

**Strategies to Improve Reproductive Health
Services for Adolescents in Bangladesh:
A Community-based Study**

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Acronyms

AFS	Adolescent-friendly Services
AIDS	Acquired Immunodeficiency Syndrome
ARH	Adolescent Reproductive Health
BCC	Behaviour Change Communication
BCCP	Bangladesh Center for Communication Programs
BDHS	Bangladesh Demographic and Health Survey
BRAC	Bangladesh Rural Advancement Committee
CM	Community Mobilizer
CWFD	Concerned Women for Family Development
ESP	Essential Services Package
FAQ	Frequently-asked Questions
FHRP	Family Health Research Project
GoB	Government of Bangladesh
HIV	Human Immunodeficiency Virus
HSID	Health System and Infectious Diseases Division
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
MC	Modern Contraceptive
MOHFW	Ministry of Health and Family Welfare
NGO	Non-governmental Organization
NSDP	NGO Service Delivery Program
OCP	Oral Contraceptive Pill
RH	Reproductive Health
RHE	Reproductive Health Education
RSDP	Rural Service Delivery Partnership
SMC	Social Marketing Company
ST	Skill Training
STI	Sexually Transmitted Infection
STD	Sexually Transmitted Disease
TT	Tetanus Toxoid
TV	Television

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Summary

The adolescent population of Bangladesh has, generally, a poor understanding of sexual and reproductive health. This is associated with early marriage, adolescent pregnancy, and increasing occurrence of high-risk sexual practices. Additionally, adolescents in Bangladesh live in a community which hold traditional beliefs and practices that still restrict the discussion and flow of accurate reproductive health information in the household, the community and schools. Access to accurate information on key reproductive health issues, such as reproductive physiology, sexuality, family planning, and sexually transmitted disease (STD), is severely restricted at all levels.

Despite the increased enrollment of students in both urban and rural schools, results of the Bangladesh Demographic and Health Survey (BDHS) 1999-2000 showed that the proportion of adolescents dropping out from school continued to be high. A large number of adolescents were also found to be out-of-school in the 'needs assessment study' of ICDDR,B conducted in 1999. Hence a community-based intervention was considered as a possible strategy for a large proportion of adolescents, especially those not in school, to improve their knowledge about messages and information on reproductive health (RH).

The study aimed at determining the relative benefits of an integrated adolescent-development programme that combined reproductive health education, community sensitization, livelihood skill-training (ST), and a savings and credit scheme.

This quasi-experimental study, began in September 2000, was completed in 2002. Pre- and post-intervention cross-sectional surveys were planned to measure the effects of the intervention. Urban adolescents were assigned to one of three groups: Group A received 'education and livelihood skill-training, savings and credit scheme, and adolescent-friendly services'; Group B received 'education and adolescent-friendly services'; and Group C served as control.

Adolescent males and females aged 13-19 years, whether in or out-of-school, married and unmarried, living in urban and rural sites, were the source population. The study, conducted in collaboration with Concerned Women for Family Development (CWFD), a national NGO, was implemented in the urban and rural programme sites of CWFD, i.e. Dhaka (urban) and Noagaon (rural). In total, 900 female and 900 male adolescents were enrolled.

Adolescents included in the baseline survey were to be interviewed in the end-line survey. The majority of adolescents completing the end-line survey were not included in the baseline intake. Thus, it was not feasible to assess the changes in knowledge or practices over time. The results mainly discussed in this report were based on the findings of the baseline survey and process evaluation.

School enrollment among adolescents included in the survey was high. In rural sites, 58% of boys and 71% of girls were still in school. Less than half of urban adolescents were in school at the time of interview. Twenty-two percent of urban and 31% of rural girls who participated in the baseline survey were married. Most girls

were married at the age of 13-15 years, and 13% of rural girls were married below the age of 13 years. A very low level of knowledge was demonstrated among adolescents about fertility. A higher proportion of married rural females was using a modern contraceptive method. Oral contraceptive pill was the method of choice in both urban and rural areas. In urban area, one-fifth were condom-users. Desire for a child was a commonly-cited reason by the married females for not using any method. Although a large proportion of boys considered wet dreams as a normal phenomenon, at the same time, they believed that they required treatment.

Seventy-five percent of urban and 64% of rural boys and more than one-third of girls were aware of sexually transmitted infections (STIs), but when they were asked to recall the names of various STIs, knowledge of adolescents was mostly limited to AIDS.

Persuading and working with the community was seen as a challenging and critical element of this intervention. In each selected community, group meetings were held as planned before initiating education sessions. While conducting meetings, care was taken to remain consistent with cultural norms in dealing in a welcoming rather than authoritarian manner. Several community meetings helped gain the community's support, which became an effective means for implementing an adolescent-focused intervention.

Less than one-third of the adolescents included in the baseline survey could be followed for post-intervention interviews due to poor initial rates of enrollment in the intervention groups and unexpected high attrition of adolescents who did join. Unwillingness to continue participation, migration out of the selected sites of Dhaka city, and marriage and pressures to marry were the major reasons for discontinuation from group. Involving and continuing the boys in the group intervention was the most struggling part of this study. Boys continuously fell behind in the programme mainly because of their job schedules. In urban areas, it was very difficult to find a large enough-sized meeting room, especially for the boys' groups, which caused additional barriers to carry out the routine education sessions.

The encouraging upward trend in school enrollment found in the baseline survey was comparable with the BDHS data. Although adolescents were poorly informed about fertility, high knowledge relating to pill and AIDS reflected the positive feature of the national campaigning programme of Bangladesh. Prior to implementing a reproductive health intervention in a community setting, the complexity of following up adolescents needs to be considered carefully. Additionally, continuation of adolescents in a long-term intervention depends upon creating interest among them towards an education programme. Overall, without the support of adults who surround adolescents, it is not possible to implement any adolescent reproductive health intervention.

Introduction

In Bangladesh, adolescents represent over 20% of the total population. Two of the leading adolescent health concerns in Bangladesh are early fertility and the emergence of the HIV/AIDS epidemic. The age-specific fertility rate is high among this group, i.e. 144 births per 1,000 female population aged 15-19 years. Forty-seven percent and 35% of women aged 15-19 years, respectively, are currently married and have begun childbearing [1]. The social context of Bangladesh disregards sexual relationships outside marriage, which leaves the impression that premarital sexual relationships are unlikely among adolescents. A survey completed by the Population Council, Bangladesh suggests that this assumption may be incorrect. It was reported that over 40% and 20% of urban and rural males are sexually active prior to marriage or age of 19 years [2]. The prevalence of sexually transmitted diseases (STDs) is mainly determined by high-risk sexual behaviours. The information given in the above study is alarming and has direct relevance to the emergence of HIV/AIDS in Bangladesh. Also, the risk among youths for HIV/AIDS is reflected in the national HIV surveillance data; the surveillance data showed that 55% of STI patients identified were aged less than 24 years [3].

Recent surveys, conducted by ICDDR,B and other organizations in Bangladesh, have consistently documented generally poor knowledge of sexual and reproductive health among adolescents. Furthermore, 'what is known' is often incorrect and derived through communication with friends who are equally unknowledgeable [2, 4-6]. An ICDDR,B study has also documented that adolescents rarely discuss sexual and reproductive issues with their parents or teachers. The findings of the study indicate that adolescents in Bangladesh live in a community which hold traditional beliefs and practices that still restrict the discussion and flow of accurate reproductive health information in the household, the community, and schools. Access to accurate information on key reproductive health issues, such as reproductive physiology, sexuality, family planning, and STDs, is severely restricted at all levels. Booklets and magazines, available in the market, contain inadequate and misleading information on these topics.

