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Effectiveness of Jacobson relaxation technique on pain among student nurses with dysmenorrhea in a selected nursing college, Bengaluru

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Abstract
Background of the study: Dysmenorrhea is painful menstruation of sufficient magnitude so as to incapacitate day to day activities which is manifested by cramping pain on the ovulatory cycles along with nausea, vomiting, fatigue and fainting. It affects 17% - 80% in global level. This study mainly focuses on to assess the effectiveness of Jacobson relaxation technique and its associated factors.
Methodology: True experimental pre-test and post-test control group design was used. The nursing students of 17-21 age group were selected, 30 in experimental group and 30 in control group from selected institution, Bengaluru. Screening of sample was done by a brief questionnaire and the samples were selected using simple random sampling with 30 experimental and 30 in control group. Assessment of pain was done by Visual Analogue Scale for both pre-test and post-test. Pretest was conducted on the first day painful menstruation for both the groups, the experimental group received Jacobson's relaxation technique for 20 minutes and post test was conducted after one hour of intervention. But control group did not receive any intervention. Analysis was done by using Frequency, Percentage, Paired and unpaired t test, Chi square test.
Result: The mean posttest dysmenorrhea score 1.821 of the experimental group was lower than the mean posttest dysmenorrhea score 2.828 of the control group with a 't' value of 11.892. There was significant reduction in posttest level of dysmenorrhea score, in the experimental group compared to the control group, (MD= 3.286; P=0.001). There was no association between pretest dysmenorrhea score and selected demographic variables.
Conclusion: Most of the student nurses suffer from dysmenorrhea. Jacobson's relaxation technique was effective in reducing the level of dysmenorrhea among student nurses.

Keywords: Dysmenorrhea, Jacobson relaxation techniques, student nurses, menstruation, adolescent girls, pain

Introduction
Adolescence life stage is a transition period from childhood to adulthood and is characterized by a physical, endocrinal, emotional and mental growth with a change from complete dependence to a relative independence. Adolescence period is marked by the onset of menarche. Menarche is the onset of menstruation. It is the major physiological change that takes place in adolescent girls. Menstruation or menstrual cycle is the regular, normal blood and mucosal tissue discharge from the inner lining of the uterus through the vagina. Although menstruation is a natural process some girls experience painful menstruation [2].
Dysmenorrhea is the painful menstruation and is the commonest problem often seen among girls and young women. There are two types of dysmenorrheal namely; Primary and secondary dysmenorrhea. Primary dysmenorrhea is a spasmodic pain mainly seen for 1-3 days associated with lower back pain and radiating to thighs, with nausea, vomiting, diarrhoea, giddiness, syncope, fainting without any associated medical disorder. Secondary dysmenorrhea is painful menstruation associated with an underlying pelvic abnormality such as endometriosis, uterine fibroid and pelvic inflammatory disease. Treatment of secondary dysmenorrhea will vary with the underlying causes. Numerous girls are suffering with dysmenorrhea every month [3].

A cross sectional study was conducted to assess the prevalence of menstrual disorder and its abnormalities among students in the age group of 12-19yrs from secondary school and junior college in Singapore. The study reported that dysmenorrhea was a significant problem, with 83.2% respondents and 24% respondents were reporting school absenteeism owing to it. Another study result also showed that 78% of students were suffering from dysmenorrhea in which, 32% of them were taking pain medication; 40% were taking herbal medicine and 53% of them couldn't concentrate in learning [10]. In India dysmenorrhoea is estimated to be present among 40-50% women, in that 15% absent themselves from school or 30% seek mild forms requiring no medication or occasional over the counter analgesics [11]. Relaxation therapy is one of the simple and effective self-monitoring therapies; it has the impact on pain, anxiety, stress and depression. The Jacobson relaxation therapy is a behavioral therapy that connects the body and mind for healing themselves in an appropriate manner. This therapy is easy to do and requires appropriate measures. Relaxation therapy proved to more effective in lowering physical symptoms like blood pressure, nausea, lack of energy, loss of appetite, premenstrual syndrome, insomnia and also can be helpful to reduce the duration and severity of dysmenorrhea [13].

