

A Review of the Effectiveness of the Interventions on Adolescent Reproductive Health in Developing Countries

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Abstract- This review assessed adolescent reproductive health interventions in different developing countries. Twenty one studies were included. The specific objective of these studies was to improve the knowledge on sexual and reproductive health issues among the adolescent girls aged 10-19 years. The review assessed interventions of the school-based and community programmes. Educational material was delivered using lectures, discussions, and demonstration by posters, flip charts, printed material, over-head projectors, black board, booklets, discussion, etc. by community and peer educators. Different SPSS Version and Excel software were used for analysis. Univariate, multivariate analysis, Paired 't' test and Chi-square test were applied. Results showed that the knowledge of girls regarding health aspects improved significantly after intervention. There was a considerable increase in the awareness levels of girls with regard to knowledge of health problems, environmental health, nutritional awareness and reproductive and child health. Thus informative and educable interventions seem to have a positive effect on awareness levels which would eventually encourage expansion of knowledge and positive health habits. The article makes no attempt to systematically review all the relevant literature.

Index Terms- Adolescents, reproductive health, intervention, community programmes, educational material.

I. INTRODUCTION

Today, 1.2 billion adolescents stand at the crossroads between childhood and the adult world. Around 243 million of them live in India. (UNICEF 2011). The reproductive health needs of adolescents have long been neglected, but in the last 10 years, the importance of information on reproduction and sexuality is being increasingly emphasized. Reproductive health covers all aspects of adolescent health. It is an umbrella concept, consisting of several distinct, yet related issues such as abortion, child birth, sexuality, contraception and maternal mortality. Biological, social, cultural, economical and behavioural factors play an important role in determination of reproductive health.

The effects of globalization, rising age at marriage, rapid urbanization and greater opportunities for socialization have heightened the risk of STIs, HIV/AIDS and unwanted pregnancy. While adolescents have unmet needs for reproductive health information and services, these are not addressed by parents, schools or the existing health care systems.

Sex education should be a lifelong learning process based on the acquisition of knowledge and skills and development of positive values and attitude. Sex education aims to reduce the risks of potentially negative outcome from sexual behaviour such as fear and stigma of menstruation, unwanted and unplanned pregnancies and infection with STIs including HIV. Effective sex awareness program should start early before young people reach puberty more so before they have developed established patterns of behaviour.

The consequences of sexually transmitted infection (STI) and unplanned pregnancy can be devastating. Young women are at the start of their reproductive life and risk compromising their future fertility through tubal occlusion or ectopic pregnancy. In many areas, young women who get pregnant are withdrawn from school, further disadvantaging them. In countries where access to abortion is limited, the gynecological consequences of "back street" abortion can be dire. While young men suffer fewer direct health consequences of early sex, infection or pregnancy can still have adverse consequences for them—for example, with respect to further education and training opportunities.

Today's adolescents will determine the social fabric, economic productivity, and reproductive health and well-being of nations throughout the world in the coming decades. Worldwide, a variety of programs have tried to address the sexual and reproductive health needs of adolescents. Communications and other interventions designed to improve the sexual and reproductive health of adolescents needs to respond appropriately to the changing global context.

Developing, implementing, and evaluating interventions that not only minimize the risk of sexual intercourse in young people but also facilitate development of healthy sexual behaviour patterns and relationships are therefore a priority.

The broad aim of adolescent reproductive health interventions (ARHI) is both to reduce the adverse consequences of sexual behaviour and to improve the quality of sexual relationships for young people, both as young people today and also in their future life as adults. This article aims to describe the different approaches that have been employed and to review the methodological issues that face both those developing and implementing these interventions and the researcher is trying to evaluate their effectiveness. It makes no attempt to systematically review all the relevant literature.

II. OBJECTIVE OF THE STUDY

1. To assess the effectiveness of adolescent's reproductive health interventions in developing countries.

III. MATERIAL AND METHODS

Twenty one studies were included. The specific objective of these studies was to improve the knowledge on sexual and reproductive health issues among the adolescent girls.

The extracted data included study location, sample size and characteristics at baseline, details of the intervention, study design, the methods used to measure outcomes, date of follow-up and results.

Location

Sixteen interventions conducted in Asian countries (which included Bangladesh, India, Iran, Malaysia, Turkey and Yemeni) and five in African countries (which included Egypt, Tanzania and Nigeria) were assessed. The studies were carried out in rural, urban and slum areas.

Fifteen studies were school based and the rest were community based.

Study selection: participants/sample

Studies of adolescents (aged 13 to 19 years), studying in 8th to 12th standard were included. Studies for people of other ages were only included if they presented results separately for adolescents.

