**Research Article**

# Effectiveness of Structured Teaching Program on Knowledge Regarding Menstrual Irregularities among Adolescent Girls at a Selected School and College

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## Abstract

**Aim:** The aim of this article is to provide knowledge to the adolescent girls regarding menstrual irregularities. **Materials and Methods:** An evaluative research approach with quasi experimental one group pre-test and post-test research design was used. The main objective of study was to evaluate the effectiveness of structured teaching program on menstrual irregularities among adolescent girls. A total 100 adolescent girls were selected by method of convenient sampling technique. Structured knowledge questionnaire was used as an instrument which consisted of two sections. Pre-test was conducted to assess the knowledge of adolescent girls regarding menstrual irregularities using structured knowledge questionnaire on day "1." On the same day, structured teaching program was also administered to adolescent girls regarding menstrual irregularities. On 7th day, post-test was conducted to assess the gain in knowledge using the same structured knowledge questionnaire on the same sample. **Results:** The pre-test mean score was 10.17 and post-test mean score was 20.8. Calculated "*t*" value is 28.27 at 99° of freedom which is higher than the tabulated value that is 1.66 at 5% level of significance. Hence, it was statistically interpreted that structured teaching program on menstrual irregularities was effective to improve the knowledge of adolescent girls regarding menstrual irregularities. **Conclusion:** After imparting knowledge using structured teaching program, there is highly significant difference between the pre-test and post-test mean knowledge score.

**Key words:** Adolescent girls, effectiveness, knowledge

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## Introduction

Menstruation is the periodic discharge from the vagina during the reproductive age. Normal menstruation consists of blood, secretions and disintegrating uterus lining, or the womb. Although the interval of a typical menstrual cycle is mentioned as 28 days and normal duration can range from 26 to 30 days and it may last for about 3–7 days. Since it is difficult to measure the amount of blood loss during menstruation, it is estimated by the number of sanitary napkins used per day. Using up to five napkins a day is considered to be normal. Menstrual irregularities vary from absence of menstruation to abnormal bleeding to other condition associated with menstruation.[1]

Data published in Encyclopedia Britannica reveals that adolescence, transititional phase of growth, and development between childhood and adulthood. The World Health Organization defines an adolescent as any person between age 10 and 19.[2]

The report published in proceeding of international conference of health science on integrated health care toward global well-being, Mahavidyapeeth, Mysore stated that adolescence is a transition period from childhood to adulthood. This

complex passage from childhood to adulthood is particularly stressful for girls. The healthy adolescent population is considered as a social agent of change toward a population with a healthier life style. The period of adolescence for a girl is a period of physical and psychological preparation for safe motherhood. One of the major physiological changes that take place in adolescent girls is onset of menarche which is usually associated with a number a problem among which dysmenorrhea is the most common.[3]

A cross-sectional conducted study among 500 school going adolescent girls of government schools in south Delhi. The objectives of this study were to determine patterns of menstruation, prevalence of menstrual disorders, and the health seeking behavior of the adolescent girls related to menstruation. Adolescent girls of 8th standard and above, who had already attained menarche and whose guardians were willing to allow them to participate in the study were included in the study. Girls from randomly selected sections of the classes (8–12) were enrolled. The result showed that dysmenorrhea was reported by 62% of the girls. Premenstrual syndrome was experienced by 34% girls. Out of 59% girls who had ever experienced any menstrual problem, some 30% had any consultation regarding the problem. Chi-square test was also highly significant ($P = 0.00$).[4]

The report published in BioMed Central women's health in Northwest Ethiopia reveals that menarche is the onset of menstruation and it is one of the most significant milestones in a woman's life. The mean age at menarche varies from population to population and is known to be a sensitive indicator of various characteristics of population, including nutritional status, geographical location, environmental conditions, and magnitude of socioeconomic inequalities in a society. Studies suggested that menarche tends to appear earlier in life as the sanitary, nutritional, and economic conditions of a society improve. For most females, it occurs between the age of 10 and 16 years; however, it shows a remarkable range of variation. The normal range for ovulatory cycles is between 21 and 35 days. While most periods past from 3 to 5 days, duration of menstrual flow normally ranges from 2 to 7 days. For the 1st few years after menarche, irregular and longer cycles are common.[5]

## Materials and Methods

### Study design and setting

This was a school and college-based quasi experimental study. Data were collected from the adolescent girls between December 10, 2019, and December 18, 2019. The study was conducted at school and colleges of Nashik city, Maharashtra.

