# Impact of reproductive health education on the knowledge of mid adolescents boys of urban population of Haryana

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## Abstract

Overall objective was to study impact of reproductive health education on knowledge of mid-adolescents boys of urban population with special reference to reproductive health.

**Study design**: The study was cross-sectional type conducted over a time period of six months.

**Materials and Methods**: The study subjects were drawn from three schools, of urban population of Faridabad, in Haryana. The present study was designed to evaluate the existing knowledge and impact of reproductive health education amongst mid-adolescent boys, related to adolescent health with special reference to secondary sexual characteristics, menstrual cycle, pregnancy and motherhood, AIDS and family planning practices**.**

**Sample Size**: A sample size of 250 students was selected for this study. Study group: comprised of mid adolescent boys and girls of 14-16 years, studying in co-educational senior secondary schools. Data from students was collected using a structured self-administered questionnaire.

**Conclusion:** There was marked improvement in knowledge of same adolescents after education on the reproductive health in almost each and every field. The fact that children engage in sexual behavior before they have a clear understanding of what it is all about, places them at very high risk of a variety of adverse experiences that can impact negatively on their development. Adolescents whom mothers were housewives were more aware of their reproductive health as compare to working parents. But parent's education doesn't produces significant difference in their knowledge. Conversely, although many adolescents have sexual knowledge, this knowledge does not always influence their behavior.

**Keywords:** Adolescent, Reproductive health education, Knowledge.

## Introduction

Adolescence (10-19 years) is a period of great upheaval and restructuring. In this phase of transition and development, an adolescent passes through physical, psychological and social changes. Even though habits, attitudes and behavior acquired during this period have life long consequences; little attention was being paid to them.

Today's adolescents are living under tremendous academic and emotional pressure due to changing life styles, higher degree of competitiveness, peer pressure, cultural invasion due to globalization, information explosion and influences of tube culture. These multifactor agents are likely to make more vulnerable and susceptible host i.e. adolescent to deviate from normal development to abnormal development in modern conducive environment. They have tremendous energy, trigger off natural sexual urges (in mid-adolescent period); excessive risk taking behavior and they have the capacity to convert their thoughts into action.

A hallmark of this period is appearance in the mind of adolescent of concept of "self" which eventually becomes the theme of his/ her life, the reference point around which all his experience and reference pattern are organized. Secondly rapid cultural changes in any society results in lack of common understanding and communication. And extreme sensitivity of adolescent in this stage often produces feeling of inadequacy, insecurities and inferiority.

Reproductive health education is virtually non-existent in adolescence age group of Indian population; thus without being aware of its long term direct consequences like teenage pregnancies, abortions, STD/ HIV etc. and indirectly producing psychological trauma, depression, suicide, drug abuse, various legal implications etc. Reproductive health education has been plagued by various myths and stereotypes as well as inadequate research and theory.

Timely and professional guidance of adolescents without hurting them is required. The timely proper guidance might be of great help in minimizing the severity of his inner and outer turmoil, leading him to grow through with ease. In view of this, there is urgent need to actively intervene at a particular level and make adolescent aware of reproductive and family life education, world over experience has shown school going children are easily assessed and can be best addressed.

Therefore the present study is designed to evaluate the current knowledge of adolescent boys of urban school population related to reproductive health and various factors affecting it, like, occupation, literacy level of parents, information from different sources e.g. Media, peers etc. and impact of reproductive health education by a trained person on their knowledge.

## Aims and Objectives

**Overall Objective:** To study impact of reproductive health education on knowledge of mid-adolescents of

urban population with special reference to reproductive health.

**Specific Objectives:**

1. To evaluate prevalent knowledge related to adolescent's reproductive health.
2. To evaluate the impact of reproductive health education on adolescent boys.
3. To identify the problems and possible ways to minimize if not eradicate the same.

## Materials and Methods

The study subjects for present study were drawn from three schools, of urban population of Faridabad, in Haryana. The present study was designed to evaluate the knowledge related to adolescent health with special reference to secondary sexual characteristics, menstrual cycle, pregnancy and motherhood, AIDS and family planning practices, amongst mid-adolescent boys. Study was conducted at the Department of Pediatrics, Escorts Hospital and Research center, Faridabad.

**Study Type:** The study was cross-sectional type conducted over a time period of six months.

**Sample Size:** In order to predict an assessment of prevalence of 35% among school students in knowledge related to reproductive health a sample size of 243 was needed with 6% precision and 95% confidence limits. Thus a sample size of 250 students was selected for this study.

**Study Group:** It comprises of adolescent boys in the age group of 14-16 years i.e.; mid-adolescence years. These students were studying in 9th, 10th and 11th classes of three schools of Faridabad. Schools were selected randomly from the schools of the urban area. A formal request was made to the principal of the schools, through head of department of pediatrics and director of the Escorts Hospital and Research Center Faridabad to carry out this study. All senior secondary schools were having co-education.

