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Examining the Efficacy of Community Mobilization in Raising Adolescent Awareness of Reproductive Health Issues: In Light of the Experience of *Shornokishoree* Network in the Context of Bangladesh

Farzana Rashid Brownia
Ph.D. Candidate, Centre for Higher Studies and Research, Bangladesh University of Professionals.

Abstract: Adolescents in Bangladesh encounter challenges pertaining to menstrual health concerns and other issues connected to sexual and reproductive health (SRH). The social context in this matter can be best described with the rigidity and hesitation in discussing SRH issues on the one hand and heightened inquisitiveness of the adolescents on the other. To effectively tackle the concerns, *Shornokishoree* Network, a social organization, employs several strategies to engage and empower communities. This intervention involves both female and male students in secondary schools, as well as the community members and various stakeholders. This study critically examines the programs implemented by *Shornokishoree* Network and analyses their effectiveness in enhancing the knowledge, attitudes, and practice of adolescents in the realm of SRH. In order to achieve this objective, data were gathered from a sample of 630 students attending 35 secondary schools throughout eight divisions. The data obtained from a structured self-administered questionnaire was analyzed using SPSS for Windows (version 23). As an integral component of the diagnostic analysis, the findings were presented in numerical values and proportions, with the application of Chi-Square tests to assess the association between two categorical variables (control group versus intervention group). A Z-test was conducted to assess the statistical significance of the differences between the intervention and control groups in terms of their levels of knowledge, perception, and attitude. The study reveals that adolescents who were affiliated with the *Shornokishoree* (SK) Club have a higher level of SRH awareness compared to their counterparts who did not participate in the club. The members of the SK club possess a significant and varied understanding of reproductive health, as indicated by a statistical significance level ($p<0.05$). As a result, their SRH practices showed a notable improvement ($p<0.05$), accompanied by a reduction in the stigmatization associated with it ($p<0.05$).

Keywords: Reproductive health, Community mobilization, Adolescent, Bangladesh.

I. Introduction

Reproductive health is an essential aspect of human well-being, with profound implications for the physical, social, economic, and cultural dimensions of life. Despite the many advances and improvements in reproductive health care services, there are still significant challenges in ensuring that people, especially in low-income and marginalized communities, have access to the information, resources, and services they need to make informed decisions about their reproductive health. (OHCR, 2004) Adolescents are a group who are vulnerable to reproductive health related issues but cannot access reproductive health services or discuss sexual and reproductive health issues as per their needs. This scenario is more visible in the least developed countries. (Woog, 2015) The challenges in this regard are exacerbated by social, cultural, and economic factors that limit

their agency and autonomy to make informed decisions about their health and well-being. As a result, there is a growing need for effective interventions that can improve adolescents' awareness of reproductive health issues and empower them to make informed choices about their sexual and reproductive health.

Community mobilization programs are one such intervention that has shown promise in improving adolescents' knowledge, attitudes, and behaviors regarding reproductive health issues.(Talukder, 2020) Community mobilization programs engage communities, including parents, teachers, religious leaders, and young people themselves, in designing and implementing interventions that address the barriers to reproductive health. These programs aim to build social capital, enhance community participation, and empower individuals to take control of their reproductive health and well-being. (Talukder, 2020)

Bangladesh is a country with a high adolescent population and significant challenges to accessing reproductive health services. Moreover, discussing and accessing help for sexual and reproductive health (SRH) issues are stigmatized here. (Afroz, 2023) In such a social context, community mobilization measures can be efficient. With community mobilization, individuals, communities, and/or institutions can collaborate to enhance the health and hygiene of their community gradually, thereby raising the standard of living for everyone in the region. (Kendall, 2020) The solution to the Adolescent Sexual and Reproductive Health (ASRH) issue must come from community members, as it is a matter of social concern. Therefore, in this context, community mobilization initiatives are essential.

Shornokishoree Network is a community mobilization initiative that operated in all the districts of Bangladesh for many years. It is a youth development program that was established in 2012 with the goal of educating secondary school students to the correct knowledge, attitude, and practices regarding ASRH and discouraging them from engaging in harmful practice.

