International Journal of Nursing and Medical Science 2023:12(3), 08-27

IJNMS ISSN: 2454-6674

INTERNATIONAL JOURNAL OF NURSING AND MEDICAL SCIENCE

Nursing Education Health Science Research

PANACEA INTERNATIONAL JOURNAL | PRL PUBLISHER

Review Article **Volume 12 Issue 3** **July-Sept 2023**

"EFFECTIVENESS OF HEALTH EDUCATION THROUGH DIRECT INTERVENTION AND PEER-LED INTERVENTION ON KNOWLEDGE, ATTITUDE AND PRACTICE INCLUDING MYTHS AND RESTRICTIONS AMONG ADOLESCENT GIRLS REGARDING MENSTRUAL HYGIENE"

***Ms. Lata Sethi, Dr Jinu K Rajan**

Malwanchal University Indore

*Corresponding Author's Email ID: latasethi86@gmail.com

Abstract

According to **Journal of Sexual and Reproductive Health (2020)**[1] the transition from infancy to adulthood occurs during adolescence. Sexual growth and pubertal development happen during this time. Teenage girls have significant gaps in their understanding about menstruation and menstrual hygiene. Teenage females are frequently hesitant to bring up this subject with their parents, friends, or anyone else. Adolescent females as a result become ignorant of scientific truths and hygienic health practices. Improved understanding and safe menstrual practices will reduce the risk of STI's and their negative effects. In this situation, providing educational intervention to girls at the school level would be suitable. Increased awareness of menstruation from an early age may therefore increase safe practices and lessen the pain of millions of women. Hence an experimental study was conducted to assess the effectiveness of health education on menstrual hygiene among adolescent girls residing in selected rural areas of Ujjain through selected methodology. Three groups pretest-posttest design was adopted. 306 adolescent girls fulfilling the selection criteria were selected through purposive random sampling technique. Pre-test was conducted to assess the knowledge, attitude and practice related to menstruation through direct intervention to the first group, peer-led intervention to the second group and no intervention to the control group. Health education was delivered to the first group through direct intervention and to the second group through peer-led intervention but not to the control group Post-test was also conducted using the same tool and method. Statistical analysis revealed that there was significant association between pre-test knowledge score and socio-demographic variables like age, type of family, number of siblings, religion, and education of mother, education of father, occupation of mother, and occupation of father, family income, and type of house The paired t test value between pretest and post-test knowledge score of the direct intervention group score ("t"=36.86) is highly significant at the level $p \leq 0.001$. The paired t test value between pretest and post-test knowledge score of the peer-led intervention group score ("t"=27.18) is highly significant at the level $p \leq 0.0001$. The paired t test value between pretest and post-test knowledge score of the control group score ("t"=0.006) is not significant at the level $p \leq 0.0001$. The test statistic F equals 782.103224, which is not in the 95% region of acceptance: [∞3.0255]. The observed effect size f is large that indicates that the magnitude of the difference between the averages is large. The pair-wise comparison M_1 = 15.06 M_3 = 3.73, shows the large difference in direct-intervention group with control group with Tuckey's honest significance difference as 11.33

Keywords: Menstrual Hygiene, Menstruation, Adolescent Girls, Direct-intervention, peer-led intervention, Health Education

BACKGROUND OF THE STUDY:

According to **Journal of Sexual and Reproductive Health (2020)[1]** the transition from infancy to adulthood occurs during adolescence. Sexual growth and pubertal development happen during this time. Teenage girls have significant gaps in their understanding about menstruation and menstrual hygiene. Teenage females are frequently hesitant to bring up this subject with their parents, friends, or anyone else. Adolescent females as a result become ignorant of scientific truths and hygienic health practices. Improved understanding and safe menstrual practices will reduce the risk of STI's and their negative effects. In this situation, providing educational intervention to girls at the school level would be suitable. Increased awareness of menstruation from an early age may therefore increase safe practices and lessen the pain of millions of women.

In addition, **WHO** reported **(2020)[2]** that teenagers between the ages of 10 and 19 are considered teenagers according to the World Health Organization. In the world, adolescents make up roughly 16% of the overall population1. The transition from infancy to adulthood occurs during adolescence. Teenage years are a significant and delicate time in life. During this stage, a lot of physical, intellectual, and social changes occur. Between the ages of 10 and 19, there are 253 million adolescents in India. The individuals in this age group require nutrition, schooling, counseling, and guidance in order to ensure that they grow up to be healthy adults. They are at risk for several health conditions that can be avoided or treated, such as early and unintended pregnancy, unsafe sex that can result in STIs, HIV, and AIDS, nutritional diseases like malnutrition, obesity, drug, alcohol, and tobacco misuse, mental health issues, anemia, injuries, and violence.

On the other Hand **Wilma Frazer (2019)[3]** states that menstruation is a crucial aspect of teenage girls' lives. Teenage girls are not permitted to perform household duties or participate in religious or cultural activities while they are on their period in India because menstruating women are regarded as unclean. Modern understanding of menstruation, starting in early puberty, would increase safety measures and lessen the suffering of millions of women.

"Adolescence is a time of quick transition to adulthood for girls" as said by **Pauline De Samuel** in an article for **The Times** in **(2019)[4]** She says that one of the most significant changes that females experience during their adolescent years is the beginning of menstruation. Throughout the childbearing years, menstruation happens irregularly, with the exception of pregnancy and lactation. Menarche marks the beginning, and menopause marks the conclusion. It is crucial for women to comprehend the alterations that occur during menstruation during this time. Even though menstruation is a natural process, it is

associated with a number of myths and errors that may have a negative impact on one's health. The behaviors associated with menstruation and menstrual hygiene is still obscured by social and societal constraints and taboos. Menstrual hygiene issues have been linked to severe illnesses, such as urinary and reproductive tract infections.

Again, **Dr. Pallavi Shukla (2018)[5]** specifies that there is a substantial lacuna in the knowledge towards menstruation and menstrual hygiene among adolescent girls. In Indian culture, menstruation is typically regarded as unclean. Girls' negative attitudes have been reinforced by restrictions placed on and isolation of menstruating girls in the household. Numerous studies have revealed that there are still restrictions on everyday activities, seclusion, playing, attending school, and entering sacred places. Additionally, there are dietary limitations during the menstrual cycle.