**Contents of items in Questionnaire:** Data from students was collected using a structured self-administered questionnaire. Questionnaire was prepared and standardized after a pilot study by a group of experts of different fields namely Pediatrics, Gynecology and Obstetrics, and Psychology. They were requested to provide suggestions on various questions of their respective specialty. The content of questionnaire is planned to collect data on General awareness regarding adolescence, Knowledge related to male and female reproductive system and menstrual cycle, Knowledge related to Marriage, pregnancy specific motherhood practices and family planning. Awareness regarding AIDS was also assessed. Boys were given questions on masturbation and night emissions. The questionnaire was prepared in English, and was translated into Hindi but almost all the students' preferred English version of questionnaire. Thus only English version of questionnaire was used in study. Principals of the institutions were informed about the objectives of the study, questionnaire to be used was discussed with them to take into account their views and objections if any. Before administering the questionnaire written consent was taken from the principal of schools.

**Method of Data Collection:** Out of 3-4 sections of a class, one section was chosen randomly; at least two sessions were conducted in each school before the actual questionnaire was given to the students to establish rapport with the students. In first introductory session students wrote their problems on a white paper without writing their names, which were dropped into a box kept outside the classroom. Thus, confidentiality of the study was emphasized.

During the second session the solution for the common problems faced by the students were provided in the classroom, solution for the personal problems were provided individually after the session out of the classroom. They were informed about the objective of the study and method to fill up the questionnaire. They were not required to enter their names or roll numbers etc. to further ensure confidentiality. Questionnaires were administered after second session. Third to fourth session was conducted separately for both boys and girls. Each session was taken in classroom lasting for 40-45 minutes.

Pre reproductive health Performa was evaluated by pediatrician, reproductive health education was given by different group of workers by using audio visual aids and interactive lecture sessions, followed by group discussion. In the end students were encouraged to ask queries by dropping their questions in suggestion boxes keeping their identity confidential. In last session students were asked to fill the same questionnaire for the purpose to assess improvement in their knowledge. In case any adolescent could not be tested in the post training survey they were dropped from the study. Another worker who was unaware of the fact that the adolescents were educated on reproductive health evaluated post education Performa. Study was completed over a period of six month.

**Analysis:** The data collected of 250 students and various items was entered in excel spreadsheet for further analysis by SPSS statistical package. The data was tabulated using frequency distribution and Chi square test used to test statistical significance.

**Ethical Considerations:** Guidelines set by ICMR (1994) and Helen ski declaration (modified, 1989), the ethical aspects were adhered by all members included in the study. All possible information regarding the study was given and none was withheld from the members.

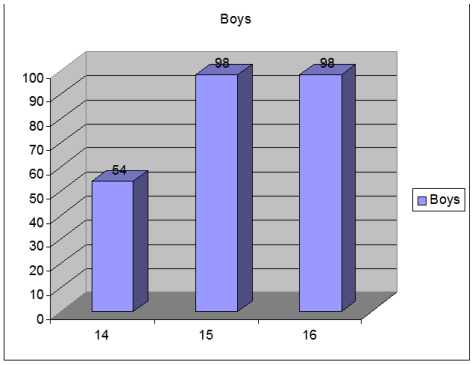
## Discussion

Reproductive health education is only likely if the general self-confidence and competence of adolescents is strengthened by programme integrated into existing

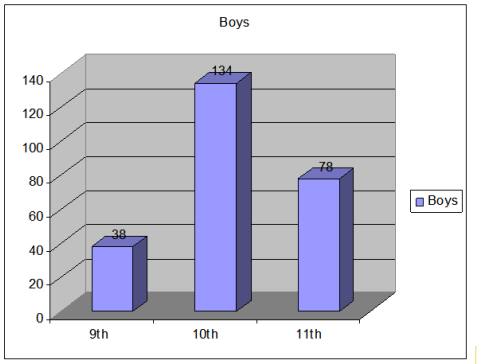
socio-culture milieu of the society. Nevertheless health system offers a unique opportunity of addressing adolescent and influencing their behavioral pattern.

Most of boys before reproductive health education were lacking in almost all questions related to secondary sexual characteristics like Age of adolescence, Reason of bodily changes, attraction toward opposite sex, life span of ova and sperms, night emission and masturbation. Adolescent boys had limited knowledge of anatomy and physiology of female reproductive organs.

**Graph 1a: Age-wise distribution of adolescents**




**Graph 1b:Class-wise distribution of adolescents**




**General Awareness:** Knowledge of boys related to age group of adolescence, development of secondary characteristics and reason for it, time of onset of bodily changes and attraction toward opposite sex was assessed.