### Sample size and sampling method

The sample size selected for this study was 100 sample who fulfilled the sampling criteria and who were willing to participate in the study.

Convenient sampling technique was used. In convenient sampling, which is non-probability sampling technique, subjects were selected due to their convenient accessibility and proximity to the researcher.

### Data collection tool and technique

The written designed pre-test and post-test of participants are conducted. Tool used to collect the data from the subjects included two sections:

Section A: Sociodemographic data

It consisted of seven items regarding demographic variables of adolescent girls that were developed to collect the background information of adolescent girls.

The items included in the demographic variable such as age (in years) and standard of study, Age of attaining menarche, interval of menstrual cycle (in days), duration of menstrual bleeding (in days), duration of menstrual pain during menstrual cycle, Do you have previous knowledge regarding Menstrual Irregularities? If yes, source of previous knowledge.

Section B: Structured knowledge questionnaire

It consisted of 35 items to assess the knowledge of adolescent girls regarding menstrual irregularities.

### Questions were asked regarding

Introduction of menstrual irregularities, physiology of menstrual cycle, define the term menstrual irregularities, types of menstrual irregularities (amenorrhea, dysmenorrhea, premenstrual syndrome, menorrhagia, metrorrhagia, oligomenorrhea, and polymenorrhea), causes and symptoms of each menstrual irregularities, investigation, management of each menstrual irregularities, and home remedies.

The researcher explained the participants that participants had the rights to withdraw from the study at any point without fear of receiving punishment. The participant was also assured of confidentiality and that no risks were anticipated as a result of participating in the study. After the post-test, the researcher thanked the respondent for participating in the study.

### Data management and analysis

The data obtained were planned to be analyzed on the basis of the objectives of the study using descriptive and inferential statistics. The data were arranged in master sheet. Description of the subjects with respect to demographic variables was presented using frequency and percentage. Mean, standard deviation (SD), and mean score was used to evaluate the effectiveness of structured teaching program. Paired *t*-test was used to evaluate the effectiveness of structured teaching program. The association between the pre-test and post-test knowledge of adolescent girls and selected demographic variable was

tested using Chi-square test. Data were presented in tables, graphs, and diagrams. The level of knowledge was grouped from poor to excellent that is poor (0–7), average (8–14), Good (15–21), very good (22–28), and excellent (29–35).

### Ethical consideration

Ethical issue was addressed by taking Institutional Ethical Committee approval for ethical consideration. Permission from the competent authorities and informed consent/assent from the participants/parents was taken for their willingness to participate in the study. The confidentiality of the data was maintained. No harm or injustice was done while dealing with the samples and the data.

## Results

### Demographic data of the subjects in frequency and percentage

Most of the 44% of adolescent girls were in the age group of 16–17 years, majority 45% of the adolescent girls were from 12th commerce, most of the 45% of adolescent girls have attained the menarche at the age of 13 years, majority 73% of adolescent girls were having interval of menstrual cycle is 28–30 days, majority 82% of adolescent girls were having duration of menstrual bleeding for 1–4 days, maximum 45% of adolescent girls having duration of menstrual pain of 1 day, 73% of adolescent girls had previous knowledge regarding menstrual irregularities as they answered that they experienced pain and some symptoms such as restlessness, breast tenderness, and mood swings, but they did not having much deeper knowledge regarding other types and causes and treatment about it. Most of the 63% of adolescent girls got information regarding menstrual irregularities from friends and relatives [Table 1].

Table 1 showed that most of the 44% of adolescent girls were in the age group of 16–17 years, majority 45% of the adolescent girls were from 12th commerce, most of the 45% of adolescent girls have attained the menarche at the age of 13 years, majority 73% of adolescent girls were having interval of menstrual cycle is 28–30 days, majority 82% of adolescent girls were having duration of menstrual bleeding for 1–4 days, maximum 45% of adolescent girls having duration of menstrual pain of 1 day, and 73% of adolescent girls had previous knowledge regarding menstrual irregularities as they answered that they experienced pain and some symptoms such as restlessness, breast tenderness, and mood swings, but they did not having much deeper knowledge regarding other types and causes and treatment about it. Most of the 63% of adolescent girls got information regarding menstrual irregularities from friends and relatives.

