Comprehensive Sexuality Education Program among Students from 10th Grade in Madurai, Tamil Nadu, India

Masters of Public Health Integrating Experience Project

Program Implementation Framework

BY

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List of abbreviations

AUA	American University of Armenia
CDC	Center for Disease Control and Prevention
CSE	Comprehensive Sexuality Education
EECA	Eastern Europe and Central Asia
HPV	Human Papilloma Virus
HSV	Herpes Simplex Virus
ICPD	International Conference on Population and Development
IPPF	International Planned Parenthood Federation
IRB	Institutional Review Board
LMIC	Low and Middle Income Countries
PWDVA	Protection of Women from Domestic Violence Act
SDG	Sustainable Development Goal
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infection
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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Executive summary

It is estimated that more than 1.8 billion people in the world are between 10 – 24 years of age called adolescents and young people, out of which 90% lives in low- and middle-income countries. Studies show that adolescents experience many changes during the period of 10 – 19 years old, including physical, mental, and emotional changes. The tendency to find sexual attention among adolescents at this period can lead to a practice of risky sexual behaviors. The outcome of risky sexual behaviors due to unprotected sexual intercourse can include infection with HIV and sexually transmitted infections (STI), abortion, pregnancy, and childbirth. To prevent adolescents from unwanted health risks, the International Conference on Population and Development (ICPD), referred to as the Cairo agenda, called the governments to provide sexuality education for the well-being of adolescents.

Sexual and Reproductive Health (SRH) programs can follow different methods; the Comprehensive Sexuality Education (CSE) has shown a significant improvement in adolescents' health.

The main objective of this program is: by the end of the third month, knowledge and attitude scores on sexual and reproductive health among 10th grade students after the implementation of the comprehensive sexuality education program in Madurai city, Tamil Nadu, will be 50% higher in the intervention group than in the control group.

The quasi-experimental nonequivalent control group design (pre and post-test, panel) is proposed for the evaluation of this program. The proposed program will use cluster random sampling for the selection of participants for the evaluation.

The data will be collected from students studying in 10th grade in corporation schools of Madurai and Trichy cities. The survey will use an interviewer administered questionnaire. Descriptive analysis and multivariable linear regression will be used to document the difference resulting from the intervention. The program will be submitted to the local Institutional Review board (IRB) in Madurai city for their review and approval prior to the implementation. The proposed budget for the program is 164,570 USD. The duration of the proposed program is 9 months.

1. SITUATION ANALYSIS

SEXUAL AND REPRODUCTIVE HEALTH

The world is currently a home for more than 7.6 billion people, out of which 1.8 billion people are between 10 and 24 years of age; 90% of them live in low- and middle-income countries (LMICs).[1]

According to the World Health Organization (WHO), adolescents are individuals 10 - 19 years old; 15 – 24 years old people are called youth; young population include the age range between 10 and 24 years old.[2] Adolescent development stages are categorized into three groups, early adolescence, which approximately starts from 10-13 years of age, middle adolescence from 14-16 years of age, and late adolescence from 17- 19 years of age.[3] Puberty is attained during the adolescence period; girls reach puberty earlier compared to boys. During the process of puberty, girls and boys find many changes in their body and experience physical, mental, and emotional changes.[4] Studies show that the tendency to find sexual attention among adolescents can lead to the practice of risky sexual behaviors.[5] The outcome of risky sexual behaviors due to unprotected sexual intercourse can include infection with HIV and sexually transmitted infections (STI), abortion, pregnancy, and childbirth.[5] According to the WHO, the United Nations Children's Fund (UNICEF), and the United Nations Population Fund (UNFPA), children are considered as a vulnerable population.[6] Children face mental health problems at adolescence, which are under-recognized and left untreated, which can lead to severe consequences for individuals and the society.[7] The birth rate among women 15-19 years old globally was reported to be 43 per 1000 in 2017.[8] Overall, 11% of births globally occur among girls age 15-19 years, mostly in low- and middle-income countries (LMIC); pregnancy in young girls can lead to severe health-related complications compared to other age groups.[9] Every year

three million girls aged 15-19 years undergo induced abortion. Induced abortions among young girls might have more negative consequences compared to older women; young girls seek late medical care for abortion than older women and have more chances of repeat abortion.[10] The adverse effects of induced abortion include pain, bleeding, infection in the upper genital tract, and incomplete abortion.[11,12] Childbearing at a young age put their life and life of their children at risk; this could lead to premature death, poor health, low education, low living standard, and poverty.[10]

According to the WHO, in 2016, the number of deaths among adolescents aged 10 – 19 years was more than 1.1 million: every day, about 3000 adolescents died mostly because of preventable causes.[13] According to the US Center for Disease Control and Prevention (CDC), in 2017, half of the new incident cases of STI, which are highly preventable, were seen in young aged people (15-24 years old).[14] The burden of STI globally is high; approximately 357.4 million people were affected by four curable STIs (chlamydia, gonorrhea, syphilis, and trichomonas) in 2012.[15] It is estimated that globally, 291 million women are infected with Human Papilloma Virus (HPV) and 417 million by Herpes Simplex Virus (HSV).[16]

The United Nations (UN), in collaboration with 169 countries, developed 17 Sustainable Development Goals (SDGs), these goals were brought into action in 2015 for the transformation of the world into a better place by 2030.[17] SDGs 3, 4 and 5 mainly developed for achieving a healthy lifestyle for all age groups and achieving gender equality "regardless of sex, age, sexual orientation, gender identity, socioeconomic condition, ethnicity, cultural background, and legal status."[17] The International Conference on Population and Development (ICPD) in 1994, referred to as the Cairo agenda, requests the governments to deliver sexuality education for the welfare of adolescents.[18] Currently, many programs in progress promote a healthy lifestyle

among adolescents; some of them include Sexual and Reproductive Health (SRH) programs.[19] Proper knowledge about Sexual and Reproductive Health could help to prevent risky sexual practices among adolescents.[9] Studies have found that school-based sexuality education programs help young people to practice safer sexual behaviors, avoid STI, delay sexual practice among adolescents, and empower each individual in choosing what is right for them.[20,21] Different methods of sexuality education programs are practiced in many schools currently that includes abstinence-promoting programs and Comprehensive Sexuality Education (CSE).

SITUATION IN INDIA

India's population is the second-largest; approximately 1.3 billion people were living in India in 2016.[22] India has the largest population of adolescents; more than 20% of India's population is 10-19 years old.[23]

About 11% of girls get married before the age of 18 years in India, this rate differs between states within India, and the situation is different in urban and rural areas. The marriage rate is also associated with the educational status: women who have higher education get married later compared to women with lower education.[24] About 8% of women 15 - 19 years old have begun childbearing in India. Early marriage among women leads to early childbearing, and early childbearing is higher in rural areas. The birth rate among women 15- 19 years old in India was 13 per 1000 in 2017.[25]

In India, contraceptive awareness among 15-19 years old boys and girls was 94.0% and 93.2% respectively in 2016.[26] The use of contraceptives among married women 15-19 years old was 14.9% and in unmarried sexually active women it was 17.6%.[26] Self-reported prevalence of STI/genital discharge/presence of ulcers among sexually active adolescents 15-19 years old was 13.9% in boys and 9.5% in girls in 2016.[26] In Tamil Nadu the self-reported prevalence of

STI/genital discharge/presence of ulcers among men and women 15-19 years old who ever had sexual intercourse was 14% in men and 17% in women in 2016.

