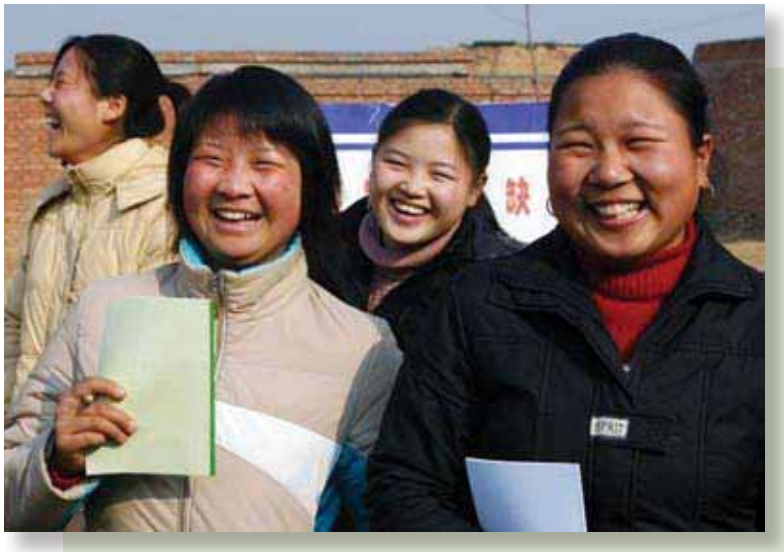

Evaluation of the Impact of Life-Planning Skills Training Among Senior High School Students in Shangcai County

Shanghai Institute for Planned Parenthood Research

China Youth Reproductive Health Project
CFPA and PATH

August 2005

China Youth
Reproductive Health Project

PATH
A catalyst for global health

CFPA
China Family Planning Association

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Executive Summary

Purpose

The study was designed to evaluate the impact of sexual and reproductive health education using life-planning skills (LPS) training among senior high school students in Shangcai, a county with high HIV prevalence in China.

Methodology

The study was conducted in three senior high schools of Shangcai County with comparable sociocultural, economic, and demographic characteristics. Two of the schools were used as intervention sites and one was the control site. Program staff conducted a three-month LPS training course among all grade one students in the Second and Third Senior High Schools of Shangcai County; half of the students in these two intervention schools also received peer education at the same time. The Fourth Senior High School was the control site, which did not have any interventions from program staff. The program researchers conducted the baseline survey in the three sites prior to the intervention, and a similar survey was conducted in the same three sites three months after the intervention was initiated. To evaluate the effect of the intervention program the researchers collected data through questionnaires, focus group discussions, and in-depth interviews. They compared the results of the survey between the intervention and control groups, and between the baseline and end line surveys to evaluate a) the impact of the LPS training course on the status of sexual and reproductive health of adolescents, particularly the knowledge, attitudes, skills, and behaviors about HIV prevention; b) the difference of acceptability and effect between LPS training alone and LPS training coupled with peer education; c) the impact of peer education on the peer educators' knowledge, attitudes, skills, and behaviors.

Result

The median score of reproductive health knowledge was higher in the intervention group (55.66) than in the control group (38.68). For nearly all the questions on knowledge of reproduction, contraception, and sexually transmitted infections, including HIV and AIDS, the respondents' correct answer rates in the intervention group were significantly higher than those in the control group. The attitude of the students in the intervention group toward people living with HIV and AIDS also showed significant improvement after the intervention. More students from the intervention group were able to accept being around people living with HIV and AIDS. Students from the intervention group were also more comfortable with the developmental changes they were going through. In the end line survey, 92.7 percent of the students in the intervention group suggested that adolescent sexual and reproductive health (ASRH) education should be carried out among all middle school students in Shangcai County. Compared with those who only received LPS training, the combination of LPS training and peer education had a greater impact on students, and peer educators benefited from their role. Multivariate analysis indicated that friends and family had a significant effect on students' ASRH knowledge, attitudes, and behaviors.

Conclusion

Three months of short-term ASRH education through LPS training can significantly increase students' ASRH knowledge and result in more positive attitudes toward people living with HIV and AIDS. AIDS-related reproductive health education should be conducted in areas of high HIV prevalence. In addition, students in the intervention group tended to report reduced intimacy behaviors.

Suggestion

Results of this study indicated that participatory LPS training and peer education should become normal methods for sex and reproductive health education in rural areas, especially those with high HIV prevalence. Behavior change merits further study. Youth reproductive health education needs support from schools, families, and society.

Key words

High school students, sexual and reproductive health education, AIDS, life-planning skills, adolescents, China

Acronyms

AIDS	Acquired immune deficiency syndrome
ASRH	Adolescent sexual and reproductive health
CFPA	China Family Planning Association
CMH	Mantel-Haenszel Chi-Square
FGD	Focus group discussion
FPA	Family planning association
HIV	Human immunodeficiency virus
IDI	In-depth interview
LPS	Life-planning skills
PATH	Program for Appropriate Technology in Health
SRH	Sexual and reproductive health
STI	Sexually transmitted infection
YRH	Youth Reproductive Health

1. Background of county and project

In the mid 1990s, many poor Chinese farmers earned money by donating plasma in Shangcai County, Henan Province. Local agencies collecting blood only needed blood plasma; they drew blood, separated blood cells from plasma by using a centrifugal machine and reinfused the blood cells to the donors. As is well known, red cells carry oxygen. Through the re-infusing process, a donor's oxygen supply can be ensured even if he/she donated plasma many times during a short period. During the procedure, the instruments for drawing blood did not always meet medical hygiene standards. For example, needles were used more than once and scissors and forceps were not sterilized. For convenience sake, one donor was given another's blood cells when they were both of the same blood types.1. These hazardous procedures facilitated HIV transmission. To date, about 10,000 people have been diagnosed as HIV positive in the county.

In the past, Chinese schools paid little attention to providing sexual and reproductive health (SRH) education. Additionally, young people living in rural areas had even less chance to get SRH education than those in urban areas because of their communities' more conservative attitudes towards sex.

As the county began to see a large outbreak of HIV/AIDS cases, local residents—including adolescents—did not know how to treat people diagnosed with HIV/AIDS or their families. Fear caused by insufficient knowledge had a negative impact on local residents' daily lives and also caused people with HIV and AIDS to be discriminated against and neglected.

Shangcai County is one of the rural field sites of a large-scale, five-year adolescent project—the China Youth Reproductive Health Project (YRHP)—launched by the China Family Planning Association (CFPA) and Program for Appropriate Technology in Health (PATH) in 2000. The project is being conducted in 12 cities and three rural counties of China and aims to help improve sexual and reproductive health of youth aged 10 to 24 years old. The project has four main objectives: increasing youths' reproductive health knowledge and skills; improving access to youth-friendly reproductive health services; creating a supportive environment for youth reproductive health; and building CFPA's capacity to carry out youth projects.

In Shangcai County, local project staff highlight issues of HIV prevention and stigma in order to create positive attitudes and a supportive environment for people living with HIV and AIDS. After initial preparations and mass media campaigns, the project was initiated in Shangcai County in May 2001. With the cooperation of the local family planning association (FPA) and education committee, many related activities had already been carried out in addition to and in order to implement successful life-planning skills (LPS) education. Relevant activities included publicizing the importance of sex education for adolescents and highlighting project activities and messages using mass media and event outreach, building a special project management group, training teachers to become LPS facilitators, and enhancing FPA's ability to cooperate with other associated departments. Program staff first conducted LPS sessions among 59 adolescents in two pilot schools. By 2003, because of the previous project activities mentioned above, Shangcai County had a positive social environment and responsive community officers and leaders for ASRH. Program staff revised the LPS training process and content based on feedback from teachers and students in the pilot schools and then rolled out the revised training to additional schools.

2. Objectives of the study

In order to assess the effectiveness of this SRH education project, the project evaluators selected three schools in which to carry out this evaluation.

The general objective of the study was to evaluate the impact of SRH education with the main strategy of LPS training among senior high school students in Shangcai, a county with high HIV prevalence.

The specific aims of the study were to:

A. Evaluate the impact of an LPS training course on adolescent sexual and reproductive health (ASRH), particularly the knowledge, attitudes, skills, and behaviors surrounding HIV prevention.

B. Compare the acceptability and effect of LPS training facilitated by teachers to LPS training coupled with peer education activities.

C. Evaluate the impact of peer education on the peer educators' knowledge, attitudes, skills, and behaviors.

3. Methodology

This is an intervention study about ASRH education among grade one students of three senior high schools. The selected schools had similar student academic levels. Among these three schools, the Second Senior High School and the Third Senior High School were selected as the intervention sites, while the Fourth Senior High School of Shangcai County was selected as the control site. In the study's first year, all the students in the intervention schools participated in LPS training using participatory methods for three months (October-December 2003). The LPS training activities covered nine topic areas: adolescent development, STI prevention, HIV/AIDS prevention, relationships and communication, values clarification and decision-making, reproduction and contraception, sexuality, planning for the future, and drug abuse prevention. In addition to LPS sessions in the classroom facilitated by teachers, peer educators conducted activities in half of the classes of the two intervention schools. Peer education also covered most of the LPS training content. In the Second Senior High School, students from 21 grade one classes participated in LPS sessions and ten of those classes also received peer education. In the Third Senior High School, students from four grade one classes participated in LPS training and two of these classes received peer education.

On September 15, 2003, in order to ensure the quality of education, the FPA of Shangcai County held a work plan meeting with the two intervention schools and related departments. At the beginning of October, 28 young teachers from the two intervention schools attended a five-day participatory training workshop. Those selected were chosen because they had superior communication skills. The workshop covered the nine LPS training topics. Another 37 students were selected from the two intervention schools according to the criteria for peer educators. This group received a two-day training at the beginning of December 2003, which also covered the nine LPS training topics. The criteria for peer educators included: being active, having public speaking skills and the ability to organize students, and being popular among students. Twenty-seven peer educators

were selected from the Second Senior High School, with one to four students in each class. Ten peer educators were selected from the Third Senior High School, with two or three students in each class. To make sure the training courses were effectively carried out, FPA principals organized practice facilitation sessions of the nine training topics and the team(s) adjusted course content to reflect local circumstances as appropriate. In each intervention school, a vice principal was responsible for the course and the intervention's supervision.

After the training workshop, 22 teachers in the Second Senior High School were divided into 11 groups (two persons per group). Each group was responsible for a topic and its related activities for 90 minutes a week. By the end of 2003, students from 21 grade one classes had received training on the nine topic areas. In addition, 27 peer educators had organized discussions in ten classes involving the following five topics: HIV/AIDS prevention, drug abuse prevention, relationships and communication, sexuality, and planning for the future. Peer education was carried out for a period of two weeks, and each topical activity lasted 45 minutes. In the Third Senior High School, six teachers were responsible for training four classes. They were also assigned to two-person facilitator teams and carried out LPS training for 90 minutes a week. All students in grade one received training on the nine topics. In addition, ten peer educators facilitated training courses for two classes on the following topics: HIV/AIDS prevention and interpersonal communication. Additionally, four leaflets were disseminated to students in the intervention schools, which contained key information from the LPS sessions about puberty physiology and psychology, sexually transmitted infection (STI)/HIV prevention, the consequences of premarital sex, learning how to say "no," and healthy decision-making. No ASRH education was provided to the students in the control group.

The baseline survey was conducted in study sites before the intervention started in September 2003. The post-intervention end line survey was conducted in December 2003. In all, 1,178 and 1,101 students were involved in the baseline and the end line surveys respectively, including students of four classes selected through random cluster sampling in the Second Senior High School, students of four classes in the Third Senior High School, and students from eight classes in the Fourth Senior High School. Researchers gathered a total of 1,174 baseline and 1,100 end line completed questionnaires. The questionnaire was designed based on a literature review and similar surveys developed domestically and abroad. Before finalizing the questionnaire it was pilot tested in the First Senior High School of Shangcai. The major contents of the baseline questionnaire included: basic information, family background, knowledge about reproductive health, attitudes toward ASRH issues, HIV/AIDS-related knowledge and opinions, personal development and sexual behaviors, sexual education and counseling services in school. The end line questionnaire was similar to the baseline questionnaire but included questions on students' involvement in intervention activities and their assessment of the activities. For each of 64 questions regarding knowledge of adolescent development, reproduction, contraception, and STIs/HIV in the questionnaire, correct answers were credited with a score of one and incorrect answers received zero credit. Then the sum of each question's score was converted into a new score, with the maximum of 100.

To better understand the effects of the intervention and the factors influencing these, the researchers conducted a qualitative survey (including focus group discussions [FGDs] and in-depth interviews [IDI]) among target subjects and related people in the intervention school. The study included ten FGDs, with eight to ten people in each group. Among them, four FGDs were with teachers; two groups who facilitated LPS training and two groups of teachers who did not. Four FGDs were held with students: one group of boys and one group of girls in each school. There were also two FGDs with parents of intervention group students. The main discussion topics included comments and attitudes about the ASRH education project, the perception of change in students, and assessment of the YRH project. IDIs were conducted among 15 people including officers of related departments, principals of the intervention schools, peer educators, and other students to collect further information on the intervention's implementation and assessment. To ensure a more in depth assessment, the researchers also collected other documents including teaching plans, schedules of LPS sessions, and detailed records of activities.

The data was first hand checked and then coded and entered into a computer. The data file was set up using EPI INFO software and analyzed by Chi-square test, one-way ANOVA test, as well as W-M-W test and Logistic regression using SAS 8.01 software. The qualitative data was written by hand and tape-recorded. After checking and supplementing, the record was entered into a computer and the results were combined with those from the quantitative survey.

4. Results

4.1 Evaluation of the effectiveness of LPS training

Respondents' characteristics

At baseline, the average age of respondents was 16 years old, and there were more male than female respondents—58.09 percent were male (682) and 41.91 percent were female (492). The intervention group and the control group had similar family backgrounds. While students from the control group tended to be slightly older and have poorer academic standing than those in the intervention group, the differences in age and academic performance were not significant. Most of the students' parents were farmers with educational levels of middle school and below. The majority of the students came from middle-income rural families. In the end line survey, students' age, academic performance, and their perceived care from mothers increased in both groups. There were no other significant differences in the groups' characteristics.

Involvement in and assessment of interventions

Among 659 students who participated in the end line survey from the intervention group, 76.13 percent could correctly identify the YRHP logo. Ninety-five percent reported they had received ASRH education. Among that 95 percent, 86.04 percent reported participating in a session on planning for the future; 88.77 percent said they participated in the sessions on values clarification and decision-making and on reproduction and contraception; and over 90.74 percent had participated in the other six LPS training topics covering adolescent development, relationships and communication, sexuality, STI prevention, HIV/AIDS prevention, and drug abuse prevention. These sessions were facilitated by teachers according to 66.01 percent of intervention group respondents and 76.03 percent reported that the sessions were very useful. According to the answers from students of the intervention group in the

end line survey, training courses facilitated by teachers, lectures held by experts, and peer education were methods students preferred for receiving sexual health information. Students in the intervention group reported wanting more information on developing interpersonal relationships, AIDS prevention, and planning for the future. About 83 percent reported that they had received the different leaflets. Among them, 73.39 percent had read most of the materials, and among those who had received the leaflets, 82.68 percent affirmed the contents were very useful. Of those who had participated in LPS sessions, 43.61 percent had shared what they had learned from YRHP with their parents, relatives, neighbors, and friends. In the end line survey, 92.70 percent of the students in the intervention group suggested that SRH education for adolescents should be carried out with all middle school students in Shangcai County. There was no significant difference in the students' evaluations of the interventions between the two intervention schools (Table 4.1.1).

Knowledge

Reproductive health knowledge

At baseline, the median scores on reproductive health knowledge of the intervention group were similar to those of the control group; there was no significant difference for knowledge scores between the groups. Knowledge levels were low among all participants that were surveyed. The total median score (total possible=100) was only 34.91—knowledge about contraception was only 13.64, while knowledge about AIDS was higher at 51.52. The difference between the two groups' scores was statistically significant in the end line survey (W-M-W test, $P<0.05$), with students from the intervention group scoring higher than those from the control group. The total score of the intervention group rose to 55.66—median contraception scores increased to 29.55 and AIDS scores rose over 27 points (Chart 4.1.1).

