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# Effect of Video Assisted Teaching Modul (VATM) on Therapeutic Massage to Reduce Primary Dysmenorrhea among Adolescent Girls Residing in Urban Maharashtra

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**Abstract:** ***This study evaluates the effectiveness of a video assisted teaching module (VATM) on therapeutic massage to reduce primary dysmenorrhea among adolescent girls in urban Maharashtra. Using a one-group pre-test and post-test design,118 adolescent girls were assessed through self -administered questionnaires. Findings revealed a significant increase in knowledge post-intervention (from 36.6% to 84.4%, p<0.0001). The study concludes that VATM is an effective educational application of non-pharmacological approaches to manage primary dysmenorrhea. Problem statement: What is the Effect of Video Assisted Teaching Module (VATM) on Therapeutic Massage to Reduce Primary Dysmenorrhea among Adolescent Girls Residing in Urban Maharashtra? Primary objective: The primary objective of the study was to assess the effect of VATM on therapeutic massage to reduce primary dysmenorrhea among adolescent girls residing in urban Maharashtra. Secondary objective: 1) To assess the knowledge on therapeutic massage to reduce primary dysmenorrhea among adolescent girls. before intervention. 2) To find out the effect of VATM on therapeutic massage to reduce primary dysmenorrhea among adolescent girls. after intervention. 3) To find out association between post-test knowledge scores and selected demographic variables of adolescent girls. Method: A pre-experiment one group pre-test posttest design and quantitative approach was carried out on 118 adolescent girls selected by purposive sampling technique to test effectiveness of therapeutic massage to reduce primary dysmenorrhea. The data was collected by using self-administered questionnaires (SAQ). Results: The presents study evaluates and found that the pre-intervention demographic variables of adolescent girls were broadly similar indicating shared characteristics. Further, it was observed that the percentages of knowledge (36.6%) on therapeutic massage to reduce primary dysmenorrhea among adolescent girls were broadly similar before intervention. However, after an intervention, the percentage of knowledge on therapeutic massage to reduce primary dysmenorrhea was significantly increased from 36.6% to 84.4%. Interpretation and conclusion: The collected data from adolescent girls were coded, tabulated, and analyzed by means of descriptive and inferential statistics. Further, analyzed data were presented in the form of tables/figures/graphs along with necessary interpretations and inferences. There was a significant difference (p<0.0001) between pre-test and post-test knowledge scores on therapeutic massage to reduce primary dysmenorrhea. However, no significant association (p>0.05) was found between knowledge on therapeutic massage to reduce primary dysmenorrhea and age, education, religion, monthly income, type of diet, number of siblings, and regular menstruation of adolescent girls.***

**Keywords:** Primary dysmenorrhea (PD), Video Assisted Teaching Module (VATM), non-steroidal anti-inflammatory drugs (NSAIDs), therapeutic massage, adolescent health, non-pharmacological treatment

## 1. Introduction

The pain and associated symptoms a woman experiences during her periods are one of the common problems commonly experienced by adolescent girls. Dysmenorrhea affects the quality of life of women especially of those who are working and studying. One in 13 sufferers is incapacitated for 1 to 3 days per month, affecting work and school attendance and making dysmenorrhea the leading cause of school absenteeism among adolescents. Symptoms may differ in each individual: it includes dizziness and syncope, cramping, nausea, vomiting, diarrhea, headaches, and fatigue; and may last up to 72 hours. Women begin to depend on medications as a solution for this problem. Because of the drastic physical growth that occurs during adolescence, most of them prefer to explore non-pharmacological treatments.[1] Alternative therapies have gained importance in this context. There are many home remedies known to get relief from primary dysmenorrhea (PD). Some of them are dietary modifications, heat application, yoga, exercises, herbs. Numerous researches are being performed which focuses on complementary and alternative interventions for dysmenorrhea.[2] This includes the use of muscle relaxation therapy, magnetic therapy, reflexology, hand acupuncture, aroma therapy, acupressure, etc.