NEED OF THE STUDY

The following factors made the investigator feel that further research was necessary:

As speculated by **Oche M, Umar (2015)[12]** the menstrual cycle is a unique occurrence that nature has designed for women. From the start of menstruation (menarche) until menopause, a woman goes through a significant period in her reproductive life. Between puberty and the age of legal adulthood, adolescence is a time of physical, psychological, and reproductive development. Individuals between the ages of 10 and 19 are considered adolescents according to the World Health Organization. Girls' adolescence has been acknowledged as a unique stage of their lives that calls for particular and special care. Menarche begins during this time frame.

In addition, **El-Mowafy RI (2014)[13]** says adolescence in girls has been recognized as a special period in their life cycle that requires specific and special attention. This period is marked with onset of menarche.

Again, **Dambhare DG (2014)[14]** states that menstruation is surrounded by various psychological and religious barriers due to lack of knowledge about the scientific process of menstruation. Many girls residing in slum areas are unaware of what actually happens during menstrual cycle. Although menstruation is a natural process, it is linked with several perceptions and practices within the community, which sometimes may result in adverse health outcomes.

Mona Dorothy **(2013)[15]** specifies further that hygiene during menstruation is an inevitable part of woman's life. Various aspects such as physiology, pathology and psychology of menstruation have been found to associate with health and well-being of women; hence, it is an important issue concerning morbidity and mortality of female population. It is during

this period a woman is regarded most vulnerable for developing any kind of reproductive tract infections, urinary tract infections, and various sexually transmitted diseases. Menstrual hygiene deals with special healthcare needs and requirements of women during monthly menstruation or menstrual cycle. Therefore, increased knowledge about menstruation right from childhood may escalate safe practices and may help in mitigating the suffering of millions of women.

STATEMENT OF THE PROBLEM

"A study to assess the Effectiveness of Health Education Through Direct Intervention And Peer-Led Intervention on Knowledge, Attitude and Practice including myths and restrictions among Adolescent Girls Regarding Menstrual Hygiene in selected rural areas of Ujjain M.P"

1.5. OBJECTIVES OF THE STUDY

- To assess the pretest scores of knowledges, attitude and practice regarding menstrual hygiene among the study groups.
- To find the association between pre-test knowledge score of menstruation and menstrual hygiene related self-structured questionnaire and selected demographic variables.
- To assess the post-test scores of knowledges, attitude and practice regarding menstrual hygiene among the study groups.
- To compare the relative effectiveness of health education regarding menstrual hygiene among direct intervention and Peer led intervention and the control group.

HYPOTHESIS:

RH_1: There will be a significant difference between pretest scores and post test score of knowledge, attitude and practice regarding menstrual hygiene among the study groups

RH_2: There will be significant association between pretest knowledge score of menstruations related self-structured questionnaire and selected demographic variables.

RH_3: There will be a significant difference between direct intervention and Peer led intervention of health education regarding menstrual hygiene among the study groups

RH_0: There will be no significant change in the pretest scores and post test scores of knowledge, attitude and practice regarding menstrual hygiene among the study group.

RESEARCH METHODOLOGY

RESEARCH APPROACH

A true-experimental research approach was adopted to test the main objective of evaluating the effectiveness of peer-led teaching and direct intervention on knowledge, attitude and practices including myths and restrictions regarding menstrual hygiene among adolescent girls inn selected rural areas of Ujjain district

RESEARCH DESIGN

A true-experimental three group's pretest-posttest design was used to observe the effectiveness of peer-led and direct intervention on knowledge, attitude and practice including myths and restrictions regarding menstrual hygiene among adolescent girls inn selected rural areas of Ujjain district.

SAMPLING TECHNIQUE

In present study, the sampling technique which was used was non probability purposive sampling

SAMPLE

In this study, the sample comprised of total 306 adolescent girls residing in rural areas of Ujjain

SETTING

The present study was conducted at three distant government schools situated in rural areas namely Surasa, Palwa and Narayan Dham in Ujjain District

DEVELOPMENT AND DESCRIPTION OF THE TOOL

SECTION A: SOCIO DEMOGRAPHIC VARIABLE

This part was comprised of 7 items to get the baseline data of selected factors like age, type of family, number of siblings, religion, education of mother, education of father, occupation of father, occupation of mother, monthly family income, type of house, and availability of toilet in the house

SECTION B MENARCHE RELATED PERSONAL DETAILS

This section consists of 7 questions to get specific details pertaining to menses like age of menarche, first experience, sharing of experience, any previous knowledge about menses, absorbent used previously and now, experience of any restrictions during menses ; if Yes, then what type of restrictions ect.

SECTION C- SELF STRUCTURED QUESTIONNAIRE TO ASSESS THE KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING MENSTRUAL HYGIENE AMONG ADOLESCENT GIRLS RESIDING IN RURAL AREAS OF UJJAIN

KNOWLEDGE QUESTIONNAIRE: - This part of section c contains 20 knowledge questionnaires to assess the knowledge regarding menstrual hygiene among adolescent girls residing in rural areas at present. The questionnaire was framed in order to get the correct responses from the subjects regarding menstrual hygiene.

RELIABILITY OF THE TOOL

Test- retests measurements for reliability of structured questionnaire to assess the knowledge, attitude and practice regarding menstrual hygiene was carried out by investigator and suggested to be 0.75 or greater and thus is acceptable.

PILOT STUDY

Pilot study was conducted from January 2022- February 2022 at 3 different private and government schools in 3 distant areas of, Ujjain. Written permission by the concerned authority was granted. Study's purpose was explained to the subjects with assurance of confidentiality. As far as the limitations of health education were concerned subjects were explained that it would be beneficial only if they understand it thoroughly practice it daily without fail till they get proper knowledge. A total of 03 days of intervention was planned for the study. 3 days session each comprising of 2 hours was taken where health education regarding menstrual hygiene was covered through peer-led and direct intervention Subjects were asked to attend the session.

Post-test was taken after 6 days of the intervention; the pilot study was terminated after expressing gratitude to the respondents for their co-operation and support followed by feedback regarding the video-led teaching programme.