In recent years, enrollment of students in schools has significantly increased. Despite the increased enrollment in both urban and rural schools, the results of the Bangladesh Demographic and Health Survey (BDHS) 1999-2000 suggest that the proportion of adolescents dropping out from school continues to be high. Between the age of 6 and 15 years, the proportion of boys and girls attending schools are indistinguishable, but by the age 16 to 20 years, boys are more likely than girls to stay in school (40% vs 27%). During data collection of the 'needs assessment study' of ICDDR,B conducted in 1999, a large number of adolescents were found to be out-of-school. Poor socioeconomic conditions are the major factor in school drop-out, which, in many instances, forces adolescents, especially boys, to engage themselves in earning. In many cases, the tradition of early marriage of girls acts as a crucial factor against continued schooling, despite the provision of free schooling and incentives for them to

continue to attend school in Bangladesh. The large proportion of out-of-school adolescents will need to be reached through community-based strategies.

ICDDR,B has explored whether adolescents desire to have reproductive health information and from what source they would prefer to have this information. The findings of the study showed that many adolescent boys and girls would feel comfortable to have reproductive health information in their community setting. Hence, a community-based intervention was considered to be a possible strategy for a large proportion of adolescents, especially those not in schools, to improve their knowledge about messages and information on reproductive health.

Study Objective

The objective of the study was to determine the relative benefits of an integrated adolescent-development programme that combined reproductive health education, community sensitization, livelihood skill-training (ST), and a savings and credit scheme. It was planned to measure the effects in terms of changes in knowledge and practices.

Hypothesis

It was hypothesized:

1. That a significant improvement in sexual and reproductive health knowledge and/or practices will occur among urban adolescents who receive:
 - a. Reproductive health education and skill-training when compared to controls
 - b. Reproductive health education without skill-training when compared to controls
 - c. Reproductive health education and skill-training when compared to reproductive health education only.
2. That a significant improvement in sexual and reproductive health knowledge and/or practices will occur among rural adolescents who receive reproductive health education and skill-training when compared before and after the intervention.

Methods

Study design

This quasi-experimental study, began in September 2000, was completed in 2002. Pre- and post-intervention cross-sectional surveys were planned to measure the effects of the

intervention. Urban adolescents were assigned to one of three groups: Group A received ‘education and livelihood skill-training, savings and credit scheme, and adolescent-friendly services’; Group B received ‘education and adolescent-friendly services’; and Group C served as controls.

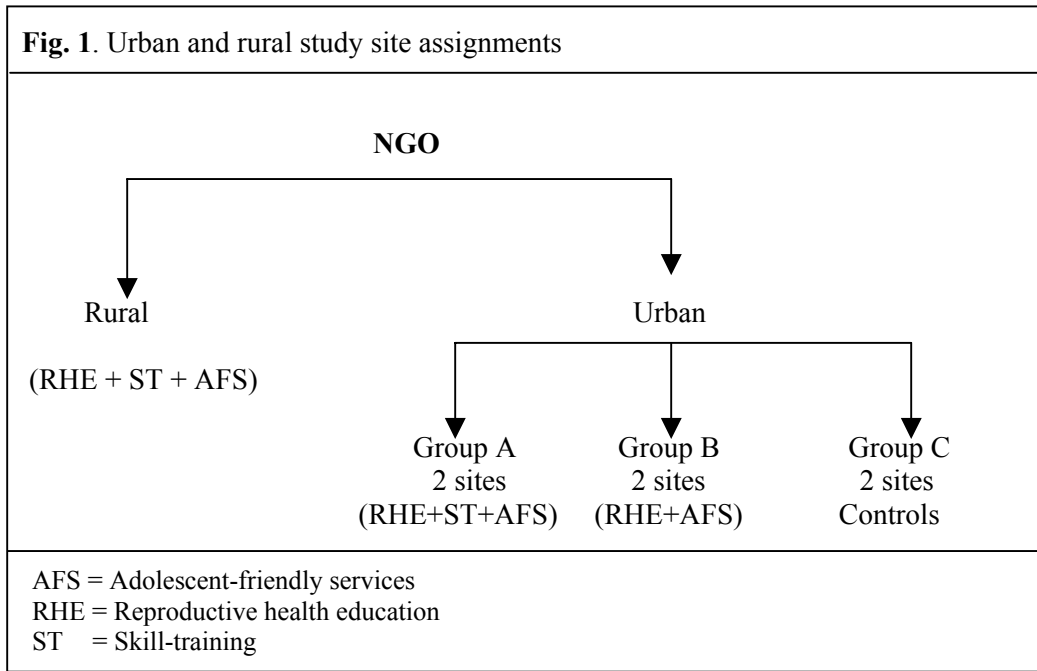
Population

Source population

Adolescent males and females aged 13-19 years, whether in or out-of-school, married and unmarried, living in urban and rural sites were the source population. The study, conducted in collaboration with Concerned Women for Family Development (CWFD), a national NGO, was implemented in the urban and rural programme sites of CWFD, i.e. Dhaka (urban) and Noagaon (rural). In the urban area, adolescents were selected from the catchment wards of the static clinics of CWFD. In rural sites, adolescents living in villages where the CWFD is working, were enrolled in the study.

Study population

In the urban site, the CWFD has 6 static clinics which are similar in terms of their infrastructure and nature of services provided. In the rural site, the CWFD has only one static clinic. These 6 urban and one rural static clinics were purposefully assigned to the alternative interventions, i.e. reproductive health education (RHE), ST, and adolescent-friendly services (Fig. 1).



All adolescents of urban and rural sites, aged 13-19 years, residing within a 3-kilometre radius of the static clinics were enumerated. Among the listed adolescents, in each group 300 boys and 300 girls were selected for the study. Adolescents who were willing to participate in the intervention and whose parents permitted them to participate were included in the study. Adolescents who reside nearby the selected static clinic were approached first, and the inclusion of adolescents continued until 300 females and 300 males were found.

Sample size

The following formula was used for calculating the sample size:

$$n/\text{group} = \frac{[(Z_{\alpha} + Z_{\beta})^2 P(1 - P)x2]x1.5}{d^2}$$

Here,

n = the desired sample size

Z_α = 1.645, one tailed test

Z_β = 0.84

P = the proportion of adolescents having knowledge or a specific practice relating to reproductive health

d = the minimal detectable difference in knowledge or practices of adolescents relating to reproductive health between the intervention and the control group

If P is 60% and d is 10%,

Considering the clustered sampling, a design-effect adjustment is required.

This was set at 1.5. Further, as the sample included both adolescent girls and boys, thus, for each group the aim was to select 300 boys and 300 girls.

$$n/\text{group} = \frac{[(1.645 + 0.84)^2 (0.6)(1 - 0.6)x2]x1.5}{(0.1)^2} = 295/\text{group}$$

Interventions

Adolescent reproductive health-education package

Community sensitization: Before starting any education sessions, the project conducted several meetings with community leaders and parents of adolescents. The meetings were held by the CWFD’s intervention team in the homes of influential community members. In these meetings, the objective of the intervention was stated, adolescent issues were explained, and the relevant intervention activities were described, followed by an open discussion. It was planned to hold one or two group meeting(s) in each site.