Knowledge of reproduction and adolescent development

At baseline there were no significant differences between the two groups for any question on knowledge of reproduction and adolescent development. The correct answer rates on the questions of adolescent physical development varied from 27.00 to 91.99 percent. There were rather low correct rates to questions on reproduction. Only 7.76 percent of the students knew when during the month women are more likely to become pregnant. In the end line survey, 23.20 percent of the intervention group answered that question correctly. In the end line survey, the intervention students' correct answer rates to other questions were significantly higher than the control group except for the two following questions: "Do boys and girls enter the puberty at the same time?" and "Do only boys masturbate?" (Chart 4.1.2)

In the end line survey, there were more students in the intervention group who were aware of common contraceptives than in the control group. The correct answer rates to questions

Chart 4.1.1. Median scores of reproductive health knowledge

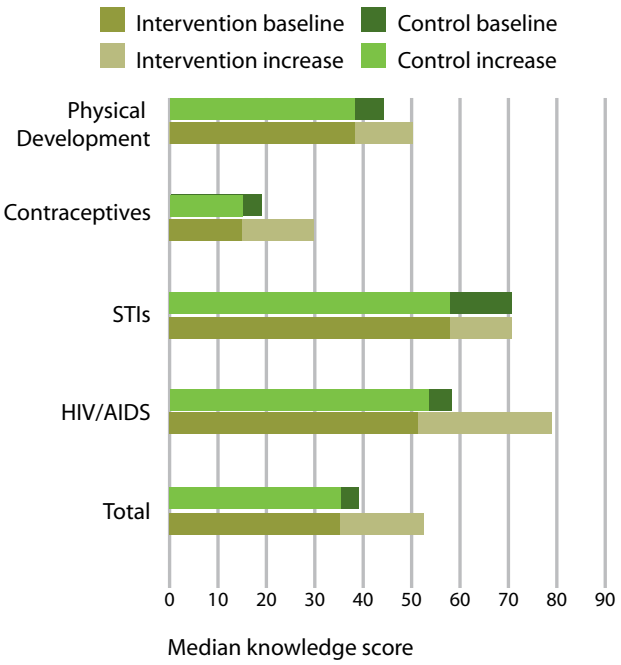
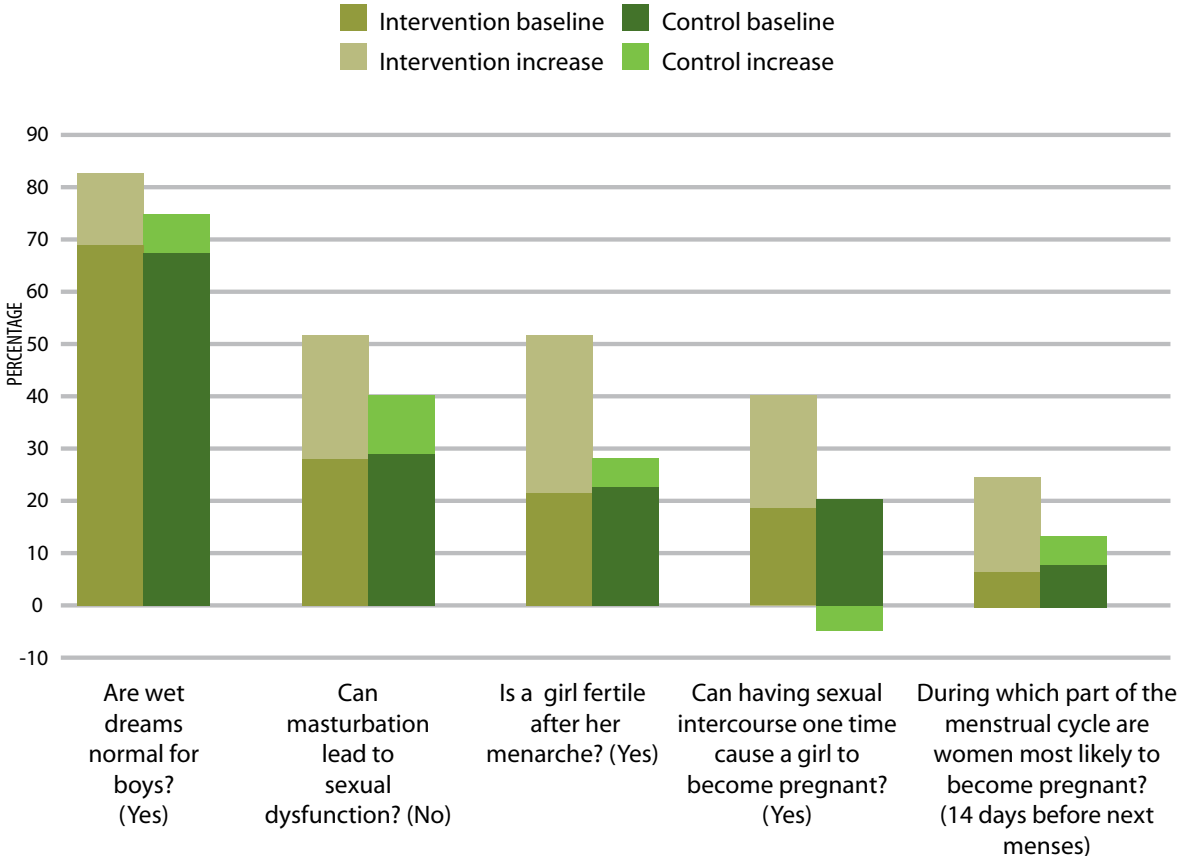


Table 4.1.1. The percentage distribution of participant's assessment of interventions

Intervention assessment	Total (n=659)	The Second Senior High School (n=432)	The Third Senior High School (n=227)	P
Curriculum				
Very useful	31.11	32.87	27.75	0.5435
Useful	44.92	42.59	49.34	
Repeated	20.79	21.53	19.38	
Impractical	3.19	3.01	3.52	
Pamphlets				
Read most or all	73.39	69.13	81.04	0.0006
Partly interested	9.66	9.50	9.95	
Simply browsed	14.41	18.73	6.64	
Not at all interested	2.54	2.64	2.37	
Materials				
Very useful	32.09	27.70	40.00	0.0006
Useful	50.59	51.45	49.05	
Already know information	4.75	6.33	1.90	
Not useful or not needed	12.56	14.51	9.05	
Teachers who facilitated sessions*				
Excellent	15.74	13.65	19.73	0.4325
Good	51.54	51.53	51.57	
Average	22.69	26.12	16.14	
Poor	3.70	3.76	3.59	
Unknown	6.33	4.94	8.97	
Peer educators*				
Excellent	12.81	12.00	14.35	0.3289
Good	42.28	38.82	48.88	
Average	24.54	27.76	18.39	
Poor	9.10	10.12	7.17	
Unknown	11.27	11.29	11.21	
Is it necessary to carry out this type of education in Shangcai County?				
Yes	92.70	92.69	92.73	0.9858
No	7.30	7.31	7.27	

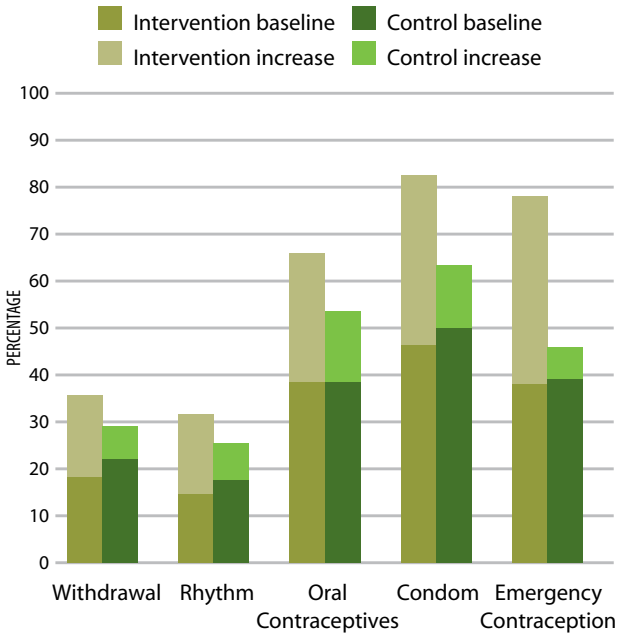
Note: Nonsequential variables tested by Pearson Chi-square. Sequential variables tested by CMH Chi-square.
* : Sequential variables.

Chart 4.1.2. The proportion of correct answers on questions of reproductive knowledge (%)



about the effectiveness of oral contraceptives and condoms were also higher among the intervention group than among the control group. Students in the intervention group knew three contraceptive methods on average compared with one at baseline. After the intervention, nearly half of the intervention students knew condoms could be used to prevent STIs and HIV/AIDS, and the proportion of those aware of condoms and oral contraceptives rose to 82.49 percent and 65.85 percent respectively (Chart 4.1.3).

Chart 4.1.3. The proportion of awareness of contraceptives



Knowledge of STIs

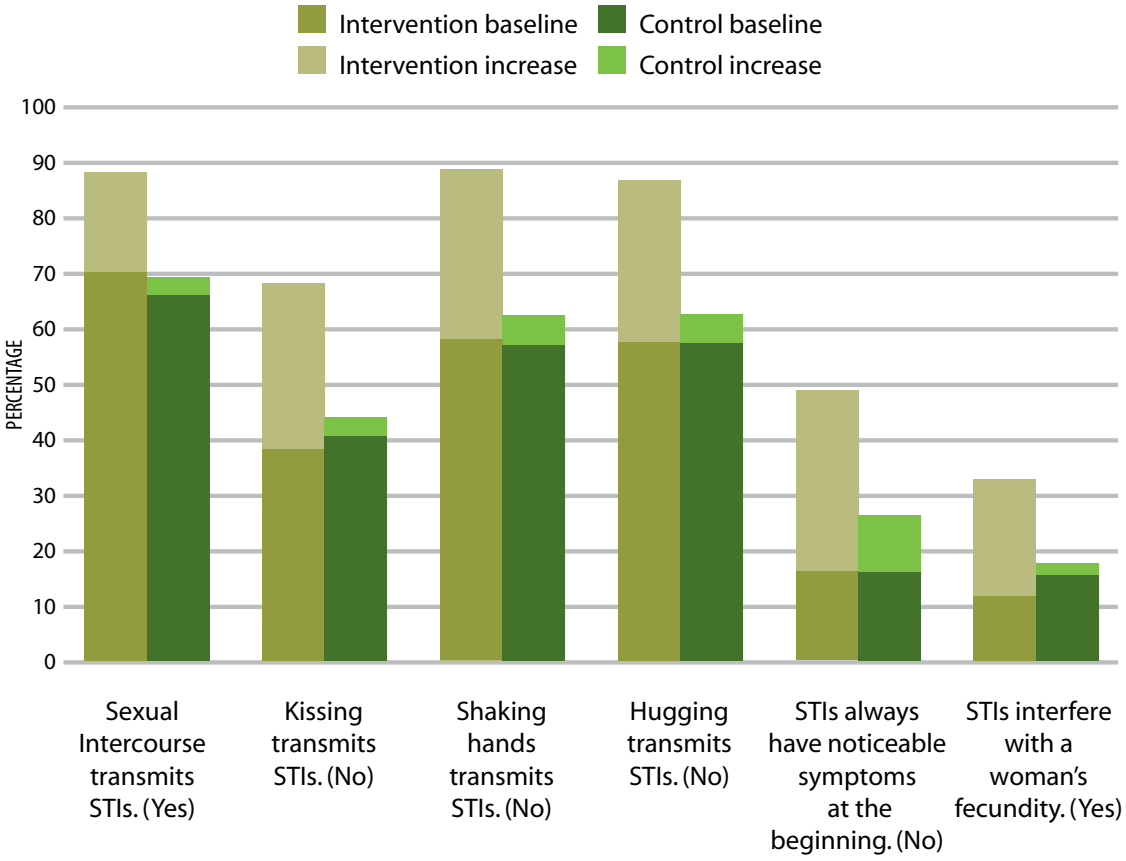
At baseline, there was no significant difference of knowledge of STIs between the intervention group and the control group. Overall, 76.50 percent of the students had heard of STIs, and 68.06 percent knew that STIs can be transmitted by sexual intercourse. Only

13.32 percent knew that STI infection might interfere with a woman's fecundity in later life. In the end line survey, for all of the questions on knowledge of STIs, correct answer rates among those in the intervention group were significantly higher than those in the control group. In the intervention group, 87.80 percent knew that STIs can be transmitted by sexual intercourse and 32.42 percent knew that the STIs might have a negative influence on woman's fecundity in later life (Chart 4.1.4).

Knowledge of HIV and AIDS

At baseline, knowledge levels about AIDS were similar in both groups. Students had a high awareness of AIDS (over 90%). Most of them understood the main ways that HIV is transmitted, but they also had misconceptions of how HIV is transmitted. For example, 76.21 percent of students did not know whether insect bites could transmit HIV. Only one-fifth of the respondents knew that "a person who has been infected with HIV cannot be easily diagnosed within one week of infection. HIV can be detected only after a necessary period." In the end line survey, the respondents' correct answer rates in the intervention group significantly increased compared with the control group. Over 93.16 percent of the intervention group knew the main ways HIV is transmitted, over 85.54 percent knew HIV could not be transmitted by insect bites, and 66.57 percent knew HIV could not be detected within a week of infection. Students in the intervention group knew three ways HIV can be transmitted compared with one at baseline. Students' correct answer rate to the question "Can people be infected with HIV through blood transfusions?" in the intervention group was 9.40 percent higher than in the control group. In addition, students' correct answer rates to other questions on AIDS in the

Chart 4.1.4. The proportion of correct answers on STI questions (%)



intervention group were significantly higher than those in the control group, the difference between two groups was over 13.89 percent (Chart 4.1.5).

Knowledge sources and multivariate analysis of factors affecting reproductive knowledge. At baseline, students reported that their main sources of sexual and reproductive health information included magazines (72.32%), television/radio/newspapers (60.05%), and friends/classmates (38.67%). Notably, 20.36 percent of respondents mentioned pornographic video/novels. The leading source of information on HIV was media (73.85%), followed by magazines (55.96%) and information campaigns (46.08%). Nearly 70 percent of baseline respondents realized they had little knowledge about AIDS, and 26.23 percent thought they lacked information on AIDS.

A stepwise logistic regression was conducted to analyze factors related to respondents' knowledge at the end line with the scores of respondents' reproductive health knowledge divided into four groups with lower quartile, median, and upper quartile as ordinal dependent variable. The results showed that students who were exposed to the intervention who were male, who had watched pornographic videos, who had asked parents ASRH questions and talked about ASRH questions with others, who perceived the care they received from their mother was very good, who spent more spare time watching TV/reading newspapers/listening to radio, and whose mother was better educated tended to have a higher knowledge score (Table 4.1.2). In the model, the variable "group" indicates the possible effect on knowledge, attitudes, and behaviors caused by the difference in basic characteristics between the intervention and control groups. "Time" shows the effect caused by the duration from baseline to end line. In

Chart 4.1.5. The proportion of correct answers about HIV transmission (%)

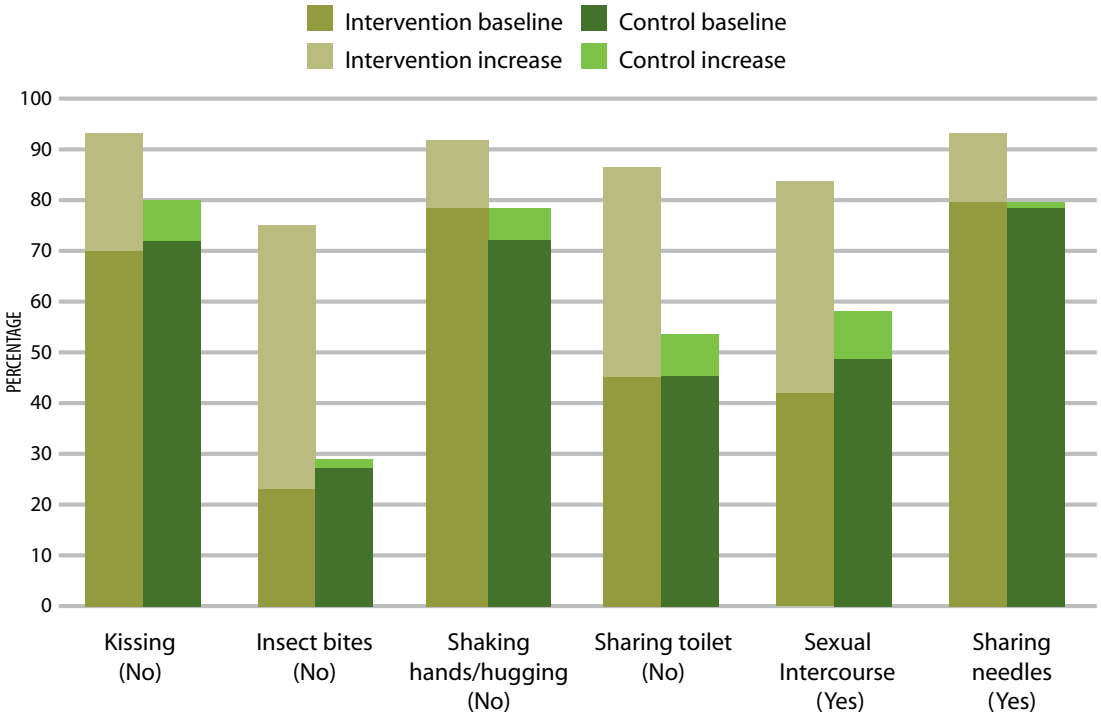


Table 4.1.2. The logistic regression analysis of factors related to respondents' sexual and reproductive health knowledge (n=2,140)

Variable	Reference group	Comparison group	OR	95%CI
Group	Control group	Intervention group	0.968	0.771-1.216
Time	Baseline	End line	1.443	1.114-1.869
Receiving intervention	No	Yes	8.675	6.179-12.178
Gender	Female	Male	3.326	2.705-4.090
Having watched pornographic video	No	Yes	2.025	1.659-2.471
Having asked parent ASRH questions	No	Yes	1.963	1.625-2.371
Having talked about ASRH issues with others	No	Yes	1.623	1.359-1.937
Having perceived care from mother	Ordinal variable (average, good, very good)		1.215	1.058-1.395
Having watched TV/listened to radio	Ordinal variable (little, much, more)		1.206	1.087-1.338
Mother's education status	Ordinal variable (primary school and below, jr. secondary, sr. secondary, college and above)		1.181	1.065-1.309

other words, it takes account of the change of knowledge, attitudes, and behaviors over time that would occur even if there was no intervention (due to age increase, etc.). The variable "receiving intervention" indicates the effect of the intervention itself. These three variables have the same meaning in the other models below. Findings suggested that exposure to the intervention had increased respondents' knowledge level (OR=8.68).

Attitudes

Opinions on and attitudes toward dating and sexual behaviors

There was no statistical significance between the two groups for opinions on premarital sex, teenagers dating, or awareness of safe sex consciousness in the baseline survey. Twenty-three percent of respondents agreed with the statement "It's OK for high school students to date if it does not interfere with their studies." Thirty-two percent approved of premarital sex. In the end line survey, there were statistically significant differences in attitudes toward dating and sex issues between the intervention and control groups. More students from the intervention approved of high school students dating (31.41%) than in the control group (22.90%). But those who opposed premarital sex accounted for a larger proportion (44.53%) than in the control group (35.54%), and the proportion of those who believed they could refuse unwanted sex was higher in the intervention group (74.05%) than in the control group (61.64%). With regard to the hypothetical scenario "If your friend wants to have sex with his/her partner and neither of them has a condom, what should he/she do?", the percentage of those who chose "not have sex" was higher in the intervention group (48.78%) than in the control group (34.40%) (Chart 4.1.6).

Multivariate analysis of factors affecting attitudes toward premarital sex

Respondents' answers to the question "sex before marriage is OK if they are really in love" was used to evaluate their attitudes toward premarital sex, using the attitude as the dependent variable (approval=1, disapproval or don't know=0). Factors that might influence respondents' attitudes as independent variables as predicators were explored using logistic regression. (Factors chosen included the group, time, whether he/she received the intervention, gender, reproductive health knowledge score, parents' attitudes to premarital sexual behaviors, perception of whether peers are dating, attitudes towards dating among high school students, and perceived care from mothers.) The results indicated the probability of approval was low among females, those with low reproductive health knowledge scores, those whose parents' attitudes to premarital sex were conservative, those who believed only a few classmates were dating, and those who opposed teenagers' being in love. However, the intervention had no effect on changing respondents' attitudes toward premarital sex (Table 4.1.3).