DATA COLLECTION

The data collection for the main study was done from July 2022 till December 2022 at 6 different private and government schools at 3 different rural areas in Ujjain. Ethical considerations were fulfilled by obtaining the written permission from the authority of Index Medical College, Indore M.P. A total of 306 samples (102 subjects/study group) through non probability purposive sampling technique were screened for the study, which fulfilled the inclusion criteria of the study. There were no drop-outs from the study therefore the study was conducted on all 306 samples. During the data collection, self-structured questionnaire was used to assess the knowledge, attitude and practice regarding menstrual hygiene among adolescent girls residing in rural areas of Ujjain

FINDINGS

SECTION A: ASSESSMENT OF THE SOCIO-DEMOGRAPHIC VARIABLES

The highest percentage of the age among all the study groups belongs to 12 years with maximum 37(36.27%) participants from direct intervention group; followed by 13 years from peer-led intervention group comprising 35 (34.31%) participants and least belonged to 15 years from direct intervention group comprising 13 (12.74%). Considering the type of family, 94(92.15%) from control group among all the groups belong to joint family and the least 8 (7.84%) belong to have a nuclear family. Majority 57 (55.88%) has 2 siblings and 3 (2.94%) is the least to have 1 sibling from all the groups. Almost all the groups belong to Hindu religion except 1 (0.98%) from direct intervention group who was Christian. The highest percentage of educated mothers belongs to direct interventional group where 74 (72.54%) mothers went to primary school and only very slightly 1 (0.98%) belong to control group who went for graduation. Highest percentage 61(59.80%), 60 (58.82%) and 59(57.84%) of educated fathers belonged to direct intervention group, peer-led intervention group and control group where fathers went to primary school and 4 (3.92%) were illiterate who belonged to peer-led intervention group. The major population of father 54(52.84%) from among all the groups were Labours 45 (44.11%) from control group were service men and 20 (19.60%) from peer-led intervention group were of other occupations. Conversely, 72 (70.58%) were house-wives, 29 (28.43%) were labours and only 1 (0.98%) were service women in direct interventional group, 62 (69.78%), were house-wives, 32 (52.94%) were labours and 2 (1.96%) were service women leaving only 6 (5.88%) to other occupations. In the same way, 64(62.74%) were house wives, almost half i.e. 31(30.39%) were labours, 2(1.96%) were service women and 5 (4.90%) were of other occupations in control group. 46 (45.09%) is the highest to fall under 3000 – 6000 monthly income from among the direct intervention group, 41 (40.19%) among the peer-led intervention and 49 (48.03%) among the control group as compared to 7 (6.86%), 15 (14.70%) and 12 (11.76%) from among all the groups falling under below 3000 monthly income. Likewise, 91(89.21%) from the direct intervention group, 84(82.35%) among the peer-led intervention and 78(76.47%) among the control group has cemented house as compared to 2 (1.96%), from direct intervention group and 5 (4.90%) from other two groups having kachha house. All the groups under study have toilets at their residence.

SECTION B ASSESSMENT OF THE MENARCHE RELATED PERSONAL DETAILS

The age of menarche of the study groups where highest number 40 (39. 21%), 36 (35.29%) and 36 (35.29%) from among all the groups is 13 years who reached menarche and least number i.e. 6 (5.88%), 5 (4.9%) and 4 (3.92%) from among all the groups belonged to age 15 years who reached menarche. Upon enquiring about the first experiences with menses,

more than ninety percent i.e. 96 (94.12%), 94 (92.15%) and 92 (90.19%) of all the study groups responded it to be Bad. 76 (74.5%) from direct intervention group; 72 (70.58%) from Peer-led intervention group and 69 (67.65%) shared their first experience with their mothers. Similarly, 26 (25.49%) from both peer-led intervention and control group and only, 21 (20.58%) from direct intervention group shared about it with their friend, but only 4 (3.92%) from control group, 3 (2.94%) from direct intervention group and 2 (1.96%) from control group shared about it with their siblings which is almost equal to those who shared about it with their teachers leaving none who did the same with others. Upon enquiring about the pervious information regarding menarche, almost all the groups were more than 95 (93.14%) who didn't know about it. Upon discussing about the information about menstruation where all 4 (3.92%) from direct intervention group, 3 (2.94%) from peer-led intervention group and 4 (3.92%) from control group obtained it from their mothers, whereas, 2 (1.96%) from control group and 1 (0.98%) from peer-led obtained it from their friends. But only 1 (0.98%) from peer-led and control group obtained from their siblings. None obtained it from media or other sources. Upon asking about the first absorbent, 97(95.10%), from direct intervention group, 96 (94.12%) from peer-led intervention group and 95 (93.14%) from among control group stated to have used Cloth only >10% from all the groups have used sanitary pads. The current use of absorbents; where maximum 68 (66.67%) subjects from peer-led intervention group, 67 (65.69%) from direct intervention group, 65 (63.73%) from control group uses sanitary pads now and 35 (34.31%) subjects from direct intervention group, and only34 (33.33%) from peer-led intervention group uses old cloth now but none does the same from control group and none of the study groups uses any other absorbent. Likewise, all the study groups combined together i.e. 306 (100%) experiences restrictions during menses even today. The menarche related personal details where more than 97 (95.10%) from all the groups face separation from others and given a corner in a house, more than 84 (82.35%) were restricted to sit and sleep on floor, like the same number of subjects were asked to utilize separate utensils and more than 95 (93.14%) subjects were not allowed in the kitchen, almost 100% subjects weren't allowed in Pooja room or temple and only 13%-15% were restricted to attend to schools. The menarche related personal details where more than 20 (19.61%) from direct intervention group, 14 (13.73%) from peer-led intervention group and 78 (76.47%) from control group were not allowed to visit relatives or friends, more than 96 (94.12%) from all the groups weren't allowed to have some certain food products , more than 25% were restricted to play and do household works , almost 100% subjects were asked to wash their clothes and utensils separately and more than 95 (93.14%) subjects were not allowed to touch cupboards and even a person.

SECTION C ASSESSMENT OF PRETEST KNOWLEDGE, ATTITUDE AND PRACTICE SCORES OF THE STUDY GROUPS

The distribution of pre-test knowledge scores of the study groups where it is revealed that all the groups under study has obtained poor marks i.e. 88 (86.27%) from direct interventional group, 90 (88.23%) from peer-led intervention group and 87 (85.29%) from control group scored 01-05 marks and graded as Poor. Similarly, 14 (12.72%) from direct interventional group, 8 (7.84%) from peer-led intervention group and 10 (9.80%) from control group scored 06-10 marks and graded as Average, whereas, only 4 (3.92%) and 5 (4.90%) from peer-led intervention and control group has scored 11-15 marks and graded as Good. None of the groups under study scored 16-20 marks and graded as Excellent

SECTION IV- ASSOCIATION BETWEEN THE PRETEST KNOWLEDGE SCORE WITH SELECTED SOCIO-DEMOGRAPHIC VARIABLE OF THE STUDY GROUPS

The Study revealed that there is a significant association between Age, Type of Family and Number of Siblings with Pre-test Knowledge scores. There is a significant association between Religion, Education of Mother and Education of father with Pre-test Knowledge scores. There is a significant association between Occupation of Mother, Occupation of Father, and Monthly family income with Pre-test Knowledge scores. There is a significant association between Type of house with Pre-test Knowledge scores but the table shows no significant association between availability of toilet in the house with Pre-test Knowledge scores.