India has the third most massive epidemic of HIV in the world. The prevalence of HIV is estimated to be around 2.1 million in the group of 15 - 49 years old.[27] Data on adolescents from the National Family Health Survey NFHS 2015-2016 in India shows that there was a decline in knowledge on HIV/ AIDS-related information among 15 - 24 years old young people between 2005 – 2006 and 2015-2016.[26] Overall, 22% and 32% of young women and men aged 15-24 had proper knowledge about HIV in India in 2015-2016.[26] In the age group of 15- 17 years old, 16% of women and 25% of men knew about HIV. The knowledge of HIV among women and men hugely varies between the states of India; only16% of women and 10% of men in Tamil Nadu had proper knowledge about HIV.[26]

In India, gender-based violence is high among women starting from the age of 15.[26] Women experience many kinds of violence, which includes physical, sexual, and emotional violence. To protect women against violence, the government of India passed the Protection of Women from Domestic Violence Act (PWDVA) in 2005.[28] NFHS-3 found that 34% of women 15-49 years old reported about experiencing physical violence; the number reduced to 30% in NFHS- 4.[26] The rate of experiencing physical violence varies among women in rural and urban areas, employed vs. unemployed women, and by educational level. In Tamil Nadu, 44%-46% of women reported experiencing physical or sexual violence in 2015-2016.[26]

The government of India has implemented various strategies to provide sexuality and reproductive health education and services to adolescents that are affordable, accessible, and accurate.[29]

2. STRATEGY APPRAISAL

International conference on population and development (ICPD) in 1994 held in Cairo was the first to recognize the importance of sexual and reproductive health improvement and adopted to have it universally accessible by 2015.[30] According to the Cairo agenda, " Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes." Reproductive health care is defined as "the constellation of methods, techniques, and services that contribute to reproductive health and well-being by preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counseling and care related to reproduction and sexually transmitted diseases."

Sexual and reproductive health (SRH) training could provide adolescents opportunities for improving their knowledge to choose what is right for them, access accurate information, and recognize their Sexual and Reproductive Health Rights (SRHR).[7] Evidence form research has suggested that adolescents tend to reduce risky sexual behavior if they are provided with SRH education. Problems such as increasing STI and HIV rates, early pregnancy, induced abortions, gender violence could be reduced by implementing SRH education programs.[7] There are two different approaches to SRH (see Table 1).

Abstinence-only education programs highlight the importance of not having sexual intercourse before marriage. It does not provide much knowledge about sexuality such as safe sex, modern methods of contraception for preventing STIs and unintended pregnancy.[31]

Comprehensive sexuality education (CSE) programs are designed to increase knowledge of sexual and reproductive health among children and adults. The CSE programs have been defined as: "A rights-based approach to comprehensive sexuality education, which seeks to equip young people with the knowledge, skills, attitudes, and values they need to determine to enjoy their sexuality-physically and emotionally, individually and in relationships."[32] Many high-income countries provide CSE programs; countries like Sweden, Norway, and the Netherlands currently have shown significantly low birth rates among adolescence compared to countries in Eastern Europe and Central Asia (EECA).[33]

A meta-analysis of 83 studies on curriculum-based education programs for improvement of SRH among the adolescent population has found that 65% of studies had a significant improvement in one or two health outcome, 33% of studies had improvement in more than two health outcomes, and 7% studies had no improvement in health outcomes of adolescents.[34,35]

A curriculum-based CSE program for the improvement of sexual and reproductive health of adolescents focuses on seven components. These seven essential components include gender, sexual and reproductive health and HIV, sexual rights and sexual citizenship, pleasure, violence, diversity, and relationship. All components of the CSE program are explained in detail in the following sections.

2.1. GENDER[32]

CSE program addresses the difference between gender and sex, gender roles, and attributes, including perceptions of masculinity and femininity, changing norms and values in societies. It also addresses the various forms of gender expression beyond the framework of gender conformity and the dichotomies of males and females. It addresses various forms of

discrimination and gender-based inequalities, gender-based violence perpetrated by gender-based roles, and gender stereotyping.

2.2. SEXUAL AND REPRODUCTIVE HEALTH AND HIV[32]

CSE program includes sexuality during the life cycle, human anatomy, reproductive process as well as menarche and menstrual hygiene management, how to use condoms and other forms of contraception (including emergency contraception), and what is abortion (safe and unsafe). It also covers sexually transmitted infections (STI's) and HIV, including transmission and symptoms, among others.

2.3. SEXUAL RIGHTS AND SEXUAL CITIZENSHIP[32]

People's sexual health and emotional welfare are linked to their capacity to exercise their human rights (for example, the right to education or health). Knowledge of international human rights and national policies can help people to protect their sexual rights, know about existing services and how to access them. In addition, sexual citizenship entails that people should have the right to exercise their civil rights irrespective of their sexual orientation and gender identity.

2.4. PLEASURE[32]

The CSE program includes comprehensive information on biology and reactions behind human sexual response and the interplay of gender and pleasure. This refers to being optimistic about young people's sexuality and accepting that sex should be pleasant and not forced.

2.5. VIOLENCE[32]

The CSE programs discuss about various types of sexual violence and abuse, how they manifest, and teach about existing laws and regulations against sexual violence and abuse.

2.6. DIVERSITY[32]

CSE programs cover the understanding and recognition of diversity ("faith, culture, ethnicity, socioeconomic status, ability/disability, HIV status, and sexual orientation") and the development of a positive attitude and tolerance.

2.7. RELATIONSHIPS[32]

CSE programs enable young people with evidence, knowledge, and skills to strengthen their communication in relationships. In addition, it informs about trust and honesty in the relationships.

As it has been explained in the situational analysis, there is a need for a comprehensive program to solve public health issues that occur as a result of poor sexual and reproductive health among adolescents in low- and middle-income countries like India. Hence this program utilizes CSE as a tool to promote sexual and reproductive health among adolescents.

3. PROGRAMMING

GOAL

The goal of this program is to improve sexual and reproductive health among 10th grade students in the Madurai city of Tamil Nadu, India.

OBJECTIVE

By the end of the third month, knowledge and attitude scores on sexual and reproductive health among 10th grade students after the implementation of the comprehensive sexuality education program in Madurai city, Tamil Nadu, will be 50% higher in the intervention group than in the control group.

Previously similar studies have shown an increase of 70%[36] in the score, even 50% higher score will be considered as a practically meaningful.

The proposed intervention will be carried out in three stages: program planning, program implementation, and evaluation.

TARGET POPULATION

The target population of the program includes 10th grade students studying in corporation schools of Madurai city. There are about 24 corporation schools in Madurai city, which is under the control of Madurai municipal corporation (local governing body running under the state government guidance) provides 10 grade education.[37] The total number of eligible students is approximately 1700.[38] The age range of the students studying in 10th grade is 15 - 16 years old.

PROGRAM PLANNING

The planning phase of the program involves collaboration with various stakeholders. The program team will closely collaborate with local government officials, school administrators, and other stakeholders. Maintaining close collaboration with the school officials will ease the implementation process. Due to this collaboration, the project team will build the time schedule based on the academic calendar, receive a space for conducting the program and helps approaching the students. The project leaders will be in frequent contact with the school officials, including teachers. In the initial stage of the program students will be informed about the benefits of participating in the program through project leaders. Students will be given a package of individual letter mentioning the program details, benefits of participating in the program and a parental consent form. Each student who received the package will be asked to get approval from their parents. The student will be given one-week time to submit their parental consent form. The students who got approval for the participation in the program from their parents will be given a unique id number and they will be considered as the participant of the program. This program will adapt an existing curriculum from International Planned

Parenthood Federation (IPPF). CSE program is subdivided into seven components that will be taught to the school students in a classroom set up by trained specialists in the field of sexuality education. The project team will also be trained (training-of-trainers) based on the same curriculum and educational materials with the help of experts from IPPF. This training section will be accomplished at the regional program office.