Massage therapy is among the most widely used complementary and alternative treatments.[5] It is used for a wide range of health- related reason- to treat various symptoms and conditions for prevention and health maintenance. Massage is a general term for pressing, rubbing and manipulating the skin, muscles, tendons and ligaments. Massage therapist typically use their hands and fingers for massage. Massage may range from light stroking to deep pressure.[5]

## 2. Need for the Study

Dysmenorrhea is a common problem affecting majority of women. Pain during menstruation or dysmenorrhea occurs in 50% of menstruating women and approximately 10% are incapacitated for 1 to 3 days each month. In the first year after menarche, 38% of girls develop dysmenorrhea, and in

the second and third year after menarche, 20% experience pain related to menstruation. About 80% of women who develop dysmenorrhea do so within 3 years of menarche. Over the age of 25 years the cause of dysmenorrhea is usually secondary to other pelvic problems.[8] Adolescent's consulting for dysmenorrhea is very few and they prefer over-the-counter medicines or home remedies. Therefore, statistics about prevalence of menstrual problems or dysmenorrhea and their causes are poorly available due to underreporting. Recently, it has become an important public health problem among the female population;

prevalence rate reported from different regions of India appears to be as follows: Delhi 63.75%16 and Chennai 61% in certain regions, prevalence rate is reported to be as high as 71 to 93%; difference can be attributed to region-specific environment, age of participants, and study protocol.[15] A study conducted in Western Turkey to evaluate the prevalence of dysmenorrhea and determine its effect on health-related quality of life among a group of female university students revealed that dysmenorrhea is a common health problem, having negative effects on the health-related quality among university female students. The study also found a high prevalence of dysmenorrhea (72.7%) being reported among female students. It is the responsibility of health care professionals to create awareness among the female population regarding the common reproductive diseases and its available remedies. Dysmenorrhea has many nonpharmacological interventions.[16]

## 3. Review of Literature

Review of literature was carried out on recent and ongoing research relevant to the present study.

After thorough review, investigator has classified the literature based on variables which support aims and objectives of study. The literature as fallows –

1) Literature related to physiology of menstruation during reproductive age.
2) Literature related to prevalence of dysmenorrhoea
3) Literature related to primary dysmenorrhea and its causes.
4) Literature related to effect of therapeutic massage to reduce primary dysmenorrhea
5) Studies related to therapeutic massage as an intervention

**Assumptions:**

- Adolescent girls may have some knowledge on therapeutic massage to reduce primary dysmenorrhea.
- The demographic variables may influence on knowledge of adolescent girls with regard therapeutic massage to reduce primary dysmenorrhea.
- VATM on therapeutic massage may enhance the knowledge of adolescent girls.

**Delimitations:**

- The study was limited to -
- assessment of knowledge
- 126 samples
- adolescent girls residing in urban area.

**Hypothesis:**

**H1** There is a significant difference between the pretest and posttest knowledge scores on therapeutic massage to reduce primary dysmenorrhea among adolescent girls

**H2** There is a significant association between the posttest knowledge scores on therapeutic massage among adolescent girls and selected demographic variables

## 4. Methodology

**Research approach:** An experimental research approach was used for the study

**Research design:** Quantitative, experimental one group pretest posttest design

**Variables under study:**

- Independent variable: VATM on therapeutic massage to reduce primary dysmenorrhea
- Dependent variable: knowledge on therapeutic massage to reduce primary dysmenorrhea

**Accessible population**- adolescent girls of urban area

**Sample and sampling technique**

**Sample:** adolescent girls residing in selected urban school were the samples for present research study.

**Sample size**: Sample's size was 118 adolescent girls calculated on the basis of sample size determination formula

**Sampling technique:** A purposive sampling technique was used to select the adolescent girls residing in urban Maharashtra

**Inclusion criteria:**

- Adolescent girls those who were consented to participate in the study
- Adolescent girls those who were available at the time of data collection

**Exclusion criteria:**

- Adolescent girls who do not speak or understand Marathi

**Tool Preparation**

**Development of tool:**

Tools were developed on the basis of research question, hypothesis and conceptual frame work. Investigator undertook extensive review of literature to develop the tools. However, following efforts were made by the investigator prior to construction of tools.