Adolescents groups: Approximately, 15 groups of 20-25 same-sex adolescents were formed at each intervention site. The groups were stratified by age: 13-15 and 16-19 years. Group education sessions were scheduled to be held once a week, 90 minutes each for 1.5 years. A female community mobilizer facilitated the education sessions for the female groups while a male community mobilizer facilitated the male groups. They followed a standard curriculum, developed by ICDDR,B and CWFD for this intervention, that allowed for extensive participation of adolescents. The curriculum mainly focused on reproductive health issues, such as puberty, early marriage, dowry, family planning, STIs, and HIV/AIDS. Additionally, social issues, including family life, social roles, friendships, gender, smoking, and drug abuse, were addressed.

Development of material: Three booklets were developed that focused on (1) normal sexual maturation, (2) marriage and family planning, and (3) sexually transmitted diseases (STDs) and HIV/AIDS. The booklets were based on the frequently-asked questions databank developed by ICDDR,B. The frequently-asked questions study was a community-based, qualitative investigation of demographically heterogeneous adolescents. This included school attending and non-attending, married and unmarried, poor, low-middle and middle-class adolescents. Questions were compiled from the ICDDR,B's needs assessment and Rural Service Delivery Partnership/Pathfinder newlywed assessment databanks. The respondents in the ICDDR,B study were mainly unmarried adolescents, whereas the respondents of the RSDP study were married adolescent girls. The questions covered menstruation, wet dreams, RTIs, and contraception. The frequently-asked questions study was undertaken to explore other topics of reproductive health and sexuality, and thereby to develop a larger database covering several topics.

Initially, 380 questions and responses were compiled. These were reduced to 165 unique questions for which answers were prepared, using clear and easy-to-understand language. Scientific jargon was kept to a minimum. The social, cultural and religious backgrounds of adolescents were considered during construction of responses. To limit the chance for misunderstanding or inappropriate action, judgmental messages were avoided.

The questions and answers were then reviewed by a panel made-up of academicians, psychologist, religious leader, social workers, programme managers from the Government of Bangladesh and NGO agencies and researchers with experience in this field. They reviewed the accuracy and relevancy of answers. The databank was finalized after pre-testing the questions and answers among adolescents.

After finalization, the databank was submitted to an adolescent reproductive health working group. The group included representatives from ICDDR,B, USAID, Bangladesh Center for Communication Programs (BCCP), the Behaviour Change Communications (BCC) Unit of Directorate of Family Planning, NGO Service Delivery Program (NSDP), Bangladesh Rural Advancement Committee (BRAC), Population Council, UNFPA, Marie Stopes, Social Marketing Company (SMC), and UNICEF. At first, the members of the working group decided on the most important RH questions

for adolescents. They again reviewed and revised the answers in a standard format. To assist with the development of booklets, they also added some text. The draft booklets were pre-tested among parents to look for the acceptability, and among adolescents to assess comprehension.

An adolescent reproductive health curriculum was developed in support of the frequently-asked questions databank. Also a number of sources, including existing national and international curricula, were used for the adolescent curriculum. This material was produced to provide backup support to the community mobilizers who were responsible to conduct education sessions among adolescents. The curriculum has 28 sessions; each session has two parts: text and lesson plan. The curriculum includes topics on family and social life, puberty, early marriage and pregnancy, family planning, smoking and drug abuse, and STIs/HIV/AIDS. Several points were taken into account while developing the topics and materials, namely the use of simple language, exclusion of abstract explanations, consideration of religious and cultural sensibilities, and attention to dispelling mistaken beliefs about harmful practices.

For each session, a lesson plan was developed, which helped the mobilizers present the required information in an interesting manner. The story of an adolescent experiencing the particular topic was the focus of the lesson plan. Discussion was generated by asking the set questions of the lesson plans after enlightening the story. Real-life experience and relevant news from the newspaper were also placed.

To reinforce the learning, relevant graphics were shown for each topic. The graphics included pictures and drawings that censored sensitive materials. For example, the external genitalia were sketched instead of using a lively picture. To make graphics attractive, bright colours were used for all sketched pictures. Because of the sensitivity of the topics, wet dreams and menstruation were not delivered in detail in girls and boys session. Limited information was given about family planning in the lower-age group.

Training of community mobilizers: The community mobilizers were selected from the CWFD, the collaborating NGO. This training was aimed at orienting the community mobilizers about the curriculum, to explain the specific RH issues relevant to adolescents, and the process of delivering information. Both didactic and participatory methods were followed in the training that was divided into several phases.

Drama performance: Two drama groups were formed with the urban and rural adolescent girls who were also the participants of the group. The girls were selected based on their acting skills and with their parental permission. A renowned theatre group trained the selected girls. After performing a drama, an open discussion was held with the audience on the spot. It was planned to carry out the dramas in each participating ward (a cluster of rural villages or urban neighbourhoods).

Skill-training

This component was planned to start 6 months after the initiation of the group-education sessions, thus having an understanding about the stability of group. Prior to implementing the skill-training on different trades, a review was held to assess the needs of adolescents. Given the available facilities of CWFD and according to the interest of adolescents, the trades were selected, and the training was provided in groups. Expert trainers from different trade-skill training organizations provided the training. All adolescents in Group A were considered eligible for this component.

Adolescent-friendly services

As planned, the CWFD's health facilities in the Group A sites were made adolescent-friendly. The selected health facilities offer polyclinics for the general population. To make these clinics more adolescent-friendly, measures were taken to encourage a non-judgmental attitude among providers and to deal with adolescents in a friendly manner through additional training. Also clinic guidelines, relevant manuals, and booklets were given to the providers. The adolescents receiving the intervention were provided a health card so that they can be recognized as the intervention adolescents. Also registration fees were reduced for adolescents, and the service promoter of the clinic motivated adolescents to use the clinics. Monthly meetings were held with the service providers to discuss problems with providing adolescent-friendly care.

Measurement

Baseline survey: Reproductive and sexual health knowledge and practices were assessed in a multi-item questionnaire from January to February 2001. All adolescents were interviewed in their home. The interview followed a verbal consent from them and a parent or guardian. Same-sex research assistants interviewed adolescents at a time and place that was convenient to them and in confidence.

End-line survey: It was planned that the intervention effect would be measured through an end-line survey after the completion of the intervention. Adolescents included in the baseline survey were to be interviewed approximately 18 months later. The questionnaire and procedures used during the baseline survey were to be repeated in the end-line survey. It was planned that the impact of the intervention would be measured through changes in knowledge or behaviours following the 18-month intervention period.

Conduct of study

Baseline survey: Before data collection, a list was constructed of all adolescents residing within the selected wards or villages. However, because of out-migration (4%), refusals (2%), inconvenient time (9%), also marriage and ineligibility due to age, the list was insufficient, and an additional number of adolescents was subsequently

recruited with similar characteristics for interview. Also, during data collection, the interviewers faced many undue situations, for example interference of parents, refusal at the middle of interview, and shyness about RH matters.

End-line survey: Adolescents included in the baseline survey were to be interviewed in the end-line survey. During implementation, the intervention faced a high drop-out of adolescents from group activities. However, all the activities, including the end-line survey, were carried out as planned. The majority of adolescents completing the end-line survey were not included in the baseline survey. Thus, it was not feasible to assess the changes in knowledge or practices over time. We will be discussing the reasons for poor rates of follow-up in details, as they have important programme implications.