This study aims to determine whether community-based initiatives, such as *Shornokishoree*, are effective in promoting ASRH awareness and reducing adolescents' reproductive health issues.

Theoretical Framework: Socio-ecological Model (SEM)

The social-ecological model was first proposed by Bronfenbrenner in 1979 and has since been adapted by various researchers to understand factors that influence behaviors and attitudes on different levels. The central proposition of this model is that interpersonal and power relationships play the most crucial role in the social structure and provide support action at multiple levels including policies, individuals, families, and communities. (Bronfenbrenner, 1979; Brown, 2015; Svanemyr et al., 2015) In the context of preventing early marriage and promoting ASRH issues, *Shornokishoree* developed a model consisting of five levels: individual, interpersonal relations, community, organization, and policy.

***Shornokishoree* Network: A community mobilization initiative**

The *Shornokishoree* Network is an adolescent development program in Bangladesh implemented in 2012. The vision of this program is to create awareness among youths about the harmful practice of child marriage and empower them to know about their sexual and reproductive health rights issues. This program operates through secondary school-based clubs namely *Shornokishoree* (SK) Clubs. Adolescent boys and girls of grade 6 to 10 (aged 11 to 19 years) join this club. Each secondary school has one SK Club, each with members of 30 boys and girls. Among them, 2 boys and/or girls are leaders of the club and the remaining 28 boys and/or girls are club members. This club has a designated guide teacher, in most cases; one of the schoolteachers guides the club. The SK leaders operate the clubs in the educational system and act as liaisons with the network group.

Key focus areas of *Shornokishoree* include personal hygiene including menstrual hygiene, adolescent reproductive and sexual health, nutrition, mental health lifestyle, empowerment and leadership development, and ending child marriage and early pregnancy. The main key strategies include involving adolescent boys and girls through SK clubs (*Shornokishoree* school-based clubs) at the secondary school level and conducting peer education in the community setting, providing comprehensive, accurate, and age-specific information for behavior change, addressing barriers at schools and community through sharing and exchanging information on

healthy practices. The strategies also include utilizing mass media (e.g., television) and digital media including mobile communication, social media, and online platform, and establishing networks with stakeholders — empowering adolescents through training and capacity building, advocating and mobilizing for policy change.

Understanding the Social-Ecological Model

According to Mannell and Dadswell, focusing only on larger social and institutional structures is not enough to curb any social malpractice. Rather, focusing solely on formal structures may undermine collective efforts. In the epistemological framework of their work, Mannell and Dadswell state that community mobilization is a participatory and holistic process, according to this epistemological framework. (Mannell & Dadswell, 2017) The SEM framework, therefore, identifies multiple levels that are related to social relation development. This framework is for understanding the multidimensional and collaborative effects of personal and environmental factors that determine behaviors, and for identifying behavioral and organizational influence and intermediaries for health promotion within the organizations. There are five nested, categorized levels of the SEM- individual, interpersonal, community, organizational, and policy/enabling environment (Brown, 2015).

