



## “Effectiveness of Aerobic Exercise on Dysmenorrhoea among Adolescent Girls in Selected High Schools of Bagalkot, Karnataka.”

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### KEYWORDS

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### ABSTRACT:

Background of the study:

Adolescence in girls has been recognized as a special period which signifies the metamorphosis from girlhood to womanhood. One of the major physiological changes that take place in the adolescent girls is the onset of menarche, which is often associated with problems of irregular menstruation, excessive bleeding and dysmenorrhoea. Dysmenorrhoea is the term for painful menstruation. Aerobic exercises are found to be very beneficial for the treatment of menstrual problems. Aim of the study is to assess the effectiveness of aerobic exercises on dysmenorrhea among nursing students.

Methods: Quasi- Experimental was conducted at VMS government high school, at navanagar Bagalkot Karanataka. Total study 101 students were selected by purposive sampling technique. .Written consent was taken from participants for the study. Socio demographic variables, Clinical characteristics ,and Numeric Pain Rating Scale were used as tool for data collection.

Results: The present study revealed that mean pain score and standard deviation was  $3.25 \pm 3.29$  before giving intervention and  $2.25 \pm 0.73$  after giving intervention. The effectiveness was statistically tested by using paired t- test which revealed that t value = 6.08 and the result was found to be significant at  $p < 0.001$  level of significance. So, the results of the present study also revealed that, there was statistically significant association between the post-test level of dysmenorrhoea with the selected socio-demographic variables among nursing students at  $p < 0.05$  level of significance. The study concluded that, there was a decrease in level of pain during dysmenorrhoea after intervention (Aerobic exercises).

**Introduction:** Health is an as set for a happy contended life. Change makes life more beautiful and worth living if one knows how to adapt oneself and adjust to the challenges presented by the situation. The

changes are inevitable it is common and frequent in girls than boys, the rapid growth and change in the physical structure is after the attainment of puberty <sup>[1]</sup>.



Puberty is the period in life of all women generally between the age of 10 to 15 years. Adolescence is the period of indicating her capability for procreation<sup>[2]</sup>. The prevalence of menstrual disorders has been recorded as high as 87%<sup>[3]</sup>. The prevalence of dysmenorrhea worldwide varies between 15.8% to 89.5%. The prevalence of dysmenorrhea in India is 16.8% to 81%<sup>[4]</sup>.

Menstruation is an important part of female reproductive cycle. The young adult female students are more exposed to stress as compared to any other age group. The different types of stress and its gravity are related to their jobs, studies, social and economic factors. Therefore, they are more prone to develop menstrual problems. Dysmenorrhea is a common condition that occurs in 52%, 72% or even 90% of women<sup>[5]</sup>.

The term dysmenorrhea derived from the Greek word "DYS" meaning difficulty/painful/abnormal, "MENO" meaning month and "RRHEA" meaning flow. Dysmenorrhea literally means painful menstruation<sup>[6]</sup>. Dysmenorrhea is very common problem affecting academic performance and limiting daily activities requiring appropriate intervention<sup>[7]</sup>.

Dysmenorrhea like non-steroidal anti-inflammatory drugs a day before period begins, heating pad or soaked towel in a hot water over the abdomen to relieve the pain of menstrual cramps. It is ideal to find a natural method to relieve menstrual cramps. Today Exercises are an integral part of normal day to day life for many women. Health care providers suggest some form of aerobic exercises such as pelvic rocking and tilting, walking and bicycling are beneficial for dysmenorrhea<sup>[8]</sup>. Women who exercises, show less severe dysmenorrhea and greater positive effects than women who are sedentary<sup>[9]</sup>.

The idea that exercise might help to relieve period pain is not new; in 1943 Billing proposed that women with pain during menstruation had contracted ligamentous bands in the abdomen and then she developed a series of stretching exercises which results in high rate of symptom relief. The belief that exercise was effective seems to have prevailed and lead to anecdotal belief among health agencies and clinicians. However, a combination of organic, psychological, and socio-cultural factors may be responsible<sup>[10]</sup>.

## Methods:

The present study is needs to be experimental design to evaluate the effectiveness of aerobic exercises among adolescent Girls. Simple Random sampling was carried out for random selection and random assignment, so that representative sample was obtained. The subjects were followed up to 4 weeks follows-up are used to ensure sustainability of improvement. Reliable and valid research instruments that are culturally appropriate to the study population were used.