### Assessment of pre-test and post-test knowledge of adolescent girls regarding menstrual irregularities

In pre-test, 69% of the adolescent girls had average knowledge (8–14), 21% had poor knowledge (0–7), and

**Table 1:** Demographic data of the subjects in frequency and percentage (*n*=100)

| Demographic data of the subjects | Frequency | Percentage |
|---|---|---|
| Age (in years) | | |
| 11–13 years | 4 | 4 |
| 14–15 years | 42 | 42 |
| 16–17 years | 44 | 44 |
| 18–19 years | 10 | 10 |
| Standard of study | | |
| 9th class | 26 | 26 |
| 10th class | 24 | 24 |
| 11th commerce | 5 | 5 |
| 12th commerce | 45 | 45 |
| Age of attaining menarche | | |
| 11 years | 2 | 2 |
| 12 years | 5 | 5 |
| 13 years | 45 | 45 |
| 14 years | 27 | 27 |
| 15 years | 16 | 16 |
| 16 years | 5 | 5 |
| Interval of menstrual cycle (in days) | | |
| 22–24 | 3 | 3 |
| 25–27 | 13 | 13 |
| 28–30 | 73 | 73 |
| 31–33 | 11 | 11 |
| Duration of menstrual bleeding (in days) | | |
| 1–4 | 82 | 82 |
| 4–7 | 18 | 18 |
| 7–10 | 0 | 0 |
| >10 | 0 | 0 |
| Duration of menstrual pain | | |
| 1 day | 45 | 45 |
| 2 days | 40 | 40 |
| 3 days | 12 | 12 |
| 4 days | 3 | 3 |
| Previous knowledge regarding menstrual irregularities | | |
| Yes | 73 | 73 |
| No | 27 | 27 |
| If yes, source of information | | |
| Friends and relative | 46 | 63 |
| Health-care professional | 21 | 29 |
| Mass media | 1 | 1 |
| Any other specify | 5 | 7 |

remaining 10% had good knowledge (15–21) regarding menstrual irregularities. The mean score for the pre-test was 10.17 [Table 2 and Figure 1].

The Figure 1 depicts that, in pre-test, 69% of the adolescent girls had average knowledge (8–14), 21% had poor

knowledge (0–7), and remaining 10% had good knowledge (15–21) regarding menstrual irregularities.

Table 2 reveals that, in pre-test, 69% of the adolescent girls had average knowledge (8–14), 21% had poor knowledge (0–7), and remaining 10% had good knowledge (15–21) regarding menstrual irregularities. The mean score for the pre-test was 10.17.

In post-test, 50% of the adolescent girls had good knowledge (15–21), 38% had very good knowledge (22–28), 7% had average knowledge (8–14), 4% had excellent knowledge (29–35), and remaining 1% had poor knowledge (0–7) regarding menstrual irregularities. The mean score for the post- test was 20.8 [Table 3 and Figure 2].

Figure 2 shows that, in post-test, 50% of the adolescent girls had good knowledge (15–21), 38% had very good knowledge (22–28) and 7% had average knowledge (8–14), 4% had excellent knowledge (29–35), and remaining
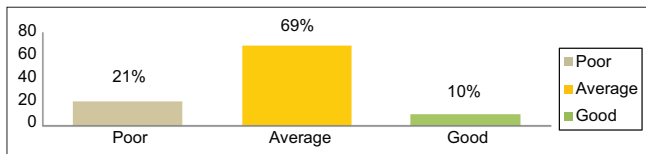


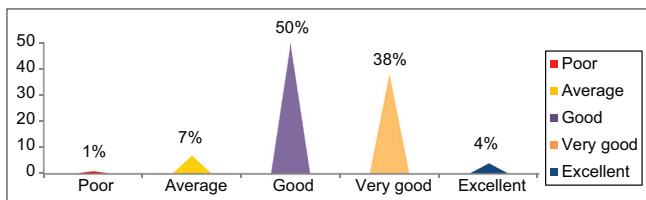**Figure 1:** Pre-test knowledge of adolescent girls regarding menstrual irregularities



**Figure 2:** Post-test knowledge of adolescent girls regarding menstrual irregularities

1% had poor knowledge (0–7) regarding menstrual irregularities.