- Reviews from sources like text books, journals, periodicals, magazines, published thesis, newsletters etc.
- Consultation and discussion with peer group, nursing experts, subject experts, and the others concerned.
- Personal and professional experience of investigator with the adolescent girls
- Preparation & revision of blue print and subject content prior to final draft

After such deliberations, the investigator has constructed a final draft of self-administered questionnaire (SAQ) and video assisted teaching module (VATM) on therapeutic massage to reduce primary dysmenorrhea.

**Description of Tools:**

**Self-administered questionnaire (SAQ):** This tool was constructed to assess the knowledge of adolescent girls before and after the intervention regarding therapeutic massage to reduce primary dysmenorrhea.

The SAQ contains some questions/statements (MCQs) on therapeutic massage to reduce primary dysmenorrhea and some on demographic variables of adolescent girls residing in urban area. This instrument was handed over to the adolescent girls with instructions to complete it in a stipulated time period. It has two parts; Part–A and Part–B.

**Part–A** seeks information on demographic variables such as; age, religion, qualification, type of diet, monthly income, number of sisters, and monthly regular menstruation.

**Part–B** is related to questions/statements that seek information on therapeutic massage to reduce primary dysmenorrhea among adolescent girls residing in selected urban area. It contains 04 areas on knowledge assessment.

**Table 3.2:** Blue print of SAQ

| No. | Sections / areas | Questions | Questions in % |
|---|---|---|---|
| 1 | General information on female reproductive system | 5 | 13.8 % |
| 2 | Menstruation and its cycle | 5 | 13.8 % |
| 3 | Primary dysmenorrhea | 9 | 25 % |
| 4 | Therapeutic massage to reduce primary dysmenorrhea | 17 | 47.2 % |
| | Total | 36 | 100 % |

**Scoring of SAQ**

SAQ was in the form of multiple-choice questions (MCQs) with a total score of 36. Each question/ item had four options. The score for each right answer was 1 and zero score for wrong answer. For the purpose of analysis, however, the knowledge scores were divided in to grades.

**Table 3.2:** Scoring of SAQ

| Grade | Percentage | Score |
|---|---|---|
| Very Poor | 20 % and below | 5 and below |
| Poor | 21-40 % | 06-10 |
| Average | 41-60 % | 11-16 |
| Good | 61-80 % | 17-21 |
| Very Good | 81-100 % | 22 and above |

**Video assisted teaching module (VATM):**

This tool was constructed by the investigator to teach on therapeutic massage to reduce primary dysmenorrhea among adolescent girls residing in urban area.

The central objectives of this module were –

1) The adolescent girls will be able to understand the concepts of primary dysmenorrhea and the techniques of therapeutic massage
2) The adolescent girls will be able to appreciate the techniques and principles of therapeutic massage.
3) The adolescent girls will be able to apply skill on therapeutic massage during primary dysmenorrhea

This VATM as an intervention contains 04 teaching learning sections; general information on female reproductive system, menstruation and its cycle, primary dysmenorrhea, and therapeutic massage to reduce primary dysmenorrhea.

**Tool Validity**

Content validity of SAQ and VATM were established in consultation with 10 experts from the field of community health nursing (n=6), community medicine (n =1), OBG nursing (n =1), biostatistics (n =1), and language expert (n =1).

**Tool Reliability**

Data was collected from 12 adolescent girls who were residing in urban area (other than the main study setting) to test the reliability of SAQ. A test re-test method was used to assess the data quality. For the first time, the tool was administered among 12 adolescent girls, and the same tool was re-administered among same group of adolescent girls for the second time. The score of two occasions were calculated using Karl Pearson's correlation coefficient test. The calculated value was r=0.94, hence the SAQ was considered as highly reliable.