Methods

Research approach

Evaluate approach will be used to meet the objectives of the present study.

Research design

True experimental pretest posttest control group design

Sample and Sampling technique

The study population was adolescent girls who have dysmenorrhea in selected Nursing College at Bengaluru. The sample for the study consists of 60 student nurses who fulfill the inclusion criteria set by the investigator. Simple random sampling was used to select the samples.

Data collection tool

Following instruments were used to collect the data:

Tool 1: A brief questionnaire to identify samples with dysmenorrhea

Tool 2: Demographic variables

Tool 3: Visual Analogue Pain scale

Procedure for data collection

The main study was carried out during April1st -May 5th 2019. A formal prior permission was obtained from the Principal of selected institute, Bengaluru. Self-introduction was given and the purpose of the study was explained to student nurses. Researcher used a brief questionnaire to screen out student nurses with dysmenorrhea. With the data collected, samples were selected by simple random sampling technique and divided them into 30 experimental and 30 control group. A training session on JRT was demonstrated to the experimental group. Later, pre-test menstrual pain was assessed for both experimental and control group on their first day of menstruation using visual analogue pain scale. For experimental group JRT was administered for 20mins and after 1 hour the post test was conducted with the same scale whereas control group did not receive any intervention and the post test was conducted after 1hr 20min using same scale. Data was analyzed using descriptive and inferential statistics.

Results

It deals with the description of the samples, analysis and interpretation of the data collected and achievements of the objectives of the study.

Table 1: Frequency and percentage distribution of student nurses with dysmenorrhea according to demographic variables. (N=57)

S.no	Demographic variables	Experimental group (n=28)		Control group (n=29)	
		f	%	f	%
1	**Age in years**				
	17	00	00	1	3.4
	18	10	35.71	6	20.69
	19	12	42.86	17	58.62
	20	3	10.71	2	6.90
	21	3	10.71	3	10.34
2	**Age of attaining menarche**				
	10-13 years	17	60.71	11	37.93
	14-17 years	11	39.29	18	62.06
3	**Age at onset of menstrual pain**				
	10-13 years	11	39.28	8	27.58
	14-17 years	16	57.14	21	72.41
	> 17 years	1	3.57	00	00
4	**Family history of dysmenorrhea**				
	Yes	14	50.00	18	62.07
	No	14	50.00	11	37.93
5	**Remedies taken for painful menstruation**				
	Yes	06	21.43	10	41.38
	No	22	78.57	19	65.52
6	**Type of family**				
	Nuclear	21	75	26	89.66
	Joint	07	25	03	37.93
7	**Religion**				
	Hindu	22	78.57	26	89.66

	Christian	05	17.86	02	6.90
	Muslim	01	3.57	01	3.45
8	**Type of food intake**				
	Vegetarian	01	3.57	01	3.45
	Mixed	27	96.43	28	96.55
9	**Consuming junk food**				
	Yes	28	100	29	100
10	**Body Mass Index(BMI)**				
	Under weight	01	3.57	03	10.34
	Normal weight	21	75.00	23	79.31
	Obese	04	14.29	03	10.34
	Over weight	02	7.14	00	00

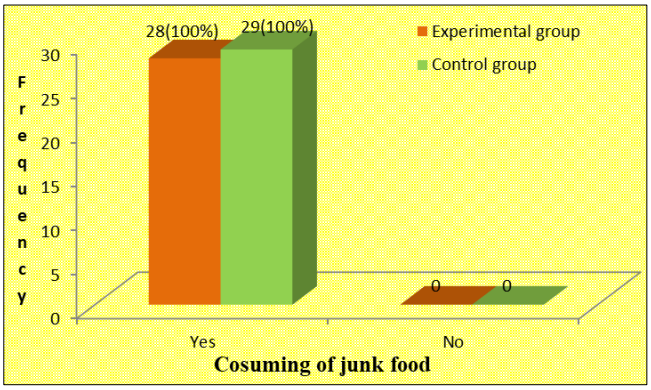

Fig 1: Frequency and percentage distribution of student nurses according to consuming of junk food among experimental and control group (N=57)