Adolescent reproductive health-education package

Community sensitization: Persuading and working with the community was seen as a challenging and critical element of this intervention. In each selected community, group meetings were held as planned before initiating education sessions. While conducting meetings, care was taken to remain consistent with cultural norms in dealing in a welcoming rather than authoritarian manner. The meetings were held at a convenient time and place selected by participants. The meetings were held several times in the selected communities (wards) whenever needed, and the duration of these meetings was 1-2 hour(s). During the community-sensitization meetings, no significant disagreements were raised, and the intervention seemed to be acceptable to the community. But problems soon arose after starting the education sessions, mainly with adolescent girls. The education sessions were started with the least-sensitive issues, which created enthusiasm. When discussing the reproductive health issues, some mothers of girls reacted, did not want their girls to be exposed to these messages, and were not comfortable about sending their daughters outside and joining a session. As a result, the project had to conduct several meetings in some places to more fully inform the mothers about the importance of exposing their daughters to sensitive issues. Meetings were needed to be held with individual parents who were reluctant to allow their daughters to participate.

Besides all the problems, the majority of the community supported the intervention, and this support became an effective means for implementing an adolescent-focused intervention. The motivated community continuously assisted in the formation of adolescent groups and group mobilization.

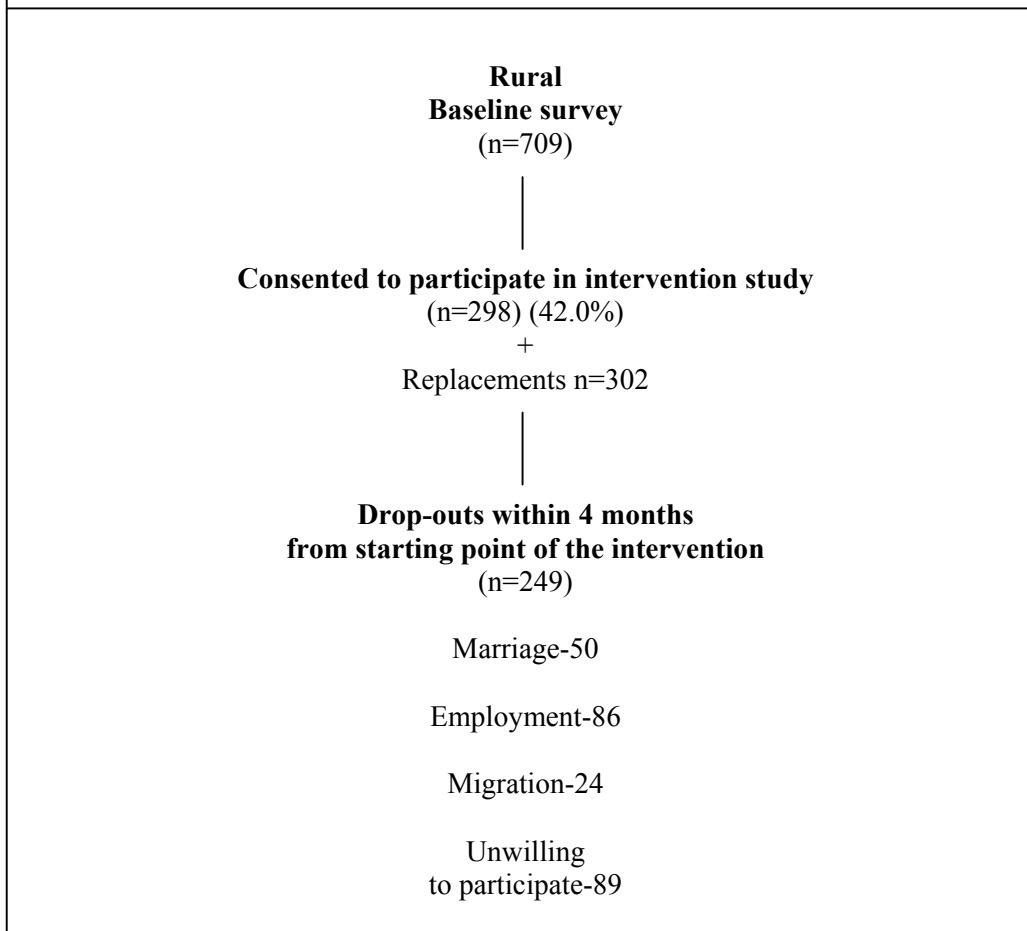
Adolescent groups (Figs. 2 and 3): The continuous drop-out of adolescents from the only health component and from the health plus developmental component was a significant and persistent problem; this occurred in urban and rural settings. The reasons for the high number of drop-out included inter-city migration, involvement in earning, marriage of girls, and competing interest.

Initially, it was planned to include adolescents in group activities who were interviewed in the baseline survey, then to measure the change in their knowledge and practices at the end-line survey. In practice, as will be seen under the Results section, a large proportion of those initially enrolled dropped out of the study. An attempt was made to replace these adolescents with new group members.

Unwillingness to continue participation in the groups arose from adolescents themselves and also from their parents. Opportunities of employment or improved accommodation in another place mainly resulted in out-migration from selected sites of Dhaka city. Marriage and pressures to marry, a regular occurrence, created a great deal of concern among girls. Some girls wanted to continue their participation in group activities after their marriage, but soon after their marriage they had to accept their new family responsibilities. As a result, they had to discontinue from group activities. Involvement in job was one of the major causes of drop-out, especially among boys. All these factors led to continuous drop-out of adolescents from group activities, resulting in great difficulties in maintaining the target numbers. Inclusion of 'replacement' adolescents in the groups was done for the first few months following the start of the group intervention. Special effort was given to newly-enrolled adolescents so that they received the full content of information that had been scheduled.

In addition to the high drop-out rate, there were other unpredictable problems. Although the time and place of meetings were arranged to be convenient for participants, girls often refused to join the session if it was held at the house of someone they did not like.

Fig. 3. Enrollment of rural subjects and subsequent participation



Continuous involvement of boys in group activities was the most struggling part of this study. Boys continuously fell behind in the programme, mainly because of their work schedule, which often runs for 10-12 hours a day. Other reasons included: (1) their involvement in some seasonal earning specially during the month of Eid festival, (2) extra-curricula activities, i.e. sports, games, (3) visiting relatives, and (4) disinterest. Adjustment of schedules for the education sessions was attempted for boys to improve their participation. For the working boys, most group sessions were needed to be conducted on holidays, and on holidays, the community mobilizers started their work in early morning, working until evenings. In some instances, the male community mobilizers had to fix the schedule on the spot. For example, whenever a group of boys was suddenly found that they were very much irregular, a spot session was held if they consented to participate. The initial criterion of 50% attendance for holding a session

was not maintained when the mobilizer realized that certain boys who regularly attended should not be penalized on account of the irregular attendance of others.

In urban areas, it was very difficult to find a large enough-sized meeting room, especially for boys' groups, and this caused additional barriers to carry out the routine education sessions. In many instances, male community mobilizers had to conduct sessions in open places, in a clinic, in a club, or on a roof. Holding sessions on time was difficult in most cases due to many reasons: boys came late, sometimes sessions could not be held due to presence of the local people in the public meeting room or of family members when it was held in a residence. At other times, sessions were needed to be terminated due to other family activities, for example collection of water, serving food, or going to work on an emergency basis.

Training of community mobilizers: Training of the community mobilizers was completed in 4 phases, and the interval between each phase was 2-3 months. The duration of each phase was determined by the complexity of topics. On average, 5-day training schedules were prepared. In addition to the scheduled training, refresher training was also organized according to the need of community mobilizers. The first 2 or 3 days of training were spent on lectures addressing individual topics and techniques of engagement and communication. On the subsequent days, the mobilizers practised their communication skills by delivering one of the session messages. This was then discussed in terms of their initiation of a session, their style of delivering messages, language used, following the lesson plan, and the accuracy of messages delivered. Pre-test and post-test evaluations of the mobilizers were conducted to determine if they had mastered the requirements.

