National Journal of Physiology, Pharmacy and Pharmacology

RESEARCH ARTICLE

Perceptions about normal physiological changes during adolescence and assessment of the impact made through an educational intervention program for adolescents in school children in a rural set up in Gujarat

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Received: March 20, 2017; **Accepted:** April 10, 2017

ABSTRACT

Background: Adolescence is a period full of life marked by various changes such as biological, social, and psychological changes. Adolescence age group is particularly important seeing to the fact that this is a vibrant age group with lots of turbulence, energy, and lots of thought with changes in the thought process if put in correct direction can do wonders, but also there are chances of deviance in full. **Objectives:** The current study was carried out with the objectives of (i) educating the students on adolescent matters, the problems in this age group, sensitizing them to "life skill education," and (ii) to assess the students' learning and the impact made through the educational intervention program. **Materials and Methods:** The study was an educational intervention study. RHTC Bhadran was the chosen field area based on convenience. One school was identified in Bhadran. Boys of class IX (all 4 sections) and XI and XII class girls (all sections) were participants. The students were provided the adolescent education based on the module of UNICEF and NACO "Adolescent Education Programme." **Results:** Mc Nemars test for two variables, namely, "knowledge about adolescence" and "knowledge about reproductive system," before and after is highly significant both for males and females. Students both boys and girls responded to the focused group discussion questions and participated actively. **Conclusion:** There is a lack of knowledge about adolescent health and reproductive system in school going adolescents. The common source of information is most often the peers and Internet which creates more confusion than education. A well-formulated discussion by medical professionals in schools can bring about significant change in the understanding of students and their needs.

KEY WORDS: Adolescent; Focused Group Discussion; School; Peer Pressure; HIV/AIDS

INTRODUCTION

Adolescence is a period of vibrancy marked by various changes which include biological, social, behavioral, and psychological changes. In the adolescent age period, behavior patterns are formed. It is a transitional phase between childhood and adulthood. The adolescents can benefit from guidance in respect of important issues of human biology, health issues, and behavioral coping. The lifestyle and behavior developed during adolescence has an impact on the health not only during adolescence but in later life also.[1] The central issues concerning adolescents are growth and development, sexually transmitted diseases, HIV/AIDS, addiction to drugs, alcohol and tobacco products, premarital sex and teenage pregnancy, irrational and fast driving habits, depression, suicidal tendencies, and revenge resulting in homicides and other behavioral problems such as self-image, stress, traditional beliefs, and values. Unfortunately, the

Access this article online	
Website: www.njppp.com	Quick Response code
DOI: 10.5455/njppp.2017.7.0309710042017	

special needs of adolescents' have not been addressed by the educational, health, and family welfare programs in India so far.[1] Very few schools and colleges do organize some sessions on adolescent health to give some orientation related to the issues of adolescence. The word "adolescent" has been derived from Latin word "adolescence" which means "to grow to maturity." Adolescent is a phase which comes in between childhood and adulthood. Many cultures relate it to the beginning of puberty. Thus an adolescent may have attained maturity which is biological but may not have attained full adult status. The WHO defines adolescence as 10-19 years old.[1] This age group is particularly important seeing to the fact that this is a vibrant age group with lots of turbulence, energy, and lots of thought with changes in the thought process if put in correct direction can do wonders, but also there are chances of deviance in full.

Hence, the current study was carried out with the objectives of:

1. Educating the students on adolescent matters, the problems in this age group, sensitizing them to "Life skill education."
2. To assess the students' learning and the impact made through the educational intervention program.

MATERIALS AND METHODS

The study was an educational intervention study. RHTC Bhadran was the chosen field area based on convenience. One school was identified in Bhadran. Boys of class IX (all 4 sections) and XI and XII class girls (all sections) were participants. The students were provided the adolescent education based on the module of UNICEF and NACO "Adolescent Education Programme." The classes were chosen based on at the time availability of students. It was decided to go for a small group, so 30-35 students in each group was taken as a good group strength to discuss and go on for different learning activities. There were numerous activities in the module and real life situations. There are 4 heads in the module.

1. Growing up
2. HIV/AIDS
3. Life skills education (LSE)
4. Question box.[2]

The last one is actually in continuum phase after completion of the first round.