SECTION V- COMPARISON OF THE PRETEST-POSTTEST KNOWLEDGE, SCORES OF THE STUDY GROUP N=102

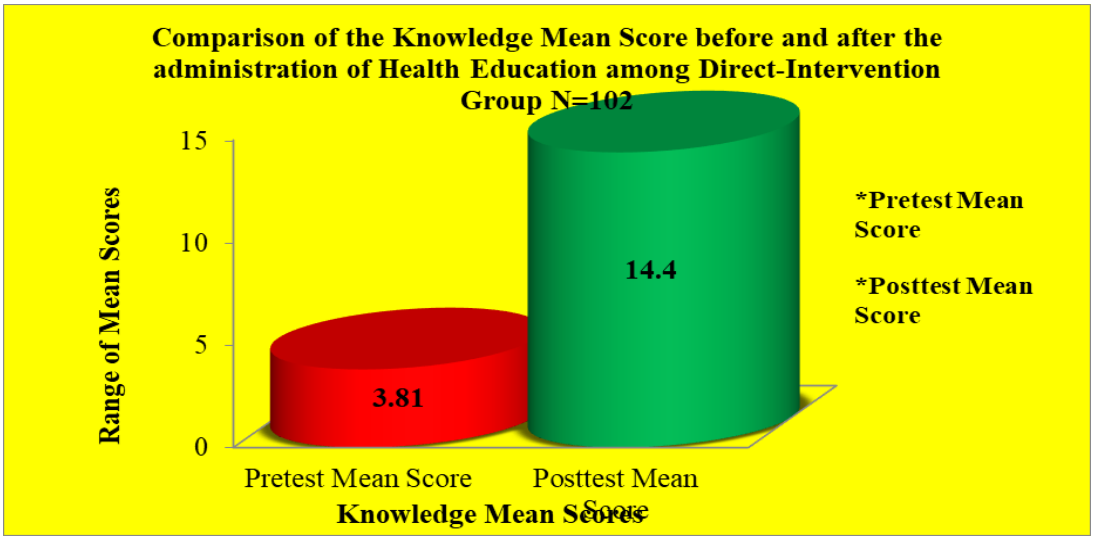

Figure 01: Column diagram showing the Comparison of the Knowledge Mean Score before and after the administration of Health Education among Direct-Intervention Group

MEAN SCORE OF KNOWLEDGE BEFORE AND AFTER THE ADMINISTRATION OF HEALTH EDUCATION AMONG PEER-LED INTERVENTION GROUP N=102

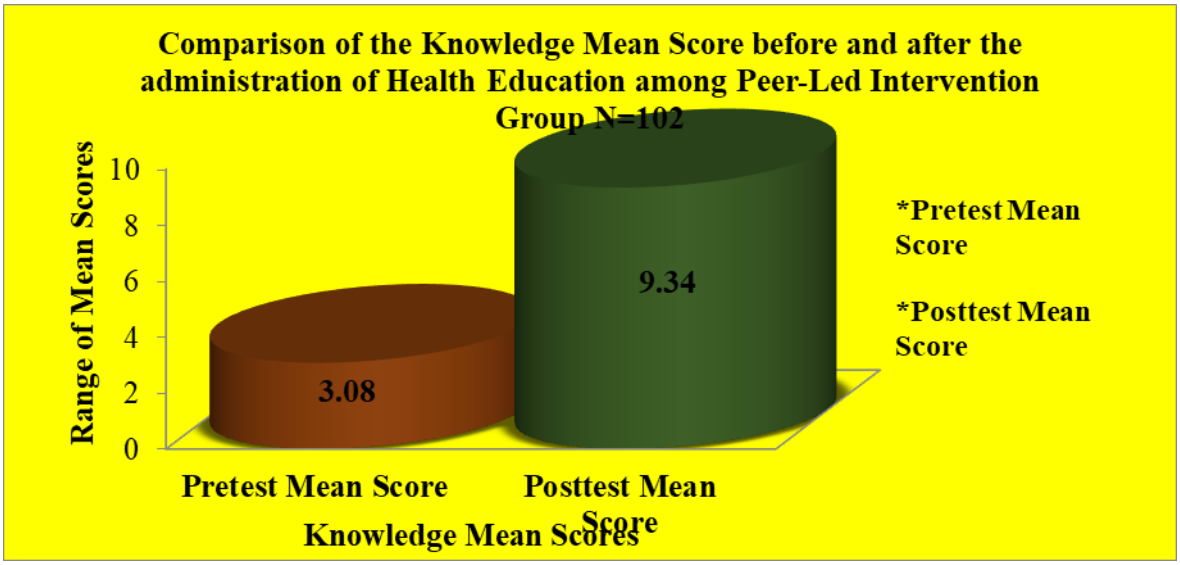

Figure 02: Column diagram showing the Comparison of the Knowledge Mean Score before and after the administration of Health Education among Peer-led-Intervention Group

MEAN SCORE OF KNOWLEDGE BEFORE AND AFTER THE ADMINISTRATION OF HEALTH EDUCATION AMONG CONTROL GROUP N=102

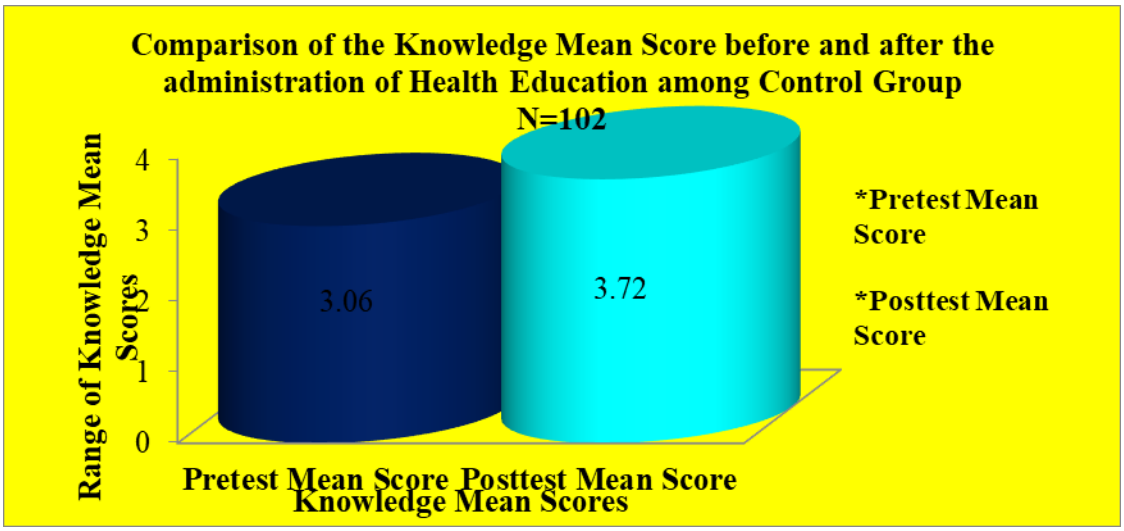

Figure 03: Column diagram showing the Comparison of the Knowledge Mean Score before and after the administration of Health Education among Control Group