Theatre drama: Theatre drama was performed in 10 urban and 5 rural communities on the topic of early marriage and pregnancy. Each drama lasted about one hour and was followed by half an hour open discussion with audience. The drama shows were held in open fields. Their responses helped determine whether the messages were understandable. Opinions of audience were also collected on-the-spot through random informal interviews. The audience could understand the messages delivered, and many suggested that additional topics, such as dowry and HIV/AIDS, should be the focus of subsequent performances. The community felt very enthusiastic when they saw that girls of their own communities were performing the drama.

Skill-training

In total, 147 urban and 124 rural girls received skill-training on different trades. They were offered training on sewing, cutting, block-printing, candle-making, and embroidery. Usually, the adolescents attended the training for 2-3 times a week, which was held for nearly 2 hours, and the training period lasted 3 months. Twenty urban and 73 rural boys received training on block-printing, driving, repairing of electronic goods, and poultry which are popular trades.

The developmental component could create sufficient interest among girls. However, this component was not very successful with urban boys. Some boys found that the selected trades were not related to their current jobs, and some wanted training on some other specific trades, e.g. driving and computer skills, but age and educational level were the constraints for receiving the training, resulting in enrollment of very few boys in the developmental component of the urban intervention.

It was also assumed that the developmental component would attract adolescents and maintain their continuous participation in education sessions. While conducting the intervention, this component did not serve to maintain adolescents' interest in attending health-education sessions, as was expected. At the end of the intervention, the drop-out rate of adolescents was similar in all the intervention sites, irrespective of the presence or absence of a comprehensive component.

Adolescent-friendly services

Adolescents in Group A had access to adolescent-friendly services introduced in the selected health facilities of CWFD. These are polyclinics, serving all ages. They are heavily used. The providers had difficulty in extending special attention to the adolescent clients.

Monitoring and supervision

The staff of CWFD and ICDDR,B regularly monitored and supervised. Monitoring included observation of education sessions, identification of problems, and provision of technical assistance and facilitation. A monitoring checklist included objective items, such as how many adolescents were present, reasons for absence, description of seating arrangement, problems encountered during sessions, and positive aspects of sessions. Subjective items on the checklist included whether the message was delivered correctly and followed a participatory style. Feedback was given immediately to the mobilizers to improve their teaching skills, and refresher training was arranged accordingly.

Views of adolescents about RH intervention

To obtain views of adolescents on intervention, the research officers interviewed some adolescents who participated in the intervention informally in groups and on an individual level. The females and males talked about various elements of the intervention.

Opinion about the intervention: Opinions varied a great deal. One girl said, *“At first my parents said that it doesn't look good for a girl to go outside the house. Then Julekha aunty (programme supervisor) came to our house and was able to influence my parents.”*

Initially, some adolescents were simply confused about the intervention. Because of reservation about openness of reproductive health matters in their society, they could not imagine how this type of matter will be discussed in an open forum.

A rural boys group said, *“At first we did not feel very much comfortable because the programme people from Dhaka talked very openly. We became confused about the group session. Objection also came from our family. We were confused about our joining in the education session.”*

The group of rural boys who were confused earlier about their joining commented, *“We have a lot to do, we have our shop where we spend most of our time but now we eagerly wait for one day of the week. The day when Firoz Bhai (community mobilizer) will come and teach us something about our health.”*

After active involvement in group activities, the adolescents realized the importance of the RH-education sessions. Early marriage, early pregnancy, wet dreams, menstruation, and STI/HIV/AIDS created more interest among them than other topics.

A girl stated, *“I am very pleased to join this session. Now, I know the change in my body. In the past, I was not very clear about menstruation. After learning about menstruation, I am really astonished by knowing the complex mechanism and its importance in a girl’s life.”*

The didactic lecture adopted in this intervention attracted some adolescents, especially girls who stated that open discussions on various RH issues allowed them to be more outspoken. The adolescents found the method different from institutional lecture methods. Although the use of pictures made the sessions easier to understand, some topics were difficult to understand because of the medical terms used for describing the anatomy and physiology of the reproductive organ.

Practice: The adolescents with whom we talked were all confident that they could practise whatever they had learnt. Some girls stated that they would delay their pregnancy after marriage, would negotiate with their husbands about using family-planning methods, for a healthy baby they would properly use the health facility, etc. All these things are in future tense, and they are not mature enough to foresee the difficulties of these practices.

Some girls reported that, following the session on menstruation, they added antiseptics or soap for washing menstrual cloths and then dried these in an open place when possible. Drying in an open place was not always possible due to limited space and crowding.

Usefulness of correct information

The correct information dispelled their fears and confusion about the RH issues. One boy stated, *“When I first experienced wet dreams, I could not share it with anybody, except my friends. It increased my fear, and I thought that if this continues there will be no blood in my body. This type of session is very important for us and helps get rid of fears and prevent us from wrong doing.”*

One of the married girls expressed her view about the intervention. She said that it is too late for her life, because she had already given birth and had a neonatal death. She became pregnant again, but this time she was very careful about antenatal care.

The unmarried girls emphasized the need for more coverage of adolescents in the intervention and expressed their concerns about marriage. They observed throughout the intervention period that many girls left the project due to marriage. After the completion of the education session, they strongly felt that the married adolescent girls missed important messages of married life, such as family planning, pregnancy care, and delivery.

Barriers to joining the programme

One girl reported, *“Still now, many people have a bad idea about the programme. They think that open discussion on reproductive health issue is not good. People used to say that, in the past, there was no such learning before marriage, and it does not cause any problem. So, why this type of discussion is now becoming important.”*

Some adolescents reported that the resistance emerging from parents and adults is the key barrier to the healthy practices. In some instances, the adolescents could share the reproductive health issues with their cousins and other friends who have not been enrolled in the programme, but, in some other cases, their peers were not at all interested to listening to them.

The adolescent girls strongly felt about providing reproductive health information to their parents to gain their support for healthy practices. As their parents did not receive such reproductive health information ever in life so that they still believe that life can run properly without this kind of information.

Results

Due to very low rates of enrollment (less than 20% of urban and 42% of rural adolescents) in the group interventions and subsequent high proportion of drop-outs, it was not feasible to test the impact of the interventions (Figs. 2 and 3). A comparison of the interventions would be highly vulnerable to selection bias. The results presented are based on data collected at baseline entry into the study.

Table 1 summarizes the number of adolescents initially enrolled by age groups, i.e. 13-15 and 16-19 years. The dominant religion among the survey respondents in all the areas is Islam, followed by Hinduism. More than 50% of urban and rural boys in both the areas were involved in earning money, with girls much less so.

Of the girls who participated in the baseline survey, 22% of urban and 31% of rural were married (Table 2). Most girls were married at the age of 13-15 years, and 13% of rural girls married below the age of 13 years. Half of married urban and 39% of married rural girls had experienced childbirth.

School enrollment was high among adolescents included in the survey (Table 3). In the rural sites, 58% of boys and 71% of girls were still in school. Around half of urban adolescents were in school at the time of the interview. Among boys, poverty was the most commonly-stated reason for dropping out-of-school. Around 40% of urban girls stated that poverty was the cause of drop-out and 21% stated marriage.

Age-at-menarche for most girls was 12-13 years (Table 4). During menstruation, fish/meat restriction was reported by 16% and 7% of urban and rural girls respectively. Sour food was restricted during the menstruation period among 8% and 6% of urban and rural girls respectively. Around 7% of girls mentioned that they were not allowed to go outside the home while menstruating.

The majority of boys had experienced wet dreams at the age of 14-16 years (Table 5). Although a large proportion of boys considered wet dreams as a normal phenomenon, at the same time, they believed that they required treatment.