First all the sections of IX class were taken for the first round, i.e., "Growing up." In 1 day, 2 sessions were conducted of 35-45 min. On a single day, one section was completed because classes were of the strength 75-90. Separate sessions were conducted for boys and girls. In the same manner, all the different rounds such as session on "HIV/AIDS" and "LSE" were completed till all the desired students were provided the education. In LSE, participatory activities were conducted. The topics which were dealt in LSE were "self-image and self-awareness" "values and beliefs" decision-making, "how to say" "no," "effective communication," and "Coping with stress." The last session was question box session. In this, the students put forth their queries anonymously. Once all the sessions were finished, all the students were given a questionnaire asking for their opinion about the program. This was a part of quantitative analysis. A qualitative study was conducted with 8 participants distributed from each class and for both boys and girls separately. A total of 2 focused group discussion (FGDs) were conducted among boys and girls separately. For FGD, all the participants were told about the objectives of the study and were taken in confidence to give the correct and approximate views on the broad questions. The moderator's guide was prepared with questions relating to "adolescence," "pubertal changes," "adolescent-related problems and behavioral issues," "causes and prevention of HIV infection," "common beliefs and attitudes about HIV/AIDS," and "difficult decisions and no to peer pressure."

The boys' moderator was comfortable in Hindi, English, and Gujarati language, so when the boys were asked regarding the language in which they were comfortable and based on their decided language, boys FGD was conducted in Gujarati. The girls' moderator was comfortable in Hindi and English, so when given a choice for language selection for FGD among girls, Hindi was chosen. Points were written word by word. Transcripts were reviewed later, and key words and sentences were identified in developing final manuscript in the entire process.

Assent from students as well as consent from parents was taken. Assent of students was taken. Consent of parents and consent from the Principal of the school was also taken and were properly informed about the program evaluation. Principal consent was already taken for the implementation of the program in their school.

RESULTS

In Table 1, responses for different questions by males and females are illustrated. Mc Nemars test for two variables viz "knowledge about adolescence" and "knowledge about reproductive system", before and after is highly significant both for males and females.

Qualitative Analysis

FGD boys

1. What is adolescence? What are the pubertal changes which occur in this age group?
   Three participants mentioned that it is that period in which hair grows over the body.
   "Aa umar ma baal ugvani shurayat thaye che."

Four participants mentioned that it is that period in which we are attracted toward opposite sex.
Chokariyo pratye aakarsan thaye che.
One participant said that in this period we want to do dangerous work.
"Jokham bhara kaam karvanu mann thaye che."
Voice change was mentioned by two participants.
"Awaj badlaye che."
One student said that in this period, we want to do dangerous work as well as having opposite sex attraction.
Acne was mentioned by one.

2. After adolescent health education, how do you feel? Do you come to know about new things of importance?
Three participants mentioned that after attending the sessions, they are now able to handle peer pressure.
One mentioned that he is having a very different feeling now.
"Mane kai ik alag lage che ane saro anubhav karo cho."
Participants mentioned that they know about the real facts of HIV/AIDS now.
"HIV visaya thodi khoti manyata hati ae have nathi."
Now, they do not hesitate in asking and discussing adolescent issues.
"Have amne thodik oochii chijhak lage che."
They will be able to take decisions now.
Myths were addressed.

3. Can you name some adolescent-related problems or about behavioral issues occurring in this age group?
Friends become very important in this period.
"Aa umar ma apne mitro ni company ma rahvanu game."
No order obeying.
"Mata pita nu kahavanu game nahi."
"Anger comes in very quickly" was one participant's reply.
"Gusso bahu jaldi aavi jaye che."
Want to wear good clothes.
"Sara kapda phanvanu game, ane saro dekhavunu game."
"How I appear becomes important for me in this age" was reply of one of the participants.

4. What are the causes and prevention of HIV infection?
All the important routes and preventive measures of HIV infection were mentioned by the participants.
"Condom use karva thi HIV/AIDS thi bachi sakiye chiye."
"Apna sathi tarf vafadar rahvu joiye."

5. What are the common beliefs and attitudes toward HIV/AIDS? Why there is so much discrimination against HIV/AIDS patients?
People went away when they hear that the person is HIV infected.
"Lok jyare sambhale ki aane HIV che to loko door bhagi jaye."
They become angry.
"Loko ne HIV na visaya sambhali ne gusso aayi jaye che."
They think that the person is of bad character that's why the disease is there.
"HIV nu sambhli ne aej lage ki aenu character karab che."
Fear of acquiring infection if staying with HIV/AIDS patients.