The above figure shows the consumption of junk food in both experimental and control group is 100%

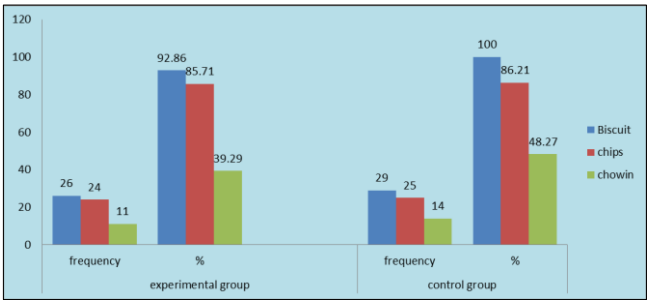

Fig 2: Frequency and percentage distribution of student nurses according to consuming of junk foods such as Biscuits, Chowmin and Chips among experimental and control group (N=57)

The above figure shows that in the experimental group 26/28 (92.86%) consumes biscuits; 24/28 (85.71%) consumes chips and 11/28 (39.29%) consumes chowmin. Where as in control group 29/29 (100%) consumes biscuits; 25/29(86.21%) consumes chips and 14/29 (48.27%) consumes chowmin.

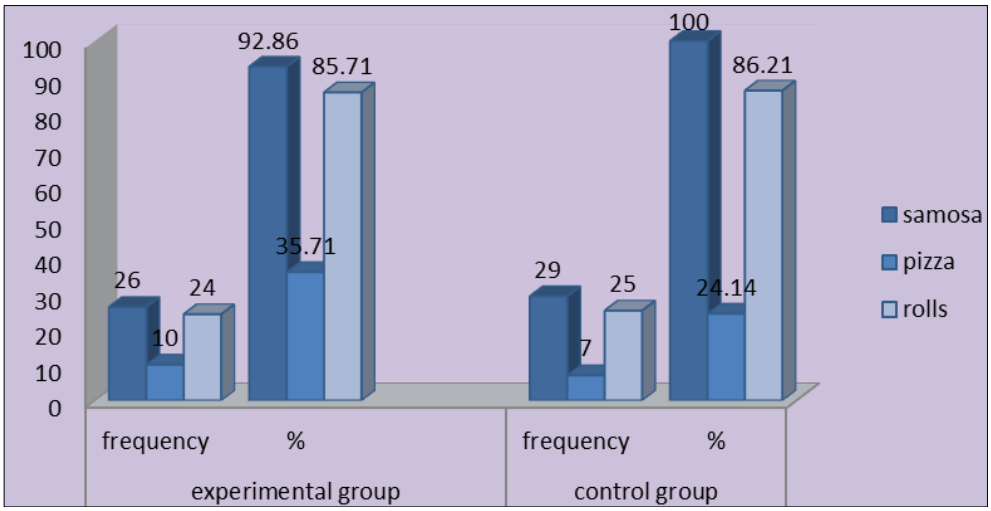

Fig 3: Frequency and percentage distribution of student nurses according to consuming of junk foods such as samosa, pizza and rolls among experimental and control group (N=57)

The above figure shows that in the experimental group 26/28 (92.86%) consumes samosa; 24/28 (85.71%) consumes rolls and 10/28 (35.71%) consumes pizza. Where as in control group 29/29 (100%) consumes samosa; 25/29(86.21%) consumes rolls and 7/29 (24.14%) consumes pizza.