## Study participants:

A sample consists of subjects of units that comprise the population for present study, in the present study sample consists adolescent girls with dysmenorrhea in selected school of Bagalkot. The investigator is used purposive sampling technique to select the sample. The sample size consists of 102 adolescent girls with dysmenorrhea. 50 in each experimental and control group respectively.

**Sample size calculation:** Power analysis was carried out by using G\*Power 3.1.9.2 software programme by keeping the power of study at 80% ( $p < 0.05$  two tailed). The power analysis revealed that a sample of 102 subjects i.e. 51 subjects in each group would be sufficient to achieve statistical significance for dependent variables (Pain).

**Setting of the study:** Study will be conducted in selected high schools of Bagalkot.

**Data collection Instrument:** A structured Questionnaire will be prepared for interview schedule to assess the demographic variables of the sample. A Visual analogue pain scale will be used to assess the level of pain.

**Ethical clearance:** A certificate of ethical permission was obtained from ethical committee of the institution and written consent was taken from each participant.

## Statistical analysis:

The data will analyze by using descriptive and inferential statistics. Organize the data in a master sheet/ computer. Assess the pre test level of dysmenorrhea among adolescent girls will be interpreted by descriptive statistic such mean or standard deviation. Effectiveness of aerobic exercise



will on dysmenorrhea will be assess by ‘t’ test. Association of selected demographic variable with the effect of aerobic exercise on dysmenorrhea among the adolescent girls will be analyze by Chi- Square ( $\chi^2$ ). A Visual analogue pain scale will be used to assess the level of pain.

## Data collection Procedure:

A prior formal permission was obtained from the concerned authority and consent was obtained from the subject and their parents. The pretest was conducted by using the structured questionnaire and Numeric pain scale was used to assess the dysmenorrhoea among adolescent girls on the 2<sup>nd</sup> day of the menstrual cycle for the both group. followed by aerobic exercise from 6<sup>th</sup> day of the menstrual cycle till the onset of next menstrual cycle among adolescent girls in experimental group. The post test was conducted on the 2<sup>nd</sup> day of the next menstrual cycle for both groups using the same scales.

## Results:

### Section1: Distribution of subjects according to their Demographic characteristics

Distribution of adolescent girls according to their age group shows that majority of the adolescents (43%) in experimental group and 86% in control group. were their standard of study reveals that Majority (43%) of adolescent girls in experimental group and 82% adolescent girls in control group were in 9<sup>th</sup> standard followed by, 34% in experimental group and 66% adolescent girls in control group in 8<sup>th</sup> standard. 23% adolescent girls in experimental group and 50% in control group were in 10<sup>th</sup> standard.

Distribution of adolescent girls according to their Religion shows that majority (55%) of adolescent girls in experimental group and 28 % in control group belong to Hindu religion, 25% in experimental group and 52 % in control group were Muslims and 20 % in experimental group and 37% in control group were Christians. Where the adolescent girls according to **type of family** shows majority (53%) of adolescent girls in experimental group and 24% in control group were from nuclear family followed by 47% of adolescent girls in experimental group and 53% in control group were from joint family.

And their educational status of father shows that, majority (45%) of fathers of adolescent girls in experimental group and 43% in control group were Graduates. adolescent girls according to their educational status of mother shows that, majority (47%) of mothers of adolescent girls in experimental group and 51% in control group had education upto SSLC.

And their **family monthly income** shows that, majority (36%) of adolescent girls in experimental group and 45% in control group had a family monthly income of Rs. 15,001-& above, 29% in experimental group and 33% in control group had Rs. 10,001-15,000 and 31% in experimental group and 14% in control group had Rs. 5,001-10,000 and 4% in experimental group and 8% in control group had family monthly income below Rs.5,000.

Occupation of father shows that Majority of fathers 33% in experimental group and 45% in control group were self-employed, and occupation of **mothers** shows that Majority of samples occupation (35%) in experimental group and 33% in control group occupation is Employee.

Distribution of adolescent girls according to their their place of **residence** reveals that out of 51 subjects in experimental group, 63% adolescent girls were living in rural area and 37% in urban area. The control group of adolescent girls according to their place of residence reveals that out of 51 subjects, 63% adolescent girls were living in rural area., 37% of adolescent girls were living in urban area.

The present study shows that majority of adolescent girls according to their family history of dysmenorrhea reveals that out of 51 subjects, majority (57%) of adolescent girls did not have family history of dysmenorrhea whereas 43% of adolescent girls had a family history of dysmenorrhea. In control group 57% adolescent girls did not have family history of dysmenorrhea, and 43% of adolescent girls had family history of dysmenorrhea,.