Multivariate analysis of factors affecting attitudes toward safe sex intentions

Respondents' answers to the question "If your friend wants to have sex with his/her partner and neither of them has a condom, what should he/she do?" was used to evaluate their safe sex intentions. Students whose answers were to get a condom, or have sex when get a condom, or not have sex were considered to have safe sex intentions, while those who answered "try to convince her/him to have sex without condom" were considered to not have safe sex intentions. Respondents' intentions related to safe sex were used as dependent variables (yes=1, no=0) and factors that might affect students' decisions were used as independent variables (including group, time, whether received intervention, gender, whether watched pornographic video, registered residence, and perceived care from mother) in the logistic regression analysis to

Chart 4.1.6. The comparison of students' attitudes toward ASRH issues (%)

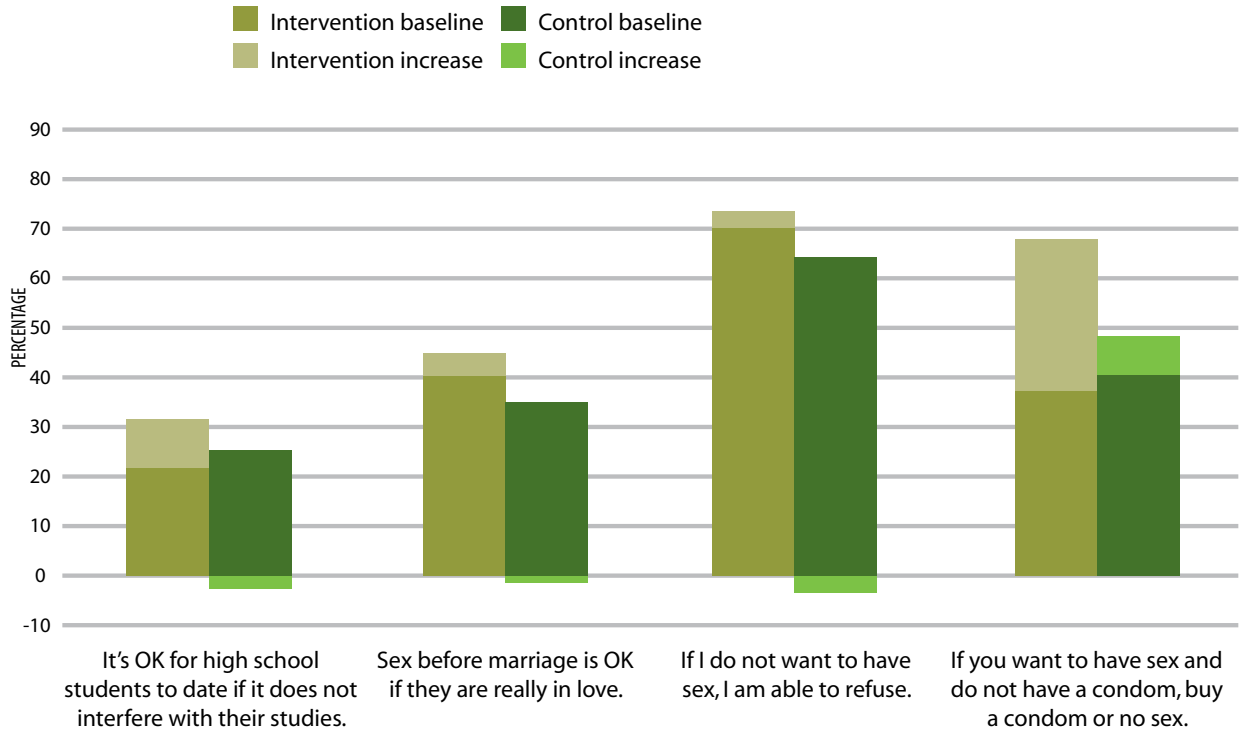


Table 4.1.3. The logistic regression analysis of the factors related to respondents' attitudes toward premarital sex (n=1,173)

Variables	Reference group	Comparison group	OR	95%CI
Group	Control group	Intervention group	0.851	0.576-1.255
Time	Baseline	End line	0.932	0.605-1.436
Receiving intervention	No	Yes	0.687	0.389-1.215
Gender	Female	Male	2.390	1.786-3.200
Reproductive health knowledge score	Ordinal variables (very low, lower than average, higher than average, very high)		1.496	1.287-1.740
Perception of whether peers are dating or not	Ordinal variables (none, a few, half, majority)		1.450	1.233-1.704
Parents' attitudes to premarital sex	Ordinal variable (conservative, average, liberal)		1.223	1.001-1.495
Having perceived care from mother	Ordinal variable (average, good, very good)		0.819	0.656-1.024
Attitude toward dating among high school students	Ordinal variables (agree, don't know, disagree)		0.555	0.469-0.656

predict important indicators. The findings showed that students who had received the intervention were 2.61 times more likely to report safe sex intentions than those who had not. Safe sex intentions were higher among females, those who had watched pornographic videos, those whose registered residence was in an urban area, and those who perceived the care they received from their mother as very good (Table 4.1.4).

Multivariate analysis of factors affecting refusal skills

Independent variables (including group, time, whether received intervention, gender, whether had watched pornographic videos, location of residence, perceived care from mother, and responses to peer influence related to sexual behaviors) were used as possible predictors in logistic regression to the dependent variable of whether or not respondents approved of "If I do not want to have sex, I am able to refuse" as a measure of their refusal skills (able to refuse=1, unable to refuse=0, answers of "uncertain" were excluded). Findings showed that students' refusal skills for unwanted sex were strengthened by the intervention (OR=1.49).

The results also indicated that females, those whose registered residence was an urban area/township, who had not watched pornographic videos, who said they would not be influenced by peers' sexual experiences, and those who perceived the care they received from their mothers as very good were most likely to report good refusal skills (Table 4.1.5).

Attitudes toward people living with HIV and AIDS

There was no statistical significance between the two groups for attitudes toward people with HIV and AIDS at baseline. Over 61.10 percent reported they were not willing to do daily activities with people infected with HIV such as eat together, receive services from them, go to their homes, or use the same telephone. Twenty-eight percent even agreed that HIV-positive people should be quarantined. In the end line survey, respondents' attitudes to people with HIV and AIDS among the intervention group were significantly different from those of the control group. Students in the intervention group were more likely to receive services provided by HIV-positive people—the proportion rose from 20.53 percent to 46.58

Table 4.1.4. The logistic regression analysis of the factors related to respondents' intentions related to safe sex (n=2,266)

Variables	Reference group	Comparison group	OR	95%CI
Group	Control group	Intervention group	0.872	0.684-1.113
Time	Baseline	End line	1.248	0.954-1.634
Receiving intervention	No	Yes	2.610	1.840-3.703
Gender	Female	Male	0.883	0.713-1.093
Having watched pornographic videos	No	Yes	1.408	1.138-1.742
Registered residence	Rural	Urban/township	1.433	1.156-1.775
Having perceived care from mother	Ordinal variable (average, good, very good)		1.370	1.187-1.581

Table 4.1.5. The logistic regression analysis of the factors related to respondents' refusal skills (n=2,266)

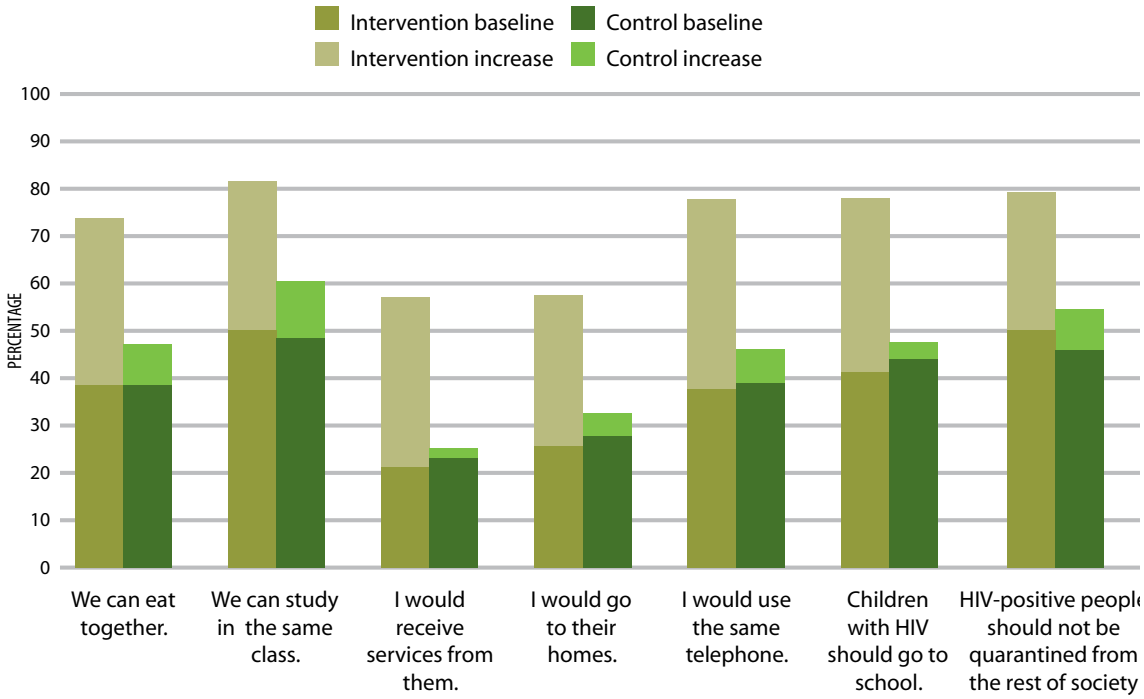
Variables	Reference group	Comparison group	OR	95%CI
Group	Control group	Intervention group	1.275	0.988-1.645
Time	Baseline	End line	0.821	0.621-1.084
Receiving intervention	No	Yes	1.492	1.033-2.154
Registered residence	Countryside	Urban/township	1.321	1.046-1.668
Having perceived care from mother	Ordinal variable (average, good, very good)		1.259	1.082-1.465
Having watched pornographic videos	No	Yes	0.823	0.658-1.029
If most of my peers are having sex, I may also try it.	No	Yes	0.626	0.452-0.869
Gender	Female	Male	0.621	0.494-0.781

percent. Over 73.10 percent would eat together and use the same telephone as someone with AIDS. Eighty percent disapproved of isolating HIV-positive people and 77.36 percent took it for granted that children infected with HIV should go to school (Chart 4.1.7).

Multivariate analysis of factors affecting attitudes toward people living with HIV and AIDS

Respondents' answers to the question "Are you willing to go to the homes of HIV-positive people?" were used to evaluate their attitudes toward people living with HIV and AIDS. Using their answers as dependent variables (Yes=1, No=0), factors that might influence respondents' attitudes as independent variables (including group, time, whether received intervention, scores on AIDS knowledge, parents' attitudes toward people living with HIV and AIDS, whether talked about AIDS-related issues with classmates) were used to conduct logistic regression analysis. The results showed that students who received the intervention were 2.20 times more willing to go to the home of HIV-positive people than those in the control group. It also indicated that those with high knowledge of AIDS, whose parents' attitudes towards AIDS patients were compassionate, and those who talked about AIDS frequently were more willing to go to homes of people living with HIV and AIDS (Table 4.1.6).

Chart 4.1.7. Attitudes toward people living with HIV and AIDS (%)



Sexuality and developmental experiences

At baseline, students in the control group reported higher proportions of ASRH behaviors than those in the intervention group. The difference in age distribution between the two groups might be the reason. The mean menarche age of girls was 13.68 years old. The mean age at first emission for boys was 14.59 years old. Forty-one percent of the respondents reported they had experienced sexual urges. Among those who had experienced sexual urges, 18.55 percent had masturbated, and 73.31 percent of them felt guilty after masturbating. About 20 percent of the respondents had experienced being in love and 5.65 percent of the respondents reported having had sexual intercourse. In the end line survey, the proportion of respondents in the intervention group who had experienced desire or sexual urges was significantly higher (54.52%) than in the baseline survey (38.34%). There were no significant differences for sexual behaviors between the two surveys except that students from both groups reported lower proportions of dating in the end line survey (from 27.28 to 18.49 for the control group and from 17.48 to 11.59 for the intervention group). In addition, 6.56 percent of respondents in the intervention group reported experiencing kissing, compared to 13.05 percent in the control group in the end line survey. The difference was statistically significant (Table 4.1.7).

Multivariate analysis of factors affecting intimacy behaviors

If respondents reported one of the sexual behaviors such as dating, hugging, kissing, or petting/touching, they were considered to have experienced intimacy. Using whether they had experienced any of these intimate activities as dependent variables (Yes=1, No=0), and factors affecting sexual behaviors as independent variables (including group, time, whether received intervention, gender, parents' attitudes towards premarital sexual behavior, parents' attitudes towards teenagers dating, attitudes to dating among high school students, attitude to premarital sexual behaviors, perception of

Table 4.1.6. The logistic regression analysis of the factors related to respondents' attitudes toward people living with HIV and AIDS (n=1,585)

Variables	Reference group	Comparison group	OR	95%CI
Group	Control group	Intervention group	0.919	0.697-1.212
Time	Baseline	End line	1.366	0.935-1.996
Receiving intervention	No	Yes	2.203	1.327-3.658
Parents' attitudes toward people with HIV and AIDS	Fear/disgust	Compassion/concern	3.087	2.414-3.948
Having talked about AIDS-related questions with classmates	No	Yes	1.490	1.150-1.930
AIDS knowledge score	Ordinal variables (very low, lower than average, higher than average, very high)		1.385	1.167-1.643

Table 4.1.7. The comparison of students' ASRH experiences and behaviors between two groups (%)

Experience and behaviors	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457)	End line (n=441)	Diff.
Having worried about whether their physical development was normal or not	67.51#	60.03	-7.48	63.16	58.73	-4.43
Having desire/urges	38.34#	54.52	16.18	45.59*	42.14*	-3.45
Having masturbated	16.85#	24.44	7.59	19.81	25.41	5.60
Having felt guilty after masturbating	74.59#	61.44	-13.15	71.54	61.64	-9.90
Dating	17.48#	11.59	-5.89	27.28*#	18.49*	-8.79
Hugging	8.95	9.48	0.53	13 .75*	16.24*	2.49
Kissing	7.39	6.56	-0.83	10.42	13.05*	2.63
Petting/touching	6.25	7.50	1.25	8.44	10.75	2.31
Sexual intercourse	4.49	4.73	0.24	7.47*	6.59	-0.88

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.
Diff.= Difference.

whether peers were dating, and whether they talked about ASRH issues with others), the logistic regression analysis showed that the intervention affected students' postponing the referenced activities as intimacy behaviors (OR=0.578). The results also indicated the proportion of sexual behaviors was higher among males, those who approved of teenagers dating and premarital sexual behaviors, and those who had talked about ASRH issues with others (Table 4.1.8).

Multivariate analysis of factors affecting sexual intercourse

Using whether respondents had experienced sexual intercourse as the dependent variable (Yes=1, No=0), and factors affecting experience of sexual intercourse as independent variables (including group, time, whether received intervention, gender, parents' attitudes to premarital sexual behavior, attitude to premarital sexual behaviors, perception of whether peers were dating, peer influence, and whether they talked about ASRH issues with others), the logistic regression analysis showed that the intervention did not prompt students to have sexual intercourse (OR=0.940). The results also indicated the proportion of sexual behaviors would be higher among males, those who were susceptible to peers' sexual behaviors, those who thought most of their peers were dating, and those who had talked about ASRH issues with others (Table 4.1.9).

4.2 Comparison of the effect of LPS training organized by teachers and LPS training coupled with peer education

In the study, two kinds of intervention activities were used. One was LPS training and the other was the combination of LPS training and peer education. One goal of this study was to compare the effects of the two different types of interventions and to explore the feasibility and acceptability of carrying out peer education in a rural area. The implementation schedule made by Shangcai FPA intended for all of the students in the intervention groups to receive

Table 4.1.8. The logistic regression analysis of the factors related to respondents' intimacy behaviors (n=1,069)

Variable	Reference group	Comparison group	OR	95%CI
Group	Control group	Intervention group	0.676	0.443-1.034
Time	Baseline	End line	1.285	0.816-2.023
Receiving intervention	No	Yes	0.578	0.318-1.050
Gender	Female	Male	1.876	1.359-2.589
Having talked about ASRH issues with others	No	Yes	1.742	1.283-2.365
Attitude toward premarital sexual behavior	Object	Agree	1.605	1.173-2.198
Parents' attitudes toward premarital sexual behavior	Ordinal variables (conservative, average, liberal)		1.180	0.949-1.469
Parents' attitudes toward teenager's being in love	Ordinal variables (angry, no reaction, pleased)		1.158	0.850-1.576
Perception of peers dating	Ordinal variables (none, a few, half, majority)		1.158	0.850-1.576
Attitude toward high school students dating	Ordinal variables (agree, don't know, disagree)		0.644	0.534-0.778

Table 4.1.9. The logistic regression analysis of the factors related to respondents' sexual intercourse (n=1,170)

Variable	Reference group	Comparison group	OR	95%CI
Group	Control group	Intervention group	0.526	0.268-1.034
Time	Baseline	End line	1.086	0.555-2.125
Receiving intervention	No	Yes	0.940	0.362-2.438
Gender	Female	Male	2.413	1.356-4.294
If most people of my age have experienced sex, I will also do it in the near future	Object	Agree	2.107	1.060-4.191
Having talked about ASRH issues with others	No	Yes	1.764	1.059-2.939
Perception of peers dating	Ordinal variables (none, a few, half, majority)		1.415	1.078-1.857
Attitude toward premarital sexual behavior	Object	Agree	1.353	0.816-2.244
Parents' attitudes toward premarital sexual behavior	Ordinal variables (conservative, average, liberal)		0.870	0.612-1.236

LPS training covering nine topics and half of these students would concurrently receive peer education for the same topics. However, by the time of the end line survey, while LPS training of the nine topics was complete, the peer education had not yet been completed. Therefore, the intervention group with LPS and peer education received nine topics of LPS from teachers plus two to five topics from peer educators. In the following results, those who received LPS training alone are labeled as intervention group 1, and those who received both LPS training and peer education are listed as intervention group 2.