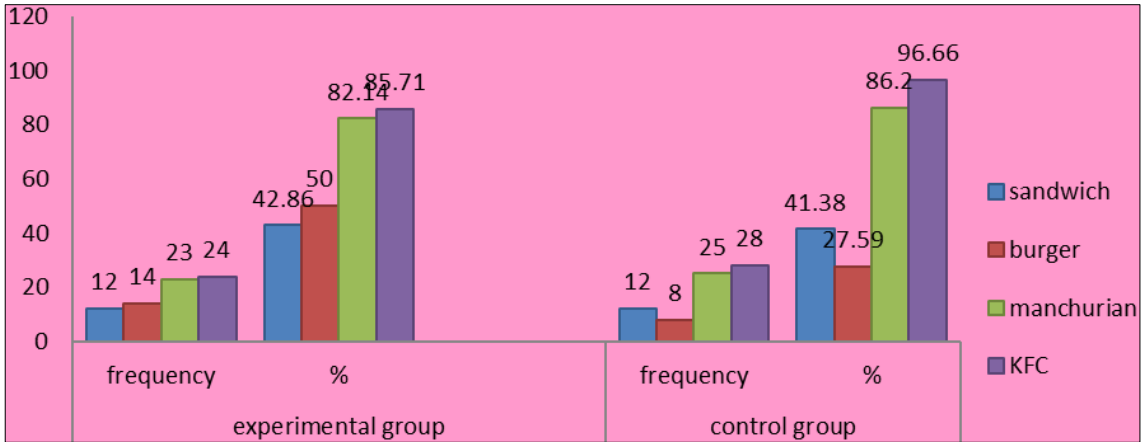

Fig 4: Frequency and percentage distribution of student nurses according to consuming of junk foods such as sandwich, burger, Manchurian and KFC among experimental and control group (N=57)

The above figure shows that in the experimental group 24/28 (82.14%) consumes KFC; 23/28 (82.14%) consumes manchurian; 14/28 (50%) consumes burger and 12/28 (42.86%) consumes sandwich. Where as in control group 28/29 (96.55%) consumes KFC; 25/28 (86.2%) consumes manchurian; 8/28 (27.59%) consumes burger and 12/28 (41.38%) consumes sandwich.

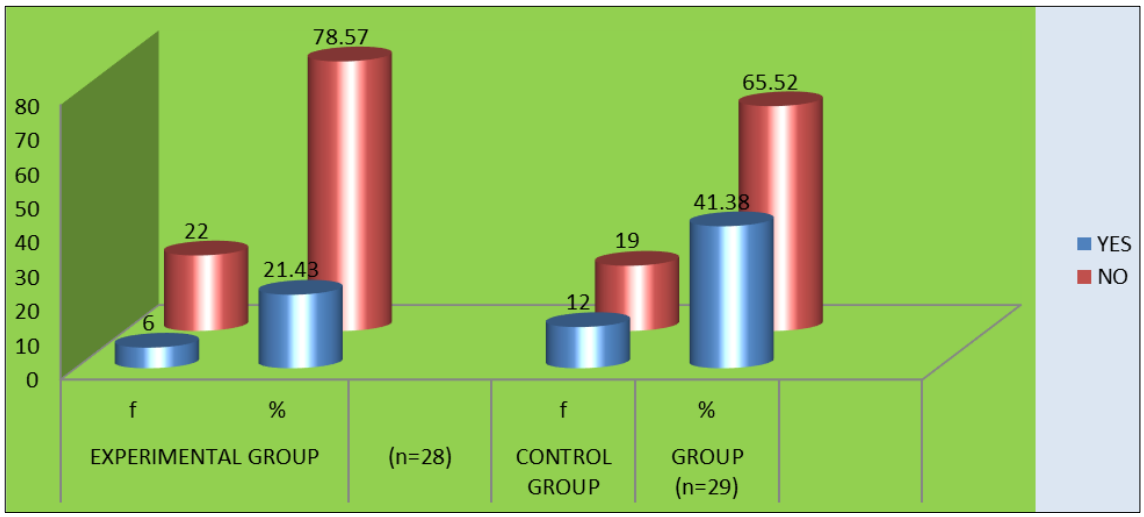

Fig 5: Frequency and percentage distribution of student nurses according to remedies taken for painful menstruation among experimental and control group (N=57)

The above figure shows that the majority 12/29 (41.38%) in control group and 6/28 (21.43%) in experimental group and take some remedies for painful menstruation, while 22/28(78.57%) in experimental group and 17(58.62%) in control group do not take any remedies for painful menstruation.