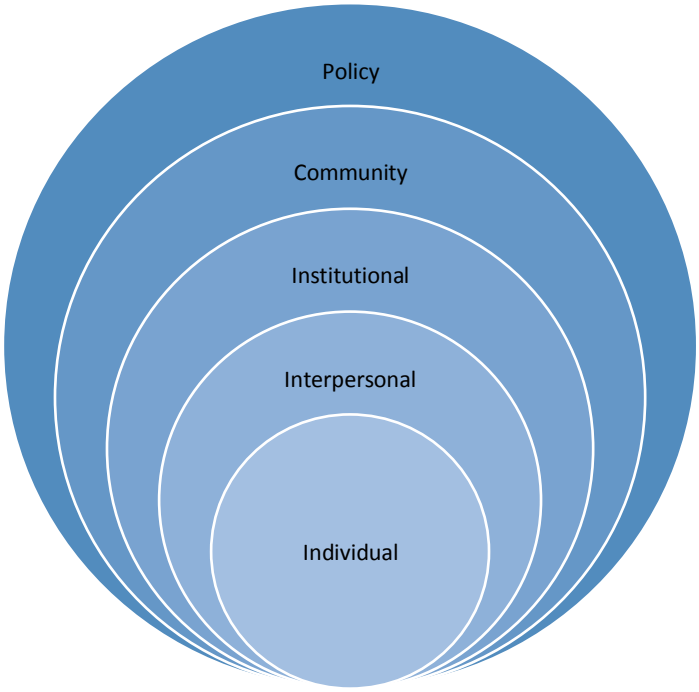

Figure 1: The Socio-Ecological Model

Shornokishoree as a community mobilization initiative, therefore, focuses on five levels. These levels are individual, interpersonal relations, community, organization, and policy. A variety of activities are implemented under each level to prevent child marriage, improve ASRH, nutrition and healthy lifestyle. (Islam & Brownia, 2013)

Each level plays an important role in shaping societal norms and attitudes towards ASRH issues. For example, at the individual level, adolescents and their parents gain appropriate knowledge on menstruation, HIV, STIs, early pregnancy, reproductive healthcare facilities and so on. However, through community mobilization efforts targeted at this level (such as education campaigns or counseling sessions), parents, teachers, community leaders etc. can make aware that ASRH issues important to discus and adolescents should be given a safe environment to reach for help regarding any ASRH issues.

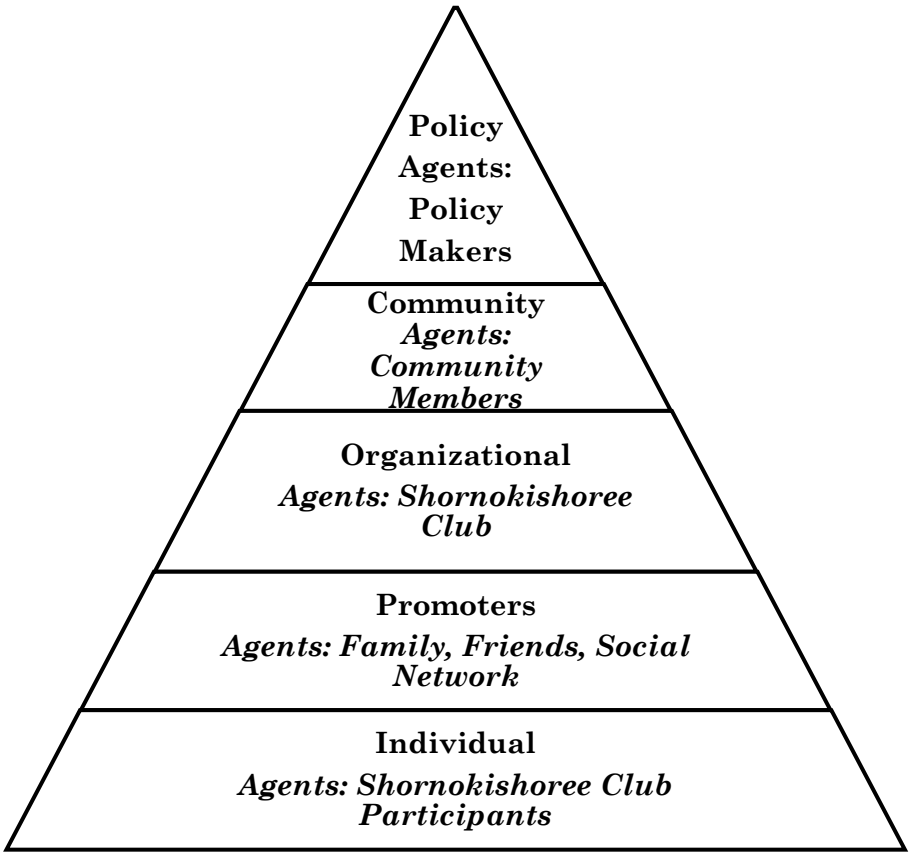

Figure 2: Ecological Framework for Shornokishoree

Activities Under Each Level

The *Shornokishoree* Network has used this model as a framework for designing its community mobilization program aimed at promoting reproductive health and preventing early marriage.

1) Individual: Providing life skills education to young girls so they are better equipped to make informed decisions about their future. This includes education on topics such as sexual health, financial management, and communication skills.