Study selection: study designs

Experimental, quasi-experimental studies and studies in which change could be attributed to the intervention were eligible for inclusion. Studies which reported changes in RH outcomes post-intervention or statistical associations between exposure to the intervention and outcomes were also included. Predesigned, pretested questionnaires were used to assess awareness of the respondents regarding reproductive health issues before and after the intervention. The questionnaires consisted of both open-ended and close-ended questions on growth and development during adolescent period, pregnancy, and STIs including HIV/AIDS. Intervention packages were developed on the aspects of health including general health, reproductive and child health, marriage, pregnancy, contraception and abortion and nutritional aspects. Educational material was delivered using lectures, discussions, and demonstration by posters, flip charts, printed material, over-head projectors, black board, booklets, discussion, etc. by community and peer educators. Different SPSS Version and Excel software were used for analysis. Univariate, multivariate analysis, Paired 't' test and Chi-square test were applied.

Study selection: specific interventions

The studies of adolescent RH interventions in developing countries were included. The review assessed interventions of the school-based and community programmes. (General RH education, education on HIV, AIDS and sexually transmitted infections, and nutrition).

IV. RESULTS

Base line knowledge in all aspects of reproductive health was observed to be very low as compared to the post tests.

School-based interventions

In a school-based intervention in Rural **Bangladesh**⁽¹²⁾, 3 booklets were developed with the help of parents, teachers and local decision makers and distributed to students. A significant improvement in knowledge favoring students' attending the intervention schools were found. A study was conducted on 112 adolescent girls from government schools of five villages in two blocks of **Kangra**⁽⁵⁾ district of Himachal Pradesh. Results showed that the knowledge of girls regarding health aspects improved significantly after intervention. There was a considerable increase in the awareness levels of girls with regard to knowledge of health problems, environmental health, nutritional awareness on reproductive and child health. In **Chetla, Kolkata**⁽⁷⁾ in a school-based intervention for girls, it was found that mean knowledge score increased post intervention. There was a remarkable increase in knowledge regarding minimum age at marriage, early sign of pregnancy, and antenatal care in pregnancy, availability of legal abortion in unmarried pregnant women and different contraceptive measures following the intervention. A study in **Kuppamandal**⁽¹⁴⁾, **Chittoor district**, Andhra Pradesh showed that 656 girls who received Reproductive Health education had a significant increase in overall knowledge regarding menstrual cycle, ovulation, fertilization, pregnancy contraception, transmission & prevention of STDs. In a study aimed at examining the effect of peer education on school adolescents' reproductive health knowledge in Saki, Southwestern, **Nigeria**⁽¹⁷⁾, in a nurse-led concurrently controlled community interventional study, Pre and post differential data in the experimental and control groups were compared and analyzed using analysis of covariance. The intervention had significant effect on adolescents in the experimental group compared with the control group in the area of knowledge of reproductive health issues.

In **Davangere**,⁽¹⁵⁾ Karnataka, a total of 362 girl students were included in the study. Almost equal number of girls, i.e., 38.1% and 36.7% was from commerce and arts groups, respectively, and the lowest number (25.2%) of girls was from the science group. There was significant change in knowledge about the age at the appearance and complete formation of breast and height gain in the adolescent period and a highly significant change in knowledge in the remaining aspects, eg, about adrenarache, menstruation, pregnancies, and HIV/AIDS.

Reproductive Health education sessions were carried over the period of one year among ninth standard school students of a slum area in **Mumbai**⁽³⁾. Pre test, immediate post test, along with a follow up post test at six months and one year after intervention were administered. Base line knowledge in all aspects of reproductive health was observed to be very low as compared to the post tests. Knowledge was retained over the period of one year in questions pertaining to physical changes in boys and girls, female anatomy and role of female in sex determination. However significant loss ($p < 0.01$) of the acquired knowledge was observed in questions pertaining to hormones, night emissions and masturbation. Health education sessions are very

effective in increasing knowledge. However, students tend to lose information regarding certain aspects as time progresses.

A total of 698 students (study participants and control) in several schools in Mazandaran province, **Iran**⁽¹¹⁾ were included in the study. Among the most significant results was the impact of educational sessions on bathing and genital hygiene. Individual health status was significantly statistically correlated with menstrual health. Attitude towards menstruation was also significantly related to menstrual health. The study confirmed that educational interventions, such as the health promotion project in this study, can be quite effective in promoting menstrual health.

Evaluation of a school-based peer education intervention for HIV prevention intervention was done on 2510 **Yemeni**⁽⁴⁾ adolescents. Multi-level regression analysis revealed that, although there was a significant difference among schools, the intervention effect of peer education at the individual level was significant; students who received peer education had a statistically higher

knowledge score compared with those not target. Compared with the 2005 cohort control sample, students targeted by peer education had better knowledge on the modes of transmission and prevention and fewer misconceptions; and knowledge on the use of condoms also increased.