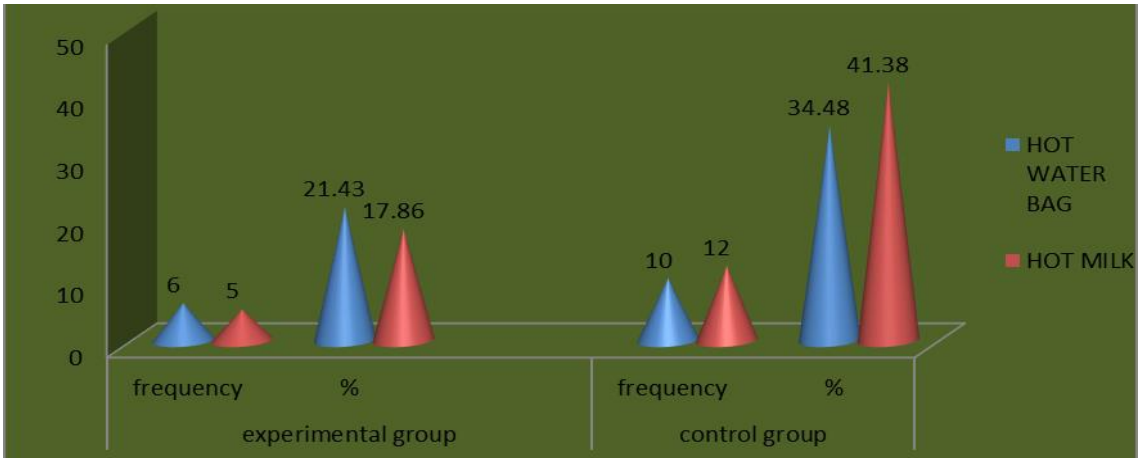

Fig 6: Frequency and percentage distribution of student nurses according to remedies such as Hot water bag and Hot milk among experimental and control group (N=57)

The above figure shows that in the experimental group 6/28 (21.43%) is taking hot water bag and 5/28 (17.86%) consumes hot milk. Where as in control group 10/29 (34.48%) is taking hot water bag and 12/29 (41.38%) consumes hot milk.

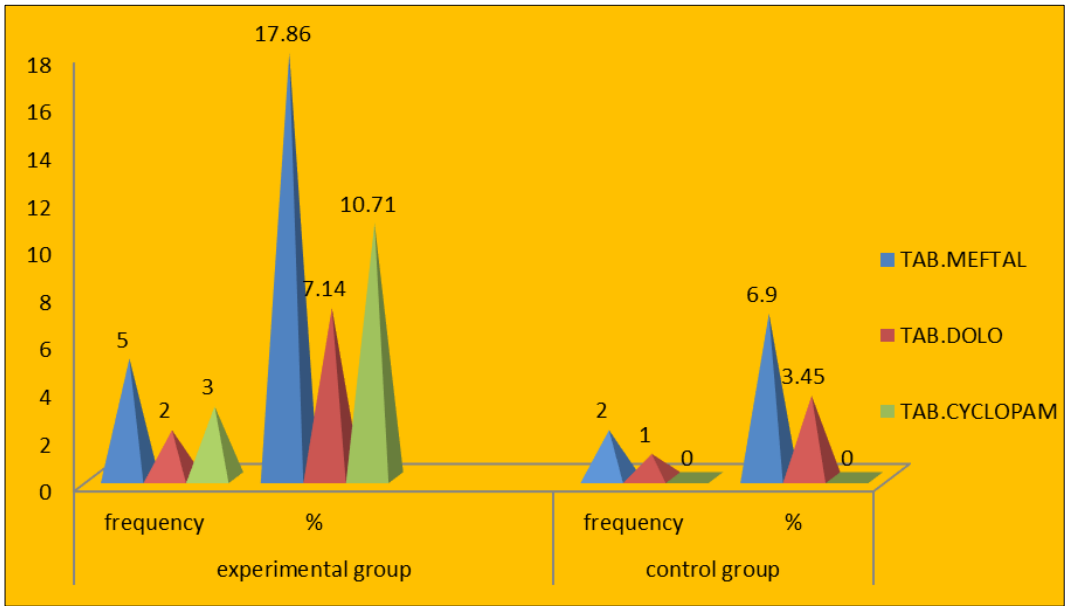

Fig 7: Frequency and percentage distribution of student nurses according to medicine such as Tab. Meftal, Dolo and Cyclopam among experimental and control group (N=57)