Knowledge

Reproductive health knowledge

At baseline, the median scores on reproductive health knowledge of intervention group 1 were similar to those of intervention group 2; there was no significant difference for knowledge scores between the two groups. The difference of the two groups' STI scores was statistically significant in the end line survey (W-M-W test, P<0.05), with students from intervention group 2 scoring higher than those from intervention group 1. Although students from intervention group 2 scored 17 points higher than students from intervention group 1 on knowledge of drug abuse in the end line survey, the difference was not statistically significant. Students of both intervention groups got significantly higher scores in the end line survey than they did in the baseline survey (Table 4.2.1).

Knowledge of STIs

At baseline, there was no significant difference on knowledge of STIs between intervention group 1 and intervention group 2. In the end line survey, for nearly all of the questions on the knowledge of STIs, correct answer rates among those in the intervention group 1 were similar to those in the intervention group 2. One exception was for the question "Can STI infection interfere with a woman's fecundity in later life?," where those from intervention group 2 got a significantly higher correct answer rate than those from intervention group 1 (Chi-square test, P<0.05).

Knowledge of HIV and AIDS

At baseline, knowledge levels of HIV and AIDS were similar in intervention group 1

Table 4.2.1 Median scores of reproductive health knowledge

Knowledge scores	Intervention group 1			Intervention group 2		
	Baseline (n=364)	End line (n=340)	Diff.	Baseline (n=353)	End line (n=319)	Diff.
Adolescent development	37.50#	50.00	12.50	37.50#	50.00	12.50
Contraceptives	14.77#	27.27	12.50	11.36#	29.55	18.19
STIs	57.14#	71.43	14.29	57.14#	85.71*	28.57
AIDS	54.55#	78.79	24.24	48.49#	78.79	30.30
Drug abuse	66.67#	83.33	16.66	66.67#	100.00	33.33
Total	36.79#	54.72	17.93	34.91#	56.60	21.69

*P<0.05,W-M-W test between two groups.
#P<0.05,W-M-W test between two surveys.

and intervention group 2. The exception was for the question "Can HIV be spread through sharing needles for drug use?" where students from intervention group 1 got a significantly higher correct answer rate than those from intervention group 2(Chi-square test, P<0.05). In the end line survey, the respondents' correct answer rate to question "Can HIV be spread through sharing toilets and bathtubs" in the intervention group 2 significantly increased compared with the intervention group 1(Chi-square test, P<0.05). For all other questions, there were no significant differences between the two intervention groups.

Attitudes

Opinions on and attitudes toward sexual behavior issues

There was no statistical significance between the two intervention groups for opinions on premarital sex and teenagers dating in the baseline survey. In the end line survey, those who opposed premarital sex accounted for a larger proportion (49.37%) in intervention group 2 than in intervention group 1 (40.00%). This difference is statistically significant. At baseline, students from intervention group 1 seemed to have stronger refusal skills and intentions to practice safe sex. While in the end line survey, the proportions of those who believed they could refuse unwanted sex and those who had safe sex intentions were higher in intervention group 2 than in intervention group 1 (Table 4.2.2).

Attitudes toward people living with HIV/AIDS

There were no statistical significances between the two groups for attitudes toward people with HIV and AIDS at baseline or in the end line survey.

Sexual and developmental experiences

At baseline, students in intervention group 1 reported more sexual urges, hugging, and kissing than those in intervention group 2. More students in intervention group 2 reported masturbating when they had sexual urges than those in intervention group 1. In the end line survey, there were statistical significances between the two intervention groups, with respondents reporting lower incidences of petting and sexual intercourse in intervention group 2 than those in intervention group 1(P<0.05). But because students in the intervention group 2 reported a lower incidence of sexual behaviors at baseline, other factors should also be considered. There were no significant differences between the two intervention groups for other reported sexual behaviors (Table 4.2.3).

Table 4.2.2. Students' opinions on attitudes toward sexual behavior issues (%)

Opinion on attitudes toward sex-related issues	Intervention group 1			Intervention group 2		
	Baseline (n=364)	End line (n=340)	Diff.	Baseline (n=353)	End line (n=319)	Diff.
It's OK for high school students to date if it does not interfere with their studies.						
Agree	23.35#	34.12	10.77	19.55#	28.53*	8.98
Disagree	44.23	27.94	-16.29	51.56	38.87	-12.69
Don't know	32.42	37.94	5.52	28.90	32.60	3.70
Sex before marriage is OK if they are really in love.						
Agree	35.16	37.94	2.78	28.61#	30.50*	1.89
Disagree	39.29	40.00	0.71	41.93	49.37	7.44
Don't know	25.55	22.06	-3.49	29.46	20.13	-9.33
If I do not want to have sex at this moment, I am able to refuse it.						
Agree	72.53#*	72.65	0.12	66.86#	75.55	8.69
Disagree	5.77	12.35	6.58	14.16	13.79	-0.37
Don't know	21.70	15.00	-6.70	18.98	10.66	-8.32
If your friend wants to have sex with his/her partner and neither of them has a condom, what should he/she do?						
Try to convince his/her partner to have sex without condom	4.68#*	6.18	1.50	7.93#	5.97	-1.96
Buy a condom/have sex when get a condom	20.39	19.12	-1.27	14.16	17.30	3.14
Not have sex	20.39	47.65	27.26	18.70	50.00	31.30
Don't know	54.55	27.06	-27.49	59.21	26.73	-32.48

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

4.3 The impact of peer education on the peer educators

Thirty-seven peer educators were selected from two intervention schools, and they attended a training workshop on participatory methods. Among them were 18 boys and 19 girls, of whom 54 percent played some role in school activities, such as class monitor, student group leader, or chairperson of student league. Only 20 peer educators were in the class involved in the end line survey and took part in the survey. Because the surveys were self-administered and anonymous, we cannot get their data of baseline. Thus, the following analysis was done only with the data collected from the end line survey. The IDIs were carried out with some peer educators, among them four peer educators (2 boys and 2 girls) were from the Second Senior High School and three (1 boy and 2 girls) were from the Third Senior High School. They were interviewed about their understanding of reproductive health education and peer education for adolescents and the impact of peer education on their lives.

Table 4.2.3 Students' sexual experiences and behaviors between two intervention groups (%)

Experiences and behaviors	Intervention group 1			Intervention group 2		
	Baseline (n=364)	End line (n=340)	Diff.	Baseline (n=353)	End line (n=319)	Diff.
Having worried about whether their physical development was normal or not	64.84	59.41	-5.43	69.69#	60.50	-9.19
Having desire/urges	42.03#	53.82	11.79	33.99#*	54.23	20.24
Having masturbated when had sexual urges	11.76#	26.23	14.47	23.33*	22.54	-0.79
Having felt guilty after masturbating	75.51#	58.46	-17.05	73.49	65.09	-8.40
Dating	19.51#	13.53	-5.98	15.30#	9.40	-5.90
Hugging	11.14	9.47	-1.67	6.67*	9.49	2.82
Kissing	9.75	7.96	-1.79	4.93*	5.06	0.13
Petting/touching	7.80	9.47	1.67	4.64	5.40*	0.76
Sexual intercourse	5.77	6.47	0.70	3.12	2.82*	-0.30

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Knowledge

Reproductive health knowledge

Results showed that peer educators had significantly higher scores than non-peer educators on knowledge of adolescent development and STIs/AIDS. Peer educators and non-peer educators had similar contraception scores (Table 4.3.1). Almost all peer educators said in the interviews that after being a peer educator they had a great increase in reproductive knowledge. A boy from the Third Senior High School said that after peer education training, he is now more motivated to study and to expand his knowledge on reproductive health, because he realizes that his fellow classmates are relying on him for correct and responsible answers for their troubles and concerns.

Knowledge of STIs, including HIV

There were significant differences between peer educators and non-peer educators on two questions related to STIs: "Does a person infected with an STI always have noticeable symptoms?" and "Can STI infection interfere with a woman's fecundity in later life?" The correct answer rates among peer educators were higher than those among non-peer educators (Chi-square test, P<0.05). Peer educators had a 100 percent correct answer rate to the question "Do STIs spread through sexual intercourse?"—over 12 percent points higher than non-peer educators, but the difference was not statistically significant.

There were no statistically significant differences between peer educators and non-peer educators on knowledge of HIV; but for nearly all of the questions, peer educators had higher correct answer rates.

Attitudes

Opinions on and attitudes toward sexual behavior issues

More non-peer educators answered with "Don't know" to the questions related to attitudes

Table 4.3.1. The comparison of median scores of reproductive health knowledge

Knowledge scores	Peer educators (n=20)	Non-peer educators (n=639)	Diff.
Physical development	68.75*	50.00	18.75
Contraceptives	32.95	29.55	3.40
STIs	85.71*	71.43	14.28
AIDS	83.33*	78.79	4.54
Drug abuse	100.00	100.00	0
Total	58.96	55.66	3.30

*P<0.05, W-M-W test between peer educators and non-peer educators.

toward sexual behavior issues than peer educators. Among peer educators, those who had an opposite attitude accounted for the same proportion as those who had an acceptable attitude toward students dating. Peer educators had stronger refusal skills intensions and higher safe sex intentions. It should be noticed that more peer educators agreed "Sex before marriage is OK if they are really in love" than non-peer educators (the difference was 10.99 percent). None of the differences above were statistically significant (Table 4.3.2).

Attitudes toward people living with HIV/AIDS

Compared with non-peer educators, peer educators would like to receive services from HIV-positive people and would not avoid contact with people with HIV/AIDS when they meet them (Chi-square test, P<0.05). Almost all of peer educators had changed their attitudes to people living with HIV and AIDS. A boy told us he had a little knowledge about AIDS before, and only felt frightened if someone mentioned AIDS at that time. Now it was completely different. He said: "People living with HIV and AIDS are unfortunate, all of us should care for them, help them rebuild the hope of future." A girl told us that she wanted to change the stigma through her behaviors. She said: "There are many HIV-positive people in my village. When I go back home in the end of the semester, I can visit them, talk with them and help them do some house work. Maybe it will change people's false ideas about AIDS." Surprisingly 20 percent of peer educators still thought HIV-positive people should be quarantined from society. The proportion was a little higher than those in non-peer educators, but it was not statistically significant (Table 4.3.3). In the interviews a peer educator expressed his opinion, he said: "Although a lot of HIV-positive persons are harmless, a few of them had desire to revenge their tragic fate. For example, it was often reported that HIV-positive persons did many crimes such as robbery…My father warns me not to have contact with HIV-infected persons. In my opinion, HIV-positive people should be quarantined from society."

Sexual and developmental experiences

There was no statistic significance for most reported sexual behaviors between peer educators and non-peer educators except peer educators had a higher incidence of hugging and kissing behaviors than non-peer educators (Table 4.3.4).

Enhancement of peer educators' abilities

Most peer educators who were interviewed said that the project had a great impact on them, especially on their interpersonal communication skills. A boy from the Second Senior High School said, "Now, I truly understand the value of good interpersonal relationships as foundations of a friendly external environment for me. A good interpersonal relationship is based on respect and equality, and because of this appreciation, my relationships with lots of my classmates has improved a great deal." A girl said, "Before I received the training, I wondered of how to treat friendship with the opposite sex? In my parent's opinion, if a boy and a girl are good

Table 4.3.2. Students' attitudes toward sexual behavior issues (%)

Attitudes and behaviors to sex-related issues	Peer educators (n=20)	Non-peer educators (n=639)	Diff.
It's OK for high school students to date if it does not interfere with their studies.			
Agree	40.00	31.14	8.86
Disagree	40.00	33.02	6.98
Don't know	20.00	35.84	-15.84
Sex before marriage is OK if they are really in love.			
Agree	45.00	34.01	10.99
Disagree	50.00	44.36	5.64
Don't know	5.00	21.63	-16.63
If I do not want to have sex, I am able to refuse			
Agree	85.00	73.71	11.29
Disagree/Don't know	15.00	26.29	-11.29
If your friend wants to have sex with his/her partner and neither of them has a condom, what should he/she do?			
Try to convince his/her partner to have sex without condom	10.00	5.96	4.04
Buy a condom/have sex when get a condom/not have sex	80.00	66.61	13.39
Don't know	10.00	27.43	-17.43

P>0.05, Chi-square test between peer educators and non-peer educators.

friends, they must be dating. Now I changed my views; I can feel comfortable to communicate with boys. I won't feel ashamed when I talk to my classmates about relationships with the opposite sex. I can't image it before." Another peer educator said proudly, "Through peer education, now half of grade one students know me and they are all willing to talk with me." Peer educators also reported their organizational abilities were enhanced; their courage and speaking skills were improved. They said, "Maybe it takes some time from my studies, but I think it's worthwhile, because I can tell my classmates the correct reproductive knowledge and attitudes. We discuss how to deal with our problems in these special periods." Many peer educators told us they had a good plan for the future and were trying their best to reach their goals.

Evaluation of peer educators on peer education

Form of peer education

All peer educators confirmed peer education was a new and flexible method. "It is welcomed by many students and it can be carried out at any place and any time." A boy came from the Second Senior High School said, "Peer education is fresh for us, we exchange our opinions in a relaxed surrounding, and we can speak what we want to." A girl said, "As a peer educator, my experience has taught me that caring for others brings happiness, effective communication brings joy, understanding means everything, and interaction brings success. We have our own concerns, with physical and psychological development; we have more and more confusion and uncertainties for ourselves and the future. Sometimes we won't tell these to our parents

Table 4.3.3. Comparison of attitudes toward people with HIV/AIDS (%)

Attitudes	Peer educators n=20	Non-peer educators n=639	Diff.
Willing to do the following activities with HIV-positive people			
Eat together	85.00	72.73	12.27
Study in the same class	90.00	80.72	9.28
Receive services from them	70.00*	45.84	24.16
Go to their homes	75.00	57.52	17.48
Use the same telephone	85.00	77.43	7.57
Should HIV-positive people be quarantined from the rest of society?			
Disagree	70.00	79.94	-9.94
Agree	20.00	7.68	12.32
Don't know	10.00	12.38	-2.38
Can children with HIV go to school?			
Yes	90.00	76.96	13.04
No	10.00	8.62	1.38
Don't know	0	14.42	-14.42
Will you avoid contact with people with HIV?			
No	80.00*	48.67	31.33
Yes	5.00	17.68	-12.68
Don't know	15.00	33.65	-18.65
Will you avoid contact with classmates if they come from an HIV epidemic countryside area?			
No	94.74*	61.19	33.55
Yes	5.26	11.58	-6.32
Don't know	0	27.23	-27.23

*P<0.05, Chi-square test between peer educators and non-peer educators.

and teachers. So as a peer educator, I share my experience of growing with others, and encourage them to find a way to deal with their problems." Another girl said, "Compared to teachers, I have more chances to talk and discuss with our schoolmates. I can introduce what I know to classmates in special classroom meetings and communicate with them in spare time, such as playing and eating."

Effectiveness of peer education

Most peer educators believed that peer education had a great influence on their classmates. A boy said, "Maybe I haven't done as well as teachers on the organization of activity and language, but I have my advantages i.e., we are youth, communication between us is easy and we can understand each other." Other peer educators thought that the best way of conducting reproductive health education was the combination of LPS training and peer education. A girl said, "It is hard to tell which method is better for reproductive health education; some topics such as knowledge of puberty and adolescent development, reproduction and contraception, drug and AIDS/STIs are more suitable for teachers to tell us, as they might know more and understand

Table 4.3.4. Comparison of students' ASRH experiences and behaviors (%)

Experiences	Peer educators n=20	Non-peer educators n=639	Diff.
Having worried about whether their physical development was normal or not	60.00	60.03	-0.03
Having desire/ urges	60.00	53.83	6.17
Having mastur-bated when had sexual urges	25.00	24.42	0.58
Having felt guilty after masturbating	50.00	61.95	-11.95
Dating	25.00	11.11	13.89
Hugging	25.00*	8.99	16.01
Kissing	20.00*	6.14	13.86
Petting/touching	20.00	7.11	12.89
Sexual intercourse	15.00	4.38	10.62

*P<0.05, Chi-square test between peer educators and non-peer educators.

deeper than us on these subjects. When it comes to inter-personal communication skill, sexual perspectives and safe sexual behavior, value clarification and decision-making as well as future plan, we are more suitable than teachers to communicate with classmates. We can use our experiences to discuss with them how to refuse some demands and how to deal with the relationships between opposite sex. But we still need to learn more about how to lead schoolmates to build correct attitudes, not only on the inter-personal communication, but on how to treat people with HIV/AIDS."

Peer educators need support

Many peer educators expressed that peer educators need support from students, teachers, and parents. A girl said, "Peer educators get a lot of support from many teachers and students though a small part of students and teachers think we only waste time. It's easier for teachers and students to understand peer education than for our parents. Parents consider more about our academic scores than our social work. After all, the academic score will determine whether we can go ahead to study. So it's hard to get their support. I think their backing will promote the development of program on reproductive health education and peer education."

Peer educators' perspectives on ASRH education for adolescents

Necessity of reproductive health education for adolescents

Almost all peer educators thought it was necessary for adolescents to receive reproductive health education. "It will promote adolescents' all-around development." They mentioned that, "Students should know this (adolescent development information) before they enter into adolescence." A boy from the Second Senior High School said, "I lacked knowledge on physical development when I was a junior high school student. At that time what worried me most was I was shorter than many girls. Now I know that a boy and a girl have different speed of growth. Boys enter into adolescence later than girls. So I am not at a loss." Another peer educator said, "As a boy, I have wet dreams sometimes, but many of us didn't know why it happens and we felt ashamed before. There was no education as to reproductive health of adolescents in school, and we only got related knowledge by reading magazines and newspapers, but some of them are wrong and some of them are confusing. So students should be provided reproductive health education, which should be arranged into the teaching plans and accounted for 1-2 classes per week. And it will be better to provide us some related reading materials. I don't think it will have an adverse impact on our study, on the contrary, it can promote our development."

Scaling up of adolescents' reproductive health education

In the interviews peer educators suggested that the project should be scaled up. They also discussed many difficulties of carrying out YRHP and raised many suggestions. A girl said, "I think the most important topics are adolescent development, inter-personal communication, and the negative consequence of sexual behavior before marriage, as well as knowledge on AIDS. The education should be scaled up in Shangcai County and other rural areas. The key to get success for the education is to get support of government and mass media. Because of the conservative tradition of rural area, there is a long way to go." A girl from the Second Senior High School said, "It's important to change the ideas of teachers and parents and to make them understand the necessity of conducting reproductive health education for adolescents. Schools, family and society should work together to carry out the education." Another boy said, "The target population of education should include out-of-school youth. In the period of Spring Festival, they usually come back home from their working place, this is a good chance to provide such reproductive knowledge to them. It also needs enough human and financial sources provided by government."