PROJECT TEAM

A team of 27 people will be involved in the program implementation. A Chief Executive Officer (CEO) with a Master of Public Health degree will be responsible for running the entire program. The CEO will also have three years of work experience in the field of sexual and reproductive health. Under the direct supervision of the CEO, there will be four teams of health professionals, administrative officer and CSE expert. The health professionals team consist of a program leader who has a Masters of Public Health degree, and under his control, there will be two medical social workers. The program leader will be responsible for reaching out the schoolchildren. On administration side there will be an administrative officer for the program with teams of staff under his/her supervision: accountant, statistician, data entry staff, transport workers, office assistant, and maintenance workers. Accountant officer with the qualification of a master's degree in finance management will be responsible for managing the financial resources of the program and will submit a monthly account to the administrator. The accountant officer will have one junior accountant under him.

The proposed program will have a set of 21 people employed as a full-time employee for the entire duration of the program, and six people will be employed as part-time employees. These six part-time employees will include one expert in the training of trainers on CSE, one

statistician, and four transport workers. Each of these employees will have their own duties and responsibilities (see Figure 1).

RESOURCE FOR EDUCATION

Sexual and reproductive health to the target population can be improved by adopting the framework suggested by the IPPF.[39] IPPF is a non-governmental organization functioning mainly for sexual and reproductive health promotion and advocating for the rights of adolescents globally. This organization consists of 149 member associations working in 189 countries currently. Comprehensive sexuality education program curriculum developed by the IPPF is the key source for developing the training course for the 10th grade students, as it is age-appropriate.[39] As our program goal targets the school-going adolescents studying in the 10th grade, the information provided on sexual and reproductive health will be delivered in 12 sessions. The 12 sessions of the Comprehensive Sexuality Education program will be conducted in the school auditorium, and each session will last a minimum of approximately 60 minutes. From July 1, 2021, the proposed program educational session will start in all the selected 24 schools of Madurai until the September 30, 2021; on the bases of one session a week, the entire program material will be covered to the students in the period of three months.

The educational sessions will include lectures, a combination of stories, leaflets, booklets/brochures, posters, short videos based on the seven components of CSE, and question and answer sessions.

Short animated age-appropriate medically accurate videos on sexuality education content for adolescents will be adopted from Amaze that is an online education platform that provides information about sexual and reproductive health for adolescents by creating short videos that

are freely accessible.[40] Our team will collaborate with Amaze for making the video accessible to the students involved in the program.[40]

LOCATION OF IMPLEMENTATION

The proposed program will take place in the Madurai city of Tamil Nadu in India. Madurai is the second-largest city in Tamil Nadu.[41] The population of Tamil Nadu is 72.1 million according to the 2011 census; the female-male ratio is 996 females per 1000 male.[42] The literacy rate in Tamil Nadu is 80.3%, which is higher than the average literacy rate in India 74%.[43]

The landscape of Madurai is divided into four-zone for easy access to all the zones; the program office will be chosen in the city's Center Near to Meenakshi Amman Temple (see Figure 2). The chosen place will be helpful for easy accessibility to all 24 schools, and the travel expenses and time will be reduced significantly for the program leaders. Inside each school, the school auditorium will be occupied for the program implementation, all communication between the targeted students and program leaders will take place in the auditorium.

TIMELINE

The proposed program on improving the sexual and reproductive health among Madurai corporation school students studying in the 10th grade will start on April 1, 2021, and end on December 31, 2021. The planning, implementation, and evaluation phase of the program will be conducted within the allocated time.

The first three months will be spent on the planning of the program:

- Consulting with the Educational Ministry of Tamil Nadu for program approval
- Renting out and equipping a site in Madurai city to run the program
- Hiring and recruiting members for the program

- Engaging with the local government authorities and the school principals
- Preparing on the study materials for teachers and students
- Training of trainers on sexual and reproductive health

After the three months of the planning phase, the implementation process of the educational program will take three months: July - September 2021. The last three months, October-December 2021, will be spent on evaluating the program and preparing the final report (see Appendix 1).

4. BUDGETING

The budget is framed according to the local market prices in Madurai city (see Appendix 2). The budget is mainly divided for three purposes: operational expenses, educational materials expenses, and administrative expenses. The total cost for the operational expenses of the program is 114,300 USD, and the educational material will cost around 15,500 USD. And the administrative cost will be 34,770 USD. Overall, the total budget estimate is 164,570 USD or approximately 12.73 million Rupees.

5. PROGRAM EVALUATION

This program's goal is to improve the sexual and reproductive health among 10th grade students in the Madurai district of Tamil Nadu. To understand if the program was effective reaching its goal, the following evaluation objective is proposed:

By the end of the third month, knowledge and attitude scores on sexual and reproductive health among 10th grade students after the implementation of the comprehensive sexuality education program in Madurai city, Tamil Nadu, will be 50% higher in the intervention group than in the control group.

EVALUATION DESIGN

The quasi-experimental nonequivalent control group design (pre and post-test, panel) is proposed for the evaluation purpose of this program. Choosing a control group helps in identifying information on the changes that are not associated with the intervention, thus having control group for the study will increase the internal validity of the evaluation study. The intervention group for the evaluation will include students studying in the 10^{th} grade in Madurai corporation schools and the control group will include 10^{th} grade students from Trichy corporation schools. The reason for choosing the control group from Trichy is the intervention plan is carried out in all corporation schools of Madurai. The education standards in Madurai and Trichy are very similar. The literacy rate of Madurai and Trichy is nearly the same - 83%.[44] The other reasons for choosing Trichy as the control group is: the corporation limits of Trichy is 167 km^2 which is nearly same as the corporation limits of Madurai (148km^2), the distance between Madurai and Trichy is 119 km (aerial distance) which shares Tamil as the regional language, same cultural background, climatic condition, law and order, and administration and politics.

The design in Campbell and Stanley nomenclature is:

Group	Pretest	intervention	Posttest
Intervention group	O1	X	O2
Control group	O1		O2

Inclusion criteria will be: being students from 10^{th} grade in the corporation schools of Madurai and Trichy; good understanding, speaking, and reading in Tamil language.

SAMPLING STRATEGY

The list of corporation schools that contain 10th grade will be collected from the collector office of the respective city. The proposed program will use cluster random sampling for the selection of participant for the evaluation from the list of participants' who registered in the program. The intervention group participants will be selected from all the 24 corporation schools of Madurai city and control group participants will be selected from corporation schools of Trichy city. As the study's target population is from corporation schools, each school will be considered as a cluster. From the list of corporation schools in Madurai and Trichy cities, the evaluation team will select the needed number of clusters through simple random sampling. It is estimated that the number of students in each corporation school studying 10th grade ranges from 50 – 80. From each school 11 eligible students will be selected through a simple random sampling. The registered students for the training program will be randomly selected for the evaluation. The simple random selection of students from each school will be done using the command "Rand-between" in Microsoft Office Excel software.

The sampling unit in this evaluation plan is students studying in 10th grade in corporation schools living in the two cities.

STUDY VARIABLES

The independent variable of interest is: presence or absence of the CSE intervention program. The dependent variable (outcome) is the knowledge and attitude score of a student about the sexual and reproductive health. Intervening variables include age, gender, religion, socio-economic status, school attendance, self-reported school performance, relationship/ communication with family members, social activity, alcohol use and smoking status.

SAMPLE SIZE

The sample size for the study is calculated using the formula for a difference in sample means of two groups.