The adolescents had a very low level of knowledge about several reproductive health matters (Table 6). For example, less than 5% of urban and around 5% of rural adolescents could identify the time of period during the menstrual cycle when a female is most likely to become pregnant. Less than 7% of urban adolescents, 5% of rural males, and 9% of rural females could correctly mention when a male becomes fertile. Adolescents were more knowledgeable about the timing of female fertility. Around one-third of adolescents were aware that pregnancy is possible having sexual intercourse once only.

Contraceptive knowledge included assessment of alternative modern contraceptive methods and their use, side-effects of oral contraceptive pills, and misconceptions regarding oral contraceptive pills and condoms. The results indicated that adolescents were familiar with oral contraceptive pills, which was more evident in rural population (Table 7). More than 50% of males knew about condoms and 33% and 39% of urban and rural females respectively mentioned condoms. Aside from oral contraceptive pills and condoms, some adolescents mentioned other modern contraceptive methods. Rural adolescents tended to be more knowledgeable about oral contraceptive pills, its side-effects, and misconceptions about oral contraceptive pills or condoms.

A higher proportion of married rural females were using a modern contraceptive method (Table 8). Oral contraceptive pill was the method of choice in both the areas, but in the urban area one-fifth were condom-users. Desire for a child was a commonly-cited reason by the married females for not using any method. 'Currently pregnant' were cited by 20% of urban and 24% of rural females as a reason for not using any method. Fourteen percent of urban and 9% of rural females were in the postpartum period (42 days after delivery).

Seventy-five percent of urban and 64% of rural boys and more than one-third of girls, overall, were aware of STIs, but when they were asked to recall the names of various STIs, knowledge of adolescents was mostly limited to AIDS. Only a few adolescents could mention the names of other STIs. The response for specific STI

symptoms was also very low (Table 9). One-third of urban males and one-fifth of urban females could mention 'use of condom' as preventive measure for STIs. Only around one-fourth of urban adolescents could mention, 'using new syringe', and 'testing blood before transfusion' as ways of preventing STIs. More than one-fifth of rural males and 14% of rural females identified 'use of condom' as a method of prevention of STIs. The response for the other two preventive measures was less than 10% among rural adolescents.

The majority of adolescents had heard about AIDS. Regarding its transmission, a higher proportion of urban adolescents mentioned 'used needles/scissors/blade', followed by 'receiving infected blood' (Table 10). More than one-fourth of urban adolescents could mention 'having sex with an infected person' as a mode for AIDS transmission. Among the rural adolescents, the responses for some correct answers regarding AIDS transmission were less than 20% while the responses for some other correct answers were less than 10%.

Some of the correct knowledge among adolescents about HIV/AIDS-related issues are described in Table 11. Around 50% urban adolescent males and females have correct knowledge on some specific HIV/AIDS-related issues. Among rural adolescents the correct knowledge level about some HIV/AIDS issues was more than 20%.

Knowledge about modern contraception and prevention of STIs was reduced to grouped categories. The highest proportion of adolescents could state 1-2 modern method(s) and 1-2 way(s) of AIDS prevention. For the prevention of STIs, adolescents, most commonly, could not recall any method of prevention (Table 12-14).

The study explored a very limited range of adolescent practices. One practice was use of health services. The data indicated that adolescents infrequently used health services. Only 7% of urban and 4% of rural females visited a clinic for reproductive health problems.

Characteristics	Urban				Rural			
	Males		Females		Males		Females	
	No.	%	No.	%	No.	%	No.	%
Age (years)								
13-15	498	49.5	549	53.5	128	36.5	211	59.4
16-19	509	50.5	478	46.5	223	63.5	144	40.6
Religion								
Islam	815	80.9	837	81.3	263	74.9	304	85.4
Hinduism	190	18.9	186	18.1	88	25.1	52	14.6
Christianity	2	0.2	7	0.7	-	-	-	-
Paid employment	545	54.5	203	20.1	188	53.6	33	9.3

Table 2. Marital status								
Marital status	Urban				Rural			
	Males		Females		Males		Females	
	No.	%	No.	%	No.	%	No.	%
Married	15	1.5	224	21.7	14	4.0	111	31.2
Age (years) at marriage								
10-12	0		0		0		14	12.8
13-15	1	6.7	128	57.1	1	7.1	78	71.6
16-19	14	93.3	74	33.0	13	92.9	17	15.6
Could not remember	0		22	9.8	0		2	1.8
Childbirth	13	1.3	105	48.2	12	3.4	43	38.7

Table 3. Schooling experiences								
School attendance	Urban				Rural			
	Males		Females		Males		Females	
	No.	%	No.	%	No.	%	No.	%
Ever attended formal school	915	90.9	912	88.5	333	94.9	240	95.5
Currently attending school	512	50.8	492	47.8	192	57.7	241	70.9
Reason for discontinuation of schooling								
Marriage	10	2.0	112	21.0	0		62	63.9
Pregnant	1	0.2	4	0.7	0		0	
To help parents	62	12.6	77	14.4	42	29.8	4	4.1
Poverty	277	56.3	210	39.3	62	44.0	13	13.4
No school/college nearby	3	0.6	7	1.3	0		1	1.0
Objection of parents/in-laws	21	4.3	19	3.6	5	3.5	7	7.2
Others	118	24.0	105	19.7	32	22.7	10	10.3
Highest grade of schooling								
Primary incomplete	325	37.5	317	35.8	74	22.6	45	13.5
Primary complete (Grade 5)	117	13.5	146	16.5	51	15.5	31	9.3
Secondary incomplete	390	45.0	405	45.7	182	55.5	236	70.9
Secondary complete (Grade 10)	35	4.0	18	2.0	21	6.4	21	6.3

Table 4. Menstrual history of females		
Menstrual history	Urban (%)	Rural (%)
Age (years) at menarche		
<12	6.8	5.7
12-13	78.6	77.2
>13	14.6	17.1
Food and activity restrictions during menstruation*		
Fish/meat	16.1	6.5
Milk	2.6	0.8
Sour foods	8.4	6.2
Reduced household chores	1.2	1.1
Cannot leave home	6.5	7.6
Restricted movement in evenings	6.8	3.7
*Multiple responses were accepted		

Table 5. Wet dreams among males				
Wet dreams	Urban		Rural	
	No.	%	No.	%
Age (years) first experienced a wet dreams				
<12	17	2.9	13	5.1
12-13	141	24.2	88	34.8
>13	425	72.9	152	60.1
Wet dreams considered normal	691	68.6	254	74.9
Treatment required	637	69.1	290	85.5

Table 6. Correct knowledge about fertility risks				
Question (correct answer)	Urban		Rural	
	Males (%)	Females (%)	Males (%)	Females (%)
Can one become pregnant after having sex one time only? (Yes)	32.3	30.1	27.6	31.5
When in the menstrual cycle is one at greatest risk of becoming pregnant? (middle of the cycle)	2.9	4.6	5.4	4.8
At what age does a female become fertile? (puberty/12-13 years)	23.2	30.9	18.2	36.0
At what age does a male become fertile? (puberty/13-15 years)	6.4	6.9	5.1	9.4