The comparison of the pretest-posttest knowledge scores where 88 subjects from direct intervention group, 90 subjects from peer-led intervention group and 87 subjects from control group scored marks between 01-05 during their pretest which indicated poor grade. Likewise, 14 subjects from direct intervention group, 08 subjects from peer-led intervention group and 10 subjects from control group scored marks between 06-10 during their pre-test which indicated average grade, In addition, 0 subjects from direct intervention group, 4 subjects from peer-led intervention group and 5 subjects from control group scored marks between 11-15 during their pre-test which indicated "good' grade and finally none scored the marks between 16- 20 that indicated as "excellent". But none of the subjects from direct intervention group or peer-led intervention group scored marks ranging 01-05 except for 85 subjects from control group who scored marks ranging 01-5 during post-test, indicating poor grade. Again, 4 subjects from direct intervention group, 83 subjects from peer-led intervention group and 17 subjects from control group scored marks ranging 11-15 during their post-test which indicated average marks Again, 61 subjects from direct intervention group and 17 subjects from peer-led intervention group scored marks ranging 11-15 but none from control group scored the said marks during post-test, indicating average grade. Finally, 37 subjects from direct intervention group and 2 subjects from peer-led intervention group scored marks ranging 16-20 indicating excellent marks

SECTION VI- IDENTIFICATION OF THE DIFFERENCE IN THE ATTITUDE AND PRACTICE SCORES AFTER THE ADMINISTRATION OF HEALTH EDUCATION REGARDING MENSTRUAL HYGIENE AMONG STUDY GROUPS

Upon analysing the 73.52%) agrees with maintaining secrecy about menstruation while only 5 (4.90%) disagree and 22 (21.56%) shows undecided behavior. Again, 80 (78.43%) are undecided on menstruation being a sign of good health, while 10 (9.80%) agrees and 12 (11.76%) disagrees. 90 (88.23%) think it to be a girl's only topic while 10 (9.80%) disagrees and 2 (1.96%) are undecided Furthermore, 78 (76.47%) agrees to be restricted during menses while 14 (13.72%) are undecided and 10 (9.80%) disagrees with it. In addition, 89 (87.25%) agrees to let women not enter the kitchen and 87 (85.29%) for withholding entrance from temple but o to 3 (2.94%) disagrees with the same. 90 (88.23%) agrees to be kept in a separate place during menses and only 2 (1.96%) disagrees. 95 (93.13%) agrees not to eat citrus fruits during menses and only 7 (6.86%) are undecided while 0 (00.00%) disagrees. Further, 56 (54.90%) agrees to talk about it with a family member while 9 (8.82%) disagrees and r=37 (36.27%) remain undecided. In

addition, 32(31.37%) agrees to help other women in menses, 56 (54.90%) undecided and 14 (13.72%) disagrees. Again, 89 (87.25%) agrees to have previous knowledge, 3 (2.94%) undecided and 10 (9.80%) disagrees with same. Finally, 54 952.94%) are undecided on boys to have a knowledge about menses, 48 (47.05%) disagrees but only 20 (19.60 agrees for it. A dramatic change after the administration of Health education where only 2 (1.96%) now agrees with maintaining secrecy about menstruation while 77 (75.49%) disagree and 23 (22.54%) shows undecided behavior. Again, 16 (15.68%) are undecided on menstruation being a sign of good health, while 6 (5.88%) agrees and 80 (78.43%) disagrees. 6 (5.88%) think it to be a girl's only topic while 78 (76.47%) disagrees and 18 (17.64%) are undecided Furthermore, 7 (6.86%) still agrees to be restricted during menses while 14 (13.72%) are undecided but 81 (79.41%) disagrees with it. In addition, only 8 (7.84%) agrees to let women not enter the kitchen and 4 (3.92%) for withholding entrance from temple but 81-86 (79.41%-84.31%) disagrees and only 13 (12.74%) and 12 (11.76%) remain undecided with the same 85 (83.33%) disagrees for women to be kept in a separate room whereas only 7 6.86%) still agrees. Similarly, 87 (85.29%) disagrees on not consuming the citrus fruits while 8 (7.84%) still agrees. Again, 61 (59.80%) disagrees to talk about menses with family member and 37 (36.27%) are undecided, while 4 (3.92%) completely agrees. Additionally, 38 (50.98%) does not thinks to help other women during menstruation while 56 (54.90%) are undecided but 8 (7.84%) agrees with the idea. Furthermore, 102 (100%) agrees to have a previous knowledge about menstruation. Finally, 65 (63.72%) thinks boys must have a knowledge about menstruation while 5 (4.90%) disagrees and still 32 (31.37%) remain undecided. 75 (73.52%) agrees with maintaining secrecy about menstruation while only 5 (4.90%) disagree and 22 (21.56%) shows undecided behavior. Again, 80 (78.43%) are undecided on menstruation being a sign of good health, while 10 (9.80%) agrees and 12 (11.76%) disagrees. 90 (88.23%) think it to be a girl's only topic while 10 (9.80%) disagrees and 2 (1.96%) are undecided Furthermore, 78 (76.47%) agrees to be restricted during menses while 14 (13.72%) are undecided and 10 (9.80%) disagrees with it. In addition, 89 (87.25%) agrees to let women not enter the kitchen and 87 (85.29%) for withholding entrance from temple but o to 3 (2.94%) disagrees with the same. 80 (78.43%) agrees for women to be kept in a separate room whereas 13 (12.74%) disagrees. Similarly, 90 (88.23%) agrees on not consuming the citrus fruits while 5 (4.90%) disagrees. Again, 46 (45.08%) agrees to talk about menses with family member and nearly the same are undecided, while 9 (8.82%) completely disagrees. Additionally, 52 (50.98%) thinks to help other women during menstruation while 41 (40.19%) are undecided but 9 (8.82%) disagrees. Furthermore, 80 (78.43%) agrees to have a previous knowledge about menstruation while 12 (11.76%) disagrees and 10 (9.80%) remain undecided. Finally, 90 (88.23%) thinks boys must have a knowledge