5. Discussion

5.1 SRH education for senior high school students in area with high HIV prevalence needs much concern

Most domestic surveys on reproductive health of adolescents have focused on urban unmarried youth. Fewer projects have paid attention to youth in rural areas, especially to senior high school students in areas of high HIV prevalence. This survey has found many issues to pay close attention to regarding the reproductive health of senior high school students in Shangcai County. Firstly, ASRH knowledge of students in Shangcai County was lower than that of their peers in similar areas. For instance, the students' correct answer rates to questions "In which period of a menstrual cycle are women mostly prone to be pregnant?" and "Is a girl fertile after her menarche?" were 7.76 percent and 20.02 percent respectively, which were far lower than results from comparable surveys conducted in Fuxin County and in Rongchang County.[2-3] With regard to knowledge of HIV/AIDS, the situation in Shangcai County was better than some areas. Correct answer rates to the main ways that HIV is transmitted were over 75.79 percent, higher than results of a survey conducted among senior high school students in Tianjin city.[4] This might be due to the high prevalence of HIV and AIDS and the corresponding mass media coverage in Shangcai County. However, it was also obvious that the information and knowledge was not in-depth as a lot of students believed HIV could be transmitted by insect bites and less than one-third of students knew that condoms could be used to prevent HIV and other STIs. Secondly, students' attitudes toward ASRH issues were quite open. Thirty-two percent of subjects approved of premarital sexual behaviors, which was higher than that of middle school students in Chengdu City.[5] On the one hand, they lacked reproductive health knowledge and safe-sex consciousness. On the other hand, they were curious about premarital sex and had an impulse to try it. These factors together could promote students to have premarital sex and then face the risk of unwanted pregnancy and infection of HIV/STIs. Finally, compared to other surveys,[6] the percentage of respondents who reported having had sexual intercourse was higher on average (5.65%); respondents age of the first sexual intercourse was lower (14 years old); and the percentage of respondents who had sexual intercourse and had used contraception was lower (43.55%).

Because of the high prevalence of HIV in Shangcai County, there is interest in the students' attitudes toward people living with HIV and AIDS. There were about 400,000 adolescents aged from 10 to 24 years old in Shangcai County, accounting for about 30 percent of the population.[7] Therefore, behaviors and attitudes of adolescents toward people living with HIV and AIDS can make a difference and help to create a social environment that is caring and treats people equally. Baseline results showed that only 42 percent believed children infected with HIV still could go to school. In response to the hypothetical: "If your neighbor was diagnosed to be infected with HIV, what would you do?," only half of them (52.90%) reported they were willing to pay attention to them and help them. When imagining if someone in their family was diagnosed with HIV, 82.54 percent reported they would like to take care of the person themselves. Compared to teenagers of other areas,[8-9] the senior high school students in Shangcai County were still more tolerant and caring to HIV-infected persons. However, over 61.10 percent were afraid to have contact with people living with HIV or AIDS, which indicated that conducting AIDS-related education is necessary.

At baseline 54.58 percent of girls and 20.80 percent of boys had worried about menarche and wet dreams respectively, and 65.81 percent of respondents worried about whether their physical development was abnormal. Forty-one percent reported they had sexual urges or desires and 25.33 percent had masturbated. Most students reported that they felt guilt and shame after masturbation. Results showed that sex education conducted by schools, families, and society did not keep up with the adolescents' growth, especially in rural areas, where obstacles such as traditional and conservative attitudes made teachers and parents ashamed to talk about sex.[10] Most students in the rural areas had only received simple information on physiology in junior high school, and information on reproduction only by reading materials themselves. What they had learned from school-based education could not help them to deal with their problems or questions. Therefore, they found other sources of information.[2-3,6,11] Results showed that students learned ASRH information mainly from magazines/books, television and friends, and one-fifth of respondents mentioned pornographic videos. Many of these sources can often mislead adolescents and spread misconceptions regarding reproductive health. Therefore, it is important to conduct reproductive health education in rural schools in Shangcai County, as well as other counties with similar situations.

5.2 LPS training has positive impacts on participants' knowledge, attitudes, skills, and behaviors

In the past, many school-based sex education projects in rural areas of China were conducted by disseminating materials, holding special class meetings, playing videos, etc.[3,6] The contents were not comprehensive and the time to conduct the education was not ensured. Successful LPS training conducted with participatory methods was adopted in this intervention. Firstly, school teachers participated in special training to become LPS facilitators—the training consisted of both ASRH content as well as participatory learning methods. Secondly, LPS training activities were arranged as part of the normal teaching plan. Thirdly, the contents were more comprehensive, not only including adolescent development, knowledge of AIDS/STIs and contraception, but also including values, decision-making, and planning for the future. Importantly, teaching methods changed from traditional lectures to use of participatory methods to allow both students and facilitators to be actively involved in sessions.[12-14] A variety of methods such as role-plays, games, dramas, discussions, etc. were adopted in a comfortable and enjoyable environment and facilitated students learning reproductive health knowledge and self-protection skills. Almost all students mentioned they were deeply impressed by this education model.

After three months of LPS training, students' knowledge on reproductive health showed obvious increases, especially on knowledge of HIV and AIDS. Students were more aware of how to protect themselves from HIV as well as more likely to care for HIV patients. Multivariate analysis showed that the increase of knowledge on HIV/AIDS was correlated to the change in attitudes toward people with AIDS. Although most students sympathized with people living with HIV or AIDS at baseline, fear existed among some of the students mainly due to misunderstandings of ways HIV is transmitted. After the intervention, students had a good understanding of HIV prevention, and their corresponding attitudes related to HIV/AIDS had also changed.

LPS training strengthened students' intentions of safe sex and refusing unwanted sex. More students felt they could deal with sexual desires/urges and masturbation than before the intervention. The project activities also

tended to delay those behaviors described as intimacy among the senior high school students. However, there was no significant difference between the intervention and control groups related to attitudes toward premarital sex. This is similar to findings from other sex education projects conducted in rural areas.[3,6] The increase of ASRH knowledge did not lead to changes in students' attitudes to premarital sex since these attitudes are also related to values, sexual mores, ethics, and surrounding. It is likely that only a repeated and long-term intervention could significantly influence these types of attitudes.[15-16] With the limited timeframe of the study (three months intervention), changes in students' attitudes to premarital sex and students' sexual behaviors were not found. Multivariate analysis indicated that peers and family had a significant effect on the ASRH knowledge, attitudes, and behaviors among middle school students. The students who often talked about ASRH issues with friends/classmates and actively asked their parents ASRH questions had higher knowledge scores, the students whose parents had an open attitude to premarital sex and those who believed most of their peers were dating were more likely to approve of teenagers' sexual behaviors, the students who often talked about AIDS-related issues with their classmates and whose parents cared for people living with HIV or AIDS were more friendly toward people who are HIV-positive, and the students whose parents objected to teenagers' being in love and who believed only a few peers were dating were less likely to have experienced intimacy behaviors. Results showed that adolescents were easy affected by their peers and parents, which may indicate that ASRH education would be more effective if it involved peers and families more.

5.3 LPS training coupled with peer education is more welcomed and can strengthen effects

The study also evaluated the effect of peer education in the rural areas. Peer education covered part of the LPS training contents and also used participatory methods. It was carried out mainly in the form of special classroom meetings.

According to results from the survey, those who had received peer education had higher knowledge scores on AIDS and STIs and more rational attitudes toward teenagers dating and premarital sexual behavior than those who had not received it. In the end line survey, intentions of refusal skills and safe sex were increased more significantly among those who had received peer education than those who had not.

The IDIs showed that peer education was popular, welcomed, and supported by the students. Many students said, "It is easier to accept what they said because they say what we think and what we want to know." Students also gave high praise to peer educators. They said, "Most of them have a good ability of organization and they are earnest. They may not be members of student government organization or have a good academic score, but they can gather us and have strong communication skills." When it comes to the difference of peer education and LPS training, students had different opinions. Some of them said, "Teachers have overall knowledge (reproductive health knowledge) and are more authoritative. Peer educators repeated what the teachers taught." Some of students thought peer education was better because the communication between classmates was comfy and they would not feel ashamed on sensitive questions. They said, "There are some difficulties in exchanging views on sensitive topics with teachers." Most students believed

the combination of two methods would be the best. Peer educators also had their own opinions. A peer educator at the Second Senior High School said, "I am good at talking about some problems of adolescent psychology. But I have few experiences organizing activities and I don't have a deep understanding of reproductive health knowledge." A large number of students thought peer education was more suitable for the topics on relations between opposite sex, attitudes toward sexual behaviors, self-protection, future planning, and decision-making.

Results showed many students welcomed peer education, even though it was still new. The whole intervention lasted only three months. During this limited time, LPS training had completed but peer education had not. There were five special classroom meetings held in the Second Senior High School, covering five topics: AIDS prevention, drug abuse prevention, interpersonal communication, sex and sexual behaviors, and future plans. Peer education was held two times in the Third Senior High School, covering two topics: AIDS prevention and inter-personal communication. Peer education provided little reproductive knowledge. Maybe that is the reason why there was no statistical significance on most knowledge between those who received peer education and those who did not receive peer education. But students who had received peer education seemed to have higher knowledge scores and correct answer rates regarding reproductive knowledge than students who had not received peer education, which indicated that students might increase their intentions for finding correct reproductive knowledge actively through peer education. This was also shown regarding sexual development and experience. More students who had received peer education had positive psychology on development experiences than those who had not received peer education.

Peer education covering the topic of relations between opposite sexes had been carried out in two intervention schools. Those who had received peer education had more rational attitudes toward issues such as "how to treat the friendship of opposite sex normally" than those who had not received peer education. It also proved that peer education played an important role in helping students to build healthy ideas of sex and confidence to respond to sexual issues. Other studies also showed[17] adolescents were prone to accept peers perspectives and imitate peers behaviors, which was the reason for use of peer education.

In addition, peer education on HIV/AIDS prevention was held in both intervention schools. The correct answer rates to AIDS questions were higher among those who had received peer education than those who had not received peer education. However, the attitudes toward people living with HIV and AIDS were similar between the groups. On the topic of HIV/AIDS prevention, LPS training facilitated by teachers and peer educators was similar in the content and the method, like students said in the interviews, "it was repeated." After LPS training facilitated by teachers was held, peer education was conducted on AIDS-related knowledge among students again, only strengthening students' related knowledge. Because the end line survey was held only two weeks after peer education, students' changing attitudes may not have been observed in such a short time.

In all, half-month peer education strengthened the positive impact on students' knowledge, attitudes, and behaviors and was welcomed by students. But many problems still existed. Firstly, peer educators need more opportunities to get training and sources of information. Peer education was new. Peer educators themselves were short of experience, and they had difficulties in gathering information; for example, they could not gain access to the

Internet. Peer educators need to communicate more with their classmates in the design of activities and collection of typical cases and get more help from teachers who have facilitated LPS training. Secondly, peer educators need support and understanding. Peer education was welcomed by students but not by some teachers and parents. Thus, to scale up peer education, the support from schools, families, and society is very important. Thirdly, the duration of peer education in relation to teacher facilitation and for different topics may influence the effects of peer education. LPS training by teachers lasted two classes one time, while peer education only lasted one class one time. Was it enough time? How long is needed to have effects? Maybe for different topics, the answers will be different. These questions need to be explored further. In addition, because teenagers were more likely to accept peers' suggestions, peer educators' personality and characters would have a great impact on the effectiveness of peer education. Thus the selection of qualified peer educators is important. Finally, as students, peer educators can not arrange the activities of peer education independently, and they are unable to select the topics of activity. Thus, schools should pay more attention to peer education and take more responsibility for the training of peer educators, the arrangement and management of peer education, and the quality of activities organized by peer educators.

5.4 Peer education has meaningful effect on peer educators, but needs further study

Results from questionnaire surveys and interviews showed that peer educators had higher knowledge scores on knowledge of adolescent development and STIs than non-peer educators. More peer educators had friendly attitudes toward people living with HIV and AIDS. Also, the attitudes of peer educators toward ASRH issues were more clear than non-peer educators, i.e., there were more non-peer educators who answered "don't know" or "not clear" to the same questions. Peer educators also mentioned they had improved their personal abilities through peer education. After participating in the training workshop and carrying out peer education themselves, most of peer educators realized the necessity of providing reproductive education for adolescents and expected such adolescent education could be carried out in other rural areas. Generally speaking, peer education had a positive impact on peer educators.

We also found the following results. Firstly, the difference of the total knowledge score between peer educators and non-peer educators was not significant. Secondly, peer educators had similar ASRH attitudes as non-peer educators, and they were more open than non-peer educators. Thirdly, there were a few peer educators who had negative attitudes; for example, they thought HIV-infected persons should be quarantined from society. Finally, peer educators seemed to have had more ASRH behaviors and experiences based on the figure of proportion (but results were not significant, see Table 4.3.3). However, all the analysis was done based on the information from a small sample (20 peer educators), which might be one of the reasons for the results mentioned above.

There were statistically significant differences only on the knowledge of adolescent development and STIs between peer educators and non-peer educators. Some reasons might be: 1) Peer educators only received two days training. In interviews, evaluators learned that peer educators focused on the topics they were responsible for facilitating because of other studies. Thus, the difference between peer educators and non-peer educators were not remarkable. 2) Students had median scores of 100 for AIDS-related knowledge and knowledge of drugs, so a difference cannot be found. 3) The sample size of subjects was too small (only 20 subjects).

There was a correlation between attitudes and ASRH knowledge. But personal morality and values might determine one's ASRH attitudes more directly. Most peer educators selected were those who were interested in reproductive health issues, so they might be more open to ASRH issues than non-peer educators. It was also shown in the end line survey that they had more experiences with ASRH behaviors. Because of the absence of baseline information from them, the peer educator's change in attitudes cannot be measured.

With regard to attitudes toward HIV-positive people, there were still a few peer educators who thought that "HIV-positive people should be quarantined from society." It was noticeable that although AIDS-related knowledge could increase in a short period, changing the ideas of the public may need a longer time, especially in the areas with high HIV prevalence such as Shangcai County. Peer educators knew a lot about AIDS, and most of them would not avoid contact with people infected with HIV. But there were still a few peer educators who had a negative attitude toward people living with HIV and AIDS, which indicates that the elimination of discrimination against AIDS still has a long way to go.

In general, we could not reach the conclusion that peer education had a clear and comprehensive impact on peer educators' knowledge, attitudes, and behaviors in Shangcai County. Further studies should be conducted to reach a clear conclusion.

5.5 YRHP has a positive impact on local teachers

YRHP's LPS education with adolescents in Shangcai County was not only beneficial to students, but also contributed to the change of teachers' and parents' attitudes toward sex education, especially those of school leaders. A principal expressed frankly that at the initiation to carry out LPS training they faced the pressure of the local education commission. After he later got to know the contents and methods of the education, he felt that "The course can tell students how to be more self-assured, how to plan their future, which must affect their future lives. At the same time it can improve teaching and learning in the school." As a result, they considered more seriously how to arrange these courses into the curriculum. Moreover, the teachers responsible for the LPS training courses were called "sex doctors" by other teachers at the beginning of the project; the teacher who was in charge of the class would stay in the classroom when the facilitating teacher conducted the sessions. As teachers sat in on LPS sessions, many teachers changed their attitudes from misunderstanding to admiration. Lots of teachers expressed interest in these sessions, especially in regards to contents on AIDS. One teacher said, "There are a lot of people with HIV and AIDS in Shangcai County, which is a fact we must face. Previously many students asked us some questions such as 'Will we be infected if we eat the watermelon injected with blood of AIDS patients?' Honestly, we didn't know how to answer because most of us knew little about AIDS. Now with the development of the project, we learned a lot about AIDS from communicating with LPS facilitators and observing their sessions." In one of the interviews with parents, one mother said, "My child has become more sensible and is more likely to tell us his problems. The education should be conducted in a larger scope and not be limited in school."

5.6 Limitations of intervention

Study results indicated that students' knowledge on contraception did not increase significantly. It was found from the interviews that teachers were reluctant to mention contraception; they only taught students that condoms could be used to prevent HIV/STIs. Parents also believed it was too early to tell these students about contraception. They worried that it would have a negative impact on their children. Therefore, students did not know contraceptive methods or how to use them. It shows a potential problem with the LPS training content in relation to parents' and teachers' beliefs—should contraceptive knowledge be provided to school students? Many students thought that it was necessary for them to obtain contraceptive knowledge, but traditional ideas make the schools afraid to try to introduce this information, let alone actually provide contraceptive consultation and services to students.

Students felt that some of what the teachers talked about—topics of relationships, sexual mores, and ethics—was too general and superficial, and therefore not useful. Most teachers reflected that there were some difficulties in explaining interpersonal communication skills, and the education materials did not quite fit the local reality. The recommendation is for examples to be locally based. Peer educators are suitable for topics mentioned above, but they need more assistance and supervision from teachers.

Because of the limitation of intervention time and peer education was incomplete at the time of the end line, the impact of peer education was not obvious.

6. Recommendations

Puberty is a special period during which young people undergo great changes, and many of them feel curious and confused. It is the responsibility of the department of education and family to provide them a comprehensive and systemic ASRH education. The current school-based ASRH education should be improved and strengthened, and some lessons can be taken from this project and study.

6.1 Conduct continuous and comprehensive LPS education on AIDS-related knowledge, attitudes, and skills

Adolescents living in areas of high HIV prevalence have an urgent need for knowledge on HIV, which does not only benefit them by increasing their awareness of the need to protect themselves, but also decreasing their unnecessary fear and misunderstandings of HIV and AIDS. Because teenagers are important parts of the society and will be adults in the near future, their opinions and attitudes play an important role in constructing a compassionate social environment free from discrimination for people living with HIV and AIDS. Some experts believe that a more open and lenient society for treatment of people living with HIV and AIDS is also beneficial HIV prevention; while a discriminatory response from society will actually have negative effects on prevention efforts.[9] Elimination of fear and discrimination should be highlighted in education. Most senior high school students from rural areas will go to work after graduation, so it is important for them to receive ASRH education in the school. The study showed that on the one hand, the intervention effectively increased students' knowledge on HIV prevention and allowed students to become happier to help HIV-

infected people and treat them like anyone else; on the other hand, stigma still exists among some young students and even peer educators. Hence, health education on knowledge, attitudes, and skills related to HIV and AIDS should be carried out continuously in HIV high-prevalent areas.