**Pilot Study**

Pilot study was conducted among 12 adolescent girls at selected urban area to find out the effect of VATM on therapeutic massage to reduce primary dysmenorrhea. A prior permission was obtained from the authorities concerned for pilot study. Further, an informed consent was also obtained from the adolescent girls, and data was collected during January 2021.

**Plan For Data Analysis**

The data Collected data from adolescent girls were planned to analyze by using descriptive and inferential statistics. The descriptive statistics includes; percentage, mean, mean% and standard deviation. The inferential statistics includes; paired 't' test, and one-way ANNOVA using SPSS software.

## 5. Results

**Section I:** Distribution of adolescent girls according to their demographic variables

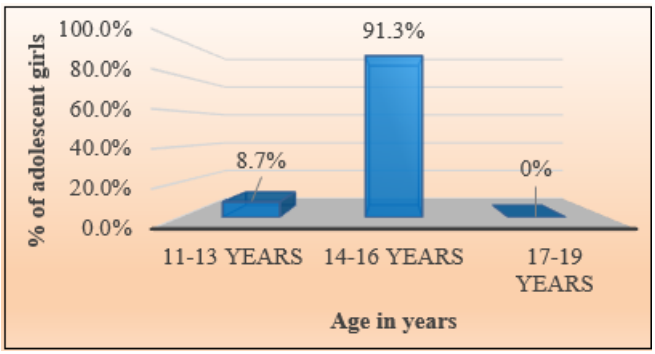


**Figure 4.1.1:** Distribution of adolescent girls according to age

Distribution of adolescent girls according to their age reveals that the most (91.3%) were belonged to the age group of 14-16 years whereas none of adolescent girls were in the age group of 17-19 years. However, adolescent girls with the 11-13 years were only 9% (figure – 4.1.1).

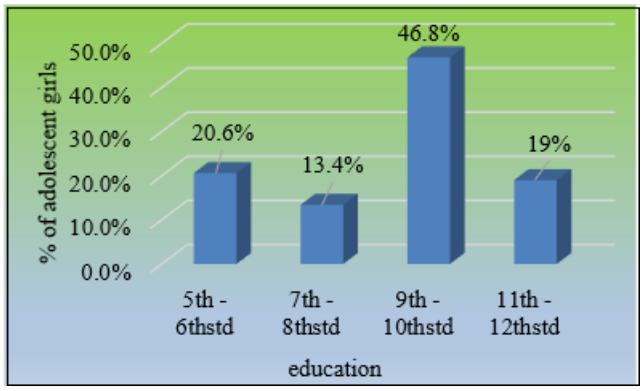


**Figure 4.1.2:** Distribution of adolescent girls according to education

Distribution of adolescent girls according to education shows that majority (46 %) of them were 9th and 10th standard whereas the percentage of other education ranges from 13% to 29 % (figure- 4.1.2).

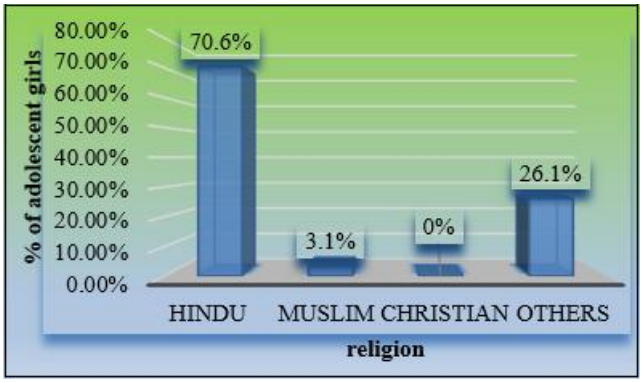


**Figure 4.1.3**: Distribution of adolescent girls according to religion

Distribution of adolescent girls according to religion depicts that around one third (70.6%) of them were Hindus whereas the Muslim &Christian religion constitutes<4%. However, adolescent girls belong to others religion was (26.19%) (figure - 4.1.3).