about menstruation while 8 (7.84%) disagrees and 4 (3.92%) remain undecided. 9 (8.82%) agrees to keep menstruation a secret while 89 (87.25%) completely disagrees while 4 (3.92%) still are undecided. On the other hand, 90 (88.23%) agrees that menstruation is a sign of good health. While 12 (1.96%) disagrees and 10 (9.80%) still are undecided. On the contrary, 2(1.96%) thinks that menstruation is a girl's only topic while 99 (97.05%) disagrees with the thought with 1 (0.98%) remain undecided. In addition, 9 (8.82%) believes that restriction is good during menses;8 (7.84%) are undecided while 85 (83.33%) disagrees. Again, 78 (76.47%) agrees that women must not enter the kitchen while 21 (20.50%) disagree and only 3 (2.94%) are undecided. Despite 85 (83.33%) negates the cessation of women in the temple during menstruation, 6 (5.88%) still supports the idea. Only 11 (10.78%) are undecided upon this. 2 (1.96%) agrees that women should be kept in separate room during menstruation while 91 (89.21%) disagrees and 9 (8.82%) stays undecided. Despite the fact that 95 (93.13%) disagrees that women must not eat citrus fruits, 7 (6.86%) are still undecided. Although, 47 (46.07%) agrees to talk about menses with family members but still 55 (53.92%) doesn't feel the same. Surprisingly, 102 (100%) agrees to help other women in menstruation and also to have previous knowledge about it. Similarly, 99 (97.05%) agrees that boys must also have some knowledge about menstruation and only 1 (0.98%) disagrees with the same. 92 (90.19%) agrees to keep menstruation a secret while 4 (3.92%) completely disagrees and 6 (5.88%) still are undecided. On the other hand, 84 (82.35%) disagrees that menstruation is a sign of good health while 8 (7.84%) agrees and 10 (9.80%) still are undecided. On the contrary, 2(1.96%) thinks that menstruation is a girl's only topic while 99 (97.05%) disagrees with the thought with 1 (0.98%) remain undecided. In addition, 93 (91.17%) believes that restriction is good during menses; 3 (2.94%) are undecided while 6 (5.88%) disagrees. Again, 102 (100%) agrees that women must not enter the kitchen. Despite 96 (94.11%) favours the cessation of women in the temple during menstruation, 1 (5.88%) still negates the idea. Only 5 (4.90%) are undecided upon this. 102 (100%) agrees that women should be kept in separate room during menstruation Despite the fact that 100 (98.33%) agrees that women must not eat citrus fruits, 1 (1.98%) still disagree. In addition, 7 (6.86%) agrees to talk about menses with family members but still 90 (88.23%) are undecided and 5 (4.90%) doesn't feel the same. Surprisingly, 102 (100%) agrees to help other women in menstruation in the same ways as those who agrees that women must have previous knowledge about it but contrarily, 100 (98.06%) disagrees that boys must also have some knowledge about menstruation and 2 (1.96%) are undecided about it. 93 (91.17%) agrees to keep menstruation a secret while 4 (3.92%) completely disagrees and 5 (4.90%) still are undecided. On the other hand, 84 (82.35%) disagrees that menstruation is a sign of good health while 9 (8.82%) agrees and other 9 (8.82%) still are undecided. On the contrary,

2(1.96%) thinks that menstruation is a girl's only topic while 99 (97.05%) disagrees with the thought with 1 (0.98%) remain undecided. In addition, 94 (912.15%) believes that restriction is good during menses; 3 (2.94%) are undecided while 5 (4.90%) disagrees. Again, 102 (100%) agrees that women must not enter the kitchen. Despite 96 (94.11%) favours the cessation of women in the temple during menstruation, 1 (5.88%) still negates the idea. Only 5 (4.90%) are undecided upon this. 102 (100%) agrees that women should be kept in separate room during menstruation Despite the fact that 102 (98.33%) agrees that women must not eat citrus fruits, Still 90 (88.23%) are undecided to talk about menses with family members Surprisingly, 102 (100%) agrees to help other women in menstruation in the same ways as those who agrees that women must have previous knowledge about it but contrarily, 99 (97.05%) disagrees that boys must also have some knowledge about menstruation and 2 (1.96%) are undecided about it. Upon analysing the practice before administration of the Health Education in direct intervention group it was found that 9 (8.82%) subjects menstrual material was comfortable, 4 (3.92%) reported it to be comfortable sometimes but 89 (87.25%) subjects said there material was never comfortable which drastically changed after the intervention so much so that 99 (97.05%) felt it to be comfortable and only 1 (0.98%) denied it to be so leaving only 2 (1.96%) who reported sometimes. 101 (99.01%) reported they never take bath daily and only 1 (0.98%) does take sometimes which changed to 100 (98.03%) after the intervention leaving 2 (1.96%). In addition, 95 (93.13%) never changed the pad/absorbent every 4-6 hours before but after being given the health education it has come down to 4 (3.92%) with 85 (83.33%) disposing the same properly. Again, it was reported that 102 (100%) subjects never washed the hands with soap and water after changing absorbent. The practice completely changed after the intervention where 102 (100%) subject did wash the hands after cleaning genitals and changing the absorbent. 102 (100%) reported to avoid citrus fruits always but after the intervention it came down to only 9 (8.82%) leaving 90 (88.24%) undecided and 3 (2.94%) to negate this practice. Again 102 (100%) reported to never drink 8-10 glasses of water during menses before the intervention and remain unchanged after the intervention as well. Furthermore, 100 (98.03%) reported to skip school during menstruation before the health education that changed after the intervention to 41 (40.19%) who now doesn't skip school. 99 (97.05%) do not dry the absorbent in the sunlight usually but after the health education the number came down to 94 (92.15%) changing the minds of 7 (6.86%). Finally, 102 (100%) subject reported not ironing the absorbent after being dried and cleaning the cloth with soap and water that remained unchanged even after the intervention in direct intervention group. Upon analysing the practice before administration of the Health Education in peer-led intervention group it was found that 102 (100%) subjects' menstrual material was comfortable always, before