The present study shows that majority of adolescent girls were taking medical assistance for dysmenorrhea. 55% in experimental group and 45% have not taken any medical assistance or treatment for dysmenorrhea. In control group 59% adolescent girls have taken medical assistance 41% adolescent girls



have not taken any medical assistance for dysmenorrhea.

Majority 78% adolescent girls did not have a practice of any kind of physical exercise, whereas 22% of adolescent girls were doing physical exercise regularly. In control group 68% adolescent girls did not do any kind of physical exercise and 32% of adolescent girls had a habit of doing physical exercise regularly.

## SECTION II : DESCRIPTION OF CLINICAL CHARACTERISTICS OF ADOLESCENT GIRLS.

Distribution of adolescent girls according to their onset of dysmenorrhea during menstruation shows that 40% of subjects in experimental group and 38% in control group had onset of dysmenorrhea on their 1<sup>st</sup> menarche. 44% adolescent girls in experimental group and 32% in control group had onset of dysmenorrhea 6 months after menarche. 79% of sample in experimental group and 59% of adolescent girls in control group had 3 to 5 days.

2% of subjects in experimental group and 18% of sample in control group had dysmenorrhea before the onset of menstruation whereas 84% of sample in experimental group and 70% of sample in control group had dysmenorrhea 1<sup>st</sup> day onwards.

Distribution of adolescent girls according to their history of symptoms of dysmenorrhea shows that, 38% adolescent girls in experimental group and 26% of adolescent girls in control group had Back pain . 32% of adolescent girls in experimental group and 42% of adolescent girls had tiredness.

60% of sample in experimental group and 53% of sample in control group had not taken any measures to control dysmenorrhea . 12% of subject in experimental group and (12%) of sample in control group had Inform class teacher and seek help. whereas 44% of adolescent girls in experimental group and 42% of adolescent girls in control group had Managed dysmenorrhea by themselves. 34% of adolescent girls in experimental group and 40% of adolescent girls in control group had asked permission during school hours for going home/hostel due to dysmenorrhea.

**TABLE 3: Mean, SD of BMI among adolescent Girls in experimental and control group.**

$N_1 = 51$   $N_2 = 51$

Socio-demographic variables	Experimental group		Control group	
	Mean	Sd	Mean	Sd
BMI	18.72	4.45	18.84	3.92

**Table 4: Pre-test Mean, SD of pain among adolescent Girls in experimental and control group**

$N_1 = 51$   $N_2 = 51$

Variable	Group	Mean	SD
Pain	Experimental group	3.25	0.74
	Control group	3.29	0.80



**Table 5: Effectiveness of aerobic exercise on Pain among adolescent girls in both group. n= 51+51=102**

Group	Test	Mean	SD	Mean Rank	Mann Whitney U	Z value	P value
Experimental group	Pre- test	3.25	0.74	66.48	536.5	5.338	0.000*
	Post-test	2.25	0.84				
Control group	Pre- test	3.29	0.80	36.52			
	Post-test	3.23	1.27				

\*Significant, SD=Standard deviation, P < 0.05

The data was tested for normality and found not normally distributed; hence Mann Whitney's U test was used to determine the significance of difference between level of pain between experimental and control group. The Mann Whitney's U value (U=563.5) suggest that the pain during dysmenorrhea in adolescent girls was experimental group who received the intervention of aerobic exercise was significantly (P < 0.000) reduced as compared to pain during dysmenorrhea in adolescent girls of control group who did not receive any intervention. Hence the intervention of aerobic exercise had a significant effect on reducing pain during dysmenorrhea among adolescent girls.

**TABLE 6: Association between pre-test scores of aerobic exercises with selected,demographic,variables. n= 51+51=102**

SL.NO	Socio- demographic variables	DF	Chi-square-value	Table valve	p- value
1	Age (year)	1	0.182	3.84	0.6695
2	Year of study	1	0.000	3.84	1.000
3	Religion	1	0.000	3.84	1.000
4	Type of family	1	0.353	3.84	0.5525
5	Education status of father	1	0.189	3.84	0.6638
6	Education status of mother	1	0.157	3.84	0.6920
7	Family monthly income	1	2.361	3.84	0.1244
8	Occupation of father	1	1.259	3.84	0.2618
9	Occupation of mother	1	0.453	3.84	0.5008
10	Place of residence	1	0.042	3.84	0.8368
11	Family history of dysmenorrhea	1	0.000	3.84	1.000
12	Are you taking any medical assistance for dysmenorrhea	1	0.160	3.84	0.6893
13	Do you physical exercises	1	1.259	3.84	0.2618