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 * 2 * \sigma^2}{d^2}$$

where,

- $Z_{\alpha/2} =$ 1.96 (is the standard value in a normally distributed curve at α for a CI of 95%)
- $Z_{\beta} =$ 1.282 (is the standard value in a normally distributed curve at β for a power of 90%)
- d = 1.85 (the expected difference)[36]
- σ = 1.83 (standard deviation)[36]

$$n = \frac{(1.96 + 1.282)^2 * 2 * (1.83)^2}{(1.85)^2}$$

n = 20.57 = **21**

Calculating for n we get a sample size 21 for one group. Thus, the number of participants for two group will be 21 * 2 = 42

Adjusting the sample size for the design effect:

n = sample size * design effect

= 42 * 2 = 84

The expected response rate of this kind of study is 80%.[45] Therefore, the actual sample size subsequently adjusting for the non-response rate will be:

n = 84 /0.8 = 105

The total sample size for the study is 105 or 53 students per group. This means, the evaluation team would need to randomly select five corporation schools (clusters) from each city and to randomly select 11 eligible students from each cluster to have at least 53 students in each group.

STUDY INSTRUMENT

The study instrument on sexual and reproductive health knowledge and attitude are adapted from previous studies and from WHO recommended set of questionnaires.[45,46,47] The questionnaire, which consists of three sections is age-appropriate and adapted considering the cultural background of the society. The survey is an interviewer-administered.

The first section of the questionnaire consists of the basic socio-demographic details like age, gender, religion, socio-economic status, school attendance, self-reported school performance, relationship/communication with family members, social activity, alcohol use and smoking status.

The second section is about Sexual and Reproductive Health (SRH) knowledge. The knowledge score on SRH is the cumulative score of five parts that includes knowledge score on puberty, reproductive physiology, contraception, HIV/STIs, and condoms. The knowledge questions of the instrument are dichotomous (Yes or No) type response or multiple responses. Each correct answer for these items will be given score of "1". The total knowledge score of SRH ranges from zero to 54.

The third section is about the attitude towards gender roles using a tool the on attitudes towards women scale for adolescents (AWSA).[47,48] For each item in this section, respondents will indicate their level of agreement or disagreement on the Likert- type scale. The Liker- type scales ranges from 1 ('strongly agree') to 4 ('strongly disagree'). This section consists of 13 items, items 3.3, 3.5, 3.7, 3.9 and 3.12 is reverse-scored. The total attitude score ranges from 13 to 52.

The total knowledge and attitude score on SRH ranges from 13 to 106. The questionnaire will be translated into and administered in Tamil (native language). There will be a forward and backward translation of the questionnaire by experts, and it will be piloted (see Appendix 4).

DATA COLLECTION

The baseline data will be collected in the first week of July 2021 from both groups. After the three months of the intervention follow-up data will be collected from the participants in the last week of September 2021 from both groups. The data will be collected by the project team from the schools. For the completion of one questionnaire, it will take up to 20-25mins, and the survey will use interview-administered questionnaire. This same pattern of collecting data will be followed in the control group during the baseline and follow-up measurements.

THREATS TO INTERNAL VALIDITY

History will be a significant threat to this program because there might be other programs going on at the same time, which might influence the final result. This threat is unavoidable, but this will be controlled to a certain extent by comparing the intervention group to the control group.

Maturation will not be a threat to this study. People mature naturally with time since this study will collect data from the intervention and control groups this threat will be minimized.

Testing will be an inevitable threat to the study since the baseline and follow-up measurements will be carried out by the same questionnaires, which might influence the study participants' responses both in the intervention and control groups. This threat will be reduced because of comparing the intervention group with the control group.

Instrumentation will not be a threat since the same instrument will be used in the entire study and the interviewers will be trained.

Selection will be a threat to the evaluation since the participants in the intervention and the control groups will be selected from different cities and there might be a difference in the characteristic of participants in the groups.

Attrition can be a threat to the internal validity of the study. Depending on the levels of the attrition it can be a potential threat to the internal validity of the study.

Compensatory rivalry will not be a threat to the study since the participants will be blinded to the existence of a control group. Contamination will not be a threat, as participants in the intervention and control groups will be from different cities.

THREATS TO EXTERNAL VALIDITY

Selection/intervention interaction will be a threat to generalizability since the study population is selected only from a particular region, so the population characteristic might not be similar in other regions.

The reactive/situational effect will be a threat as participants might react to the evaluation, and if the same intervention is implemented in other settings without evaluation the reaction could be different.

Multiple intervention effects can be a threat to the generalizability since there might be other interventions, which could simultaneously happen, affecting the generalizability of the result to other settings.

DATA MANAGEMENT AND ANALYSIS

In this study, each participant in the control and intervention groups will be assigned a unique ID number. The ID number consists of 7 digits; (e.g., 2107065, first two digits 21 represent the city code identity of Tamil Nadu, second two digits 07 will be the identification number for the school in the particular district and the last three digits 065 will be students roll number who are registered to participate in the study) which helps make the student's data confidential. This program will have a double data entry, and later the data will be merged for the cleaning purpose to avoid discrepancy of the data. The process of data entry and analysis will be carried out using SPSS 23 software. The analysis of the data will include a descriptive analysis of all the variables, means, median, and standard deviation for numeric variables and proportions for categorical variables. The relationship between the knowledge and attitude score and presence of the intervention will be analyzed by multivariable linear regression after adjusting for the intervening variables.

ETHICAL CONSIDERATION

The program evaluation protocol complies with the requirement of the Institutional Review Board (IRB) of the American University of Armenia (AUA), but the program will be submitted to the local IRB in Madurai city for their review and approval prior to the implementation. As the program deals with a stigmatized topic, the parents of the targeted participants from each school will be informed about the program, and written consent will be obtained from parents. Verbal assent will be obtained from the participant of the program, as they are less than 18 years

old. Participation in the study will cause no harm to the participants and extreme attention will be paid to maintaining participant information confidentiality (see Appendixes 5, 6, 7, and 8 for the consent and assent forms).

REPORTING THE RESULTS

After completing the evaluation of the intervention, a final report will be produced in December 2021. The findings from the evaluation will help to understand if a similar curriculum-based CSE program should be offered in all the schools of Tamil Nadu state.

REFERENCE

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TABLE

Table 1: SEXUAL AND REPRODUCTIVE HEALTH (SRH) EDUCATIONAL PROGRAMS

Comprehensive sexuality education[49]	**Abstinence-only education**[49]
● Provides a wide range of information on sexuality education ● Teaches multiple value-based education, makes the students explore more and define on values of their communities and & families ● Wide range of topics (CSE seven components) ● Includes abstinence and also positive message on sexuality and sexual expression ● Information on controversial topics such as abortion, masturbation, sexual orientation is taught to students in this curriculum ● Use of condoms, modern methods of contraception, risk of unintended pregnancies, information on STI are discussed ● Teaches how religious values play a role in the decision making of individuals ● Framed on evidenced-based information	● Concentrates only on the promotion of abstinence from sexual intercourse till marriage ● Abstinence as a morally correct ● Limiting to abstinence and teaching negative effect on having sex before marriage ● Uses fear tactics and limit sexual expression ● Excludes all controversial topics ● Discusses only on the failure rate of using condoms and often this is exaggerated ● Promote the specific religious value ● Framed by conservative groups based on religious values