2) Interpersonal relations: Engaging with parents and community leaders through awareness campaigns and counseling sessions to change their attitudes towards early marriage. This can include providing examples of families who have successfully delayed marriage for their daughters and highlighting the benefits of education.

3) Community: Organizing community events such as sports tournaments or cultural festivals to bring together different groups and promote social cohesion. This can help build a sense of shared responsibility towards preventing early marriage.

4) Organization: Working with local NGOs, government agencies, and other organizations to coordinate efforts and resources towards preventing early marriage. This can include sharing best practices, collaborating on projects, and advocating for policy changes.

5) Policy: Promoting policy changes at the national level that prevent early marriage and protect the rights of young girls. This can include advocating for laws that set a minimum age for marriage or policies that provide economic incentives for keeping girls in school.

By using the social-ecological model as a framework, the *Shornokishoree* Network has been able to implement a comprehensive program aimed at promoting ASRH and preventing early marriage. Through targeted activities at each level, they have been able to change societal norms and attitudes towards early marriage, leading to better outcomes for young girls.

II. Research Methodology

Study Design

The study is mixed-method research which uses a quasi-experimental design to assess the impact of *Shornokishoree* program on a core set of outcomes. The outcome variables are established based on knowledge, attitudes, and practices (KAP) regarding reproductive health of the adolescents. The KAP survey is developed by researchers based upon the literature on adolescent reproductive health issues.

It is a comparative study that identifies the disparity of established variables between students who participated in the *Shornokishoree* program and a matched group of students who have not participated in this program. Thus, the study utilizes quasi-experimental design by using both quantitative and qualitative methods.

Quantitative methods are applied to the data collected from the intervention and control group adolescents to figure out the differences of KAP between these two groups. Besides, data is collected from the parents and the teachers of both groups of adolescents through FGD. KII is conducted with members of stakeholders related to adolescent well-being interventions. A systematic review is conducted to retrieve all relevant information from the FGD and KII for the study. Key-informant interviews (KIIs)and Focus Group Discussions (FGDs) techniques are utilized for the qualitative method.

Study Population

- Adolescent girls and boys from aged 10-19 years
- Parents of adolescents
- High school teachers
- Community Leaders
- Stakeholders related with adolescent well-being interventions.

Table 1: Study Population

Method	Intervention group	Control group
Survey	Adolescent girls and boys (aged 10-19 years) participated in *Shornokishoree* aged 10-19	Adolescent girls and boys (aged 10-19) who are not exposed to *Shornokishoree* program
Focus Group Discussion (FGD)	Adolescent girls and boys (aged 10-19 years) participated in *Shornokishoree* aged 10-19	Adolescent girls and boys (aged 10-19) who are not exposed to *Shornokishoree* program
	Parents of SK club member adolescents	Parents of adolescents who are not members of SK club
	Teachers who are engaged in the activities of SK club	Teachers who are not engaged in the activities of SK club
Key Informant Interview (KII)	Community Leaders and other stakeholders	-
Case study	Adolescent girls and boys (aged 10-19 years) participated in *Shornokishoree* aged 10-19	

Sampling and Sample Size

There are 5,000 *Shornokishoree* clubs comprised of 150,000 *Shornokishoree* members with 02 leaders in each club in all over the country. 35 educational institutions located in eight divisions: Dhaka, Chattogram, Rajshahi, Khulna, Sylhet, Rangpur, Barisal, and Mymen singh were selected through a stratified random sampling technique to reduce bias and to obtain samples that best represent the population. The adolescents to participate in the study from were selected from these schools through a systematic random sampling.
Sampling Technique $\mathbf{n = pqz^2/e^2}$
Here,
p= Population proportion 50%
q= 100-p (100-50) = 50
z= 1.96 for 95% CI
E= 5 (Maximum deviation tolerated)

So,

n= $50 \times 50\ (1.96)^2/5^2$

= $2500 \times 3.84/25$

$= 384 \times 1.5$ Design effect (for cluster surveys-DEFF)

$= 576$

For a more accurate representation of the population, a total of 630 students were selected from experimental and control groups. Of them, 308 belonged to the intervention group while 321 included in the control group. Using a systematic sampling technique, respondents were selected at random from the identified list of adolescents, and questionnaires were distributed to every nth student in the identified population thereafter.