**Table 7: Association between pre-test scores of aerobic exercises with clinical characteristics n=51+51=102**

S.No	Clinical characteristics	DF	Chi-square-value	Table valve	p- value
1	Onset of dysmenorrhea	1	0.434	3.84	0.5102
2	duration of menstrual flow.	1	2.938	3.84	0.0865
3	When do you have dysmenorrhea.	1	0.088	3.84	0.7665
4	What symptom do you feel during menstruation	1	0.045	3.84	0.8324
5	Have you take any measures to control pain	1	0.639	3.84	0.4239
6	What action you will take for dysmenorrhea during class hours	1	0.232	3.84	0.6302

## DISCUSSION:

This chapter deals in accordance with objectives of the study and hypothesis. The statement of the problem was "evaluate the effectiveness of aerobic exercises on dysmenorrhoea of adolescent girls". A pre-experimental was conducted at Sri Guru Ram Das College of Nursing, Vallah, Amritsar (Punjab). Total 60 students were selected by using purposive sampling technique. Written consent was taken from participants of study. Socio demographic variables, menstrual profile and Numeric Pain Rating Scale were used as tool for data collection. The study result shows that The present study revealed that mean pain score and standard deviation was  $5.58 \pm 1.45$  before giving intervention and  $4.88 \pm 1.10$  after giving intervention. The

effectiveness was statistically tested by using paired t-test which revealed that t value = 7.52 and the result was found to be significant at level of significance. The study concluded that, there was a decrease in level of pain during dysmenorrhoea after intervention (Aerobic exercises)<sup>[11]</sup>.

## The findings are five sections

### SECTION I: DESCRIPTION OF SOCIO DEMOGRAPHIC CHARACTERISTICS

percentage wise distribution of adolescent girls according to there age group shows that majority of the sample (43%) in experimental group and 86% in control group are aged between 15 years followed by 34% in





experimental group and 32% in control group are aged up to 14 years and 23% in experimental group and 50% in control group are aged above 12 years.

percentage wise distribution of adolescent girls according to their year of study reveals that Majority (43%) of samples in experimental group (82%) samples in control group belongs to 9<sup>th</sup> std followed by (34%) in experimental group and (66%) sample in control group belongs to 8<sup>th</sup> std. The (23%) samples in experimental group are (50%) in control group are studying in 10<sup>th</sup> std. Percentage wise distribution of adolescent girls according to their Religion shows that majority (55%) of samples in experimental group and 109% in control group belongs to Hindu religion, (25%) in experimental group and 52 % in control group belongs to Muslim and 20 % in experimental group and 37% in control group belongs to Christian.

Percentage wise distribution of adolescent girls according to **type of family** shows Majority (53%) of samples in experimental group and 100% of sample in control group are from nuclear family followed by 47% of samples in experimental group and 53% of sample in control group are from joint family. The none of adolescent girls belongs to Extended family. Percentage wise distribution of adolescent girls according to their educational status of fathers shows that majority (45%) of samples in experimental group and 43% in control group belongs to Graduation, (31%) in experimental group and 28% in control group belongs to SSLC and above and 20 % in experimental group and 25% in control group belongs to Graduation and above and 4% in experimental group and 4% in control group belongs to Illiterate.

Percentage wise distribution of adolescent girls according to their educational status of mother shows that majority (47%) of samples in experimental group and 51% in control group belongs to SSLC and above, 18% in experimental group and 28% in control group belongs to Graduation and 0 % in experimental group and 0% in control group belongs to Graduation and above and 35% in experimental group and 21% in control group belongs to Illiterate.

Percentage wise distribution of adolescent girls according to their **family monthly income** shows that majority (36%) of samples in experimental group and

45% in control group belongs to Rs. 15,001-& above, 29% in experimental group and 33% in control group belongs to Rs. 10,001-15,000 and 31% in experimental group and 14% in control group belongs to Rs. 5,001-10,000 and 4% in experimental group and 8% in control group belongs to Below Rs. 5,000.

Percentage wise distribution of adolescent girls according to their Occupation of father shows that Majority of samples occupation (35%) in experimental group and 33% in control group occupation is Employee. The 33% of sample in experimental group 45% in control group were self-employee. Followed by 16% in experimental group and 14 % in control group were belongs to Agriculture. And 16% in experimental group 8% in control group were coolie. Percentage wise distribution of adolescent girls according to their occupation **of mothers** shows that Majority of samples occupation (35%) in experimental group and 33% in control group occupation is Employee. The 33% of sample had in experimental group 45% in control group were self-employee. Followed by 16% in experimental group and 14 % in control group were belongs to Agriculture. And 16% in experimental group 8% in control group were coolie.