Nearly 45% of boys were either incorrect or unaware of timing of physical changes. 18% were incorrect, 22% were unaware of the fact that attraction for opposite sex is natural. 80% of boys knew that hormones are responsible for these physical changes but on educating them significant improvement (97%) was noted in their knowledge. Almost 86% of boys were aware of their own secondary sexual characteristics but only 70% boys were aware of secondary sexual changes in girls.

**Knowledge Related to Male Reproductive Organs and Practices:** Under this subheading knowledge of male reproductive organs, life span of sperm nightfall and masturbation was tested. 40% of boys were knowledgeable of life span of sperm, 13% of them had wrong beliefs of male reproductive parts and rest of 7% were unaware.27% boys were of opinion that nocturnal emission is a disease and 43% were unaware of it. Only 32 % believed that masturbation is normal and healthy, 30% thought it is unnatural but a large number (38%) of boys were not aware of it. After a training of six months there was a statistically significant change in knowledge of adolescent boys in all above-mentioned aspects.

Many boys had queries related to Man Power (Mardana Takat), masturbation and night emissions. Many of them shared that they used to have guilty feeling, which has direct impact on their daily routine and studies but after knowing various physiological aspects of development their anxieties were relieved.

In literature it was found masturbation is most common sexual behavior seen in young children.[79] Despite the fact that masturbation is such a common sexual behavior among children, many parents react negatively to it and may even punish their children if they are caught touching themselves.[80] This further adds to their confusion. In present study it was observed that sex education is need of normal adolescent development.

**Knowledge Related to Female Reproductive System and Menstruation:** We tested the knowledge of female reproductive organs, normal routine during menstrual cycle; number of eggs released in a cycle and role of hymen in virginity.

Sixty five percent of boys were aware of parts of female reproductive system. 63% percent of boys gave wrong answers about duration of menstrual cycle and only 46 % gave right answer of age of onset of menstrual cycle.41% boys know that in a menstrual cycle only one egg is produced but very few (32%) of them were aware of life span of ovum. It was noted that only 35% of boys were not aware that loss of hymen is not loss of virginity.

Highly significant improvement in knowledge of mid adolescent boys was recorded in all of above mentioned areas.80% of boys answered that hymen is not a criteria of virginity. 82% of boys had correct knowledge of life span of ovum. After training all wrong notions regarding above-mentioned aspects were cleared among significant number of boys.

**Table 1: General awareness regarding adolescence health, knowledge related to male & female reproductive system and menstrual cycle**

| S. No | Question Heading | Correct | | Incorrect | | Unaware | |
|---|---|---|---|---|---|---|---|
| | | Before training | After training | Before training | After training | Before training | After training |
| 1 | Age of Adolescence | 127* (86) | 142* (97) | 20 (14) | 5 (3) | - | - |
| 2 | Physical changes | 130* (88) | 141* (96) | 6 (5) | 3 (2) | 11 (7) | 3 (2) |
| 3 | Reason for bodily changes | 117** (80) | 142** (97) | 30 (20) | 5 (3) | - | - |
| 4 | Increase in height, breaking of voice, appearance of beard, moustaches in boys | 126 (86) | 133 (90) | 11 (8) | 10 (7) | 10 (6) | 4 (3) |
| 5 | Development of breast and increase in size of buttocks in girls | 103** (70) | 127** (86) | 17 (12) | 14 (10) | 27 (18) | 6 (4) |
| 6 | Does these changes occur at same time | 81** (55) | 131** (89) | 51 (35) | 11 (7) | 15 (10) | 5 (3) |
| 7 | Attraction towards opposite sex | 99** (67) | 142** (97) | 26 (18) | 5 (3) | 22 (15) | (0) |
| 8 | Parts of male reproductive system | 118** (80) | 139** (95) | 19 (13) | 7 (4) | 10 (7) | 1(1) |
| 9 | Life span of male sperm | 59** (40) | 121** (82) | 29 (20) | 25 (17) | 59 (40) | 1(1) |
| 10 | Nocturnal emission | 45** (31) | 134** (91) | 39 (27) | 12 (8) | 63 (43) | 1(1) |
| 11 | Masturbation practices | 47** (32) | 128** (87) | 44 (30) | 16 (16) | 56 (38) | 3 (2) |
| 12 | Parts of female reproductive system | 95** (65) | 138** (94) | 15 (10) | 9 (6) | 37 (25) | 0 |
| 13 | Age of onset of menstruation | 67** (46) | 125** (85) | 80 (54) | 22 (15) | - | |
| 14 | Duration of menstrual cycle | 55** (37) | 122** (83) | 92 (63) | 25 (17) | - | |
| 15 | Number of eggs produced in a menstrual cycle | 61** (41) | 118** (80) | 40 (27) | 13 (9) | 46 (31) | 16 (11) |
| 16 | Life span of a ovum | 47** (32) | 120** (82) | 42 (29) | 10 (7) | 58 (39) | 17 (12) |
| 17 | Absent of hymen loss of virginity | 35** (24) | 118** (80) | 49 (33) | 17 (12) | 63 (43) | 12 (8) |