6. What are difficult decisions and "no to peer pressure"?
Participants replied that conditions where we are not able to decide what to do, and we find it very difficult to solve it.
"Aeve parishati jema muskili padti hoy che, nirnaya leva ma."
The students replied that the students should not be compelled by negative peer pressure like bike compulsion to parents.

FGD girls

Q1. What according to you is adolescent? Can you define it? What are the pubertal changes that occur in this age group?
The majority of the students gave the answer that adolescent is the period of 10-19 years of age when many changes occur which include the development of body, hormonal changes. The majority of them said that this is the period when menstruation starts, breast bud develops, appearance of axillary and pubic hair and they are conscious about their body.
"Masik aata hai."

Q2. After adolescent health education, how do you feel? Did you come to know about new things of importance?
Majority of the girls were in consensus that they are more confident now compared to earlier and now they know various things about menstrual hygiene, HIV/AIDS, and life skills.
"Han, ab hum khul k iss baare mein baat kar sakte hai apne parents se, aur apna khyal thik se rakh sakte hai."

Q3. Can you name some adolescent-related problems or about behavioral issues occurring in this age group?
Majority girls said that menstruation-related physical problems are more common and they were not aware about the treatment options. Some said that teenage pregnancy, abortion, opposite sex attraction are the serious problems that the adolescents of today are facing.
"Ladko ki taraf khichav hota hai."

Q4. What are the causes of HIV infection?
The majority of the girls said that earlier they thought that HIV/AIDS occurs due to illicit relationship, but after the health education session, they told the various routes

how HIV/AIDS was transmitted.
"Session ke bad pata chala ki HIV/AIDS dusre karno se bhi ho sakta hai."

Q5. What are the preventive measures of HIV infection?
Majority of the girls were in favor of sexual abstinence for the prevention of HIV/AIDS. Some suggested that proper use of condoms and being faithful to one's partner can be useful for the prevention. Others suggested that proper testing of blood before transfusion and avoidance of using syringe and needle were of utmost importance.
"Apne sathi ki taraf vafadar rahna chaiye" "Condom ka use karna chaiye."

Q6. What are the common beliefs and attitudes towards HIV/AIDS? Why there is so much discrimination against HIV/AIDS patients?
The girls felt that such patients are rejected from the society due to fear for self. Most of the girls responded that many of their family members also think that it spreads through handshake, hugging, sharing of utensils, living in the same house, and bite by infected mosquitoes.
Some girls told that the society thinks that HIV/AIDS occurs due to multiple/illicit relationships only.
Lack of proper treatment was also the reason.

Q7. What are difficult decisions and "no to peer pressure"?
The girls answered that if there are multiple options to choose from and they have to choose the best for them that are difficult decisions.
They said that trying to become what they want and what is good for them are the difficult decisions.
When asked about "no" to peer pressure, the girls responded that - saying NO to things which are not good and wrong, and sticking to one's decision is the important thing.

Q8. What are the common menstrual problems and myths related to menstruation?
Common problems which were mentioned - irregular menstruation, abdominal pain, body ache, irritability, heavy bleeding.
"Masik ata hai tab, pet me dard hona. Pure sharir me dard hona."
Myths and taboos-
Not to wash the hair and body regularly. Not to eat cereals, jaggery, sour food, non-vegetarian food.
Not to enter the temple or religious festivals.
"Mandir me nahi ja sakte hain" "Koi dharmik prasang nahi attend kar sakte hain."
The myths were properly addressed.

DISCUSSION

We conducted adolescent health education sessions in a rural school and tried to know the perceptions about normal physiological changes during adolescence and also did an assessment of the impact made through such educational intervention program for adolescents in rural school children. We carried out lot many activities, discussed pubertal changes, HIV/AIDS and talked on life skills. The students participated well and shown good interest in the activities conducted. We noticed that even though students felt shy discussing such topics, but they were interested in the sessions conducted and this was based on their liking for such sessions and the face value and concentration. Mc Nemars test for two variables, namely, "knowledge about adolescence" and "knowledge about reproductive system," before and after is highly significant both for males and females.