6.2 Contents and forms of ASRH education should meet the need of adolescents

Most of the senior high school students in rural areas are in residence, which provides more opportunities for contact between boys and girls. With the competition of entering college or university, they have high pressure on their studies and long for help from the opposite sex both on their studies and daily life. As it was reported, teenagers dating had become a prominent problem.[18] Many students said, "Dating is common among classmates. I am conflicted regarding peers' dating; I neither approve of their behaviors nor oppose them." Some students thought dating made couples help each other and made them move ahead together. During interviews, many students expressed that they were very interested in how to deal with relationships with the opposite sex and how to identify the limits of friendship and love. One student even said that their biggest problem was how to deal with relationships between boys and girls rather than studies.

Some students thought that some of the sessions on interpersonal communication were impractical since facilitators did not know what students needed; teachers talked about rules theoretically without examples and skills. Peer education might be more suitable for the topic of interpersonal communication. But peer educators are short on experience, and they need more assistance from teachers. LPS training by teachers may be more suitable for knowledge transmission, which also would be welcomed by students.

Additionally, the topics of reproduction and contraception will likely remain sensitive in rural areas such as Shangcai for many years due to more conservative views. These norms and the low level of teachers' and parents' sexual and reproductive health knowledge might have affected the quality of sex education. Therefore, a variety of styles such as disseminating leaflets and playing videos can be used to ensure the effect of education, setting a telephone line for consultation, and providing guidance by professionals as well. At the same time, media can be used to construct a suitable social setting for conducting sex education.

Developing a systematic adolescent education with the combination of LPS training and peer education proved successful. Students can learn correct reproductive knowledge from teachers and build rational attitudes and they can freely communicate with others and make healthy choices. But the success of reproductive health education is linked to the department of education, mass media, and communities. Participatory LPS training and peer education should become normal methods for ASRH education in rural areas to improve the status of adolescents' reproductive health.

6.3 Need more intervention of SRH to study impact on behavior

Some research findings have shown that adolescent sexual and reproductive health education interventions can significantly change participants' unsafe behaviors.[19-20] In many domestic, short-term reproductive health education projects, participants' change in knowledge and attitudes can usually be observed; however, their behavior change can seldom be seen. Further research should be conducted to explore the relative effects of intervention time, methods, frequency, etc. In only three months, the education project had remarkably increased participants' knowledge of reproductive health and helped

lessen discrimination toward people living with HIV and AIDS. Results also showed that the intervention did not promote sexual intercourse, but rather helped students' tendency to postpone intimate behaviors. Results of this assessment support the need to carry out a follow-up study to evaluate the long-term effects of the project and the importance of conducting further studies on ASRH education's impact on youths' sexual behaviors.

6.4 Sex education needs joint participation of schools, families, and society

Sex education in the 21st century should be comprehensive reproductive health education and include physical and psychological development as well as sexual ethics. It should be integrated in adolescent education to help strengthen young people's character. Youth should learn about ASRH, including relevant skill sets for appropriate decision-making and life planning. However, it is not enough for only schools to take on the task of teaching reproductive health to students; parents are children's first teachers and young peoples' personalities and attitudes are greatly influenced by their families. Therefore, parents' role in sex education cannot be ignored. The study also showed that parents' perspectives on ASRH issues and their attitudes toward people living with HIV and AIDS greatly influenced their children. This result clearly shows how important it is to have parents and schools cooperating on students' ASRH education, particularly in rural areas. Providing appropriate education to students' parents could increase adult knowledge of puberty and AIDS and strengthen parent/child communication skills.

In addition, results of the study showed that both LPS training and peer education need support from the school and family. Therefore, on the one hand, government, education departments, and society should pay more attention to reproductive health education for adolescents; on the other hand, school staff and families should realize their responsibilities. At the same time, media can play a more active role in adolescents' ASRH education, such as creating a supportive environment for youth reproductive health projects. Altogether, the departments of education, family, and social media should work together to develop a feasible and systematic education pattern aimed to spread scientific sexual knowledge to teenagers, help them build positive values and morals, and assist them by providing correct information to make safe and healthy choices.

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Appendix 1: End Line Questionnaire

Informed Consent Form

Welcome to the Impact Evaluation Survey of China Youth Reproductive Health Project. China Family Planning Association (CFPA) and Program for Appropriate Technology in Health (PATH) jointly conduct the project in several selected areas. The purpose of this survey is to know what young people learned and what they understand about reproductive health. Reproductive health includes many things such as sexuality, reproduction, contraception, and sexually transmitted infections. We will use this information to help programs keep young people healthy and to prevent the spread of HIV and AIDS. Your school and you were chosen randomly to participate in this study.

Your participation in this survey is totally voluntary. If you agree to participate, the questionnaire will ask questions about you and your ideas, attitudes, behaviors, and experiences related to various issues. This is not a test, and you do not need worry about whether your answers are right or wrong. We are not asking your name or address on the questionnaire, and all of your answers will be confidential. No one in your family, school, or community will see your questionnaire or know any answers you give. Your answers will not be released to anyone, and we will not contact anyone you know about this interview. Please be honest and truthful in answering the questions. Some of the questions are very personal. If any question is too personal or you are too uncomfortable to answer it, you may skip the question. You may also stop answering the questionnaire at any time if you wish. It will take approximately 35 minutes to complete the questionnaire.

After filling out the questionnaire, if you have questions or want to talk about anything that was on the questionnaire, please let us know and we will discuss about them.

Do you have any questions before you fill out the questionnaire?

Please sign below to indicate that you have read the above information:

Signed: _____

Date: _____

Instructions on how to fill out the questionnaire:

1. Please read carefully every question and the options. Make a mark (circle) on those answers that best describe your situation. In case you need to write something, please write the answers on the line we provided.
2. Unless indicated, all questions should have only one answer. In some cases, you will need to skip some questions. Please follow the instructions and make sure you have answered all the questions.
3. If you want to erase an answer, please indicate by drawing two lines through it.
4. Although we have done our best to make the questions easy to understand, some of them may still seem unclear or difficult to understand. If you have any questions, please ask the survey supervisor and answer the questions according to their instructions.

Correspondent Code: ☐☐☐☐☐

(Filled by survey supervisor only)

SECTION I. Basic Iinformation

101. What was the date of your birth? Year____ Month _____

102. What is your gender?
1) Male
2) Female

103. What type of household registration do you have?
1) Urban
2) Town
3) Rural

104. Are you participating in the student government of your school or class this semester?
1) Yes
2) No

108. How would you rate your school academic performance during the semester?
1) Excellent, top 10 percent, very good, well above average
2) Good, above average
3) About average
4) Somewhat below average
5) Well below the average

109. How long do you usually spend watching TV, listening to the radio, reading the newspaper, and browsing the internet during your holiday/school breaks?
1) Less than 1 hour
2) 1-2 hours
3) 2-3 hours
4) More than 3 hours
5) Almost never
6) Hard to estimate

112. Have you been to clubs, bars, or parties during the last 3 months?
1) Yes
2) No (Skip to question 113)

112.1 If yes, with whom have you usually gone? (You may choose more than one answer)
1) Yourself alone
2) Parent(s)
3) Sibling(s)
4) Friend(s) of same sex
5) Friend(s) of opposite sex
6) Friends of both sexes
7) Other (Please specify) _____

113. Have you gone to cyber-cafés during the past last 3 months?
1) Yes
2) No (Skip to question 114)

113.1 If yes, with whom have you usually gone? (You may choose more than one answer)

1) Yourself alone
2) Parent(s)
3) Sibling(s)
4) Friend(s) of same sex
5) Friend(s) of opposite sex
6) Friends of both sexes
7) Other (Please specify) _____

114. Have you gone to movies or video shows in the past 3 months?

1) Yes
2) No (Skip to question 115)

114.1. If yes, with whom have you usually gone? (You may choose more than one answer)

1) Yourself alone
2) Parent(s)
3) Sibling(s)
4) Friend(s) of same sex
5) Friend(s) of opposite sex
6) Friends of both sexes
7) Other (Please specify) _____

115. Do you smoke cigarettes? If yes, how many times in the past month?

1) Never
2) ____times

116. Do you drink alcohol? If yes, how many times in the past month?

1) Never
2) ____times

117. How well does each of the following statements describe your feelings about yourself? (Please mark a " " under options that apply)

	Not at all	**Less**	**Much**	**Best**
A. I feel I am very popular among and respected by my friends	1	2	3	4
B. I feel I am as important to my family as other members	1	2	3	4
C. I feel I am the kind of person capable of doing many things; I believe I am capable of achieving many things	1	2	3	4
D. I am not sure how to feel proud of myself.	1	2	3	4
E. Whatever I do, I can make myself happy	1	2	3	4
F. I am satisfied with relationships that I have with people surrounding me	1	2	3	4
G. I know my weaknesses and how to deal with them	1	2	3	4
H. I feel that many things I do are meaningless	1	2	3	4
I. I am quite sure what kind of person I will turn out to be in the future and know how to achieve my goals	1	2	3	4
J. I believe that I have success in many aspects of my life	1	2	3	4

SECTION II. Family and Peers

201. Please tell us more about your family members and their background.

	A. Relation to you	**B. Occupation**	**C. Education status**
Code	1. Father 2. Mother 3. Brothers 4. Sisters 5. Grandfather 6. Grandmother 7. Others (Please specify)	1. Farmer 2. Migrant; nonagricultural worker 3. Commercial/service 4. Self-employed 5. Teacher/governmental employee/technical /staff 6. Businessman (woman) 7. Student 8. Military personnel Army man policeman 9. Others (Please specify)	1. Illiterate 2. Primary 3. Middle school 4. High school 5. College or above 6. Don't know
1			
2			
3			
4			
5			
6			
7			
8			

202. In your opinion, what economic status does your family have compared to local income standard?

1) Well off
2) Just above average
3) About average
4) Somewhat below average
5) Far below average

204a. How many rooms are there in your home?

204b. Your house is:

1) a family-owned house
2) a family-owned brick house
3) a family-owned storied building
4) a family-owned apartment
5) rented room
6) Others (Please specify) _____

205. How much money does your family give you monthly for living expenses?

RMB _____Yuan (if you live in school)

How much pocket money does your family give to you monthly?

RMB _____Yuan (if you don't live in school)

206. Do you find it is difficult or easy to share your school life with your parents?
1) Very easy
2) Easy
3) Average
4) Difficult
5) Very difficult

207. Who in your family will you first talk to or discuss about things that are important to you?
1) Mother
2) Father
3) Sibling(s)
4) Teachers
5) Friend(s) of same sex
6) Friend(s) of opposite sex
7) Professional
8) Other (Please specify) _____
9) Nobody

208. Have your parents shown interest in your following activities in the last 12 months? (Please mark a " " on the options that apply)

	Father			Mother		
	Yes	**No**	**Don't know**	**Yes**	**No**	**Don't know**
A. Music or TV programs you like	1	0	9	1	0	9
B. Your appearance: dress and hairstyle	1	0	9	1	0	9
C. Reading choices	1	0	9	1	0	9
D. Your manners	1	0	9	1	0	9
E. Your life style such as smoking or drinking alcohol	1	0	9	1	0	9
F. Friends of same sex	1	0	9	1	0	9
H. Friends of opposite sex	1	0	9	1	0	9
I. Your academic performance	1	0	9	1	0	9
J. Your future career	1	0	9	1	0	9
K. Your health and development	1	0	9	1	0	9

209. How would you feel talking about sexual issues with your parents?
1) Very easy
2) Easy
3) Average
4) Difficult
5) Very difficult

210. What about your own sexual development do you tell your parents?
    1) I tell them almost everything
    2) I tell them only what they would approve of
    3) I only talk in a general way about sex, not specifically about me
    4) I tell them nothing

211. Have you ever asked your parents questions related to the following items? (Check all that apply)
    1) Puberty (ejaculation, masturbation, menstruation)
    2) Relationship with opposite sex/dating/marriage
    3) Reproduction
    4) Contraception
    5) STIs or HIV/AIDS
    6) Never (Skip to Question 213)

212. What was their reaction?
    1) Gave me satisfying answer
    2) Gave me an unsatisfying answer
    3) Evaded question
    4) Not able to answer
    5) Scolded me
    6) Others (Please specify)_____

If 4) After answering the Question 212, skip to Question 214

213. Why you did not ask your parents? (Check all that apply)
    1) Felt ashamed
    2) Thought they would not give me answer
    3) Thought they would scold me
    4) Believed they couldn't answer
    5) Had no question
    6) Could deal with it by myself
    7) Other (Please specify)_____

214. How would you describe your parents in terms of their attitudes towards sexual affairs among unmarried youths?
    1) Very liberal
    2) Liberal
    3) Average
    4) Conservative
    5) Very conservative
    6) Don't know

215. If your parents acknowledged that you were in love, how would they react?
    1) Very angry
    2) A little angry
    3) They wouldn't care
    4) A little pleased
    5) Very pleased
    9) Don't know

216. If you have siblings, do you discuss sex-related issues with them?
    1) Yes
    2) No
    3) Don't have sibling

217. How many of your close friends are out of school?
    1) Most of them
    2) About half
    3) Fewer than half
    4) None

218. Are "dirty" jokes common among your friends?
    1) Yes
    2) No

219. Have you ever watched adult materials (pornography)?
    1) Yes
    2) No

221. What do you think of adult materials (pornography)?
    1) A shortcut to get reproductive and contraceptive knowledge
    2) Unhealthy
    3) It will mislead adolescent
    4) Nothing but a way to kill time
    5) Others (Please specify)_____

222. Have you browsed web sites containing pornography this semester?
    1) Yes
    2) No

223. Have you ever seriously talked about sex-related issues with your best friends?
    1) Yes
    2) No

224. If you have some sexual concerns about yourself, who will you talk to first?
    1) Mother
    2) Father
    3) Sibling(s)
    4) Teachers
    5) Friend(s) of same sex
    6) Friend(s) of opposite sex
    7) Professionals
    8) Other (Please specify) _____
    9) Nobody

225. To the best of your knowledge, how many of your friends are dating?
    1) Most of them
    2) About half
    3) Some
    4) None
    5) Don't know

226. As far as you know, about how many of out-school youths of your age are dating?
   1) Most of them
   2) About half
   3) Some
   4) None
   5) Don't know

SECTION III. Knowledge of Reproductive Health

301. Please indicate whether the following statements about puberty are true or false. (Please make a " " on the options that you think are true)

	True	False	Don't know
A. Boys and girls enter puberty at the same time	1	0	9
B. Although a pattern exists, puberty differs by person	1	0	9
C. Wet dreams are normal for a boy who has entered puberty	1	0	9
D. Only boys masturbate	1	0	9
E. Even occasional masturbation leads to sexual dysfunction in later life	1	0	9
F. A girl can take a bath during her period	1	0	9
G. Both boys and girls should pay attention to the hygiene and take care of cleaning their genital areas	1	0	9
H. Adolescents always like new views and would like to try new behaviors	1	0	9

302. During which part of the menstrual cycle is a woman most likely to become pregnant?
   1) Before menstruation
   2) During menstruation
   3) After menstruation
   4) About 14 days before menstruation
   5) In the middle of menstrual circle
   6) Don't know

303. Please indicate whether the following statements about reproduction biology are true or false. (Please make a " " on the options that you think are true)

	True	False	Don't know
A. A girl can get pregnant after her first period	1	0	9
B. A girl can get pregnant on the first sexual intercourse if she has already had her first period	1	0	9
C. A girl stops growing after she has intercourse for the first time	1	0	9
D. A girl can only get pregnant if she has sexual intercourse during those days in the middle of menstrual cycle	1	0	9
E. Infrequent intercourse cannot cause a girl to become pregnant even if she has experienced her menstruation	1	0	9
F. A boy who already has had ejaculation or experienced a wet dream can make a girl pregnant the first time he has sexual intercourse	1	0	9
G. A girl can avoid pregnancy by urinating or washing her genitals immediately after intercourse	1	0	9

304. Please tell us how much you know about the following contraceptive methods. (Please make a " " on the options that apply)

A. Contraceptive	B. Have heard of		C. Effectiveness			D. Suitable for unmarried youth			E. Can prevent STIS/HIV		
	No	Yes	High	Low	DK*	Yes	No	DK	Yes	No	DK
A. Withdrawal	0	1	1	0	9	1	0	9	1	0	9
B. Rhythm	0	1	1	0	9	1	0	9	1	0	9
C. Oral pills	0	1	1	0	9	1	0	9	1	0	9
D. Condom	0	1	1	0	9	1	0	9	1	0	9
E. IUD	0	1	1	0	9	1	0	9	1	0	9
F. Injection	0	1	1	0	9	1	0	9	1	0	9
G. Foam	0	1	1	0	9	1	0	9	1	0	9
H. Emergency contraceptive	0	1	1	0	9	1	0	9	1	0	9
I. Sterilization	0	1	1	0	9	1	0	9	1	0	9

* Don't know.