**Figure 4.1.4:** Distribution of adolescent girls according to family income

Distribution according to family income reveals that half of the adolescent girls belonged to the income group Rs. 10000/- & below were (52.4%) whereas the adolescent girls with Rs.15000/- & above were (20.6%) (figure – 4.1.4).

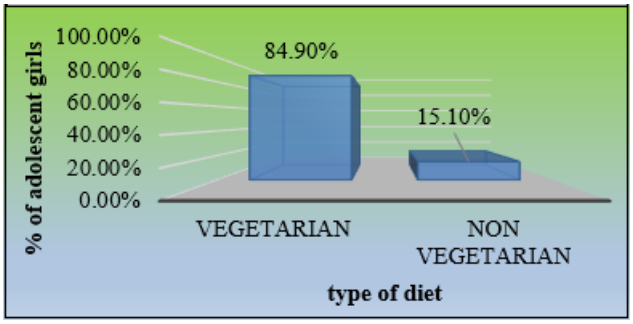


**Figure 4.1.5:** Distribution of adolescent girls according to type of diet

Distribution of adolescent girls according to type of diet reveals that majority of them (84.9%) were vegetarian. (Figure- 4.1.5)

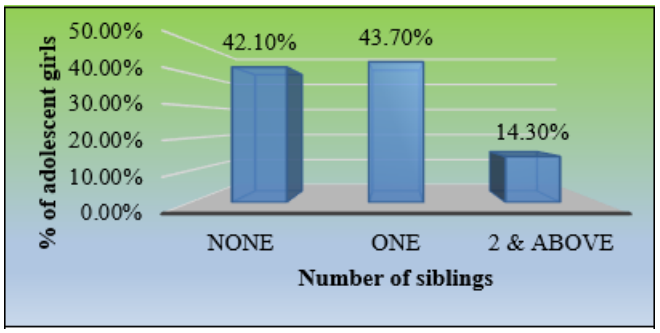


**Figure 4.1.6:** Distribution of adolescent girls according to number of siblings

Distribution of adolescent girls according to their number of sisters reveals that more or less similar percentages (42.10% & 43.70%) were had one & none sibling respectively whereas only (14.3%) of them were had 2 and above sisters (figure- 4.1.6).

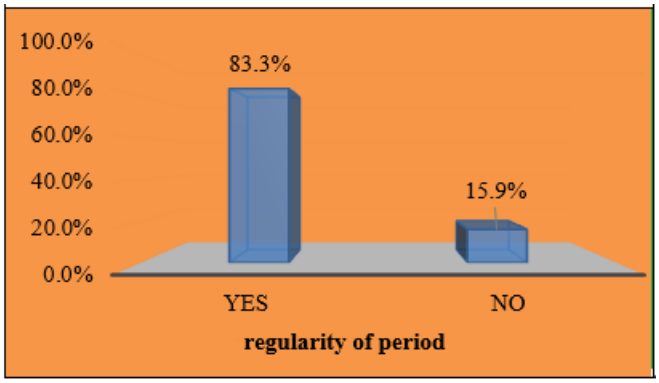


**Figure 4.1.7:** Distribution of adolescent girls according to regular of menstruation

Distribution of adolescent girls according regular of menstruation depicts that the majority (83.3%) of them had regular monthly menstruation (figure- 4.1.7).

**Section II: Assessment of knowledge on therapeutic massage to reduce primary dysmenorrhea among adolescent girls before intervention**

**Table 4.2.1:** Percentage distribution of knowledge on therapeutic massage to reduce primary dysmenorrhea among adolescent girls before intervention, n=126

| Level of knowledge | Frequency | Percentage |
|---|---|---|
| Very Poor | 0 | 0 |
| Poor | 31 | 25.5% |
| Average | 72 | 35.5% |
| Good | 20 | 54.4% |
| Very Good | 3 | 63.8% |
| Overall | 126 | 36.6% |

Distribution of knowledge scores before intervention reveals that 72 adolescent girls had good knowledge (35.5%) whereas only 3 or below adolescent girls had very good knowledge (63.8%) and very poor knowledge (0%). However, 31 adolescent girls demonstrated limited knowledge with a percentage of 25.5%before intervention (table - 4.2.1).