Table 7. Knowledge relating to contraceptive methods				
Contraceptive knowledge	Urban		Rural	
	Males (%)	Females (%)	Males (%)	Females (%)
Contraceptive methods recalled*				
Pill	62.2	66.7	86.0	81.2
Condom	50.5	32.6	57.8	38.8
Injectables	7.5	21.0	14.2	28.4
Norplant	0.3	3.8	1.4	11.0
Intrauterine device	0.2	2.6	0.0	5.6
Male sterilization	1.2	0.7	2.6	1.4
Female sterilization	2.5	3.5	5.7	5.9
Correct knowledge (correct answer)				
A woman must use pill everyday (Yes)	41.9	50.7	66.1	64.3
Side-effects of pill will resolve a few months after starting use (Yes)	35.4	32.6	49.3	50.6
Pill causes infertility (No)	44.9	42.9	64.7	49.4
Use of condom reduces sexual pleasure (No)	11.0	5.8	15.7	4.8
* Multiple responses were accepted				

Table 8. Current status of contraceptive methods used by married females				
Use of contraceptive methods	Urban		Rural	
	No.	%	No.	%
Currently using contraception	77	41.0	55	60.4
Type of method				
Pill	37	48.0	47	85.5
Condom	15	19.5	2	3.6
Injectables	13	16.9	5	9.1
Intrauterine device	6	7.8	0	
Safe period	4	5.1	1	1.8
Withdrawal	2	2.6	0	
Reasons not on contraception				
Pregnant	19	20.2	8	24.2
Want child	39	41.5	15	45.5
Physical problem	8	8.5	5	15.2
Fear of side-effects	7	7.4	0	0
Postpartum period	13	13.8	3	9.1
Others	8	8.5	2	6.1

Awareness of STIs	Urban		Rural	
	Males (%)	Females (%)	Males (%)	Females (%)
Aware of STIs	75.1	35.6	64.1	38.8
STIs recalled*				
AIDS	71.9	63.3	48.1	35.7
Gonorrhoea	1.7	0.3	2.6	0.0
Syphilis	4.1	0.3	1.7	0.6
Hepatitis	1.5	0.4	1.1	0.0
Reported signs or symptoms of STIs*				
Discharge from penis/vagina	1.6	0.5	2.8	1.1
Burning pain/itching in penis/vagina	3.2	0.9	8.8	0.3
Sores or warts on penis/vagina	3.1	0.7	8.8	0.6
Weight loss	20.3	11.8	17.1	3.1
Fever/feverish feeling	10.4	8.8	7.4	1.4
Don't know	43.2	44.5	27.6	30.3
Knowledge about STI prevention*				
Use of condom	34.3	19.9	22.8	13.5
Using new syringe	26.8	25.4	7.4	9.8
Testing blood before transfusion	24.2	23.7	7.4	7.0

* Multiple response were accepted
AIDS= Acquired immunodeficiency syndrome
STIs= Sexually transmitted infections

Awareness of HIV/AIDS	Urban		Rural	
	Males (%)	Females (%)	Males (%)	Females (%)
Heard about AIDS	91.5	91.8	79.4	67.1
Aware of transmission of AIDS*				
Having sex with infected person	25.9	25.7	21.9	13.2
Having sex with infected person without condom	27.0	12.2	10.3	9.6
Used needle/scissors/ blade	40.5	38.9	15.4	15.7
Receiving infected blood	28.0	35.2	16.0	12.9
Mother-newborn transmission	12.6	17.0	8.0	7.9
Prevention of AIDS*				
Faithful to partner	5.4	2.6	5.1	2.2
Avoid contaminated blood	31.3	33.8	14.0	11.8
Use of condom for every sexual act	34.6	22.5	24.5	16.6
Avoid sharing needles	37.3	35.4	12.8	13.5

* Multiple response were accepted
AIDS= Acquired immunodeficiency syndrome
HIV=Human immunodeficiency virus

Table 11. Proportion of adolescents with correct knowledge about HIV/AIDS

Questions (correct answers)	Urban				Rural			
	Males		Females		Males		Females	
	No.	%	No.	%	No.	%	No.	%
One can always diagnose a STI patient by external observation (No)	562	55.8	509	49.4	93	26.5	95	26.7
Healthy-looking people can be infected by HIV (Yes)	627	62.3	571	55.4	189	53.8	127	35.7
One can be infected with HIV first time if he or she has sex (Yes)	770	76.5	818	79.4	225	64.1	191	53.7
Women with HIV+ can give birth to a child with HIV (Yes)	774	76.9	823	79.9	215	61.3	168	47.2
AIDS is curable in some cases (No)	477	47.4	535	51.9	87	24.8	80	22.5
AIDS could be transmitted through sharing utensils with an AIDS patient (No)	462	45.9	535	51.9	77	21.9	99	27.8
AIDS =Acquired immunodeficiency syndrome HIV=Human immunodeficiency virus STIs=Sexually transmitted infections								

Table 12. Knowledge about types of modern contraceptives (range 0-7)

MC method recalled	Urban		Rural	
	Males (%)	Females (%)	Males (%)	Females (%)
0	34.8	31.8	13.4	18.5
1-2	56.6	51.1	73.8	58.1
3-5	8.6	16.8	12.8	22.5
6-7	0	0.3	0	0.8
MC=Modern contraceptive				

Table 13. Knowledge about prevention of STIs (range 0-3)				
Correct ways of preventing STIs recalled	Urban		Rural	
	Males (%)	Females (%)	Males (%)	Females (%)
0	51.3	62.0	72.9	80.9
1-2	36.8	29.8	24.2	15.7
3	11.8	8.2	2.8	3.4

STIs=Sexually transmitted infections

Table 14. Knowledge about prevention of HIV/AIDS (range 0-4)				
Correct ways of preventing HIV/AIDS recalled	Urban		Rural	
	Males (%)	Females (%)	Males (%)	Females (%)
0	0	0	0	0
1-2	40.2	51.7	67.8	72.6
3-4	59.8	48.3	32.2	27.4

AIDS=Acquired immunodeficiency syndrome
HIV=Human immunodeficiency virus

Discussion

Undoubtedly, the most important outcome of this study was the difficulties faced in attempting to implement an adolescent reproductive health intervention in the participating communities. Enormous efforts were made to enhance the participation of adolescents in the planned interventions. Despite these efforts, a relatively small proportion of adolescents is willing to participate. Furthermore, among those who agreed or were subsequently recruited, participation was erratic, incomplete, and subject to high drop-out rates. Given these observations, it has led us to question the feasibility of adolescent group interventions and who are targeted to be reached. Clearly, the poorest and those entering into early marriage will not be reached. The results of the study also bring into question the validity of anecdotal reports from numerous NGOs working with adolescents. It is likely that they are working with the most highly-motivated segment of the adolescent population--those least in need of the interventions.

Analysis of the baseline dataset allows for an updated description of the current levels of knowledge about and practices relating to reproductive and sexual health among adolescents in rural and urban settings. These are discussed below.

Schooling, employment, and marriage: Despite the encouraging upward trend in enrollment in schools, the country is also experiencing high drop-out rates. This is evident from the findings of the baseline survey, which is comparable with the BDHS data. The reported reasons for dropping out are particularly relevant. A large proportion of boys are entering into income-generating activities at a very young age, contrary to regulations in the Bangladesh labour law. A large proportion of girls continue to enter into marital life prior to the legal age of 18 years. Even more worrisome is that 13% of rural girls were married at a very low age i.e. below 13 years. This not only reduces their opportunity for an education, it also adversely affects future opportunities and economic independence.

Reproductive knowledge and practice

Puberty

Although not a very high proportion of females reported about any restriction during menstruation, the results of the baseline survey showed that some specific food and movement restrictions exist during the menstrual period. These conditions surrounding menstrual management indicate that normal life of adolescents is constrained during this natural phenomenon. Another issue that influences healthy life of males is 'wet dreams'. Concerns of males regarding treatment need for wet dreams were a warning of future consequences from unhealthy practices. Evidence suggests that fears and concerns regarding wet dreams among boys lead them to seek treatment from traditional healers, who virtually do not have any remedy for its cure [7].