305. Have you ever heard of any sexually transmitted infection (STI)?
1) Yes
2) No (Skip to Question 309)

306. Can the following activities transmit STIs? (Please make a " " on the options that apply)

	Yes	No	Don't Know
A. Sexual intercourse	1	0	9
B. Kissing	1	0	9
C. Shaking hands	1	0	9
D. Hugging	1	0	9
E. Sharing towel or washing utensils	1	0	9
F. Sharing toilet	1	0	9

307. "If a person is infected with STIs, he/she will surely have noticeable symptoms," is that right?
1) Yes
2) No
3) Don't know

308. "STIs may interfere with a woman's fecundity in later life", is that right?
1) Yes
2) No
3) Don't know

309. Have you ever heard of HIV/AIDS?
1) Yes
2) No (Skip to Question 324)

310. Do you think HIV infection equals AIDS?
1) Yes
2) No
3) Don't know

311. Which body fluids can transmit HIV and lead to AIDS? (Check all that apply)
    1) Blood
    2) Sweat
    3) Semen
    4) Vaginal discharge
    5) Saliva
    6) Urine
    7) Milk
    8) Don't know

312. It is possible for a woman who is infected with HIV during her pregnancy to transmit HIV to her fetus?
    1) Yes
    2) No
    3) Don't know

313. Will all people who are infected with HIV develop AIDS within one year?
    1) Yes
    2) No
    3) Don't know

314. "People with HIV/AIDS always look emaciated or unhealthy in some way, so a person who looks healthy is free of HIV infection," is that right?
    1) Yes
    2) No
    3) Don't know

315. Which of the following activities can transmit HIV/AIDS?
(Please make a " " on the options that apply)

	Yes	**No**	**Don't know**
A. Shaking hand or hugging	1	0	9
B. Social kissing	1	0	9
C. Sexual intercourse	1	0	9
E. Sharing toilet/bath tubs/telephone/swimming pool	1	0	9
F. Insect bites	1	0	9
G. Blood transfusion	1	0	9
H. Sharing needles among drug users	1	0	9

316. Can HIV/AIDS be prevented?
    1) Yes
    2) No (Skip to Question 318)
    3) Don't know (Skip to Question 318)

317. How can HIV/AIDS be prevented? (Check all that apply)
    1) Exercise more
    2) Stick to one sexual partner
    3) Use condoms correctly and constantly
    4) Improve nutrition status
    5) Avoid unsafe blood transfusions
    6) Avoid sharing syringes/needles
    7) Abstinence
    8) Don't know

318. Which of the following can detect HIV?
    1) Measure blood pressure
    2) Examine genitals
    3) Measure body weight
    4) Test the blood
    5) X-ray examine
    6) Don't know

319. "A person who has been infected by HIV can be diagnosed easily within one week after the infection," is that right?
    1) Yes
    2) No
    3) Don't know

320. "Even a single unsafe sexual intercourse may result in transmission of HIV", is that right?
    1) Yes
    2) No
    3) Don't know

321. "A teenager may get infected with HIV even when he/she has sex for the first time in his/her life," is that right?
    1) Yes
    2) No
    3) Don't know

322. Can AIDS be cured now?
    1) Yes
    2) No
    3) Don't know

323. "Using condoms correctly and regularly can greatly reduce the risk of getting HIV/AIDS," is that right?
    1) Yes
    2) No
    3) Don't know

324. Which of the following activities can be seen as using condom correctly?
(Please mark a " " on the options that apply)

	Yes	No	Don't know
A. Select a high-quality and well-known brand condom	1	0	9
B. Check the manufacture date and expiry date of the condom	1	0	9
C. Check the packaging of the condom and affirm it is intact	1	0	9
D. Read instructions before using a new type or brand condom	1	0	9
E. Wash condom completely after use and keep for reuse	1	0	9
F. Put condom on penis and push air out of front tip bag	1	0	9
G. Pull penis and condom out of vagina immediately after ejaculation	1	0	9
H. Use oil lubricant if necessary	1	0	9

325. Which of the following may be caused by using drugs? (Check all that apply)
1) Physical damage to body organs
2) Increased the chance of HIV infection and other diseases
3) Addiction
4) Mood disorder, psychiatric
5) Induced to criminal activities
6) Increased incidence of prostitution
7) Don't know

SECTION IV. Attitudes and Skills

400. If your friend offered you a cigarette or drink, do you believe you are capable of refusing it without compromising your friendship?
1) Definitely
2) Yes, but to a less certainty
3) Maybe, not sure
4) Afraid not
5) Definitely not

401. Do you agree or disagree with following statements?
(Please mark a " " on the options that apply)

	Agree	Disagree	Don't know
A. I believe it is natural for a boy of my age to have sexual dreams	1	0	9
B. I believe it is natural for a girl of my age to have sexual dreams	1	0	9
C. I believe it is natural for a boy of my age to fantasize about sex	1	0	9
D. I believe it is natural for a girl of my age to fantasize about sex	1	0	9
E. I believe it is okay for a boy of my age to masturbate	1	0	9
F. I believe it is okay for a girl of my age to masturbate	1	0	9
G. It is natural for people at my age to have an interest in pornographic materials	1	0	9

402. Do you think dating will interfere with your study?
   1) Yes
   2) No

403. "I think it is okay for people of my age to go on dates if it does not interfere with their study," do you agree or disagree with that?
   1) Strongly Agree
   2) Agree
   3) Hard to tell
   4) Disagree
   5) Strongly disagree

405. When people of your age are dating, is it appropriate for them to engage in the following behaviors? (Check all that apply)
   1) Holding Hands
   2) Kissing
   3) Hugging
   4) Petting
   5) Sexual Intercourse
   6) Don't know

406. Do you agree or disagree with the following statements?

	Agree	**Disagree**	**Don't know**
A. Sex is a way to show young people's maturity	1	0	9
B. People of my age are very unlikely to have sexual intercourse	1	0	9
C. I feel jealous of people my age who have had a chance to have sex	1	0	9
D. I think most people of my age wouldn't refuse sex if they had the chance	1	0	9
E. Sex before marriage is okay if they are really in love	1	0	9
F. Premarital sex can make a girl lose self-respect and dignity, but not boys	1	0	9
G. If most people my age have experienced sex, I will also do it in the near future	1	0	9
H. Providing contraceptive methods to adolescents means you permit sexual behaviors before marriage.	1	0	9
I. If I do not want to have sex at this moment, I am able to refuse it	1	0	9
J. If I were sexually harassed, I know how to protect myself	1	0	9
K. If I have sex, I will take some protective measures to prevent pregnancy and diseases	1	0	9

407. When do you plan to marry?

408. Do you agree or disagree with the following statements?
(Please mark a " " on the options that apply)

	Agree	Disagree	Don't know
A. For young people, knowing more about condoms is a sign of caring about oneself	1	0	9
B. If she insists on using a condom, a woman would be considered by her partner as disrespectful	1	0	9
C. Asking questions about condoms is difficult because it looks as if I plan to have sex	1	0	9
D. It is embarrassing for people my age to purchase condoms	1	0	9
E. The main purpose for using condoms among people of my age is to prevent pregnancy	1	0	9
F. I do not want to know much about condoms because I don't want to have sex at this moment	1	0	9
G. If your partner does not want to use condoms, you can do nothing to change her/his mind	1	0	9
H. If my parents find out that I carry condoms, I will be in real trouble	1	0	9
I. Using a condom is very difficult for the first sex act	1	0	9
J. Most young people use condoms during sex	1	0	9

409. Please imagine what your friend (of the same sex) should do in the following situations.

409.1. He/she is home alone with his/her girlfriend/boyfriend. They start to kiss and touch and don't want to stop. The girlfriend/boyfriend makes a request to have sex, but your friend has no intention to have sex at this age. Check the one thing your friend should do.

1) Stop those intimacies and leave as soon as possible
2) Keep going and if she/he insists, have sex without a contraceptive
3) Slow down and try to find a condom and then have sex
4) Stop and do something else before they go too far, like get something to eat or try to enjoy a good CD
5) Tell girlfriend/boyfriend his/her true feelings and do not have sexual intercourse
6) Don't know

409.2. Your friend wants to have sex with his/her partner, the partner insists on using a condom but neither of them has one. Check the one thing that your friend should do.

1) Try to convince her/him to have sex without a condom.
2) Go get a condom.
3) Tell her/him to forget about it and not to have sex
4) Don't know

409.3. Your friend is home alone with his/her partner. They have had sex with each other before, but your friend does not want to have sex at this age any more. The girlfriend/boyfriend makes the request to have sex again. Check the one thing that your friend should do.
1) Tell girlfriend/boyfriend his/her true feelings and do not have sexual intercourse
2) Find some other topics and shift her/his attention
3) Have sexual intercourse if she/he insist
4) Tell her/him that you are not in the mood, maybe some other day
5) Just ignore her/his request and leave
6) Don't know

410. "In the countryside, only people who donated plasma in the past will be infected with HIV," do you agree or disagree with that?
1) Strongly agree
2) Agree
3) No opinion
4) Disagree
5) Strongly disagree
9) Don't know

411. Have you ever discussed AIDS with your parents?
1) Yes
2) No

412. What do you think would be your parent's response to HIV patients? (Check all that apply)
1) Fear
2) Disgust
3) Avoid contact
4) Blame
5) Sympathy
6) Show great concern
7) Provide help if needed
8) Other (Please specify) _____
9) Don't know

413. Have you ever talked about AIDS with your classmates?
1) Yes
2) No (Skip to Question 415)

414. What was their response?
1) Fear
2) Disgust
3) Sympathy
4) Avoid contact
5) No opinion
6) Other (Please specify) _____

415. Have you ever talked about AIDS with your teacher?
   1) Yes
   2) No (Skip to Question 417)

416. What was their response?
   1) Fear
   2) Disgust
   3) Sympathy
   4) Avoid contact
   5) No opinion
   6) Scolded me
   7) Other (Please specify) _____

417. Are you willing to do the following activities with an HIV-infected person?

	Yes	No
A. Eat together		
B. Study in the same class		
C. Patron the services provided by them		
D. Go to their homes		
E. Use the same telephone		

418. "HIV-positive persons or AIDS patient should be quarantined from the rest of society," do you agree or disagree with that?
   1) Strongly agree
   2) Agree
   3) No opinion
   4) Disagree
   5) Strongly disagree
   6) Don't know

419. Can children who are infected with HIV go to school?
   1) Yes
   2) No
   3) Don't know

420. What would you do if you thought you might be infected with HIV? (Check all that apply)
   1) Tell your parent
   2) Go to hospital secretly
   3) Avoid contact with friends/classmates
   4) Self-medicate
   5) Go to a private clinic
   6) Keep it secret, live as a normal person
   7) Leave school secretly
   8) Run away from home
   9) Other (Please specify) _____

421. Has anyone you know been infected by HIV?
    1) Yes
    2) No
    3) Don't know

422. Has anyone you know died of AIDS?
    1) Yes
    2) No
    3) Don't know

423. Will you avoid contact with people with HIV when you meet them?
    1) Yes
    2) No
    3) Don't know

424. Will you avoid contact with classmates because they come from districts with high HIV prevalence?
    1) Yes
    2) No
    3) Don't know

425. If one of your neighbors were infected with HIV, how would you treat him/her? (Check all that apply)
    1) Fear
    2) Disgust
    3) Avoid contact
    4) Blame
    5) Sympathy
    6) Be concerned about
    7) Provide help if needed
    8) Other (Please specify) _____

426. If one of your family members were infected with HIV, how would you treat him/her? (Check all that apply)
    1) Fear
    2) Disgust
    3) Avoid contact
    4) Blame
    5) Sympathy
    6) Be concerned about
    7) Provide help if needed
    8) Other (Please specify) _____

SECTION V. Personal Development and Behavior

507. Have you ever thought about or worried about whether you are normal in terms of your growth and development?
   1) Yes
   2) No

508. Boys and girls will have sexual urges at a certain age; have you ever had this experience?
   1) Yes
   2) No (Skip to question 511)

509. When did this happen to you?
   I was about _____ years old and in grade _____

510. What did you do when you had sexual urges?
   1) Masturbate
   2) Have intercourse
   3) Watch pornography materials
   4) Find something to do to shift attention
   5) Other (Please specify) _____

511. How old were you (if ever) when you masturbated for the first time?
   1) I was _____ years old when I was in grade _____
   2) Never (Skip to Question 515)

512. How frequently do you masturbate?
   1) Once or more than once a day
   2) Two to six times a week
   3) Once a week
   4) Once a month
   5) Less than once a month
   6) I don't remember

513. When do you feel like masturbating? (Check all that apply)
   1) Aroused by pornography
   2) Aroused by romantic ideas
   3) Unhappy
   4) Low self-esteem
   5) Tense or nervous
   6) No particular moment, just as condition permits
   7) Others (Please specify) _____

514. Do you feel guilt or anxiety after masturbation?
   1) Yes
   2) No

515. There comes a time when one is unusually attracted to someone of the opposite sex and wants to be physically close to her/him. Has this happened to you?
1) I was _____ years old when I was in grade _____
2) Never

516. Have you ever gone steady with someone of the opposite sex (dated one person and no one else)?
1) Yes (Skip to Question 517)
2) No

516.1 Why have you not gone steady? (Check all that apply)
1) I don't want be involved too early
2) Have not met people of my type
3) Don't have interest
4) Don't know how to deal with heterosexual relationship
5) Afraid that it may interfere with my study
6) Not allowed by my parents
7) Not allowed by school and teachers
8) Not welcomed by my friends
9) I am not economically independent
10) I suspect that I may have some problem with my sexual development
11) Other (Please specify) ____

(After answering 516.1, skip to Question 519)

517. When did you begin dating a person of the opposite sex?
I was about _____ years old and in grade _____

518. What is the most important reason for you go steady with the opposite sex?
(Check all that apply)
1) To prepare for a happy family later
2) Majority of my friends are doing it
3) I really love her/him
4) I appreciate his/her ability and skill
5) He/she likes me and is very kind to me
6) I don't know how to refuse him/her
7) We studied or worked together and gradually developed feelings for each other
8) Other (Please specify) _____

519. Have you engaged in the following behaviors with a person of the opposite sex during the past 12 months?

	Yes	**No**
A. Holding hands	1	0
B. Hugging	1	0
C. Kissing	1	0
D. Petting	1	0

520. Have you had sexual intercourse with a person of the opposite sex?
   1) Yes
   2) No (Skip to Question 601)

520.1 How old were you when you had sex for the first time?
   I was _____ years old and in grade ___

521. Under what condition did your first sexual intercourse happen?
   1) It was planned and voluntary
   2) It was planned but with some opposition from me
   3) It was planned but with strong opposition from me
   4) It was unplanned but without any opposition
   5) It was unplanned and not voluntary
   6) It was unplanned and with my strong opposition
   7) Don't remember

522. Was your first sexual partner of your age, younger, or older than you?
   1) More than 3 years younger than you
   2) A little bit (within 3 years) younger than you
   3) Almost the same age
   4) A little bit (within 3 years) older than you
   5) More than 3 years older than you
   6) Have no idea

523. What was the reason you had sexual intercourse for the first time?
   1) Felt physical urge
   2) To satisfy partner's need
   3) To express love and intimacy
   4) To get gifts or money
   5) To have a child
   6) Was forced/raped
   7) Others (Please specify)_____

524. What was your feeling after you have your first sexual intercourse? (Check all that apply)
   1) Thrilled
   2) Proud
   3) Regretful
   4) Worried about being pregnant
   5) Disappointed
   6) Fear others will know
   7) Ashamed
   8) Hurt
   9) Other (please specify) _____

525. Did you or he/she do anything to avoid pregnancy or protect against STIs the first time you had sexual intercourse?
   1) Yes (Skip to Question 526)
   2) No

525.1 Why didn't you use contraceptives when you had sexual intercourse for the first time?

1) I knew nothing about that
2) I did not know where to get contraceptives
3) My partner didn't want use any
4) No need, because you can't get pregnant the first time you have sex
5) It cost too much
6) Because I didn't expect to have sex
7) I was too embarrassed to buy and use it
8) Worried about the side effects
9) Other (Please specify)_____

(After answering 525.1, skip to Question 527)

526. What method did you use when you had your first sexual intercourse?

1) Condom
2) Pill
3) Injection
4) Withdrawal
5) Rhythm
6) Emergency contraception
7) Other (Please specify) _____

527. Did you or your partner do anything to avoid pregnancy for the most recent sexual intercourse?

1) Yes (Skip to Question 528)
2) No
3) Not applicable (Skip to Question 601)

527.1 Why didn't you use contraceptives for the most recent intercourse?

1) I knew nothing about that
2) I did not know where to get contraceptives
3) My partner didn't want use any
4) No need, because you can't get pregnant the first time you have sex
5) It cost too much
6) Because I didn't expect to have sex
7) I was too embarrassed to buy and use it
8) Worried about the side effects
9) Other (Please specify)_____

(After answering 527.1, skip to Question 601)

528. What method did you use during your most recent intercourse?

1) Condom
2) Pill
3) Injection
4) Withdrawal
5) Rhythm
6) Emergency contraception
7) Other (Please specify) _____

SECTION VI. Evaluation

601. Have you had classes on reproductive health or HIV prevention this semester?
   1) Yes
   2) No (Skip to Question 603)

602. Please fill in the blank in the following table based on education you received

Topic	**Received** 1. In a week 2. In a month 3. In 2 months 4. Before 2 months	**Means (Check all that apply)** 1. Had classes 2. Had peer education 3. Watched TV/VCD 4. Others	**Evaluation on the curricula** 1. Very useful 2. Useful 3. Useful, but information was repeat 4. Impractical
A. Reproductive physiology and psychology			
B. HIV/AIDS prevention			
C. Value and decision making			
D. Interpersonal relationship			
E. Future life plan			
F. Reproduction and contraception			
G. Sex and sexual behavior			
H. STI prevention			
J. Drug abuse prevention			

603. Have you ever received any handouts/pamphlets related to adolescent reproductive health education in school? How many handouts/pamphlets did you received?
   1) No (Skip to Question 606)
   2) Yes, _____ handouts/pamphlets

604. How did you deal with these pamphlets?
   1) Read all
   2) Read most
   3) Partly interested
   4) Simply browsed
   5) Not at all interested

605. How would you evaluate these pamphlets?
   1) Very useful
   2) Useful
   3) Repeated
   4) Not useful
   5) Impractical
   9) Didn't know

606. Which means are the three most preferable sources for you to get information on sex and reproductive health besides receiving reproductive health education?
(Most preferable = 1, the second most preferable =2, the third most preferable=3)
1) Counseling room/hotlines
2) Interaction with friends and classmates
3) Parents, relatives, siblings
4) Medical personnel
5) Books, magazines, medical readings/novels, and leisure readings
6) Mass media
7) Internet
8) Ads and posters
9) Other (Please specify) _____
10) None

607. Does your school provide a counseling room and services for students seeking health information?
1) Yes
2) No

<u>This is the end for The Fourth Senior High School students.</u>

608. Are you a peer educator in your class?
1) Yes
2) No

609. Please point out which is the logo of the China Youth Reproductive Health Project by marking it with a " "

1)  2)  3) 

610. What do you think of the teachers who facilitated LPS sessions?
1) Excellent
2) Good
3) Average
4) Poor
5) Unknown

611. What do you think of the peer educators?
1) Excellent
2) Good
3) Average
4) Poor
5) Unknown

612. Have you ever shared information on sexual and reproductive health with others?
   1) Yes
   2) No

613. What do your parents, relatives, and friends think of life-planning skills training?
   1) Strongly agree
   2) Agree
   3) Don't agree
   4) Strongly disagree
   5) Don't know

614. What means do you recommend taking to improve the effect of life-planning skill training?
   1) Have classes
   2) Have peer education
   3) Watch TV/VCD
   4) Lectures
   5) Others (Please specify) _____
   9) Don't know

615. In your opinion, which topics should be included more in life-planning skill training? (Check all that apply)
   1) Reproductive physiology and psychology
   2) HIV/AIDS prevention
   3) Values and decision-making
   4) Interpersonal relationships
   5) Planning for the future
   6) Reproduction and contraception
   7) Sexuality and sexual behavior
   8) STI prevention
   9) Drug abuse prevention

616. Is it necessary to carry out youth reproductive health education in Shangcai County?
   1) Yes
   2) No

This is the end of questionnaire. We thank you for your participation and time!