FIGURE

Figure 1: The project team

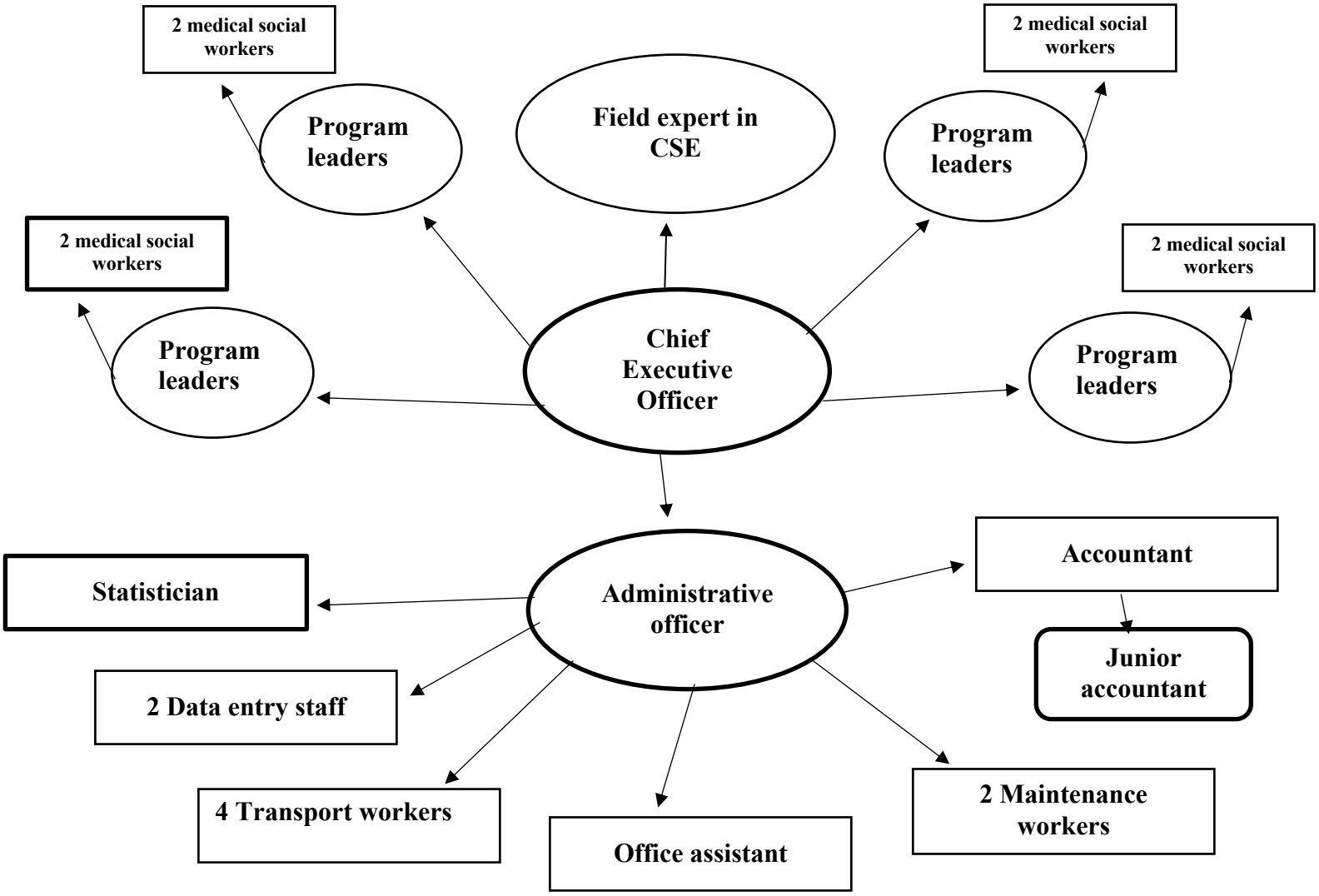
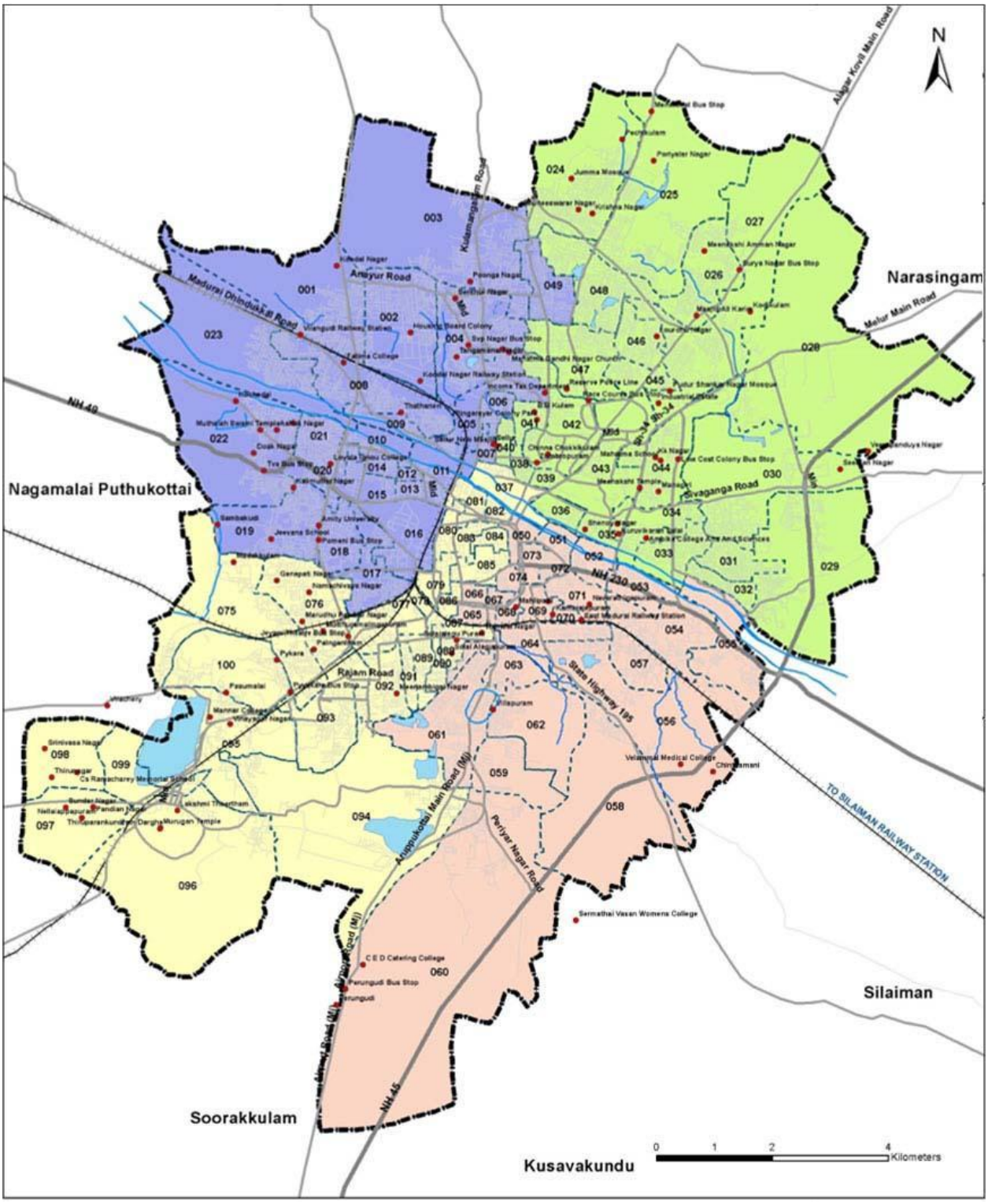


Figure 2: Four zones of Madurai city, Tamil Nadu, India.