In Chandigarh⁽¹⁸⁾ (**India**), a reproductive health education package, developed in consultation with parents, teachers and adolescents, was delivered to randomly sampled classes of two senior secondary schools and one school was selected as control. In one school, a nurse conducted 15 sessions for 94 students in three batches using conventional education approach. In another school she conducted sessions for a selected group of 20 adolescents who later disseminated the messages informally to their 84 classmates (peer education). The knowledge of adolescents were assessed before and one month after the last session. Teachers, parents and students overwhelmingly favoured reproductive health education program. Peer education and conventional education strategies were effective in improving the reproductive health knowledge of adolescent girls but peer strategy was less time consuming. **'Evaluation of a reproductive health awareness program for adolescence in urban Tanzania'**⁽¹⁰⁾ revealed that the girls' mean score in the knowledge and behavior increased significantly. However, the pre-test and post-test attitude scores showed no statistically significant difference for either girls or boys. A study in **Thiruvananthapuram**⁽¹⁶⁾ district, consisted of 1,586 adolescents including 996 boys and 560 girls of class IX and XI. In the pre-intervention period, it was observed that majority of adolescents were poorly informed about reproductive sexual health matters, particularly about contraceptives. As compared to boys, girls had much poorer knowledge about prevention of pregnancy and after intervention; there was a statistically significant increase in the knowledge in both boys and girls. Increase in knowledge level was also observed in various other aspects of reproductive and sexual health including, STI, HIV/AIDS and perceptions about premarital sex. A health education program on **AIDS** was implemented for **secondary technical schools students in Assiut, upper Egypt**,⁽²⁰⁾ and its effect assessed through pre-post testing. Statistically significant improvements in knowledge were revealed after program implementation. Multivariate analysis

showed that the statistically significant independent predictors of the change in knowledge score after the intervention were age, religion and the health education program. **The study on Effect of sex education programme on at-risk sexual behaviour of school-going adolescents in Ilorin, Nigeria**⁽⁹⁾ revealed that when the treatment (intervention) group was compared with the control group in an intention to treat analysis, there were significant differences in at-risk sexual behaviours of the two groups. Those in the intervention group reported less at-risk sexual behaviours than their counterparts in the control group. A randomised controlled trial of 530 university students was done using peer-adult facilitators in **Malaysia**⁽¹³⁾. The study revealed that the main outcome measured was the level of knowledge, attitudes and behaviour scores. The results suggest that relative to the control group, participants in the intervention group had higher levels of knowledge and a better attitude.

Community based studies

In **Udipi**⁽¹⁹⁾ district in Karnataka, an intervention study was carried out for one year for 791 rural girls and evaluated immediately. A significant increase in overall knowledge regarding contraception, ovulation, first sign of pregnancy and fertilization and importance of diet during pregnancy was observed. In a community based interventional study on 217 adolescent girls, in **Kalamboli**,⁽²⁾ Maharashtra, a significant improvement was observed in the menstrual practices but there was no significant difference in pre and post-test with regard to restrictions followed during menses. A randomized controlled trial study was carried out among 200 rural adolescents at **Cuddalore**⁽⁴⁾ district of Tamil Nadu. The quantitative evaluation of programmes shows that intervention programs have changed the adolescent girls' perception, attitude and behaviour on puberty and menstrual issues. A significant positive shift was observed in all aspects with particular improvement in the areas of menstrual cleanliness. It increased their knowledge on reproductive health and understanding on HIV/ AIDS. Further, it also improved their parental relations, self-confidence on various issues.

A semi-experimental study which included 700 adolescents from the city of Sanliurfa, **Turkey**⁽⁸⁾ showed that the total score of the participants on knowledge of reproductive health increased after training, with a significant difference. The percentage of the female participants performing breast self-examination also increased significantly after training. In a study conducted on **'Biological and behavioural impact of an adolescent sexual health intervention in Tanzania'**,⁽⁶⁾ a community-randomized trial was used with twenty communities. The intervention had a significant impact on knowledge and reported attitudes, reported sexually transmitted infection symptoms, and several behavioural outcomes. A health education intervention conducted in North **Kolkata**⁽⁷⁾ on 282 girl students showed a significant improvement in their knowledge on adolescent health, in the aspects of sex differences in pubertal spurts, probable causes of health problems during adolescence, physical changes in adolescent boys and girls, and psychological problems of adolescence. A significant improvement in positive attitude was observed, with regard to their opinion on substance abuse in the adolescent period and importance of sex education for adolescents.

V. CONCLUSION

The studies clearly showed that an educational intervention program can bring about a desirable change in knowledge among adolescent girls regarding reproductive health. Thus informative and educable interventions seem to have a positive effect on awareness levels which would eventually encourage expansion of knowledge and positive health habits.

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