Fertility and family planning

Another concern was the low knowledge level of adolescents relating to fertility. Adolescents actually fail to identify the timing of becoming pregnant in between a menstrual cycle. This lack of knowledge tends to make adolescents more vulnerable to unplanned pregnancy and its consequences. Education, service provision, and campaigning of family planning specifically targeting women are reflected in the high knowledge level of adolescents relating to oral contraceptive pills. But, on the contrary, the modern contraceptive prevalence rate among married adolescents was low compared to adults. Many factors influence the use of contraception by married adolescent girls. One of them is misconception that exists. The baseline survey results showed that a large proportion of adolescents knew that pill causes infertility, which may act as a barrier to practising contraception. Additionally, misconception or lack of knowledge about condom may prevent or reduce the involvement of male in bearing the responsibilities of birth control, which is supported by the results of the baseline survey of this study and BDHS, 1999-2000 showing oral contraceptive pill as a method of choice among married females.

Childbearing in an adolescent period has negative impact on various issues: due to early childbearing, the growth rate of global population increases, and a female also

becomes more vulnerable to maternal mortality because of their susceptibility to pregnancy-related complications. But, in Bangladesh, 35% of adolescent females have begun their childbearing. The baseline survey also found pregnancy, desire for a child, and postpartum period as reported causes for not using a family-planning method. To improve life of married adolescent females, the existing services targeting adolescents should specifically emphasize on pregnancies of adolescents.

Sexually transmitted infections and HIV/AIDS: For behavioural and biological reasons, STIs are highly prevalent among adolescents. Evidence showed that HIV infection/AIDS was two times more frequent among women aged 15-24 years than among males of equivalent age in Kenya. Data also showed that rates of infection were greater among younger than among older women [8]. Low levels of knowledge regarding STIs place adolescents at an elevated risk. Adolescents included in the baseline survey had a higher knowledge about AIDS than STIs. The very limited knowledge of STIs other than AIDS observed in the baseline survey indicates that a national campaign addressing STIs and AIDS would be beneficial.

Community sensitization: Support of adults in a position to influence interventions, which directs at adolescent development and practices, is essential. In this study, influential adults assisted the implementation of the interventions in multiple ways. Initially, it was thought that a single orientation session with parents and local elites would be adequate. In practice, however, these had to be repeated on several occasions. The resistance raised in different steps of implementation indicates that involving adults is critical, but also challenging. Traditional beliefs and practices are the barriers to the introduction of reproductive health interventions, especially those targeting adolescents. Prior to implementing an adolescent programme, the first target should be the community leaders, then parents of adolescents, and then the actual target group, i.e. adolescents.

Adolescent-friendly services: The low rate of health-facility use by adolescents found in the baseline survey does not indicate that adolescents do not have reproductive health problems. Various studies have found that use of health services by adolescents depends on many inter-related factors. Youths delay or avoid seeking reproductive health services unless confidentiality is assured. Lack of knowledge about confidentiality acts as a barrier to healthcare use [9]. In addition, they do not want to expose their reproductive health problems in front of others, such as polyclinics where the health facility is also tailored to adults. In this study, adolescents reported that they found the service difficult to use because it is targeted to adult women [4]. This study attempted to make a few, selected health facilities adolescents-friendly by providing orientation and training on adolescent issues to service providers. Although the service providers recognized adolescent issues as special, problems were nonetheless observed in addressing an adolescent client in a 'friendly' manner. In part, this was attributed to the heavy workload and polyclinic structure.

Peer groups: As mentioned, the effectiveness of the interventions could not be assessed because of the poor initial rates of enrollment and unexpected attrition of adolescents from the planned group activities. Even among those who participated, groups were poorly attended, especially by boys. Before implementation of the study, the feasibility of the planned strategy was not tested. Such an assessment would have alerted the research team and programmers to potential problems. At the design phase, the interventions were carefully developed and were based on prior research carried out at ICDDR,B and elsewhere in Bangladesh. In this study, we based on planning on good logic and assumptions, but that is not enough. Pre-testing of the intervention strategies should always be considered as a cut-off rule.

Skill-training: It was hypothesized that integrating skill-training into the education component would attract and increase participation of adolescents in health-education session. This does not appear to have happened. Irrespective of group assignment, high rates of attrition occurred. Prior to introducing this type of skill-training, adolescents need to be surveyed to identify what they want and what would generate the greatest interest.

Drama: Drama was included with the intention to enhance community awareness of issues relating to adolescent reproductive health. We observed tremendous enthusiasm for this form of awareness building in communities. The study was not able to ascertain what impact drama had on participation rates or knowledge and practice outcomes.

Limitations of the study

The research team partnered with only one NGO. Therefore, the findings may not be generalizable for all NGOs in Bangladesh working with adolescents. The drop-out rate was extremely high, and only a minority of subjects could be followed for the duration of the study. The total length of participation of individual adolescents in the peer group-education sessions was not documented.

Conclusions

Knowledge: The baseline survey indicates that adolescents are poorly informed about many, if not most, reproductive health issues. There also exists important misconceptions regarding menstruation and wet dreams.

Marriage and pregnancy: Marriage of girls during the adolescent period remains common. The baseline survey also showed that married adolescent females started or wanted to start their childbearing soon after marriage.

Community sensitization: Adult concerns regarding adolescent reproductive health often acted as great barriers to reaching adolescents. It will be extremely difficult to work with adolescents without their support.

Feasibility: The feasibility of providing information through peer groups remains questionable. The complexity of following adolescents for more than a year needs to be carefully considered prior to implementing a reproductive health intervention in community settings.

Adolescent participation: Attention needs to be paid to the ability of adolescents to understand, retain, and act upon information and creating interest among them towards an education programme.

References

1. Mitra SN, Al-Sabir A, Saha T, Kumar S. Bangladesh demographic and health survey 1999-2000. Dhaka: National Institute of Population Research and Training, 2001.
2. Population Council. Study of adolescents: dynamics of perception, attitude, knowledge and use of reproductive health care. Dhaka: Population Council, 1997.
3. Bangladesh. Ministry of Health and Family Welfare. Directorate General of Health Services. HIV in Bangladesh: where is it going? Dhaka: AIDS and STD Control Programme, Directorate General of Health Services, Ministry of Health, Government of Bangladesh, 2001.
4. Nahar Q, Tunon C, Houvras I, Rukhsana G, Reza M, Huq NL, Barkat-e-Khuda. Reproductive health needs of adolescents in Bangladesh: a study report. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1999. (ICDDR,B working paper no. 130).
5. Ali A, Mahmud SN, Karim F, Chowdhury A. Knowledge and practice of NFPE-AG graduates regarding menstruation. Dhaka: Bangladesh Rural Advancement Committee, 1996.
6. Ahmed S. Behavioral aspects of reproductive health among poor adolescent female in Dhaka, Bangladesh. London: London School of Hygiene & Tropical Medicine, 1991. (MSc thesis)
7. Kabir R. Adolescent boys in Bangladesh. Dhaka: United Nations Children's Fund, 2002.
8. Zabin LS, Kiragu K. The health consequences of adolescent sexual and fertility behavior in sub-Saharan Africa. *Stud Fam Plann* 1998 Jun;29(2):210-32.
9. Gans JE, Mcmanus MA, Newacheck PW. Adolescent health care: use, costs, and problems of access. V. 2. Chicago, III: American Medical Association, 1991.