The present study shows that majority of adolescent girls according to their place of **residence** reveals that out of 51 subjects, higher percentage (63%) adolescent girls are living in rural, (37%) of adolescent girls are living in urban. The highest percentage (63%) adolescent girls are living in rural. The control group of adolescent girls according to their place of residence reveals that out of 51 subjects, higher percentage (63%) adolescent girls are living in rural, (37%) of adolescent girls are living in urban. The highest percentage (63%) adolescent girls are living in rural.

The present study shows that majority of adolescent girls according to their family history of dysmenorrhea reveals that out of 51 subjects, majority percentage (57%) adolescent girls family is no any previous history of dysmenorrhea, and (43%) of adolescent girls family was suffering with dysmenorrhea related problems. The control group study shows that higher percentage (57%) adolescent girls family is no any previous history of dysmenorrhea, and (43%) of adolescent girls family was suffering with dysmenorrhea related problems.



The present study shows that majority of adolescent girls according to there Are you taking any medical assistance for dysmenorrhea higher percentage (55%) adolescent girls are having medical assistance for dysmenorrhea, and (45%) of adolescent girls are there is no any taking medical assistance for dysmenorrhea. The control group result shows that adolescent girls, (59%) adolescent girls are having medical assistance for dysmenorrhea, and (41%) of adolescent girls are there is no any taking medical assistance for dysmenorrhea. The present study shows that majority of adolescent girls according to their reveals that out of 51 subjects, higher percentage (78%) adolescent girls are lack of physical exercise, and (22%) of adolescent girls are doing physical exercise in regularly. The control group result shows that adolescent girls according to their reveals that out of 51 subjects, higher percentage(68%) adolescent girls are lack of physical exercise, and (32%) of adolescent girls are doing physical exercise in regularly.

## SECTION II: PERSONAL CHARACTERISTICS

The majority (40%) of subject in experimental group and (38%) of sample in control group had 1<sup>st</sup> menarche. The (44%) of sample in experimental group and (32%) of sample had 6 month after menarche. The (24%) of sample in experimental group and (30%) of sample had 1 year after menarche. The (2%) of sample in experimental group and (2%) of sample had 2 years after menarche. The majority subject (8%) of subject in experimental group and (14%) of sample in control group had less than 3 days. The (79%) of sample in experimental group and (59%) of sample had 3 to 5 days. The (14%) of sample in experimental group and (30%) of sample had 5 to 7 days. The majority of (2%) of subject in experimental group and (18%) of sample in control group had before the onset of menstruation. The (84%) of sample in experimental group and (70%) of sample had 1<sup>st</sup> day onwards. The (14%) of sample in experimental group and (12%) of sample had 2<sup>nd</sup> day onwards.

The majority (38%) of subject in experimental group and (26%) of sample in control group had Back pain. The (32%) of sample in experimental group and (42%) of sample had tiredness. The (16%) of sample in experimental group and (16%) of sample had Radiating pain to thighs and lower back. The (16%) of sample in

experimental group and (18%) of sample had Abdominal bloating. The majority (40%) of subject in experimental group and (48%) of sample in control group had Yes . The (60%) of sample in experimental group and (53%) of sample had No. The majority (12%) of subject in experimental group and (12%) of sample in control group had Inform class teacher and seek help. The (12%) of sample in experimental group and (8%) of sample had Inform friends and get help . The (44%) of sample in experimental group and (42%) of sample had Manage self. The (34%) of sample in experimental group and (40%) of sample had Ask permission and going to home/hostel.

## SECTION III, IV: DESCRIPTIVE STATISTICAL INFORMATION REGARDING OUTCOME OF VARIABLE & EFFECTIVENESS OF AEROBIC EXERCISES ON DYSMENORRHOEA AMONG ADOLESCENT GIRLS.