Appendix 3: Tables

Appendix table 4.1.1 Comparison of respondents' characteristics (%)

Characteristic	Baseline survey		End line survey	
	Intervention group (n=717)	Control group (n=457)	Intervention group (n=659)	Control group (n=441)
Age				
Under 16	39.75	30.42*	24.13#	18.82*#
16-17	43.93	47.92	49.47	42.86
Over 17	16.32	21.66	26.40	38.32
Sex				
Male	59.27	56.24	58.21	55.91
Female	40.73	43.76	41.79	44.09
Academic performance•				
Well above average	8.23	5.91*	12.01#	18.68#
About average	71.27	65.86	83.59	75.40
Well below the average	20.50	28.23	4.41	5.92
Residence registration				
Urban/township	18.23	21.44	22.19	22.32
Rural	81.77	78.56	77.81	77.68
Type of family@				
Large family	30.96	37.42	29.89	30.39
Core family	67.36	61.49	68.44	68.25
Single parent	1.67	1.09	1.67	1.36
Economic status•				
Well off	23.27	22.65	21.40	22.95
About average	58.17	54.22	59.79	56.36
Below average	18.56	23.13	18.82	20.68
Father's occupation				
Farmer	44.52	44.24	41.42	41.59
Worker/self-employed	24.50	23.02	24.57	22.90
Business person	18.30	18.06	19.21	21.03
Teacher/governmental/professional	12.68	14.68	14.80	14.48
Mother's occupation				
Farmer	65.01	64.83	63.58	64.24
Worker/self-employed	12.10	11.03	12.09	11.53
Business person	14.87	7.82	15.38	15.06
Teacher/governmental/ professional	8.02	16.32	8.95	9.18

Characteristic	Baseline survey		End line survey	
	Intervention group (n=717)	Control group (n=457)	Intervention group (n=659)	Control group (n=441)
Father's education status•				
Illiterate/primary	12.99	10.91	10.30	9.91
Junior secondary	46.13	42.95	47.39	42.69
Senior secondary	37.81	41.59	38.67	41.27
College or above	3.07	4.55	3.65	6.13
Mother's education status•				
Illiterate/primary	39.82	39.31	37.54	36.10
Junior secondary	37.17	37.47	37.22	38.24
Senior secondary	22.57	21.84	23.50	24.70
College or above	0.44	1.38	1.74	0.95
Perceived care from father•				
Very good	14.78	14.66	21.70#	21.32
Good	52.16	52.95	48.25	46.71
Average	33.05	32.39	30.05	31.97
Perceived care from mother•				
Very good	8.79	10.07	19.58#	17.69#
Good	65.41	58.86	59.33	58.73
Average	25.80	31.07	21.09	23.58

Note: Nonsequential variables tested by Pearson Chi-square; sequential variables tested by CMH Chi-square.
•Sequential variables.
*P<0.05, Chi-square test between the intervention and control group.
#P<0.05, Chi-square test between two surveys.
@ Large family means a big family including children, parents, grandfather and/or grandmother, and all the family members live together. Core family means a family only including children and parents. Single parent means a family only including children and mother or father.

Appendix table 4.1.2 Comparison of median scores of reproductive health knowledge

Knowledge scores	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457	End line (n=441)	Diff.
Physical development	37.50#	50.00	12.50	37.50#	43.75*	6.25
Contraceptives	13.64#	29.55	15.91	13.64#	18.18*	4.56
STIs	57.14#	71.43	14.29	57.14#	71.43*	14.29
AIDS	51.52#	78.79	27.27	54.55	57.58*	3.03
Drug abuse	66.67#	100.00	33.33	66.67	83.33*	16.66
Total	34.91#	55.66	20.75	34.91#	38.68*	3.77

*P<0.05,W-M-W test between two groups. #P<0.05,W-M-W test between two surveys.

Appendix table 4.1.3 Proportion of correct answers on questions about reproductive knowledge (%)

Questions	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457)	End line (n=441)	Diff.
Do boys and girls enter puberty at the same time? (No)	70.15	69.65	-0.50	65.65	71.36	5.71
Do adolescent growth and growth rates differ by person? (Yes)	92.33	94.54	2.21	91.47	90.00*	-1.47
Are wet dreams normal for a boy who has entered puberty? (Yes)	68.34#	83.43	15.09	67.61#	75.17*	7.56
Do only boys masturbate? (No)	53.84#	68.69	14.85	57.11#	65.60	8.49
Does even causal masturbation lead to sexual dysfunction in later life? (No)	26.64#	51.59	24.95	27.57	40.96*	13.39
Can a girl wash in a tub during her period? (No)	37.24#	57.77	20.53	42.45#	41.95*	-0.50
Do both boys and girls need to pay attention to hygiene of their sexual organs? (Yes)	89.26#	94.52	5.26	88.62	90.43*	1.81
Do young people always try to experience new behavior? (Yes)	56.21#	69.86	13.65	50.77#	59.77*	9.00
In which part of the menstrual cycle are women most likely to become pregnant? (14 days before next menses)	7.68#	23.20	15.52	7.88#	13.89*	6.01
Is a girl fertile after her menarche? (No)	22.04#	41.98	19.94	22.98	28.08*	5.10
Can a girl get pregnant only during the days in the middle of her menstrual cycle? (No)	10.18#	23.74	13.56	10.72#	16.98*	6.26
Can infrequent intercourse cause a girl to become pregnant after she has begun to have her periods? (Yes)	19.53#	38.23	18.70	22.54#	18.38*	-4.16
Can a boy who has had a wet dream make a girl pregnant the first time he has sexual intercourse? (Yes)	16.46#	32.42	15.96	19.04#	24.43*	5.39
Can a girl avoid pregnancy by urinating or washing her genitals immediately after intercourse? (No)	17.29#	32.16	14.87	14.44	22.65*	8.21

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.1.4 Proportion of awareness of contraceptives (%)

Methods	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457)	End line (n=441)	Diff.
Withdrawal	17.21#	35.42	18.21	21.78#	29.36*	7.58
Rhythm	14.35#	31.66	17.31	16.89#	25.47*	8.58
Oral contraceptives	37.91#	65.85	27.94	38.58#	54.76*	16.18
Condom	47.87#	82.49	34.62	48.56#	64.34*	15.78
Emergency contraceptives	8.24#	19.03	10.79	10.67	14.29*	3.62

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.1.5 Proportion of knowledge of contraceptive effectiveness (%)

Knowledge of effectiveness	Intervention group		Control group	
	Baseline	End line	Baseline	End line
Withdrawal (Low)	55.26	23.04	44.44	24.80
Rhythm (Low)	26.32	16.08	31.94	26.98
Oral contraceptives (High)	62.55	35.85*	62.13	27.83
Condoms (High)	77.88	62.52*	75.12	48.86
Emergency contraceptives (High)	43.64	23.33	46.51	25.86

*P<0.05, Chi-square test between two groups.

Appendix table 4.1.6 Proportion of correct answers on STI questions (%)

Questions	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457)	End line (n=441)	Diff.
Whether STIs can be spread through						
Sexual intercourse (Yes)	69.89#	87.80	17.91	65.21	69.34*	4.13
Kissing (No)	37.54#	67.28	29.74	40.26	43.71*	3.45
Shaking hands (No)	58.26#	88.28	30.02	57.33	62.16*	4.83
Hugging (No)	56.16#	86.76	30.60	56.46	61.70*	5.24
Does a person infected by STIs always have noticeable symptoms?(No)	16.11#	48.55	32.44	16.45#	25.86*	9.41
Can STI infection interfere with a woman's fecundity in later life? (Yes)	11.48#	32.42	20.94	16.19*	17.89*	1.70

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.1.7. Proportion of correct answers on AIDS questions (%)

Questions	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457)	End line (n=441)	Diff.
Have you heard of AIDS? (Yes)	94.14#	96.81	2.67	92.56#	87.24*	-5.32
Can HIV be spread through:						
Shaking hands/hugging (No)	69.87#	94.68	24.81	71.49#	79.68*	8.19
Kissing (No)	41.14#	83.28	42.14	47.37*#	57.76*	10.39
Sexual intercourse (Yes)	77.96#	93.16	15.20	72.37*	77.17*	4.80
Sharing toilets and bathtubs (No)	45.05#	86.63	41.58	46.49#	54.69*	8.20
Insect bites (No)	22.45#	85.54	63.09	25.88	27.56*	1.68
Blood transfusion (Yes)	85.22#	94.37	9.15	82.02	84.97*	2.95
Sharing needles for drug use (Yes)	79.92#	94.53	14.61	78.51	80.64*	2.13
Do you think HIV infection equals AIDS? (No)	31.94#	68.19	36.25	28.51#	43.78*	15.27
How is HIV diagnosed? (Blood test)	51.46#	69.92	18.46	50.11	55.25*	5.14
Is it possible to identify HIV in a person easily within one week after infection? (No)	20.64#	66.57	45.93	19.52	23.64*	4.12
Can AIDS be cured? (No)	57.46#	88.45	30.99	53.95#	61.50*	7.55

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.1.8. Comparison of students' attitudes toward sexual behavior issues (%)

Attitudes and behaviors to sex-related issues	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457)	End line (n=441)	Diff.
It's OK for high school students to date if it does not interfere with their studies.						
Agree	21.48#	31.41	9.93	24.95	22.90**	-2.05
Disagree	47.84	33.23	-14.61	41.58	38.78	-2.80
Don't know	30.68	35.36	4.68	33.48	38.32	4.84
Sex before marriage is OK if they are really in love.						
Agree	31.94#	34.35	2.41	33.04	35.08**	2.04
Disagree	40.59	44.53	3.94	36.54	35.54	-1.00
Don't know	27.48	21.12	-6.36	30.42	29.38	-1.04
If I do not want to have sex at this moment, I am able to refuse it.						
Agree	69.74#	74.05	4.31	65.21	61.64**	-3.57
Disagree	9.90	13.05	3.15	13.35	13.47	0.12
Don't know	20.36	12.90	-7.46	21.44	24.89	3.45
Buy a condom/have sex after get a condom	17.32	18.24	0.92	18.42	13.44	-4.98
Not have sex	19.55	48.78	29.23	21.93	34.40	12.47
Don't know	56.84	26.90	-29.94	52.85	43.74	-9.11

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.1.9. Comparison of attitudes toward people living with HIV and AIDS (%)

Attitudes	Intervention group			Control group		
	Baseline (n=717)	End line (n=659)	Diff.	Baseline (n=457)	End line (n=441)	Diff.
Willing to do the following activities with HIV-positive people						
Eat together	38.90#	73.10	34.20	38.90	46.91**	8.01
Study in the same class	50.14#	81.00	30.86	49.01	59.73**	10.72
Receive services from them	20.53#	46.58	26.05	22.42 #	24.71**	2.29
Go to their homes	25.98#	58.05	32.07	28.13 #	32.49**	4.36
Use the same telephone	38.34#	77.66	39.32	38.90	46.10**	7.20
Should HIV-positive people be quarantined from the rest of society?						
Disagree	49.86#	79.64	29.78	45.51	53.76**	8.25
Agree	26.40	8.05	-18.35	29.98	22.78	-7.20
Don’t know	23.74	12.31	-11.43	24.51	23.46	-1.05
Can children with HIV go to school?						
Yes	40.78#	77.36	36.58	43.54 #	47.61**	4.07
No	15.08	8.66	-6.42	17.72	19.36	1.64
Don’t know	44.13	13.98	-30.15	38.73	33.03	-5.70
Will you avoid contact with people with HIV when you meet them?						
No	20.53#	49.62	29.09	20.79	27.89**	7.10
Yes	37.57	17.30	-20.27	41.36	30.16	-11.20
Don’t know	41.90	33.08	-8.82	37.86	41.95	4.09
Will you avoid contact with classmates if they come from HIV endemic area?						
No	38.13#	62.16	24.03	35.89	44.65**	8.76
Yes	25.84	11.40	-14.44	30.85	20.96	-9.89
Don’t know	36.03	26.44	-9.59	33.26	34.40	1.14

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.2.1. Proportion of correct answers on STI questions (%)

Questions	Intervention group 1			Intervention group 2		
	Baseline (n=364)	End line (n=340)	Diff.	Baseline (n=353)	End line (n=319)	Diff.
Whether STIs can be spread through:						
Sexual intercourse (Yes)	70.25#	88.79	18.54	69.52#	86.83	17.31
Kissing (No)	38.29#	66.08	27.79	36.75#	68.55	31.80
Shaking hands (No)	58.13#	88.79	30.66	58.40#	87.74	29.34
Hugging (No)	55.92#	87.02	31.10	56.41#	86.48	30.07
Does a person infected by STIs always have noticeable symptoms? (No)	16.80#	46.15	29.35	15.38#	51.10	35.72
Can STI infection interfere with a woman's fecundity in later life? (Yes)	11.02#	27.30	16.28	11.97#	37.85*	25.88

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.2.2. Proportion of correct answers on AIDS questions (%)

Questions	Intervention group 1			Intervention group 2		
	Baseline (n=364)	End line (n=340)	Diff.	Baseline (n=353)	End line (n=319)	Diff.
Have you heard of AIDS? (Yes)	94.51	96.47	1.96	93.77#	97.18	3.41
Can HIV be spread through:						
Shaking hands/hugging (No)	70.33#	93.51	23.18	69.41#	95.92	26.51
Kissing (No)	42.58#	81.12	38.54	39.66#	85.58	45.92
Sexual intercourse (Yes)	79.67#	92.63	12.96	76.20#	93.73	17.53
Sharing toilets and bathtubs (No)	45.33#	83.48	38.15	44.76#	89.97*	45.21
Insect bites (No)	24.45#	84.32	59.87	20.40#	86.83	66.43
Blood transfusion (Yes)	87.09#	94.99	7.90	83.29#	93.71	10.42
Sharing needles for drug use (Yes)	82.97#	95.58	12.61	76.77#*	93.42	16.65
Do you think HIV infection equals AIDS? (No)	31.59#	67.55	35.96	32.29#	68.87	36.58
How is HIV diagnosed?(Blood test)	53.85#	73.16	19.31	49.01#	66.46	17.45
Is it possible to identify HIV in a person easily within one week after infection? (No)	21.70#	65.49	43.79	19.55#	67.71	48.16
Can AIDS be cured? (No)	58.79#	89.09	30.30	56.09#	87.77	31.68

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.2.3. Comparison of attitudes toward people with HIV/AIDS (%)

Attitudes	Intervention group 1			Intervention group 2		
	Baseline (n=364)	End line (n=340)	Diff.	Baseline (n=353)	End line (n=319)	Diff.
Willing to do the following activities with HIV-positive people:						
Eat together	37.60##	71.09	33.49	40.23##	75.24	35.01
Study in the same class	47.91##	82.30	34.39	52.41##	79.62	27.21
Receive services from them	17.88##	46.02	28.14	23.23##	47.17	23.94
Go to their homes	25.35##	58.11	32.76	26.63##	57.79	31.16
Use the same telephone	37.05##	77.58	40.53	39.66##	77.74	38.08
Should HIV-positive people be quarantined from the rest of society?						
Disagree	47.11##	78.53	31.42	52.69##	80.82	28.13
Agree	27.27	8.24	-19.03	25.50	7.86	-17.64
Don’t know	25.62	13.24	-12.38	21.81	11.32	-10.49
Can children with HIV go to school?						
Yes	38.84##	78.17	39.33	42.78##	76.49	33.71
No	15.70	8.55	-7.15	14.45	8.78	-5.67
Don’t know	45.45	13.27	-32.18	42.78	14.73	-28.05
Will you avoid contact with people with HIV when you meet them?						
No	20.66##	49.41	28.75	20.40##	49.84	29.44
Yes	37.74	18.53	-19.21	37.39	15.99	-21.40
Don’t know	41.60	32.06	-9.54	42.21	34.17	-8.04
Will you avoid contact with classmates if they come from HIV endemic area?						
No	36.36##	62.65	26.29	39.94##	61.64	21.70
Yes	27.00	10.29	-16.71	24.65	12.58	-12.07
Don’t know	36.64	27.06	-9.58	35.41	25.79	-9.62

*P<0.05, Chi-square test between two groups.
#P<0.05, Chi-square test between two surveys.

Appendix table 4.3.1. Proportion of correct answers on STI questions (%)

Questions	Peer educators (n=20)	Non-Peer educators (n=639)	Diff.
Whether STIs can be spread through:			
Sexual intercourse (Yes)	100.00	87.46	12.54
Kissing (No)	75.00	67.03	7.97
Shaking hands (No)	90.00	88.23	1.77
Hugging (No)	85.00	86.81	-1.81
Does a person infected by STIs always have noticeable symptoms?(No)	75.00*	47.72	27.28
Can STI infection interfere with a woman's fecundity in later life? (Yes)	55.00*	31.70	23.30

*P<0.05, Chi-square test between peer educators and non-peer educators.

Appendix table 4.3.2. Proportion of correct answers on AIDS questions (%)

Questions	Peer educators (n=20)	Non-peer educators (n=639)	Diff.
Have you heard of AIDS? (Yes)	100.00	96.71	3.29
Can HIV be spread through:			
Shaking hands/hugging (No)	100.00	94.51	5.49
Kissing (No)	100.00	82.76	17.24
Sexual intercourse (Yes)	100.00	92.95	7.05
Sharing toilets and bath tubs (No)	100.00	86.21	13.79
Insect bites (No)	100.00	85.09	14.91
Blood transfusion (Yes)	100.00	94.19	5.81
Sharing needles for drug use (Yes)	95.00	94.51	0.49
Do you think HIV infection equals AIDS? (No)	70.00	68.13	1.87
How is HIV diagnosed?(Blood test)	85.00	69.45	15.55
Is it possible to identify HIV in a person easily within one week after infection? (No)	65.00	66.61	-1.61
Can AIDS be cured? (No)	90.00	88.40	1.60

Note: P>0.05, Chi-square test between peer educators and non-peer educators.

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