the intervention but it reduced to 90 (88.23%) after the intervention leaving 12 (11.76%) who reported it to be comfortable sometimes. 102 (100%) reported they never take bath daily which changed to 100 (98.03%) after the intervention leaving 2 (1.96%) who did take bath sometimes. In addition, 99 (97.05%) never changed the pad/absorbent every 4-6 hours before but after being given the health education it has come down to 98 (96.07%) with 75 (73.52%) disposing the same properly. 102 (100%) never washed their genitals after using toilet but after the intervention 100 (98.03%) started washing hands always. Again, it was reported that 101 (100%) subjects never washed the hands with soap and water after changing absorbent. The practice completely changed after the intervention where 102 (100%) subject did wash the hands after cleaning genitals and changing the absorbent. 102 (100%) reported to avoid citrus fruits always but after the intervention it came down to only 89(87.25%) leaving 11 (10.78%) undecided and 2 (1.96%) to negate this practice. Again 102 (100%) reported to never drink 8-10 glasses of water during menses before the intervention and remain almost unchanged after the intervention as well. Furthermore, 100 (98.03%) reported to skip school during menstruation before the health education that changed after the intervention to 41 (40.19%) who now doesn't skip school. 101 (99.01%) do not dry the absorbent in the sunlight usually but even after the health education by the peers it remained. Finally, 102 (100%) subject reported not ironing the absorbent after being dried and cleaning the cloth with soap and water that remained unchanged even after the intervention in peer-led intervention group. Upon analysing the practices related to maintaining menstrual hygiene in control group, it was found that 19 (18.62%) reported to have their menstrual material comfortable, 2(1.96%) reported sometimes comfortable and 81 (79.41%) reported it to be never comfortable before the intervention and during the post-test, the responses changed to 20 (19.60%) reported it to be comfortable, and leaving 81 (79.41%) subjects reporting it to be never comfortable. 70 (68.62%) reported they never take bath daily, 22 (21.56%) said sometimes and only 10 (9.80%) said always which remained unchanged. In addition, 65 (63.72%) never changed the pad/absorbent every 4-6 hours, 29 (28.43%) said sometimes and 8 (7.84%) said always before but during the post-test being given the health education it has increased to 73 (71.56%) with 7 (6.86%) disposing the same properly. 90 (88.23%) never washed their genitals after using toilet which remain unchanged during post-test too. Again, it was reported that 102 (100%) subjects always washed the hands with soap and water after changing absorbent but during post-test100 (98.03%) subject did wash the hands after cleaning genitals and changing the absorbent. 89 (87.25%) reported to avoid citrus fruits always but during post-test it was reported to be 97 (95.09%). Again 101 (99.01%) reported to never drink 8-10 glasses of water during menses before the intervention and remain almost unchanged during post-test as well. Furthermore, 45 (44.11reported to skip

school during menstruation before the health education that changed during the post-test to %) 81 (79.41%) who now doesn't skip school. 94 (92.15%) do not dry the absorbent in the sunlight usually which changed to 86. (84.31%) Finally, 102 (100%) subject reported not ironing the absorbent after being dried and cleaning the cloth with soap and water that remained unchanged even after the intervention in control group.

SECTION VIII- EVALUATION THE EFFECTIVENESS OF THE HEALTH EDUCATION ON KNOWLEDGE, ATTITUDE AND PRACTICE SCORES OF THE STUDY GROUPS

Mean, Mean Difference, Standard Deviation, and Standard Error, "t" test value of Pre-test and Post-tests Score. of Direct Intervention Group N =102

Score	Mean	MD	SD	SE	*df*	"t" value	Table value
Pre-test score	3.81	10.59	1.80	0.287	202	36.8682	< .00001. S
Post test score	14.40		2.27				

Mean, Mean Difference, Standard Deviation, and Standard Error, "t" test value of Pre-test and Post-tests Score. Of Peer-led-Intervention Group N =102

Score	Mean	MD	SD	SE	*df*	"t" value	Table value
Pre-test score	3.08	6.26	0.91	0.230	202	27.187	.00001. S
Post test score	9.34		2.14				

Mean, Mean Difference, Standard Deviation, and Standard Error, "t" test value of Pre-test and Post-test of Unit tests Score. Of Control Group N=102

Score	Mean	MD	SD	SE	*df*	"t" value	Table value
Pre-test score	3.06	0.66	0.98	107.03	202	0.006	0.9951 NS

Upon analysing the difference in the mean score, the result shows that there was significant difference between pre-test and post test score of Knowledge in direct- intervention group related to menstrual hygiene as "t" value is 36.8682 at df 202 which was more than table value 0.0001 and was very highly significant at $p \leq 0.001$. The mean score of Knowledge related to menstrual hygiene was 3.81 in Pretest which had a markedly improved in Posttest to 14.40 which clearly signifies the improvement in knowledge Score. The mean difference was 10.59, standard deviation was 1.80 and 2.27, standard error was 0.287, degree of freedom was 202 and "t" value was less than 0.001 which was significant at the level $p \leq 0.001$. Hence, H_3 was accepted.

Upon analysing the difference in the mean score in peer-led intervention group, the result shows that there was significant difference between pre-test and post test score of Knowledge related to menstrual hygiene as "t" value is 27.187 at df 202 which was more than table value 0.0001 and was very highly significant at $p \leq 0.001$. As per the Table 7(b) the mean score of Knowledge related to menstrual hygiene was 3.08 in Pretest which had a markedly improved in Posttest to 9.34 which clearly signifies the improvement in knowledge Score. The mean difference was 6.26, standard deviation was 0.91 and 2.14, standard error was 0.230, degree of freedom was 202 and "t" value was less than 0.001 which was significant at the level $p \leq 0.001$. Hence, H_3 was accepted.

Upon analysing the difference in the mean score in control group shows that there was no difference between pre-test and post test score of Knowledge related to menstrual hygiene as "t" value is 0.006 at df 202 which was more than table value 0.9951 and was not significant at $p \leq 0.001$. As per the Table 7(c) the mean score of Knowledge related to menstrual hygiene was 3.06 in Pretest which had a markedly improved in Posttest to 3.72 which clearly signifies the improvement in knowledge Score. The mean difference was 0.66, standard deviation was 0.98 and 1.81, standard error was 107.03, degree of freedom was 202 and "t" value was less than 0.006 which was not significant at the level $p \leq 0.001$. Hence, H_3 was rejected. The test statistic F equals 782.103224, which is not in the 95% region of acceptance: [∞3.0255]. The observed effect size f is large that indicates that the magnitude of the difference between the averages is large. The pair-wise comparison M_1 = 15.06 M_3 = 3.73, shows the large difference in direct-intervention group with control group with Tuckey's honest significance difference as 11.33

DISCUSSION

EFFECTIVENESS OF THE HEALTH EDUCATION ON KNOWLEDGE, SCORES OF THE DIRECT INTERVENTION GROUP

Upon analysing the difference in the mean score, the result shows that there was significant difference between pre-test and post test score of Knowledge in direct- intervention group related to menstrual hygiene as "t" value is 36.8682 at df 202 which was more than table value 0.0001 and was very highly significant at $p \leq 0.001$. The mean score of Knowledge related to menstrual hygiene was 3.81 in Pretest which had a markedly improved in Posttest to 14.40 which clearly signifies the improvement in knowledge Score. The mean difference was 10.59, standard deviation was 1.80 and 2.27, standard error was 0.287, degree of freedom was 202 and "t" value was less than 0.001 which was significant at the level $p \leq 0.001$. Hence, H_3 was accepted.