**Highly significant P < 0.001, (Percentage expressed in parenthesis)
*Significant P < 0.05 RHE (Reproductive Health Education)

**Knowledge Related to Marriage, Preganancy and Specific Motherhood Prectices:** Only 44% of boys were aware of legal age of marriage for both sexes in India. Half of boys had knowledge that many sperms are released in coitus. One disturbing finding noticed that in spite of campaigning by mass media only 28% boys of were aware that sex of baby was determined by father and 45% had belief that it is determined by mother.50% boys of favored that supplementary nutrition is required in pregnancy.

Regarding minimal birth weight of baby 33%, cutting of umbilical cord with new blade 24% and at least six months of exclusive breast-feeding 48%, gave wrong answers. Although breast-feed is the best feed was known to 84% of boys.

One interesting finding to note regarding legal age of marriage and responsibility of determination sex of baby, boys were almost ignorant in spite of spending so much resources by govt. on mass media campaigns. But after training in class room, improvement was shown in statistical analysis.

In many parts of India early marriage for girls is a religious and social imperative, despite law, that specify legal age of marriages is 18 years, cultural pressure often forces parents to marry of their daughters at younger age. In 1996 an average of 38% of girls aged 15-19 years were married (Jejeebhoy, 1998) Because of early marriage adolescent fertility in India is relatively high. Fertility during this period contribute to maternal morbidity and mortality, high incidence of low birth weight babies and neonatal morbidity and mortality (Jeejeebhoy, 1998)

After training of adolescent boys highly significant improvement in their knowledge took place. This will not only improve their reproductive health in long run but also their productive lives. Boys come to know that for sex of the baby father is responsible, not to blame female counterpart for it. Similarly significant improvement in knowledge of delivery room and feeding practice can reduce mortality of would be mothers and will protect the health of newborn by better breast feeding practices.

**Knowledge Related to Family Planning:** Family planning practices and sexual transmitted disease prevention measures were assessed.65% of boys were of opinion that both husband and wife are responsible for family planning. But one of the most important aspect of family planning that is ideal age difference between two children should be at least 2-3 years was not known to 42% of boys .56% boys answered correctly that vasectomy and tubectomy are permanent methods of sterilization. About the need of check of partner if other one is diseased 14% of boys were unaware and 22% gave wrong answers. 68% boys said condoms decreases chances of sexual transmitted diseases. Significant numbers of males (73%) were aware that condoms couldn't be reused.

After training highly significant improvement in knowledge regarding spacing among children (89%) was noticed, more boys become aware about permanent methods of sterilization (85%), check up of other partner if one diseased (86%), condom prevents STD's (90%), and condom couldn't reused (85%).

This knowledge will be of great help to would be parents to plan their family. And in return to have more productive family and professional lives. As it is well known that prevention is better than cure so correct knowledge of use of condoms can prevent sexual transmitted diseases.

**Table 2: Knowledge related to marriage, pregnancy and specific motherhood practices knowledge related to family planning**

| S. No. | Question Heading | Correct | | Incorrect | | Unaware | |
|---|---|---|---|---|---|---|---|
| | | Before training | After training | Before training | After training | Before training | After training |
| 18 | Legal age of marriage for boys | 65** (44) | 132** (90) | 82 (56) | 15 (10) | - | - |
| 19 | Legal age of marriage for girls | 64** (44) | 134** (91) | 83 (56) | 13(9) | - | - |
| 20 | Need of iron in pregnancy | 74** (50) | 130** (88) | 44 (30) | 13 (9) | 29 (20) | 4 (3) |
| 21 | Number of sperms in coitus | 79** (54) | 128** (87) | 29 (20) | 15(10) | 39 (27) | 4 (3) |
| 22 | Determination of sex of baby | 41** (28) | 133** (90) | 66 (45) | 8 (5) | 40 (27) | 6 (4) |
| 23 | Minimal weight of baby at birth | 84** (57) | 131** (89) | 63 (33) | 16 (10) | - | - |
| 24 | Cutting of umbilical cord | 111** (76) | 141** (96) | 36 (24) | 6 (4) | - | - |
| 25 | Best feed for new born | 124 (84) | 138 (94) | 23 (15) | 9 (6) | - | - |
| 26 | Duration of exclusive breast feeding | 76** (52) | 118** (80) | 71 (48) | 29 (20) | - | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 27 | Responsibility of family planning | 95** (65) | 138** (94) | 52 (35) | 9 (6) | - | - |
| 28 | Ideal age difference between children | 85** (58) | 131** (89) | 62 (42) | 16 (11) | - | - |
| 29 | Permanent methods of sterilization | 82** (56) | 125** (85) | 20 (14) | 12 (8) | 45 (31) | 10 (7) |
| 30 | Check up of partner if other has STD | 94** (64) | 126** (86) | 32 (22) | 17 (12) | 21 (14) | 4 (3) |
| 31 | Condom and STD | 100** (68) | 132** (90) | 37 (25) | 13 (9) | 10 (7) | 2 (1) |
| 32 | Reusability of condom | 108* (73) | 125* (85) | 26 (18) | 16 (11) | 13 (9) | 6 (4) |