My study shows that post test score are 2.25 in experimental group and 0.73 in control group A results are supported with conducted a cluster randomized trial study in two College of Nursing, one in Jawaharlal Institute of Postgraduate Medical education and Research (JIPMER), Pondicherry and another in Mother Teresa Post Graduate and Research Institute of Health Sciences (MTPG & RIHS) Pondicherry, among adolescent girls from 18-19years of age. The study was approved by Nursing Research Monitoring Committee, JIPMER and the Institute Ethical Committee JIPMER. Informed consent was obtained from each adolescent girl's after explanation about the study. Results showed that, a total of 144 adolescent girls were included. Using cluster randomization the schools were randomized and the students were selected. The results showed that by the end of 12th week aerobic exercise training, the level of dysmenorrhea in some students were with no pain in 8.4%, mild in 81.9% and moderate in 9.7% of participants in intervention group. Whereas in control group it was 1.4% in no pain, 61.1% in mild, 34.7% in moderate and 2.8% in severe dysmenorrhea, there was a significant difference between level of dysmenorrhea symptoms between the control and experimental group at (p=0.001). The study concluded that aerobic exercise was effective in reducing the level of dysmenorrhea among adolescent girls and can be practiced by





adolescent girls and women who have dysmenorrhea so as to alleviate the pain and promote comfort to them<sup>[12]</sup>.

### Limitation of the study

The study limited to the sample of 102 adolescent girls in selected High school of Bagalkot, were Assessment of dysmenorrhoea among adolescent girls and Adolescent girls aged between 14 to 16 years.

### Conclusion and Recommendation:

This chapter present the conclusion drawn the main focus of the study was to “Effectiveness of aerobic exercise on dysmenorrhoea among adolescent girls in selected high schools of Bagalkot,Karnataka.” And this study Recommended to the A comparative study can be conducted to assess the effectiveness of aerobic exercises with other alternative therapies for primary dysmenorrhea, An exploratory study can be conducted to identify the causes of dysmenorrhea. Similar study can be conducted with large sample size to generalize the findings. A study can be conducted to assess the attitude of adolescent girls about aerobic exercises for the management of primary dysmenorrhea. A study can be conducted to assess the level of knowledge on management of primary dysmenorrhea among adolescent girls. A similar study can be conducted by true experimental approach. And a more comprehensive investigation can be undertaken to ascertain the effect of dysmenorrhea on psychosocial health status of the nursing students.

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### References:

1. Agarwal K. Dysmenorrhea in adolescent girls in rural area of Delhi. *Indian Journal Public Health*. 1999; 31(3): 89-86.
2. Mudaliar AL, Krishna Menon MK. Mudaliar and Menon’s clinical obstetrics. 10th edition. Hyderabad: Orient Longman Private Limited, 2006
3. Dutta DC. Textbook of gynaecology. 4th edition
4. Dutta DC. Textbook of gynaecology. 4th edition. Calcutta: New Central Book Agency; 2007.
5. Maria P, Judith N.A. A correlative study on dysmenorrhea among rural village women of Udupi district, Karnataka. *International Journal of Nursing Education*. March 2011; 3(1): 29-31.
6. Dutta DC. Textbook of obstetrics. 7th edition. New Delhi: Jaypee brother’s medical publishers; 2013.
7. Yasir S, Kant B, Dar MF. Frequency of dysmenorrhea, its impact and management strategies adopted by medical students. *Journal of Ayub Medical College*. September 2014; 26(3): 349-52.
8. Mohammadi B, Azamian Jazi A, Faramarzi, Fathollahi Shourabeh F. The Effect of Aerobic exercise training and Detraining on Some of the Menstrual Disorders in Non-Athlete Students in Lorestan Universities. *The Horizon of Medical Sciences*. 2012; 18 (2) :5 -12.
9. Angeline S, Preethiesther. Dysmenorrhea. *Health action journal*. 2008. October; 16(7): 25-27
10. Pramanik T, Shrestha R, et al. Incidence of dysmenorrhoea associated with high stress scores among the undergraduate Nepalese medical students. *Journal of Institute of Medicine*. December 2010; 32(3):32-34 Lisa M. Primary dysmenorrhoea and physical activity. *South Lincoln* ;1999
11. Harpreet Kaur , Karuna Sharma , Ujala Joshi Pre-Experimental Study to Assess the Effectiveness of Aerobic Exercises on Dysmenorrhoea among Nursing Students at SGRD College Of Nursing Vallah, Amritsar SSN: 2249-9571 *International Journal of Health Sciences and Research*.
12. Ibadapbiang Shisha Dkhar, Vahitha S and Bhabani Pegu et al 2022 EFFECT OF AEROBIC EXERCISE ON DYSMENORRHEA AMONG ADOLESCENT GIRLS IN SELECTED COLLEGES AT PUDUCHERRY ol. 13, Issue, 07 (D), pp. 1915-1918, July, 2022 *International Journal of Recent Scientific Research*