Nursing Entrance Exam Guide, First edition 2015, Jaypee Brothers Medical Publishers. Page No. ; 518-520.
5. The American Congress of Obstetricians and Gynecologists. Menstruation in Girls and Adolescents: Using the Menstrual Cycle as a Vital Sign. (<http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Adolescent-Health-Care/Menstruation-in-Girls-and-Adolescents-Using-the-Menstrual-Cycle-as-a-Vital-Sign>) Accessed 8/26/2019.
6. American College of Obstetricians and Gynecologists. Dysmenorrhea: Painful Periods. (<https://www.acog.org/patient-resources/faqs/gynecologic-problems/dysmenorrhea-painful-periods>) Accessed 11/20/2020.
7. Dysmenorrhea: What It Is, Treatments, Causes? <https://my.clevelandclinic.org/health/diseases/4148-dysmenorrhea>. Accessed February 10, 2021.
8. Omidvar S, Bakouei F, Amiri FN, Begum K. Primary Dysmenorrhea and Menstrual Symptoms in Indian Female Students: Prevalence, Impact and Management. Glob J Health Sci. 2015;8(8):135. doi:10.5539/gjhs.v8n8p135
9. Abbaspour Z., M.Rostami, S.H.Najjar (2006). The effect of exercise on primary dysmenorrhea. Journal of Res. Health Sciences, 6:26-31
10. A laetin Unsal, Unal Ayranci, Mustafa Tozun, GulArslan, Elif Calik. UPSala journal of medical sciences , Prevalence of dysmenorrhea and its effect on quality of life among a group of female university

students, 2010 May; 115(2): 138–145, Published online 2010 Apr 7. doi: 10.3109/03009730903457218, PMCID: PMC2853792, PMID: 20074018

11. A  
kilandeswari,S. et al, Effectiveness of Jacobson’s Relaxation Technique on Dysmenorrhea among the Adolescent Girls. April 22, 2020. Available from : <https://clinicaltrials.gov/ct2/show/NCT04356131>