FGDs are run for 4 groups- adolescents, fathers of adolescents, mothers of adolescents and teachers. For each group, an intervention group FGD and a control group FGD were conducted.

FGDs are run in 4 divisions- Sylhet, Barisal, Chittagong, Rangpur. The locations for running FGD as well as the participants of FGDs were selected through simple random sampling. In every FGD, 8-10 members participated.

3 KIIs were conducted including one member of the education ministry, one NGO representative and one media representative.

Data Collection Instruments

A standardized WHO-compliant self-administered questionnaire was used to collect data from the participants. Participants who consented received the Bengali-translated tool.

The four-part questionnaire asked about socio-demographic variables, reproductive health knowledge, attitude, and practices. Education, marital status, parent education, and residence are included in socio-demographic characteristics. (KAP) variables include knowledge of puberty, physical and psychological changes, SRH risks, STIs, and STI prevention. Adolescent attitudes on menstrual and other hormonal changes during puberty are included in the 'attitude' part of questionnaire. In practice, issues including how adolescents seek SRH support, how helpful their surroundings are, how comfortable they are discussing SRH with parents or teachers, etc. were examined. FGDs and KIIs used open-ended semi-structured questionnaires.

Data Analysis

SPSS for Windows (version 23) was used to analyze the data. Skewness and kurtosis statistics were used to check that the continuous factors were normal. Cross-tabulations were done to sum up the sample's traits and give basic information about the variables. As a part of the diagnostic analysis, the results were shown in numbers and percentages, and Chi-Square tests were used to compare two categorical factors (control group vs. intervention group). The two-sample Z-test was done to see if there was any significant distinction between the intervention and control groups on categories of knowledge, perception, and attitude. The p-value was set to be less than or equal to 5% ($p<0.05$).

For qualitative data, each interview and FGD was transcribed into a case summary organized by interview questions as a first stage of data reduction and synthesis. Thematic analysis was conducted which allowed for concepts identified as a prioriby the researcher to emerge. Afterwards, a coding scheme was developed, and finally emergent themes was developed by refining the code list.

Ethical considerations

Participants were informed precisely of the goals and aims of the study. Consent was sought from every participant before any data was collected, and they were also given an option to stop at any time. All of the information gathered was only used for academic study, and the participants were made aware of that. The names, identities, and other personal information that participants gave during the study were kept confidential.

Limitations

It is important to keep in mind that this study has a number of limitations. First, this research is a cross-sectional study, which precludes any inferences about causation from the outcomes. As a result, we need to treat the hypothesized connections between the variables with caution. Second, the participants in this study were asked for a wide variety of information that required them to recall events from a more extended period of time. It's possible that the control group isn't representative of the whole. Thirdly, there is some discrepancy between the control and intervention groups in terms of the types of educational institutions represented in the sample. This suggests that recall bias may have been introduced into the data collected from the control group.

III. Results

Socio-demographic characteristics

The respondent demographics are displayed in Table 2. A total of 630 adolescents made up the sample. Of them, 308 are from intervention group who are students from schools with a *Shornokishoree* club. On the other hand, 321 students were selected from the control group who were students at schools without a club. Almost the same percentage of responders came from the intervention group as the control group (67.9% vs. 67.4%). Female adolescents constituted the vast majority of the sample (67.7%). Respondents' ages range from 10 to 19. Both the intervention (58.8%) and control (53%) groups had a large proportion of members between the ages of 14 and 17. Table 2 provides complete breakdowns of the percentages for all response options.

Nearly one-fourth (31.9%) of the fathers of the control group adolescents did not complete secondary school, while nearly three-quarters (78.1%) of the fathers in the intervention group did. Mothers of the intervention group adolescents are more likely to have completed secondary school or higher education than those in the control group, where just 34.4% of moms have done so. Health promotion intervention is significantly associated with parental education ($p<0.01$). Housewives made up the vast majority of mothers in both the intervention (70.1%) and control (66.4%) groups. In contrast, both the intervention and control groups had a disproportionate number of respondents whose fathers worked in business.