APPENDIXES

Appendix 1: Timeline

Activities in 2021	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Planning	★	★	★						
Consulting with Stakeholders	★								
Hiring Staff	★								
Training of Trainers		★	★						
Pre-testing Questionnaire			★						
Conducting baseline measurements				★					
Intervention implementation				★	★	★			
Conducting follow-up measurements						★			
Evaluation							★	★	★
Data Entry and Data Cleaning							★		
Data Analysis							★	★	
Preparation of report								★	★
Dissemination									★

Appendix 2: Budget estimate for the proposal

Operational Expenses

Personals	**Number of the work unit**	**Amount per month in USD**	**Duration of month**	**Total budget**
chief executive officer	1	1500	9	13500
Field expert in CSE	1	1000	2	2000
program leaders (MPH graduates)	4	1000	9	36000
administrative officer	1	900	9	8100
statistician	1	1000	2	2000
data entry staff	2	400	9	7200
medical social workers	8	400	9	28800
accountant	1	700	9	6300
Junior accountant	1	300	9	2700
office assistant	1	200	9	1800
maintenance workers	2	150	9	2700
transport workers	4	200	4	3200
				114300

Administrative Expenses

Budget item	Number of units	Amount per month in USD	Duration of month	Total budget
Office Space and utilities				
Office rent	1	600	9	5400
Building interior design work	1	2500	-	2500
Windows 10 pc	6	1000	-	6000
Printer and scanner	1	100	9	900
Xerox machine	1	1200	-	1200
Communication				
Telephone	2	40	9	720
Wi-Fi Internet setup	1	150	9	1350
Travel expenses				
Vehicles	4	800	4	12800
Other expenses				
Festival incentives	Bounce for permanent staffs 21	100	1	2100
Maintenance ● Electricity ● Water ● Miscellaneous	1	200	9	1800
				34770

Educational materials expenses

	Unites and price in USD	**Total price in USD**
Laptops	4 * 1000	4000
Projectors	4 * 750	3000
questionnaire printout for pre and post test	250* 2	500
Broachers	Approx. 1600 * 5	8000
		15500

Appendix 3: Study variables

Dependent variables	
Combined score of knowledge and attitude on sexual and reproductive health	Continuous
Independent variables	
Presence or absence to the CSE program	Dichotomous
Intervening variables	
Age	Continuous
Gender	Binary
Socio-economic status	Categorical
Religion	Categorical
School attendance	Categorical
Self-reported school performance	Categorical
Relationship/ communication with family members	Categorical
Social activity	Numerical continuous
Alcohol use	Numerical continuous
Smoking status	Numerical continuous

Appendix 4: Questionnaire (in English)

Participant's ID: _ _ _ _ _ _ _ _ _

Section 1:

Social and Demographic Characteristics

This section addresses the key characteristics of the respondent. Please mark the right answer accordingly.

No	Question	Coding categories	Skip to
1.1	Gender	Male 1 Female 2	
1.2	How old were you on your last birthday?	Years old __ __	
1.3	What is your religion?	None 1 Hindu 2 Christian 3 Muslim 4 Others Specify …….. 5 No response 88 Don't know 99	→ 1.5
1.4	How important is a religion in your life?	Very important 1 Important 2 Not important 3	
1.5	Could you tell me how often you have missed classes during the previous school year?	Never 1 Once a month 2 Few times a month 3 Sometimes in month 4 Many times a month 5	→ 1.7
1.6	What is the main reason why you missed classes?	Health problems 1 Family problems 2 Address change 3 I was suspended 4 Other specify ……..	
1.7	Compared to others in your class, how do you rate your performance in your exams?	I am the best 1 I am above average 2 I am an average student 3 I am below average 4 No response 88 Don't know 99	

1.8	Now I have some questions about your family. Is your father alive?	Yes 1 No 2 →	1.11
1.9	Do you find it difficult or easy to talk with your father about things that are important to you?	Very easy 1 Easy 2 Average 3 Difficult 4 Very difficult 5 Do not see him 6	
1.10	Have you ever discussed boy-girl relationship/ love stories with your father?	Often 1 Occasionally 2 Never 3	
1.11	Is your mother alive?	Yes 1 No 2 →	1.14
1.12	Do you find it difficult or easy to talk with your mother about things that are important to you?	Very easy 1 Easy 2 Average 3 Difficult 4 Very difficult 5 Do not see her 6	
1.13	Have you ever discussed boy-girl relationship/ love stories with your mother?	Often 1 Occasionally 2 Never 3	
1.14	Apart from your parents, which of the following people in your family do you find most comfortable talking to about important things in your life?	None 1 Sister 2 Brother 3 Aunt 4 Uncle 5 Grandmother 6 Grandfather 7 Other specify ……..	
1.15	Apart from your parents which of the following people in your family do you find most easily to talk to about, boy girl relationship / love stories?	None 1 Sister 2 Brother 3 Aunt 4 Uncle 5 Grandmother 6 Grandfather 7 Other specify ……..	

1.16	How much is your monthly family income on average?	Less than 7000 INR 1 From 7000 to 14,000 INR 2 From 14,001 to 28,000 INR 3 From 28,001 to 41,000 INR 4 Above 41,001 INR 5	
	And now I have some questions about your social activities.		
1.17	Do you ever go to the movie theater? IF YES. How many times in the last month?	Number of times ____ ____ Never 88	
1.18	Do you ever drink alcohol? IF YES. On how many days in the last month have you drunk alcohol?	Number of days ____ ____ Never 88	
1.19	Do you ever smoke cigarettes? IF YES. How many have you smoked in the last 7 days?	Number of cigarettes ____ ____ Never 88	

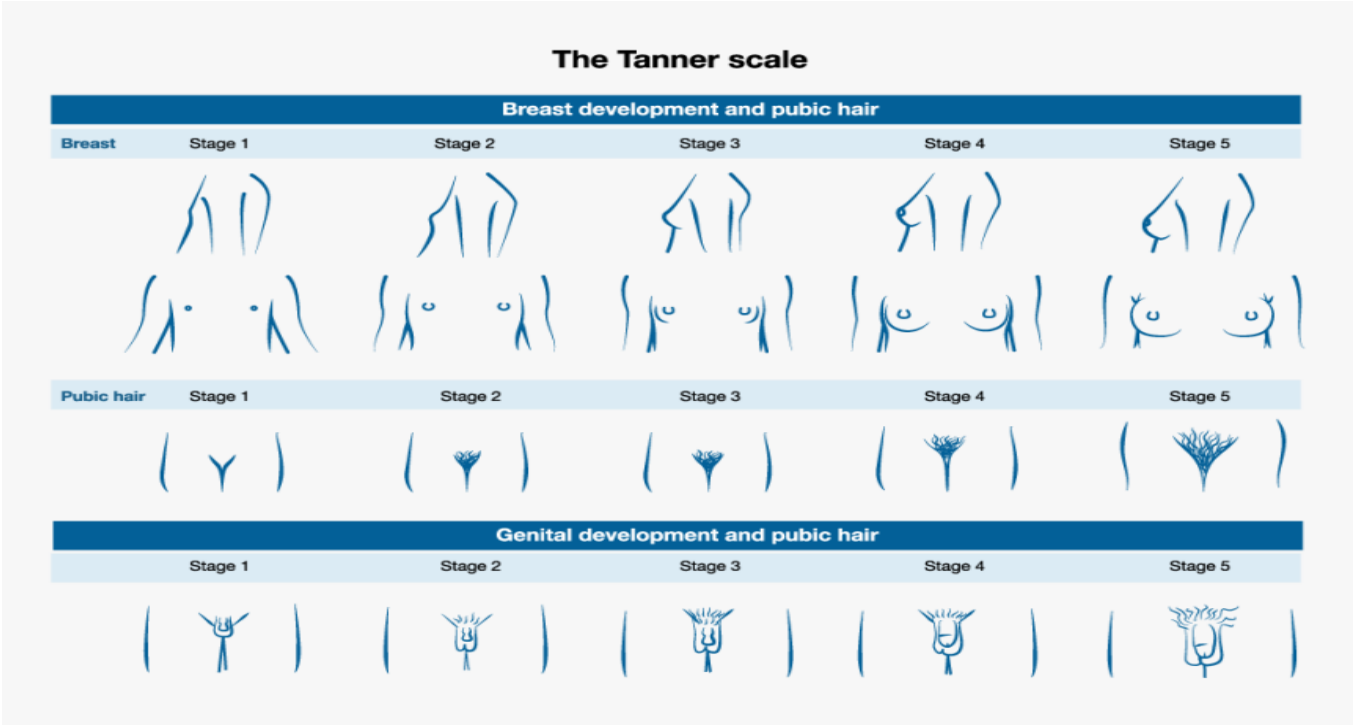
Section 2

Adolescents' sexual and reproductive health (puberty, reproductive physiology, contraception, HIV/STIs, condoms) knowledge and behaviors