The above figure shows that in the experimental group 5/28 (17.86%) use Tab. Meftal; 3/28 (10.71%) use Tab. Cyclopam and 2/28 (7.14%) use Tab. Dolo. Where as in control group 2/29 (6.9%) use Tab. Meftal and 1/29 (3.45%) use Tab. Dolo.

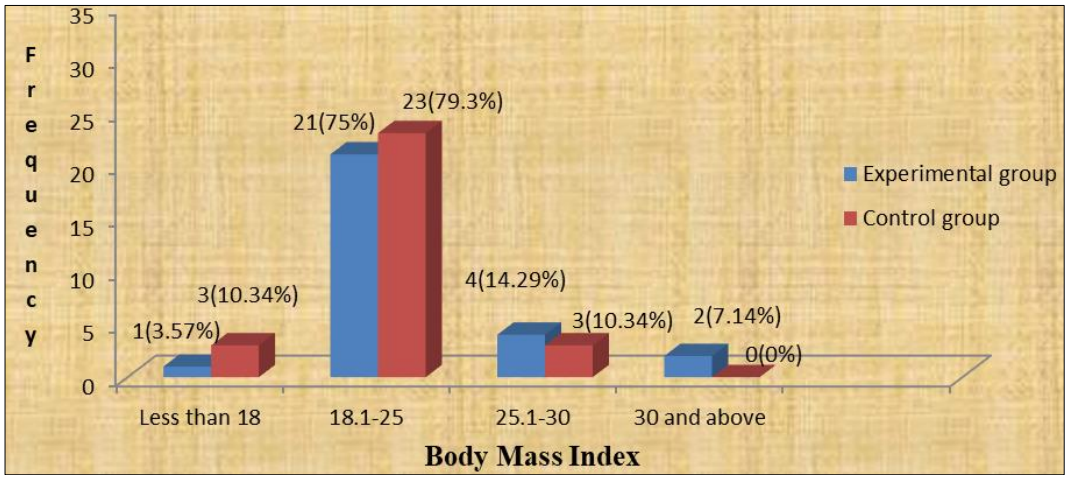

Fig 8: Frequency and percentage distribution of student nurses according to Body Mass Index among experimental and control group (N=57)

The above figure shows that in the experimental group 21/28(75%) belong in 18.1-25; 4/28(14.29%) belong in 25.1-30; 2/28(7.14%) belong in 30 and above and 1/28(3.57%) belong in less than 18. Where as in control group 23/29(79.3%) belong in 18.1-25; 3/29(10.34%) belong in less than 18 and 3 /29(10.34%) belong in 25.1-30.

Table 2: Frequency and percentage distribution of student nurses with dysmenorrhea according to pre-test and post-test pain score (N=57)

S. No	Level of pain	scoring	Experimental group n=28				Control group n=29			
			Pre-test		Post –test		Pre-test		Post –test	
			f	%	f	%	f	%	f	%
1	No pain	0	00	00	05	17.86	00	00	05	17.23
2	Mild	1-3	05	17.86	22	78.57	14	48.28	14	48.28
3	Moderate	4-6	16	57.14	01	3.57	10	34.48	08	27.59
4	Severe	7-9	07	25.00	00	00	05	17.24	02	6.90

Table 2 reveals that majority of student nurses in the experimental group 57.14% of student nurses had moderate level of pain; 25% of them had severe level of pain and 17.86% of student had mild level of pain in pre-test and in post-test 78.57% had mild level of pain; 17.86 had no pain and 3.57% had moderate level of pain.

In control group the pre-test revealed that 48.28% had mild level of pain; 34.48% had moderate level of pain and 17.24% had severe level of pain and in the post-test 48.28% had mild level of pain; 27.59% had moderate level of pain and 6.90% had severe level of pain.