In post-test, 50% of the adolescent girls had good knowledge (15–21), 38% had very good knowledge (22–28) and 7% had average knowledge (8–14), 4% had excellent knowledge (29–35), and remaining 1% had poor knowledge (0–7) regarding menstrual irregularities. The mean score for the post-test was 20.8.

**Effectiveness of structured teaching program on knowledge of adolescent girls regarding menstrual irregularities**

Paired "*t*"-test was applied to evaluate effectiveness of structured teaching program on knowledge of adolescent girls regarding menstrual irregularities. The calculated "*t*" value is 28.27 at 99° of freedom which is higher than the tabulated value that is 1.66 at 5% level of significance. Hence, it was statistically interpreted that null hypothesis was rejected and $H_1$ accepted which states that the structured teaching program was effective to improve the knowledge of adolescent girls regarding menstrual irregularities [Table 4].

Table 4 reveals the effectiveness of structured teaching program on knowledge regarding menstrual irregularities among adolescent girls. The pre-test mean score was 10.17 and the post-test mean score was 20.8. Thus, there was significant difference between pre-test and post-test knowledge. The calculated "*t*" value is 28.27 at 99° of freedom which is higher than the tabulated value that is 1.66 at 5% level of significance.

Hence, the researcher accepted $H_1$ hypothesis and rejected the null hypothesis.

$H_1$: Hence, there was significant difference between the pre-test and post-test knowledge of adolescent girls

**Table 2:** Assessment of the pre-test and post-test knowledge of adolescent girls regarding menstrual irregularities

| Level of knowledge | Score range | Pre-test | | Mean score | Standard deviation |
|---|---|---|---|---|---|
| | | Frequency (F) | Percentage (%) | | |
| Poor | 0–7 | 21 | 21 | 10.17 | 3.02 |
| Average | 8–14 | 69 | 69 | | |
| Good | 15–21 | 10 | 10 | | |
| Very good | 22–28 | 0 | 0 | | |
| Excellent | 29–35 | 0 | 0 | | |

**Table 3:** Assessment of post-test knowledge of adolescent girls regarding menstrual irregularities

| Level of knowledge | Score range | Post-test | | Mean score | Standard deviation |
|---|---|---|---|---|---|
| | | Frequency (F) | Percentage (%) | | |
| Poor | 0–7 | 1 | 1 | 20.8 | 4.55 |
| Average | 8–14 | 7 | 7 | | |
| Good | 15–21 | 50 | 50 | | |
| Very good | 22–28 | 38 | 38 | | |
| Excellent | 29–35 | 4 | 4 | | |

**Table 4:** Effectiveness of structured teaching program on knowledge of adolescent girls regarding menstrual irregularities

| Knowledge | Maximum score | Mean score | Standard deviation | "*t*" value | Degree of freedom | Significance |
|---|---|---|---|---|---|---|
| Pre-test | 35 | 10.17 | 3.02 | 28.27 | 99 | Highly significant (*P*<0.05) |
| Post-test | 35 | 20.8 | 4.55 | | | |

("*t*"=28.27, table value *t*(99)=1.66, *P*<0.05)

regarding menstrual irregularities. Hence, it was concluded that structured teaching program on menstrual irregularities was effective to improve the knowledge of adolescent girls regarding menstrual irregularities.

**Association of pre-test and post-test knowledge of adolescent girls regarding menstrual irregularities with selected demographic variable**

Chi-square was used to find out an association and showed there was no significant association of pre-test knowledge with selected demographic variables. The obtained Chi-square value is 2.30, 2.42, 1.34, 6.28, 2.43, 5.86, 3.68, and 0.70 of the pre-test knowledge scores with selected demographic variable that is Age (in years), standard of study, age of attaining menarche, interval of menstrual cycle, duration of menstrual bleeding, duration of menstrual pain, Do you have previous knowledge regarding menstrual irregularities, If yes, source of information, were not significant at 5% level of significance.

The obtained Chi-square value that is 11.04, 12.62 of post-test knowledge with selected demographic variable that is age (in years) and interval of menstrual cycle (in days) were found significant at 5% level of significance at degree freedom = 3.

Hence, it was statistically interpreted that there was significant association of post-test knowledge with selected demographic variable that is age (in years) and interval of menstrual cycle (in days) as Chi-square value that is 11.04 and 12.62, respectively, higher than the table value at 5% level of significance which was statistically accepted.