**Highly significant P < 0.001, (Percentage expressed in parenthesis)
*Significant P < 0.05 RHE (Reproductive Health Education)

**Knowledge Related to Aids Awareness:** AIDS is prevalent in society, in recent statistics India is labeled number one as far as the number of AIDS cases. In this study it was found that significant number of boys was not aware of many important aspects of AIDS.

Only 39% boys knew that a person could have HIV infection without symptoms.79% of boys said having sexual intercourse with infected person can cause AIDS. But girls (84%) were better in their knowledge regarding this aspect. 65% believed that AIDS can be caused by blood transfusion, by sharing of syringes, needles (76%), similarly 79% said with multiple partner there is more chances of spread of AIDS. 73% boys answered that AIDS doesn't spread by touching. After training significant improvement in knowledge of adolescent boys was seen. It was noticed that 66% of boys like to have sex education from a trained professional.

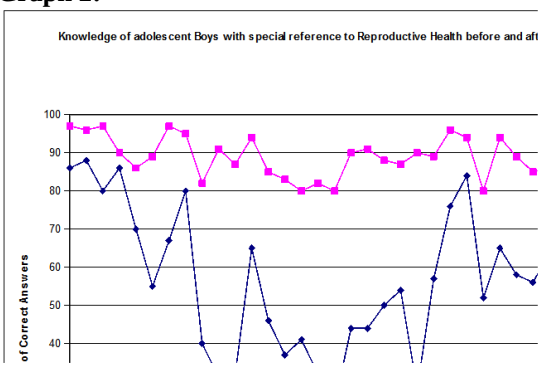
**Table 3: Knowledge related to aids awareness**

| S. No. | Question Heading | Correct | | Incorrect | | Unaware | |
|---|---|---|---|---|---|---|---|
| | | Before training | After training | Before training | After training | Before training | After training |
| 33 | Causative agent of AIDS | 124* (84) | 137* (93) | 15 (10) | 9 (6) | 8 (5) | 1 (1) |
| 34 | AIDS without symptoms | 58** (39) | 134** (91) | 57 (39) | 10 (7) | 32 (22) | 3 (2) |
| 35 | Mode of transmission of AIDS | 116* (79) | 136* (93) | 17 (12) | 9 (6) | 14 (10) | 2 (1) |
| 36 | Most dangerous route | 83** (56) | 129** (88) | 64 (44) | 18 (12) | - | - |
| 37 | AIDS-blood transfusion | 96** (65) | 138** (94) | 19 (13) | 7 (5) | 32 (22) | 2 (1) |
| 38 | Sharing of syringes may cause AIDS | 112** (76) | 140** (95) | 22 (15) | 6 (4) | 13 (9) | 1 (1) |
| 39 | Number of sex partner and AIDS | 116** (79) | 139** (95) | 11 (7) | 5 (3) | 20 (14) | 3 (2) |
| 40 | AIDS don't spread by | 108** (73) | 141** (96) | 39 (27) | 6 (4) | - | - |
| 41 | Source of reproductive health education | TV 73 (50) | 73 (50) | Friends 31 (21) | 32 (22) | TP 43 (29) | 42 (28) |
| 42 | Desired source of reproductive health education | Teacher 48 (33) | 42 (29) | Friend 33 (22) | 8 (5) | TP 66** (45) | 97** (66) |

**Highly significant P < 0.001, (Percentage expressed in parenthesis)
*Significant P < 0.05 RHE (Reproductive Health Education)

It was found out that impact of reproductive health education in almost every field and sub-heading was substantial in terms of knowledge and statistical gain.