Hence, it was interpreted that the adolescent girls had a poor knowledge on therapeutic massage to reduce primary dysmenorrhea.

**Table 4.2.2:** Mean & mean % knowledge scores on therapeutic massage to reduce primary dysmenorrhea among adolescent girls before intervention, n=126

| Level of Knowledge | Frequency | Mean ± SD |
|---|---|---|
| Very Poor | 0 | - |
| Poor | 31 | 9.2± 1.1 |
| Average | 72 | 12.8±1.5 |
| Good | 20 | 19.6±1.5 |
| Very Good | 3 | 23 ±1.4 |
| Overall | 126 | 13.2 ±3.8 |

Distribution of Mean & SD knowledge scores on therapeutic massage to reduce primary dysmenorrhea before intervention shows that 72 of them had an average knowledge with a mean score of 12.8±1.5. However, the overall knowledge mean score was 13.2 ±3.8 (table-4.2.2).

Hence, it was interpreted that adolescent girls had poor mean knowledge scores on therapeutic massage to reduce primary dysmenorrhea before intervention

**Table 4.2.3:** Area wise percentage distribution of knowledge scores on therapeutic massage to reduce primary dysmenorrhea among adolescent girls before intervention, n=126

| Area of knowledge | Item | Percentage of knowledge |
|---|---|---|
| General information on female reproductive system | 5 | 46% |
| Menstruation and its cycle | 5 | 58% |
| Primary dysmenorrhea | 9 | 27.7% |
| Therapeutic massage to reduce primary dysmenorrhea | 7 | 31.7% |
| Overall | 36 | 36.6% |

**Table 4.2.4:** Area wise Mean and SD of knowledge score among adolescent girls before intervention, n=126

| n=126<br>n+++Area | Item | Mean | SD |
|---|---|---|---|
| General information on female reproductive system | 5 | 2.3 | 1.1 |
| Menstruation and its cycle | 5 | 2.9 | 0.9 |
| Primary dysmenorrhea | 9 | 2.5 | 1.2 |
| Therapeutic massage to reduce primary dysmenorrhea | 17 | 5.4 | 2.4 |
| Overall | 36 | 13.2 | 3.8 |

Areas wise Mean & SD knowledge scores on therapeutic massage to reduce primary dysmenorrhea shows the higher mean score (5.4±2.4) for the area of therapeutic massage to reduce primary dysmenorrhea whereas the area pertinent to general information on female reproductive system, menstruation and its cycle, and primary dysmenorrhea had the lowest mean scores of 2.3 ± 1.1, 2.9 ± 0.9, 2.5 +1.2 respectively (table - 4.2.4).

Hence, it was interpreted that the knowledge of adolescent girls was not similarly distributed between the areas of therapeutic massage to reduce primary dysmenorrhea.

**Section III: Comparison of knowledge scores on therapeutic massage to reduce primary dysmenorrhea among adolescent girls after intervention.**

**Table 4.3.1:** Comparison of knowledge scores on therapeutic massage to reduce primary dysmenorrhea among adolescent girls after intervention, n=126

| Level of knowledge | Pre-test | | Post-test | |
|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage |
| Very Poor | 0 | 0% | 0 | 0% |
| Poor | 31 | 25.5% | 0 | 0% |
| Average | 72 | 35.5% | 0 | 0% |
| Good | 20 | 54.4% | 0 | 0% |
| Very Good | 3 | 63.8% | 126 | 84.4% |
| Overall | 126 | 36.6% | 126 | 84.4% |

**Table 4.3.2:** Comparison of Mean knowledge scores & SD on therapeutic massage to reduce primary dysmenorrhea among adolescent girls after intervention, n=126

| Level of knowledge | Pre test | | Post test | |
|---|---|---|---|---|
| | Mean± SD | Mean% | Mean± SD | Mean% |
| Very Poor | - | - | - | |
| Poor | 9.2±1.1 | 25.6% | 0 | 0% |
| Average | 12.8±1.5 | 35.6% | 0 | 0% |
| Good | 19.6±1.3 | 54.4% | 0 | 0% |
| Very Good | 23±1.4 | 63.9% | 30.4+1.5 | 84.4% |
| Overall | 13.2+3.8 | 36.7% | 30.4+1.5 | 84.4% |