## Discussion

A quasi-experimental study on knowledge of adolescent girls regarding menstrual irregularities was conducted in a selected school in Bengaluru. The aim of thie study was to assess the effectiveness of planned teaching program on knowledge of menstrual irregularity among adolescent girls in selected school. The data were analyzed using paired *t* test and Chi-square test. The sample size is 60. The knowledge of adolescent girls wasassessed using a structured questionnaire. On the same day, the investigator has given a planned teaching program to the adolescent girls regarding menstrual irregularity. Then, after 3 day the investigator personally assessed the knowledge of adolescent girls regarding menstrual irregularity using the same structured questionnaire. The mean knowledge score

in the pre-test phase was 9.37 with the SD of 5.54 and in the post-test phase, the mean score was 32.25 with the SD 2.62. Thus, the study value concluded that the study subjects gained excellent knowledge.[6]

In the present study, "Effectiveness of structured teaching program on knowledge regarding menstrual irregularities among adolescent girls at a selected school and college." A quasi experimental one group pre-test and post-test research design was used. A total 100 adolescent girls were selected by method of convenient sampling technique as per the inclusion criteria. Structured knowledge questionnaire was used. Before the collection of data researcher was obtained permission from competent authority of the selected school and college and informed assent/consent was taken from the parents and participants. Pre-test was conducted to assess the knowledge of adolescent girls regarding menstrual irregularities using structured knowledge questionnaire on day "1". On the same day, structured teaching program was also administered to adolescent girls regarding menstrual irregularities. On 7th day, post-test was conducted to assess the gain in knowledge using the same structured knowledge questionnaire on the same sample.

The findings of the study revealed that highest percentage that is 44% of the adolescent girls were in the age group of 16–17 years, 45% of the adolescent girls were from 12th commerce, 45% of the adolescents girls were having 13 years of age for attaining menarche, 73% of adolescents girls were having interval of menstrual cycle 28–30 days, 82% of adolescents girls were having duration of menstrual bleeding for 1–4 days, 45% of adolescents girls were having duration of menstrual pain of 1 day, and 73% adolescent girls had previous knowledge regarding menstrual irregularities as they answered that they experienced pain and some symptoms such as restlessness, breast tenderness, and mood swings but they did not having much deeper knowledge regarding other types and causes and treatment about it. In this study, findings shows that the mean score for the pre-test was 10.17, the mean score for the post-test was 20.80. The post-test mean score was significantly greater than the pre-test mean score. The data presented show that "*t*" value calculated between mean pre-test and post-test score was statistically highly significant (calculated "*t*" = 28.27, table value "*t*" = 1.66, *P* < 0.05). Hence, the null hypothesis (H$_0$) was rejected and H$_1$ was accepted.

The cross-sectional school-based study was conducted in a rural school of the Thiruvallur district, Tamil Nadu. The

objective of this study was to estimate the prevalence of menstrual problems, namely, dysmenorrhea, menorrhagia, and irregular menstrual cycles. The participants were adolescent girls who attained menarche at least 1 year before the data collection period were selected using a simple random sampling method. A total of 350 participants were included in the study. A structured and pre-tested questionnaire was used to collect data. The result of study showed that the mean age of the study participants was 14.74 years. The mean age at menarche was 12.4 years. In this study, 87.7% of the girls suffered from a menstrual problem. Overall, dysmenorrhea was prevalent in 72.6%, and menorrhagia and irregular menstrual cycles were present among 45.7% and 31.7% of the participants, respectively. The study concluded that menstrual problems form an important domain of adolescent health and because these problems go unreported, it is necessary that adequate attention and care is provided. The consequences of the neglect of menstrual problems results in impaired reproductive and sexual health in older women.[7]

A cross-sectional study was conducted, in the health colleges of Immam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia between February 2015 and February 2016. The aim of this study was to identify the prevalence of various menstrual problems in young females studying health sciences and to identify their association with academic stress. 738 female students aged 18–25 years anonymously completed menstrual problem identification and perceived stress scale questionnaire. The different menstrual problems reported, and their incidences included irregular menstruation (27%), abnormal vaginal bleeding (9.3%), amenorrhea (9.2%), menorrhagia (3.4%), dysmenorrhea (89.7%), and premenstrual symptoms (46%).[8]

## Conclusion

From the study findings, it is concluded that the structured teaching program was effective in improving the knowledge of adolescent girls regarding menstrual irregularities.

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