Puberty: The questions below talk about changes that occur in your body as you grow up. The items may make you uncomfortable, and please let me know how you feel

. Be free not to respond when you are uncomfortable

2.1	Both boys and girls, please indicate the body changes occur as one grows into an adult woman *1 indicate Yes* *2 indicate No*		Yes	No	If its boy go to 2.4 after this question
		a) Increase in height and weight	1	2	
		b) Acne(pimples)	1	2	
		c) Body odor	1	2	
		d) Growth of pubic hair	1	2	
		e) Growth of axillary hair (underarms)	1	2	
		f) Breast development	1	2	
		g) Widening of hips	1	2	
		h) Softening of the voice	1	2	
		i) Feels attracted to boys	1	2	
		j) Menstruation	1	2	
		No Response		88	
		Don't know		99	



2.2	Girls: please indicate what you think is your stage of growing up *Based on the Tanner stage chart*	Tanner stage 1 Tanner stage 2 Tanner stage 3 Tanner stage 4 Tanner stage 5	
2.3	Girls: Have you started experiencing your periods(menstruation) (indicate 1 yes and 2 No)	Yes 1 No 2 No Response 88 Don't know 99	
2.4	Both Boys and girls. Please indicate the body changes occur as one grows into an adult man *1 indicate Yes* *2 indicate No*	Yes No a)Increase in height and weight 1 2 b)Shoulder become broader 1 2 c)Acne(pimples) 1 2 d)Body odor 1 2 e)Growth of pubic hair 1 2 f)Growth of hair underarms 1 2 g)Growth of facial 1 2 h)hair(beards) 1 2 i) Increased size of genitalia 1 2 j) Attraction to the opposite sex 1 2 k) Voice becomes deeper 1 2 No Response 88 Don't know 99	If its girl go to 2.7 after this question

2.5	Boys: please indicate the stage you are regarding growing up *Based on the Tanner stage chart*	Tanner stage 1 Tanner stage 2 Tanner stage 3 Tanner stage 4 Tanner stage 5	
2.6	Ask the boy**:** Have you ever woken up to find some little wet patch in your underwear or on your bed? (indicate 1 yes and 2 No)	Yes 1 No 2 No Response 88 Don't know 99	
2.7	Both boys and girls: I look forward to being an adult man/woman *How much do you agree?*	I agree a lot 1 I Agree a little 2 I Disagree 3 I completely Disagree 4 No Response 88 Don't know 99	
2.8	Both boys and girls: I think the changes occurring in my body to make an adult person make me feel good *How much do you agree*?	I agree a lot 1 I Agree a little 2 I Disagree 3 I completely Disagree 4 No Response 88 Don't know 99	
2.9	Both boys and girls: I am scared of the changes happening(or about to happen) in my body as I grow up *How much do you agree*?	I agree a lot 1 I Agree a little 2 I Disagree 3 I completely Disagree 4 No Response 88 Don't know 99	

Knowledge on reproductive physiology Now I have some other questions on sex and reproduction. I will read you some statements. Please tell me whether you think the statement is true, or false, or whether you don't know					
		True	False	Don't know	
2.10	A woman can get pregnant for the very first time that she has sexual intercourse.	1	2	99	
2.11	A woman stops growing after she has had sexual intercourse for the first time.	1	2	99	
2.12	Masturbation causes severe damage to health	1	2	99	
2.13	A woman is most likely to get pregnant if she has sexual intercourse halfway between her periods	1	2	99	

Knowledge and ever-use of the contraceptive method			
I now have some questions about contraception – I mean, how men and women can avoid getting pregnant. Which methods have you heard of? What others?			
2.14	Pill Women can take a pill every day	 Yes 1 No 2	
2.15	Condom A man can get out a rubber device on his penis before intercourse	 Yes 1 No 2	
2.16	Emergency contraceptive pills Women can take a pill soon after intercourse	 Yes 1 No 2	
2.17	Withdrawal A man can pull out a woman before the climax	 Yes 1 No 2	
2.18	Periodic Abstinence/ Rhythm A couple can avoid sex on days when pregnancy is most likely to occur.	 Yes 1 No 2	
2.19	There are other methods of contraception that I have not mentioned. What other methods have you heard of? Circle each method mentioned	 IUCD 1 Implant 2 Jelly/ foam 3 Female sterilization 4 Male sterilization 5 Don't know 99	
2.20	If the respondent has experienced sexual intercourse	If the respondent has not experienced sexual intercourse →	Move to 2.22
2.21	Which method of contraception have you or a sexual partner ever used? Circle all that apply	Pill 1 Injection 2 Condom 3 Emergency pills 4 Withdrawal 5 Periodic Ab 6 Others specify …….. Don't know 99	

Knowledge of HIV/AIDS and Sexually transmitted disease					
2.22	Have you ever heard of HIV or AIDS	Yes No		1 2 →	 Move to 2.26
	I am now going to read you some statements about HIV/AIDS. Please tell me whether you think the statement is true, or false or whether you don't know	True	False	Don't know	
2.23	It is possible to cure AIDS	1	2	99	
2.24	A person with HIV always looks emaciated or unhealthy in some way	1	2	99	
2.25	People can take a simple test to find out whether they have HIV	1	2	99	
2.26	Apart from HIV/ AIDS, there are other diseases that men and women can catch by having sexual intercourse. Have you heard of any of these diseases?	Yes No		1 2 →	 Move to 2.30
2.27	what are the signs and symptoms of a sexually transmitted disease in a man? Circle each mentioned	Discharge from penis Pain during urination Ulcer/sores in genital area Other …….. Don't know		1 2 3 99	
2.28	what are the signs or symptoms when a woman is infected? Circle each mentioned	Vaginal discharge Pain during urination Ulcers/ sores in genital area Other …….. Don't know		1 2 3 99	
2.29	If a friend of your needed treatment for a sexually transmitted disease, where could he or she obtain such treatment? Probe any other place?	Shop Pharmacy hospital/ health center/ clinic private doctor/ nurse/ other……. Don't know		1 2 3 4 99	

Knowledge on Condom					
2.30	Have you ever seen a condom?	Yes No		1 2	
	I am now going to read you some statements about condom. Please tell me whether you think the statement is true, or false or whether you don't know	True	False	Don't know	
2.31	condoms are an effective method of preventing pregnancy	1	2	99	
2.32	Condoms can be used more than once	1	2	99	
2.33	Condoms are an effective way of protecting against HIV/AIDS	1	2	99	
2.34	Condoms can slip off the man and disappear inside the woman's body	1	2	99	
2.35	Condoms are an effective way of protecting against sexually transmitted diseases	1	2	99	

Section 3

Attitude towards gender roles (AWSA score items)

Ask respondent to give his or her opinion on the statements below

		Strongly Agree	Agree	Disagree	Strongly Disagree
3.1	Swearing is worse for a girl than for a boy.				
3.2	On a date, the boy should be expected to pay all expenses.				
3.3	On average, girls are as smart as boys.				
3.4	More encouragement in a family should be given to sons than daughters to go to college.				
3.5	It is alright for a girl to want to play rough sports like football.				
3.6	In general, the father should have greater authority than the mother in making family decisions.				