**Graph 2:**




Each square block represents a question related to knowledge of adolescent boys
Que. 1 to 7 Related to general awareness regarding adolescence
Que. 8 to 11 Related to male reproductive organs and practices
Que. 12 to 17 Related to female reproductive system and practices
Que. 18 to 26 Related to marriage, pregnancy and motherhood
Que. 27 to 32Related to family planning. Que.33 to 42 Related to AIDS

**Table: 4 analysis of association of improvement in knowledge of adolescent boys with qualification of parents**

| Sl. No | Particulars | P value | | | | | |
|---|---|---|---|---|---|---|---|
| | | Mother | | | Father | | |
| | | 12th | Graduate | P.G. | 12th | Graduate | P.G. |
| 1 | Age of adolescence | 0.0089 | 0.592 | - | 0.0760 | 0.510 | - |
| 2 | Physical changes | 0.7743 | 0.464 | - | 0.343 | 0.145 | 0.659 |
| 3 | Reason of bodily changes | 0.0006 | 0.0278 | 0.0124 | 0.0172 | 0.0026 | 0.260 |
| 4 | Increase in height, breaking of voice | 0.401 | 0.591 | - | 0.462 | 0.704 | - |
| 5 | Development of breast and increase in size of buttocks in girls | 0.0124 | 0.371 | 0.0019 | 0.003 | 0.067 | 0.829 |
| 6 | Does these changes occur at same time | 0.0001 | 0.0003 | 0.311 | 0.001 | 0.001 | 0.176 |
| 7 | Attraction towards opposite sex | 0.0001 | 0.01 | 0.008 | 0.001 | 0.001 | 0.188 |
| 8 | Parts of male reproductive system | 0.0088 | 0.084 | - | 0.0975 | 0.009 | 0.340 |
| 9 | Life span of male sperm | 0.0001 | 0.0001 | 0.0204 | 0.001 | 0.001 | 0.001 |
| 10 | Nocturnal emission | 0.0001 | 0.0001 | 0.0082 | 0.001 | 0.001 | 0.001 |
| 11 | Masturbation practices | 0.0001 | 0.0001 | 0.0095 | 0.001 | 0.001 | 0.004 |
| 12 | Parts of female reproductive system | 0.0001 | 0.0057 | 0.1017 | 0.001 | 0.001 | 0.186 |
| 13 | Age of onset of menstruation | 0.001 | 0.003 | - | 0.001 | 0.001 | 0.301 |
| 14 | Duration of menstrual cycle | 0.0001 | 0.0001 | 0.244 | 0.001 | 0.001 | 0.465 |
| 15 | number of eggs produced in a menstrual cycle | 0.0001 | 0.0017 | 0.5737 | 0.001 | 0.001 | 0.3050 |
| 16. | Life span of ovum | 0.0001 | 0.0001 | 0.0095 | 0.001 | 0.001 | 0.0427 |
| 17 | Absent of hymen loss of virginity | 0.001 | 0.001 | 0.2443 | 0.001 | 0.001 | 0.008 |
| 18 | Legal age of marriage for boys | 0.0001 | 0.0001 | - | 0.001 | 0.001 | 0.001 |
| 19 | Legal age of marriage | 0.0001 | 0.0001 | - | 0.001 | 0.001 | 0.004 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | for girls | | | | | | |
| 20. | Need of iron in pregnancy | 0.0001 | 0.074 | | 0.001 | 0.001 | - |
| 21 | Number of sperms in coitus | 0.001 | 0.0415 | 0.2465 | 0.001 | 0.001 | 0.699 |
| 22 | Determination of sex of baby | 0.001 | 0.001 | 0.0082 | 0.001 | 0.001 | 0.001 |
| 23 | Minimal weight of baby birth | 0.001 | 0.001 | 0.1800 | 0.002 | 0.001 | 0.007 |
| 24 | Cutting of umbilical cord | 0.001 | 0.020 | - | 0.001 | 0.006 | 0.186 |
| 25 | Best feed for new born | 0.0458 | 0.7600 | - | - | 0.345 | 0.096 |
| 26 | Duration of exclusive breast feeding | 0.0011 | 0.0001 | 0.8559 | 0.001 | 0.0312 | 0.165 |
| 27 | Responsibility of family planning | 0.001 | 0.0126 | 1.00 | 0.001 | 0.001 | 0.099 |
| 28 | Ideal age difference between children | 0.001 | 0.0036 | - | 0.009 | 0.001 | 0.033 |
| 29 | Permanent method of sterilization | 0.001 | 0.0172 | - | 0.001 | 0.001 | - |
| 30 | Check of partner if other has STD | 0.001 | 0.1299 | 0.4345 | 0.010 | 0.002 | 0.334 |
| 31 | Condom and STD | 0.001 | 0.1132 | - | 0.001 | 0.027 | 0.515 |
| 32 | Re-usability of condom | 0.1462 | 0.1239 | 0.8088 | 0.052 | 0.729 | 0.0186 |
| 33 | Causative agent of AIDS | 0.975 | 0.001 | - | 0.146 | 0.201 | 0.342 |
| 34 | AIDS without symptoms | 0.001 | 0.001 | 0.1108 | 0.001 | 0.001 | 0.010 |
| 35 | Mode of transmission of AIDS | 0.193 | 0.1079 | - | 0.148 | 0.014 | 0.504 |
| 36 | Most dangerous route | 0.001 | 0.001 | 0.5895 | 0.001 | 0.001 | 0.048 |
| 37 | AIDS and blood transfusion | 0.001 | 0.401 | 0.1002 | 0.001 | 0.001 | - |
| 38 | Sharing of syringes may cause AIDS | 0.001 | 0.0372 | 1.00 | 0.005 | 0.006 | 0.001 |
| 39 | No. of sex partner and AIDS | 0.002 | 0.079 | - | 0.012 | 0.031 | - |
| 40 | AIDS do not spread by | 0.001 | 0.0005 | 0.3189 | 0.001 | 0.002 | 0.086 |
| 41. | Source of reproductive health education | 0.9776 | 0.8406 | 1.00 | 1.00 | 0.972 | 1.00 |
| 42 | Desired source of reproductive health education | 0.001 | 0.5662 | 0.5965 | 0.002 | 0.047 | 0.080 |