Overall, there were more smart-phone owners among the intervention group (53.6% vs. 34.2%) than there were among the control group. Smartphone ownership is significantly correlated with participation in the intervention

program (p<0.01). The highest percentage of social media users was found among the intervention group's students (61.4%). While just 23.7% of the experimental group reported utilizing social media, 36.3% of the control group did. The use of social media is significantly associated with being connected to the intervention program (p< 0.01).

Table 2. Socio-demographic characteristics of the respondents

Variables	**Intervention (*Shornokishoree*)**		**Control (Non-*Shornokishoree*)**		χ^2	**P-value**
	n= 308	**(%)**	**n= 322**	**(%)**		
Age (in years)						
10-13	96	31.2	113	35.1		
14-17	181	58.8	173	53.7	1.62	.443
17+	31	10.1	36	11.2		
Gender						.015
Male	99	32.1	105	32.6	.901	
Female	209	67.9	217	67.4		
Father's education						
No-education.	31	10.06	103	31.99	64.92	<0.01
Primary	36	11.69	64	19.88		
Secondary - higher	241	78.25	155	48.14		
Mother's education						
No education	32	10.39	111	34.47	67.93	
Primary	47	15.26	69	21.43		<0.01
Secondary or higher	229	74.85	142	44.10		
Father's occupation						
Agriculture	10	3.2	40	12.4		
Business	134	43.5	116	36.0	49.26	<0.01
Job holders	121	39.29	73	30.79		

Others	43	13.96	93	28.88		
Mother's occupation						
Agriculture	2	0.65	37	11.49	38.84	<0.01
Jobholder	57	18.51	31	9.63		
Homemaker	249	80.84	254	78.88		
Religion						
Islam	265	86.04	261	81.06	28.36	0.092
Others	43	13.96	61	18.94		
Level of education						
Year-6	27	8.8	40	12.4		
Year-7	30	9.7	51	15.8	22.41	<0.01
Year-8	57	18.5	50	15.5		
Year-9	69	22.4	99	30.7		
Year-10	125	40.6	82	25.5		
Use of smartphone						
Yes	165	53.6	110	34.2	24.11	<0.01
No	143	46.4	212	65.8		
Use of social media						
Yes	189	61.4	117	36.3	39.47	<0.01
No	119	38.6	205	63.7		
Location of residence						
Urban	103	33.4	72	22.4	75.08	<0.01
Semi-urban	105	34.1	39	12.1		
Village	100	32.5	211	65.5		

Adolescents' knowledge and perception related to reproductive health.

Table 3 represents the responses from the participants regarding their knowledge of reproductive health. The table shows that 78.9% of the intervention group have adequate knowledge about reproductive health whereas

only 27.3% of the control group have the knowledge. The proportion of *Shornokishoree* members who have knowledge regarding reproductive health issues is significantly higher than the non-*Shornokishoree*. ($p<0.05$)A majority of adolescents from both the intervention (99.6%) and control groups (73.8%) ascertained that reproductive health is important for proper physical growth and development and the proportion of *Shornokishoree* is significantly higher than the non-*Shornokishoree*.($p<0.05$) Approximately 89.6% and 96.8% respondents from intervention group have the knowledge about hormonal change and normal physiological process during puberty, respectively. The proportion is significantly higher in *Shornokishoree*. More respondents in the intervention group(88.3%, 78.6%, and 79.2%) than the control group (48.8%, 35.1%, 45.9%) have heard about HIV/AIDS, STI, and contraceptives, respectively. The proportions are significantly higher in the intervention group. ($p<0.05$)

Table 3: Knowledge and perception related to reproductive health.