Table 3: Mean, SD, 't' value and p value computed between the pre-test and post-test pain scores among student nurses with in experimental group

Group	Test	N	Mean	SD	MD	't' value	p value
Experimental group	Pre-test	28	5.107	2.025	3.286	11.892	0.001*
	Post-test		1.821	1.188			

Level of significance 0.05; df=27
*significant

Table 3 shows that the t value computed between the pre-test and the post-test pain score of student nurses with dysmenorrhea in experimental group is statistically significant. The calculated value is 11.892 and the P value 0.001. It shows that the Jacobson Relaxation Technique was effective on pain among student nurses with dysmenorrhea

Table 4: Mean, SD, 't' value and p value computed between the experimental and control group post-test pain scores of student nurses with dysmenorrhea

Test	Group	N	Mean	SD	MD	't' value	p value
Post-test	Experimental	57	1.821	1.188	1.007	2.064	0.044*
	Control		2.828	2.301			

Level of significance 0.05; df=55
*significant

Table 3 shows that the t value computed between the post-test pain score of student nurses with dysmenorrhea in experimental and control group is statistically significant. The calculated value is 2.064 and the P value is 0.044. It shows that the Jacobson Relaxation Technique was effective on pain among student nurses with dysmenorrhea.

Discussion

The major findings of the study

1. **The first objective of the study was to assess the pain level among student nurses with dysmenorrhea.**
   The assessment with visual analogue pain scale showed that in pre-test for experimental group, a majority 57.14% of student nurses had moderate level of pain; 25% of them had severe level of pain and 17.86% of student had mild level and in control group the majority 48.28% had mild level of pain; 34.48% had moderate level of pain and 17.24% had severe level of pain.
   The findings were supported by a cross sectional study conducted on quality of life among 183 adolescent girls (14-19 years) at kadapa. Out of 183 adolescent girls 119 (65%) are dysmennorhic, 68.4% and 61.2% are from the urban and rural areas respectively. 81 adolescent girls with family history of dysmenorrhea .60 (74.1%) adolescent girls are dysmennorhic. Sickness absenteeism is seen among 47.9% dysmennorhic girls. Quality of life is significantly reduced among dysmennorhic girls. Almost 73.1% of rural girls rely on self help technique to manage the dysmenorrhea as compare to urban girls (55.2%).

2. **The second objective of the study was to determine the effectiveness of Jacobson relaxation technique on pain among student nurses with dysmenorrhea**
   The assessment of post test scores using visual analogue pain scale showed that in the experimental group test 78.57% of student nurses had mild level of pain; 17.86% had no pain and 3.57% had moderate level of pain. The calculated value is 11.892 and the P value 0.001. It shows that the Jacobson Relaxation Technique was effective on pain among student nurses with dysmenorrhea.
   Klinga, (2013) [23] conducted a study of jacobson's relaxation exercise on primary dysmenorrhea among high school girls. This study was a randomized clinical trial of 100 high school girls students in Hong Kong that suffering from severe 76 dysmenorrhea. Students were separated in two "exercise" and "non exercise" groups. The descriptive statistics and repeated measure design were used for analyzing the statistical information. The result showed that the exercise group (p<0.01). The Jacabson's relaxation exercise can decrease the duration and severity of dysmenorrhea.

3. **The third objective of the study was to find the association between pain score and selected demographic variables among student nurses**.
   There was an association between pre-test pain score and type of family which showed significance but there was no association between the posttest pain score and the selected demographic variables.

Conclusion

The main conclusions drawn from this present study was that most of the student nurses had moderate level of pain. After the practice of Jacobson Relaxation Technique, their level of pain has decreased significantly. They felt relaxed very much. Most of the adolescent girls suffer from dysmenorrhea.

- Jacobson's relaxation technique was effective in reducing the level of dysmenorrhea among adolescent girls.
- The findings indicate that Jacobson's relaxation technique can be administered to the school going adolescent girls in reducing the level of dysmenorrhea score since it is affordable, comfortable without any side effects.

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