**Table 5: Analysis of association of improvement in knowledge of adolescent boys with profession of parents**

| S.No. | Particulars | P value | | | |
|---|---|---|---|---|---|
| | | Mother | | Father | |
| | | Housewife | Service | Business | Service |
| 1 | Age of adolescence | 0.006 | 0.599 | 0.112 | 0.030 |
| 2 | Physical changes | 0.1130 | - | 0.390 | 0.045 |
| 3 | Reason of bodily changes | 0.001 | 0.084 | 0.030 | 0.0004 |
| 4 | Increase in height, breaking of voice | 0.286 | 0.835 | 0.748 | 0.1285 |
| 5 | Development of breast and increase in size of buttocks in girls | 0.001 | 0.578 | 0.014 | 0.015 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | Does these changes occur at same time | 0.001 | 0.001 | 0.0001 | 0.00 |
| 7 | Attraction towards opposite sex | 0.001 | 0.280 | 0.0001 | 0.00 |
| 8 | Parts of male reproductive system | 0.002 | 0.280 | 0.061 | 0.010 |
| 9 | Life span of male sperm | 0.000 | 0.000 | 0.000 | 0.000 |
| 10 | Nocturnal emission | 0.000 | 0.001 | 0.000 | 0.000 |
| 11 | Masturbation practices | 0.000 | 0.001 | 0.000 | 0.000 |
| 12 | Parts of female reproductive system | 0.000 | 0.044 | 0.0001 | 0.000 |
| 13 | Age of onset of menstruation | 0.000 | 0.007 | 0.000 | 0.000 |
| 14 | Duration of menstrual cycle | 0.000 | 0.013 | 0.000 | 0.000 |
| 15 | Number of eggs produced in a menstrual cycle | 0.000 | 0.456 | 0.0008 | 0.000 |
| 16. | Life span of ovum | 0.000 | 0.028 | 0.000 | 0.000 |
| 17 | Absent of hymen loss of virginity | 0.000 | 0.001 | 0.000 | 0.000 |
| 18 | Legal age of marriage for boys | 0.000 | - | 0.000 | 0.000 |
| 19 | Legal age of marriage for girls | 0.000 | 0.001 | 0.000 | 0.000 |
| 20. | Need of iron in pregnancy | 0.000 | 0.100 | 0.000 | 0.0001 |
| 21 | Number of sperms in coitus | 0.000 | 0.059 | 0.0001 | 0.000 |
| 22 | Determination of sex of baby | 0.000 | 0.001 | 0.000 | 0.000 |
| 23 | Minimal weight of baby birth | 0.001 | 0.039 | 0.009 | 0.000 |
| 24 | Cutting of umbilical cord | 0.001 | 0352 | 0.0045 | 0.0005 |
| 25 | Best feed for new born | 0.054 | - | 0.0306 | 0.326 |
| 26 | Duration of exclusive breast feeding | 0.001 | 0.345 | 0.0065 | 0.0002 |
| 27 | Responsibility of family planning | 0.001 | 0.022 | 0.000 | 0.0001 |
| 28 | Ideal age difference between children | 0.001 | - | 0.000 | 0.000 |
| 29 | Permanent method of sterilization | 0.001 | 0.075 | 0.002 | 0.000 |
| 30 | Check of partner if other has STD | 0.000 | 0.110 | 0.0017 | 0.010 |
| 31 | Condom and STD | 0.001 | 0.360 | 0.081 | 0.0389 |
| 32 | Re-usability of condom | 0.068 | 0.537 | 0.278 | 0.1321 |
| 33 | Causative agent of AIDS | 0.043 | 0.490 | 0.119 | 0.1059 |
| 34 | AIDS without symptoms | 0.000 | 0.002 | 0.000 | 0.000 |
| 35 | Mode of transmission of AIDS | 0.002 | - | 0.007 | 0.109 |
| 36 | Most dangerous route | 0.000 | 0.001 | 0.000 | 0.000 |
| 37 | AIDS and blood transfusion | 0.000 | 0.117 | 0.000 | 0.000 |
| 38 | Sharing of syringes may cause AIDS | 0.000 | 0.331 | 0.0015 | 0.005 |
| 39 | No. of sex partner and AIDS | 0.001 | 0.112 | 0.0639 | 0.0014 |
| 40 | AIDS do not spread by | 0.000 | 0.110 | 0.0004 | 0.0007 |
| 41. | Source of reproductive health education | 0.859 | 0.704 | 0.714 | 0.941 |
| 42 | Desired source of reproductive health education | 0.000 | 0.765 | 0.001 | 0.009 |
| 21 | Number of sperms in coitus | 0.000 | 0.059 | 0.0001 | 0.000 |
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A study revealed effectiveness of a community youth service (CYS) programme in reducing sexual risk behavior among American, American and native urban young adolescents. The authors suggested that well organized CYS, couples community involvement with classroom health instructions could have a positive impact on sexual behavior of young adolescent at risk for HIV, sexual transmitted diseases and unintended pregnancies. This study also suggests the importance of students including in special education classes in health education programme.[82]