Statements	**Proportion (*Shornokishoree*) P_1**	**Confidence Interval 95%**		**Proportion (Non-*Shornokishoree*) P_2**	**Confidence Interval 95%**		**P_1-P_2**	**P-value**
		LCL	UCL		LCL	UCL		
1. Heard of any information regarding reproductive health issues	0.789	0.743	0.834	0.273	0.225	0.321	0.516	0.000
2. Reproductive health is important for proper physical growth and development	0.996	0.988	1.003	0.738	0.641	0.833	0.258	0.000
3. Puberty is the period of hormonal change	0.896	0.862	0.930	0.487	0.432	0.542	0.409	0.000
4. Changes during puberty are a normal physiological process	0.968	0.947	0.987	0.693	0.642	0.743	0.275	0.000
5. Heard of HIV/AIDS	0.883	0.847	0.919	0.488	0.433	0.542	0.396	0.000

6. Heard of sexually transmitted infections (STI)	0.786	0.739	0.832	0.351	0.299	0.403	0.435	0.000
7. Heard of contraceptives	0.792	0.746	0.838	0.459	0.405	0.514	0.333	0.000

Note: LCL= Lower Confidence Limit, UCL=Upper Confidence Limit

Attitude related to reproductive health

Table 4 shows the respondents' attitudes and beliefs regarding reproductive health. A number of questions were asked to assess respondents' attitudes toward reproductive health.

A small proportion of participants from the control group (68%) agreed that menstruation is a natural physiological process and bodily function whereas the proportion is 95.8% in the intervention group which is significantly higher. ($p<0.05$) From both intervention (97.1%) and control (82.3%) group a large proportion of respondents disagreed that menstruation is a disease and is a curse from God. The proportion is significantly higher in the intervention group. ($p<0.05$) Approximately80% in the intervention group and 45.9% in the control group disagreed that menstrual blood is impure, and the proportion is significantly higher in the intervention group. A large proportion of participants (89.6%) from the intervention group disagreed with the statement that household work such as cooking should not be allowed for menstruating girls and the proportion is significantly higher in intervention group. Besides, 61.7% and 44.7% from the intervention and control group, respectively, disagreed that girls should refrain from praying/abstain from religious activities during menstruation. The proportion is significantly higher in the intervention group than in the control group. Moreover, 92.2% in the intervention group and 72.9% in the control group disagreed with the statement that people should not touch girls while menstruating and these girls should avoid social activities (e.g., functions) which is significantly higher in the intervention group. The percentage of adolescents who agreed that taking a daily shower is necessary and using a sanitary pad is a healthy practice during menstruation is 90.6% and 95.8% in the intervention group and 77% and 80.7% in the control group, respectively. The proportions of these statements are significantly higher in the intervention group. ($p<0.05$)

Table 4: Attitude and beliefs related to reproductive health.

Variables	Proportion (*Shornokishoree*) P_1	Confidence Interval 95%		Proportion (Non-*Shornokishoree*) P_2	Confidence Interval 95%		P_1-P_2	P-value
		LCL	UCL		LCL	UCL		
1. Menstruation is a natural physiological process and bodily function.	0.958	0.935	0.980	0.680	0.629	0.731	0.277	0.000
2.Menstruation is a disease and is a curse from God.	0.971	0.952	0.989	0.823	0.781	0.865	0.148	0.000
3.Menstrual blood is impure.	0.799	0.754	0.843	0.459	0.405	0.514	0.340	0.000
4. Menstruation is still stigmatized in our country.	0.597	0.543	0.652	0.599	0.546	0.653	-0.002	0.520
5.Household work such as cooking should not be allowed for menstruating girls.	0.896	0.862	0.930	0.658	0.606	0.710	0.238	0.000
6. Menstruating girls should refrain from praying/religious activities.	0.617	0.563	0.671	0.447	0.393	0.502	0.170	0.000
7.People should not touch girls while menstruating and these girls should avoid social activities (e.g., functions).	0.922	0.892	0.952	0.729	0.681	0.778	0.193	0.000

8. Taking a daily shower during menstruation is necessary.	0.906	0.873	0.938	0.770	0.724	0.816	0.136	0.000
9. Using a sanitary pad is a healthy practice.	0.958	0.935	0.980	0.807	0.764	0.851	0.151	0.000