Adolescent education forms an important part of informal education given to the students. We found that the students were lacking in the attitude even as good number of students were having knowledge of adolescence changes. Adolescent education programs enables young persons to be equipped with correct information, knowledge and skills on various topics related to the process of growing up, prevention of HIV/AIDS and prevention of substance abuse.[3]

Traditional teaching methods may not be effective for adolescent health teaching. It requires mainly interaction, participation and responsive transaction methods, raising questions rather than providing ready-made answers. Non-conventional methods are being adopted and are better off than traditional teaching methods in understanding the subject.[3] The students were not opening up initially, but when continued, they did open up and participated. They were having many queries in their mind, which was evident by the questions after each session. Many students thought that the changes such as growing of hair, pimples, and opposite gender attraction are abnormal. Mostly, the queries were unsolved or have wrong solutions to the queries answered by peers. They felt shy when they were taught in the session. Psychological and sociocultural influences in the delivery of adolescent education can increase the likelihood of effectiveness. Primarily, during adolescence (10-19 years), adolescent education is a crucial preventive tool, as time is appropriate because young people experience developmental changes in their physiology and behavior as they enter adulthood.[4] The students do have many problems related to sexuality and other issues of appearance which have not surfaced to any authentic person who can solve it or address it till the day when we started the session. As the sessions were conducted in a village school, the participants do have a problem of getting the queries addressed as the children in a rural set up find it difficult to talk to their parents related to adolescent issues. In this study, we found that none of the study subjects had any discussion with parents. In a study conducted by Ahmed and Kusuma,[5] the authors found that in case of 95% of the study subjects there had never been any discussion of any sexual health-related matter with their father and 85.32% of the study

subjects had never discussed with their mother. When all the sessions were completed, question box was kept and the students were encouraged to put written anonymous queries related to adolescent issues. It was overwhelming experience to see a number of reasonable queries put by the students and we tried to solve out the queries. This also suggested a great need for such sessions as the questions were there in the mind, yet unsolved and a big dilemma of getting the answers, that too a right one. In most of the cases, peers are the one who solves such queries, as they do not want to discuss such issues with anyone other than friend. Various transaction methodologies which can be used effectively for such session are role play, situation analysis and case studies, group discussion, brainstorming, debate, quiz contest, presentations and question box and any other method that engages the learners to think, analyze and infer in a participatory, non-judgmental manner.[3] In our setting, we used case studies, group discussion, role plays, visuals and question box. During discussion, we do find that they are aware of the physiological changes happening but not able to relate it properly with the normal physiology such as growing of hairs, menses and genital changes. According to Jadeja et al.[6] most of the students responded that among males, the most common change occurring at the time of puberty is increase in height followed by beard/moustache growth and armpit/pubic hair growth; and among female, increase in height was the most frequent change occurring at the time of the puberty followed by armpits/pubic hair growth. In our study also, all such changes has been described by both boys and girls during sessions on pubertal changes and were also mentioned during their respective FGD. LSE was an important domain of discussion. We conducted various activities and two role plays to increase the participation and belongingness to

Table 1: Responses for different questions by males and females

Male	Mc Nemar's test	Female	Mc Nemar's test	Total
Prior knowledge about adolescence	*P*=0.000 HS	Prior knowledge about adolescence	*P*=0.000 HS	
Yes – 107 (47.98)		Yes – 139 (56.27)		246 (100.0)
No – 116 (52.02)		No – 108 (43.73)		224 (100.0)
Do you have knowledge regarding adolescence now?		Do you have knowledge regarding adolescence now?		
Yes – 151 (67.71)		Yes – 246 (99.59)		397 (100.0)
No – 72 (32.29)		No - 1 (0.41)		73 (100.0)
Do you think you were not aware about many things related to adolescence earlier?	-	Do you think you were not aware about many things related to adolescence earlier?	-	
Yes – 113 (50.67)		Yes – 127 (51.41)		240 (100.0)
No – 110 (49.33)		No - 120 (48.59)		230 (100.0)
Feeling shy during the health education session	-	Feeling shy during the health education session	-	
Yes – 78 (34.97)		Yes – 23 (9.31)		101 (100.0)
No – 145 (65.03)		No - 224 (90.69)		369 (100.0)
Prior knowledge about reproductive system	*P*=0.000 HS	Prior knowledge about reproductive system	*P*=0.000 HS	
Yes – 120 (53.81)		Yes – 148 (59.91)		268 (100.0)
No - 103 (46.19)		No – 99 (40.09)		202 (100.0)
Knowledge regarding reproductive system now		Knowledge regarding reproductive system now		
Yes – 163 (73.09)		Yes – 215 (87.04)		378 (100.0)
No – 60 (26.91)		No – 32 (12.96)		92 (100.0)
Were you able to find the solutions to reproductive health related questions earlier	-	Were you able to find the solutions to reproductive health related questions earlier	-	
Yes – 50 (22.42)		Yes – 89 (36.03)		139 (100.0)
No - 173 (77.58)		No – 158 (63.97)		331 (100.0)
Can you handle peer pressure now?	-	Can you handle peer pressure now?	-	
Yes – 150 (67.26)		Yes – 138 (55.87)		288 (100.0)
No – 73 (32.74)		No – 109 (44.13)		182 (100.0)
Total - 223 (100.0)		Total – 247 (100.0)		470 (100.0)