**Table 4.3.3:** Comparison of area wise knowledge scores on therapeutic massage to reduce primary dysmenorrhea among adolescent girls, n=126

| Area | Item | pre-test % | Post-test % |
|---|---|---|---|
| General information on female reproductive system | 5 | 46% | 84% |
| Menstruation and its cycle | 5 | 58% | 82% |
| Primary dysmenorrhea | 9 | 27.7% | 83.3% |
| Therapeutic massage to reduce primary dysmenorrhea | 17 | 31.7% | 75.8% |
| Overall | 36 | 36.6% | 84.4% |

**Table 4.3.4:** Comparison of area wise Mean knowledge percentage & SD on therapeutic massage to reduce primary dysmenorrhea among adolescent girls, n=126

| Area | Pretest | | Post-test | |
|---|---|---|---|---|
| | Mean ± SD | Mean% | Mean ± SD | Mean% |
| General information on female reproductive system | 2.3±1.1 | 46% | 4.2±0.6 | 84% |
| Menstruation and its cycle | 2.9±0.9 | 58% | 4.1+0.6 | 82% |
| Primary dysmenorrhea | 2.5±1.2 | 27.7% | 7.5+0.9 | 83.3% |
| Therapeutic massage to reduce primary dysmenorrhea | 5.4±2.4 | 31.7% | 14.4+1.1 | 75.8% |
| Overall | 13.2±3.8 | 36.6% | 30.4+1.5 | 84.4% |

**Testing of hypothesis**

$H_1$ There is a significant difference between pretest and posttest knowledge score on therapeutic massage to reduce primary dysmenorrhea among adolescent girls

**Table 4.4.1:** Significant difference between pre-test and posttest knowledge score on therapeutic massage to reduce primary dysmenorrhea among adolescent girls, n=126

| Overall | Mean | SD | Mean Difference | t-value | p-value |
|---|---|---|---|---|---|
| Pre-Test | 13.2 | 3.8 | 17.2 | 2.3 | 0.0001, S p<0.05 |
| Post Test | 30.4 | 1.5 | | | |

Highly significant difference (p<0.0001) was found with a 't' value of 2.3 between a pre-test & posttest

**Table 4.4.2:** Area wise significant difference between pre-test and post-test knowledge score on therapeutic massage to reduce primary dysmenorrhea among adolescent girls, n=126

| Area of knowledge | Pre test | Post test | t value | p value |
|---|---|---|---|---|
| | Mean ±SD | Mean ±SD | | |
| General information on female reproductive system | 2.3±1.1 | 4.2±0.6 | 17.26 | 0.0001*** S.p<0.05 |
| Menstruation and its cycle | 2.9±0.9 | 4.1+0.6 | 13.85 | 0.0001*** S.p<0.05 |
| Primary dysmenorrhea | 2.5±1.2 | 7.5+0.9 | 41.06 | 0.0001*** S.p<0.05 |
| Therapeutic massage to reduce primary dysmenorrhea | 5.4±2.4 | 14.4+1.1 | 39.71 | 0.0001*** S.p<0.05 |
| Overall | 13.2±3.8 | 30.4+1.5 | 51.52 | 0.0001*** S.p<0.05 |

P value<0.0001***highly significant, P value<0.001**moderately significant, P value<0.05 * significant, NS-not significant

**Testing of hypothesis**

H2: There is a significant association between the post-test knowledge score on therapeutic massage to reduce primary dysmenorrhea and age in years of adolescent girls