EFFECTIVENESS OF THE HEALTH EDUCATION ON KNOWLEDGE, SCORES OF THE PEER-LED INTERVENTION GROUP

Upon analysing the difference in the mean score in peer-led intervention group, the result shows that there was significant difference between pre-test and post test score of Knowledge related to menstrual hygiene as "t" value is 27.187 at df 202 which was more than table value 0.0001 and was very highly significant at $p \leq 0.001$. As per the Table 7(b) the mean score of Knowledge related to menstrual hygiene was 3.08 in Pretest which had a markedly improved in Posttest to 9.34 which clearly signifies the improvement in knowledge Score. The mean difference was 6.26, standard deviation was 0.91 and 2.14, standard error was 0.230, degree of freedom was 202 and "t" value was less than 0.001 which was significant at the level $p \leq 0.001$. Hence, H_3 was accepted.

EFFECTIVENESS OF THE HEALTH EDUCATION ON KNOWLEDGE, SCORES OF THE CONTROL GROUP

Upon analysing the difference in the mean score in control group shows that there was no difference between pre-test and post test score of Knowledge related to menstrual hygiene as "t" value is 0.006 at df 202 which was more than table value 0.9951 and was not significant at $p \leq 0.001$. As per the Table 7(c) the mean score of Knowledge related to menstrual hygiene was 3.06 in Pretest which had a markedly improved in Posttest to 3.72 which clearly signifies the improvement in knowledge Score. The mean difference was 0.66, standard deviation was 0.98 and 1.81, standard error was 107.03, degree of freedom was 202 and "t" value was less than 0.006 which was not significant at the level $p \leq 0.001$. Hence, H_3 was rejected.

CONCLUSION

Successful achievement in the health and hygiene especially during menses among adolescent girls and moreover to those who resides in rural areas requires self-awareness and knowledge to improve the practice and develop a positive attitude towards it. The goal of this research was to make the adolescent girls knowledgeable develop healthy attitude and make them follow correct yet safe practices that could be applied for a life-long healthy living. Health education through direct-intervention and peer-led intervention has helped achieve the desired outcome.

Acknowledgment :We are thankful to all the participants who have willingly participated in the study.

Conflict of interest : None

Sources of funding : Self

REFERENCES

1. Journal of Reproductive and sexual Health "An Article of Adolescent Health" Pp-29, [accessed on 29th July 2021]
2. World Health Organization. Adolescent friendly health services. An agenda for change. Geneva: World Health Organization, 2020.
3. Wilma Fazer 2019 "Impact of adolescent health education on adolescent girls in rural schools and colleges" Int J Reprod Contracept Obstet Gynecol 2016;5:53-7.
4. Pauline de Samuel et al. The effect of a school-based educational intervention on menstrual health: an intervention study among adolescent girls in Bangladesh. BMJ Open 2019; 4:e004607.
5. Pallavi Shukla, Das A. Sexuality education in India: Examining the rhetoric, rethinking the future. Sex Educ 2018;14:210-24
6. Balamurugan SS, Shilpa SS, Shaji S. A community based study on menstrual hygiene among reproductive age group women in a rural area, Tamil Nadu. J Basic Clin Reprod Sci 2014;3:83-7
7. UNICEF. Data on Adolescents and demographic Available at: https://data.unicef.org/topic/adolescents/adolescent-demographics Accessed on 5 July 2017
8. Dr. Alka Sengar Menstrual Hygiene and Health menstrual attitudes, experiences and behaviors. Women Health, 2017 14:1118.

9. Tegegne and Sisay: Menstrual hygiene management and school absenteeism among female adolescent students in Northeast Ethiopia. BMC Public Health 2016 14:1118.
10. McPherson ME, Korfine L. Menstruation across time: menarche, menstrual attitudes, experiences and behaviors. Women Health, Issues 2004;14:193–200.
11. Loevinsohn et al Dongre AR et al in (2014) Menstruation across time: menarche, menstrual attitudes, experiences and behaviors. Women Health, Issues 2014;14:193–200.
12. Oche M, Umar A, Gana G, Ango J: Menstrual health: the unmet needs of adolescent girls' in Sokoto, Nigeria. Sci Res Essays 2012, 7(3):410–418.
13. El-Mowafy RI, Mohamed Moussa MM and El-Ezaby HH. Effect of Health Education Program on Knowledge and Practices about Menstrual Hygiene among Adolescents Girls at Orphanage Home. IOSR-JNHS; 2014: 3(6), 2320–2014.
14. Dambhare DG, Wagh SV, Dudhe JY. Age at menarche and menstrual cycle pattern among school adolescent girls in Central India. Global Journal of Health Science. 2012;4(1):105-11
15. Mona Dorothy (2013) Effect of Health Education Program on Knowledge and Practices about Menstrual Hygiene among Adolescents Girls published in Journal of menstrual health and hygiene issue 2013 pp 123
16. Subhodra Ray and Satyapreethi Ganguly (2015) published a study on Effect of Menstrual Hygiene among adolescent girls published in Journal of Adolescent Health 2015 Pp-123 [accessed on May 2015]
17. (2015) Sangeeta Kansal et al published a study in Universal Journal of Education and General Studies issue-12-2015 pp 34
18. Bayray, A. Menstrual Perceptions and Preparation of Rural Adolescent Females in Tigray, North Ethiopia. Universal Journal of Education and General Studies. 2012; 1(1) pp. 009-016.
19. Baisakhi Paria et al, (2015)[19] "A comparative study on menstrual hygiene among Urban and Rural adolescent girls of West Bengal" published in Journal of Adolescent Health 2015 Pp-123 [accessed on May 2021]
20. Shobha P Shah et al (2013) A research on Adolescent Health published in 2013 in Journal of Reproductive Health Science; issue-13; New-Delhi; Pp-134 [accessed on May 2021]