3.7	It is alright for a girl to ask a boy out on a date.				
3.8	It is more important for boys than girls to do well in school.				
3.9	If both husband and wife have jobs, the husband should do a share of the housework such as washing dishes and doing the laundry.				
3.10	Boys are better leaders than girls.				
3.11	Girls should be more concerned with becoming good wives and mothers than desiring a professional or business career.				
3.12	Girls should have the same freedom as boys				

Thank you …

Appendix 5: Parental consent for the intervention group

American University of Armenian

Turpanjian School of Public Health

Institutional Review Board #1

Parental consent form (written consent)

Hello, my name is Bawa Bugar Deen, a graduate of the Turpanjian School of Public Health (SPH) at the American University of Armenia. I am conducting an educational program aiming to improve sexual and reproductive health among 10th grade corporation school students in Madurai city. You have been contacted because your child is currently studying 10th grade in a corporation school in Madurai city. Your child's participation in the study is voluntary. If you are willing your child to participate in the study, he/ she will be asked a few questions about knowledge and attitude about sexual and reproductive health.

Your child can attend the comprehensive sexuality education program even if he/ she does not participate in the survey. The educational program offers a 12 free session of classes on improving sexual and reproductive health within the duration of 3months. After completion of 3 months, your child will be contacted again to complete another survey. The questionnaire will take up to 20 - 25 minutes to complete. For the completion of the questionnaire, your child will be assisted by an interviewer, and the survey will be conducted in a separate classroom in school. Your child has the right to quit the survey at any time and is free to skip any questions if he/she feels inappropriate. Your child will not be penalized if you or your child decide not to participate in the study, and this decision will not affect your child's grades in the school. The information that your child provides to the study will be confidential; it will be accessed only by

limited members of the study team. Once the study is completed, the data provided by your child will be destroyed. Only aggregated results of the study will be reported. By participating in the survey, there will not be any risks to your child and the information provided by your child will be helpful for science and healthcare.

If you have any questions about the study, you can feel free to contact the principal investigator of this study [*name and contacts*]. Regarding your child's rights as a participant, please contact the Human Protections Administrator [*name and contacts*] of the [*name of the IRB*].

If you do not agree, there is no need to sign the document.

If you agree, please sign the document below.

I have read the form completely, and I agree with my child's participation in the study.

Parent's/legal guardian's name and signature:

Date:

Study team member's name and signature:

Date:

Appendix 6: Parental consent for the control group

American University of Armenian

Turpanjian School of Public Health

Institutional Review Board #1

Parental consent form (written consent)

Hello, I am Bawa Bugar Deen working on a sexual and reproductive health program. The program aims to improve knowledge and attitude on sexual and reproductive health among 10th grade school students. We are conducting a survey to assess the knowledge and attitude about sexual and reproductive health among 10th grade students in Trichy. You have been approached because your child is currently studying 10th grade in a corporation school in Trichy city. Your child's participation in the survey is voluntary. If you are willing your child to participate, he/ she will be asked a few questions about knowledge and attitude about sexual and reproductive health. The questionnaire will take up to 20 - 25 minutes to complete. For the completion of the questionnaire, your child will be assisted by an interviewer, and the survey will be conducted in a separate classroom in school. Your child has the right to quit the survey at any time and is free to skip any questions if he/she feels inappropriate. Your child will also be contacted later after a few months to complete another survey. Your child will not be penalized if you or your child decide not to participate in the study, and this decision will not affect your child's grades in the school. The information that your child provides to the study will be confidential; it will be accessed only by limited members of the study team. Once the study is completed, the data provided by your child will be destroyed. Only aggregated results of the study will be reported. By participating in the survey, there will not be any risks to your child and the information

provided by your child will be helpful for science and healthcare. In addition to the second survey, your child will be provided with educational material on improving knowledge on sexual and reproductive health.

If you have any questions about the study, you can feel free to contact the principal investigator of this study [*name and contacts*]. Regarding your child's rights as a participant, please contact the Human Protections Administrator [*name and contacts*] of the [*name of the IRB*].

If you do not agree, there is no need to sign the document.

If you agree, please sign the document below.

I have read the form completely, and I agree with my child's participation in the study.

Parent's/legal guardian's name and signature:

Date:

Study team member's name and signature:

Date:

Appendix 7: Student assent form for the intervention group

American University of Armenian

Turpanjian School of Public Health

Institutional Review Board #1

Student assent form (oral assent)

Hello, my name is ----------. I am talking on behalf of Bawa Bugar Deen, a graduate of the Turpanjian School of Public Health (SPH) at the American University of Armenia. Our team is conducting an educational program aiming to improve sexual and reproductive health among the 10th grade corporation school students in Madurai city.

You have been approached because the study involves students studying 10th grade. The study includes a process of filling a questionnaire that assesses the knowledge and attitude of sexual and reproductive health before and after the educational program. The questionnaire will take up to 20 - 25 minutes to complete.

For the completion of the questionnaire, you will be assisted by an interviewer, and the survey will be conducted in a separate classroom. Your participation in the study is appreciable, and the information, which you will provide, will be useful and valuable for the study.

Your responses will not be viewed by teachers, parents, or others. The information that you provide to the study will be confidential; It will be accessed only by the limited members of the study team. Once the study is completed, the data provided by you will be destroyed. Only aggregated results of the study will be reported.

Your participation in the study is voluntary. You have the right to quit the survey at any time and you are free to skip any questions if you feel inappropriate. You will not be penalized if you decide not to participate in the study, and this decision will not affect your grades at school.

If you agree to participate, we can continue the procedure further.

Do you have any questions?

Do you agree to participate?

If yes, shall we continue?

If no, we thank you for your attention.

Appendix 8: Student assent form for the control group

American University of Armenian

Turpanjian School of Public Health

Institutional Review Board #1

Student assent form (oral assent)

Hello, my name is ----------. I am talking on behalf of Bawa Bugar Deen. Our team is working on a sexual and reproductive health program. The program aims to improve knowledge and attitude on sexual and reproductive health among 10th grade school students. We are conducting a survey to assess the knowledge and attitude about sexual and reproductive health among 10th grade students in Trichy.

You have been approached because you are currently studying 10th grade in a corporation school in Trichy city. The study includes a process of filling a questionnaire that assesses the knowledge and attitude of sexual and reproductive health before and after the educational program. The questionnaire will take up to 20 - 25 minutes to complete.

For the completion of the questionnaire, you will be assisted by an interviewer, and the survey will be conducted in a separate classroom. Your participation in the study is appreciable, and the information, which you will provide, will be useful and valuable for the study.

Your responses will not be viewed by teachers, parents, or others. The information that you provide to the study will be confidential; It will be accessed only by the limited members of the study team. Once the study is completed, the data provided by you will be destroyed. Only aggregated results of the study will be reported.

Your participation in the study is voluntary. You have the right to quit the survey at any time and you are free to skip any questions if you feel inappropriate. You will not be penalized if you decide not to participate in the study, and this decision will not affect your grades at school.

If you agree to participate, we can continue the procedure further.

Do you have any questions?

Do you agree to participate?

If yes, shall we continue?

If no, we thank you for your attention.