**Table 4.5.1:** Association between post-test knowledge score and age, n=126

| Age (yrs.) | No. of adolescent girls | Mean & SD | F-value | p-value |
|---|---|---|---|---|
| 11-13 years | 11 | 30.6±1.2 | 0.2323 | 0.6307 NS p>0.05 |
| 14-16 years | 115 | 30.3±1.6 | | |
| 17-19 years | 0 | - | | |

df - 124, table value 0.6307, NS- not significant

**Table 4.5.2:** Association between post-test knowledge score and education status, n=126

| Education status | No. of adolescent girls | Mean posttest knowledge score | F-value | p-value |
|---|---|---|---|---|
| 5th -6thstd | 26 | 30.6±1.6 | 2.3 | 0.0764 NS p>0.05 |
| 7th -8thstd | 17 | 31.1±0.9 | | |
| 9th -10thstd | 59 | 30.3±1.4 | | |
| 11th -12thstd | 24 | 29.9±2.0 | | |

df-3,122, table value – 0.0764 NS- not significant

**Table 4.5.3:** Association between post-test knowledge score and religion, n=126

| Religion | No. of adolescent girls | Mean posttest knowledge score | F-value | p-value |
|---|---|---|---|---|
| Hindu | 89 | 30.4+1.6 | 0.0212 | 0.979 NS p>0.05 |
| Muslim | 0 | 0 | | |
| Christian | 4 | 30.2+0.5 | | |
| others | 33 | 30.4+1.5 | | |

df - 2, 123, table value –0.979, NS- not significant

**Table 4.5.4:** Association between post-test knowledge score and monthly income of the family, n=126

| Monthly income | No. of Adolescent girls | Mean posttest knowledge score | F-value | p-value |
|---|---|---|---|---|
| Rs10000- & below | 66 | 30.4+1.5 | 1.054 | 0.3517 NS, p>0.05 |
| Rs10000- Rs 15000/month | 34 | 30.0+1.9 | | |
| Rs15000 & above | 26 | 30.6+1.1 | | |

df - 2, 123, table value –0.3517, NS- not significant

**Table 4.5.5:** Association between post-test knowledge score and type of diet, n=126

| Type of diet | No. of adolescent girls | Mean posttest knowledge score | F-value | p-value |
|---|---|---|---|---|
| Vegetarian | 107 | 30.5+ 1.7 | 0.9103 | 0.3419 NS, p>0.05 |
| Non vegetarian | 19 | 30.7+ 0.8 | | |

df - 1, 12, table value – 0.3419, NS- not significant

**Table 4.5.6:** Association between post-test knowledge score and number of sisters, n=126

| Number of sisters | No. of adolescent girls | Mean posttest knowledge score | F-value | p-value |
|---|---|---|---|---|
| None | 53 | 30.5+1.3 | 0.1828 | 0.8332 NS, p>0.05 |
| 1 | 55 | 30.3+1.5 | | |
| 2 & above | 18 | 30.2+2.3 | | |

df - 2, 123, table value-0.8332, NS- not significant

## 6. Summary

The study was undertaken to assess the effectiveness of VATM on therapeutic massage to reduce primary dysmenorrhea among adolescent girls. An experimental approach with one group pre-test post-test design was used to collect data among 126 adolescent girls drawn purposively using inclusion and exclusion criteria.

## 7. Conclusion

The findings indicate that the VATM significantly improves knowledge of therapeutic massage among adolescent girls offering a practical, non-pharmacological approach to managing primary dysmenorrhea. Future research should explore the modules long term impact and application in diverse population

Thus, it was concluded that the VATM on therapeutic massage to reduce primary dysmenorrhea as a method of teaching was effective among adolescent girls residing in selected urban area of Maharashtra state.

## 8. Recommendation

1) Similar study with large sample can be undertaken to bring out more generalization of findings.
2) Comparative study can be undertaken to find out the difference in knowledge among adolescent girls, serving in urban and rural area.
3) Recommended to conduct interventional study.
4) A similar study can be conducted in school.
5) A similar study can be conducted by using self-instructional module
6) Comparative study can be undertaken to find out the difference in knowledge among adolescent girls in control group and experimental group.

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