Mc Nemars test for two variables *viz*. "knowledge about adolescence" and "knowledge about reproductive system," before and after is highly significant both for males and females

these sessions. These are very important skills and needs to be delivered to adolescents who require it most in this transition phase. Srikala and Kishore[7] have mentioned about values and beliefs. Life skills program is that program which empowers the youth to choose the appropriate values and behavior and these in turn are ingredients of positive health. When we assessed the knowledge of adolescents before and after the session, we did find a very significant difference ($P = 0.000$). Same type of significant results was also reported by Srikala and Kishore[7] after the application NIMHANS model of LSE program. Peer pressure is one of the very important social factors and a group behavior which is seen in adolescent age. We did discuss the same with the students and found that the students do suffer from peer pressure. Ismail et al.[8] in their article mentioned that during adolescence age period, adolescents find themselves in a vulnerable stage of their lives where influences of peer pressure can force them to exhibit socially unacceptable behavior and may be criminal one. WHO also states that "LSE" is a novel promotional program that teaches through participatory learning methods such as games, debates, role-plays, and group discussion. Such initiatives provide a wide range of alternative and creative ways of solving problems for adolescents. Repeated practicing of these skills is essential and it leads to perfection and then such skills can be applied to real life situation to gain control over the situation. It is a promotional program, which improves the positive mental health and self-esteem of adolescents.[9] Life skills program are based on social learning theory. In this theory, learning is considered to be active acquisition, processing, and then structuring of experiences. Participants are involved in a dynamic teaching and learning process.[10] We did follow the same theory while taking these sessions. LSE paves the pathway to increase psychosocial competence. Psychosocial competence is a person's ability to deal effectively with the demands and challenges of everyday life. It is a person's ability to maintain mental well-being and demonstrate this in adaptive and positive behavior while interacting with others, his/her culture and environment.[9] Life skills are psycho-social abilities and these are the abilities which empower individuals to connect with self as well as others and help in developing and adopting healthy lifestyle and positive behaviors. Life skills equip individuals with competence to manage challenging situations and utilize existing opportunities in an optimal manner. These skills enhance coping and increases personal and social competencies of individuals.[11] Sarkar et al.[12] in their study of "Premenstrual syndrome" among adolescent girl students in a rural school mentioned that "adolescent-friendly health services" should be strengthened for proper counseling of the girls. The authors also emphasized on "life-skill education" in schools and that it should be given properly. Life skills development is a life-long process that helps individuals grow and mature; build confidence in decision making on the basis of adequate information and thought and discover sources of strength. Transaction approaches are focused primarily on participatory and experiential modes of learning and these are effective for life skills development.[11]

Even though the classes included were limited; but good strength in terms of number of boys and girls was there and the students participated full heartedly and nothing was felt as imposed can be seen as strength of this study. In conducting this study, as per the school timings and availability of classes to conduct adolescent education session, the standards were different for boys and girls, so we could not compare the differences between boys and girls. The student strength could have been increased and higher standards could have been included in session for boys.

CONCLUSION

From this study, we thus conclude that there is lack of knowledge about adolescent health and reproductive system in school going adolescents. The common source of information is most often the peers and internet which creates more confusion than education. A well formulated discussion by medical professionals in schools can bring about significant change in the understanding of students and their needs.

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How to cite this article: Sharma DB, Das N, Shah UM, Gupta V, Singh US. Perceptions about normal physiological changes during adolescence and assessment of the impact made through an educational intervention program for adolescents in school children in a rural set up in Gujarat. Natl J Physiol Pharm Pharmacol 2017;7(8):820-826.

Source of Support: Nil, **Conflict of Interest:** None declared.