In a study in Michigan it was found out that effective campaigns are desperately needed to combat the serious social problems of teen pregnancy. This study suggests that campaigns with the relevant messages need to start at an early age in order to effectively prevent teen pregnancy.[75] Williams in their study found no impact of the education on postponing sexual involvement and sexual behavior.[83]

Pediatrician by virtue of potential continuity of his contact with child, his parents and his siblings is in unique position to contribute not only to solution but also to prevention of related problems, which arise during adolescent period and to stir awakening between parent and educator about existing problems as well as the need for provision of education that should include knowledge about their physical functioning and physiology in its present state, future changes and also range of normal differences in growth patterns. Education should be more than just information. It emphasizes positive aspects and should be given in a setting which the individual feels free to discuss his problems and can expect sincere and accurate answers to its questions.

Regular medical check-ups will also serve to reassure the adolescents that they are in desirable physical condition. They require a repeated reassurance continuing interest and help so that they may understand the vast difference between being 'abnormal' and 'normal'. The unsatisfactory level o knowledge related to reproductive and child health in the present study could possibly be expected due to poor education exposure. But knowingly or unknowingly students face certain situations where they learn various aspects of reproductive health.

By understanding the fact that adolescents of today are parents of tomorrow and it is hoped that the knowledge which we will provide today will help them perceive the lives of their own as well of their children in better light, thus paving the way of an atmosphere of greater emotional security for generations to come.

## Results

The statistically analyzed data indicated that knowledge of adolescent boys related to reproductive health was far from satisfactory. There was lack of knowledge, misconception and wrong ideas about various secondary sexual characteristics, menstruation, marriage, pregnancy and STD's. There were improvements in knowledge of same adolescents after education on the reproductive health in almost each and every field.

## Conclusions

In conclusion, there was marked improvement in knowledge of adolescents after education on the reproductive health. The research indicates that across childhood and adolescence, sexual experience and behavior typically precede knowledge and understanding. The fact that children engage in sexual behavior before they have a clear understanding of what it is all about, places them at very high risk of a variety of adverse experiences that can impact negatively on their development. Conversely, although many adolescents have sexual knowledge, this knowledge does not always influence their behavior.

### Recommendations

Based on the observations of our study, we conclude with following recommendations-

1. Reproductive health education should be a part of students curricula, where "adolescent friendly

cells" are formed purposely avoiding the unacceptable terms 'sex education'. Questions related to adolescent health including reproductive child health are invited from adolescents and answered by a person who is acceptable, influential and well trained in this field.

2. Besides educating adolescent teachers, parents and grandparents, few students among peers and other influential person should be taken in confidence and educated separately, who in later stages could possibly function as resource person educating and spreading the correct knowledge related to Reproductive and child health in community.
3. The role of media needs not to be overemphasized.
4. Larger longitudinal studies on heterogeneous population will definitely help the planners to improve the knowledge related to adolescent health including reproductive health among future parents.
5. Students must also be taught about life-skills to combat many dangerous real life situations.

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