Note: LCL= Lower Confidence Limit, UCL=Upper Confidence Limit

Reproductive health practices

Table 5 shows the results of reproductive health related practices among the intervention group and control group participants. The table evidence that more than half (53.6%) of participants in the intervention group have visited a health facility or doctor of any kind to receive services or information on reproductive health issues, but the percentage is much lower (19.9%) in the control group. In the intervention group the proportion is significantly higher than the control group. ($p<0.05$) Around 68.9% respondents from the intervention group have discussed about menstruation with their mother prior to their menarche and the percentage is 45.2% in the control group. The proportion is significantly higher in the intervention group. ($p<0.05$) More than half (66.5%) of participants in the intervention group and (56.7%) of participants in the control group stated that they did not faceany discomfort to discussing menstruation with their female teachers and 88.5% respondents in the intervention group stated that they do not feel ashamed to discuss about sexual and reproductive health issues with their friends whereas the percentage is 62.7% in the intervention group. The proportions of these statements are significantly higher in the intervention group than the control group. ($p<0.05$)

Table 5: Practice of reproductive health.

Variables	**Proportion (*Shornokishoree*) P_1**	**Confidence Interval 95%**		**Proportion (Non-*Shornokishoree*) P_2**	**Confidence Interval 95%**		**P_1-P_2**	**P-value**
		LCL	UCL		LCL	UCL		
1.Visited a health facility or doctor of any kind to receive services or information on reproductive health issues(Alone or with parents)	0.536	0.480	0.591	0.199	0.155	0.242	0.337	0.000

2. Discussed menstruation with your mother prior to your menarche.	0.689	0.626	0.752	0.452	0.385	0.518	0.237	0.000
3.Face any discomfort to discussing menstruation with female teachers	0.665	0.601	0.729	0.567	0.501	0.633	0.098	0.019
4. Saw any schoolteacher teasing girls about menstruation when they returned to school after being absent for a few days	0.971	0.949	0.994	0.982	0.964	0.999	-0.011	0.758
5. Saw a *Shornokishoree* peer educator shared information with the students in your school regarding menstrual education	0.899	0.859	0.940	0.198	0.145	0.251	0.701	0.000
6. Feel ashamed to discuss sexual and reproductive health issues with friends	0.885	0.842	0.928	0.627	0.562	0.691	0.258	0.000

Note: LCL= Lower Confidence Limit, UCL=Upper Confidence Limit

Findings from qualitative data

FGDs were run with *Shornokishoree* and Non-*Shornokishoree* group of adolescents. They are referred here as SK-adolescents and non-SK adolescents.

Adolescent's Knowledge of reproductive health

In the FGDs, adolescents were asked to define reproductive health. The definition from the SK adolescents were detailed and addressed different dimensions of reproductive health. They correctly answered the changes that occur during puberty including physical, psychological and social changes. On the other hand, in a number of FGDs of non-SK adolescents, participants were unresponsive when they were asked to define reproductive health. In fact, the moderator had to give them a brief description of reproductive health concerns to advance the FGD further.

Besides, only the participants from SK-adolescents group could identify that ignorance towards reproductive health is a reason for occurrence of early marriage. Such identification was not seen in the non-SK adolescents.

Adolescent's attitude towards reproductive health

Both of the groups stated that knowing about adolescent reproductive health is important. However, the non-SK adolescents were unresponsive when they were asked why it is important. On the contrary, SK-adolescents answered vibrantly what reasons make them think that reproductive health is important and what the risks are of not knowing about it. While discussing about menstruation, non-SK male adolescents were hesitant and unresponsive while SK-adolescents participated in that session actively.

Adolescent's practice regarding reproductive health

The participants were asked who they reach out to help in any issues regarding reproductive health. SK adolescents mentioned that their peers and moderators of SK-clubs, siblings, parents and the internet are helpful to them if they face any difficulties regarding reproductive health. On the other hand, non-SK adolescents mentioned peers, textbooks, siblings, radio, television and internet.

Mother's view

FGDs were run between 2 groups- mothers of adolescents who are members of SK-club andmothers of adolescents who are not members of SK-clubs. They will be addressed as SK mothers and non-SK mothers.

Mother's knowledge of reproductive health

The knowledge of reproductive health came out more distinct and specified from SK-mothers than non-SK mothers. SK-mothers were able to identify the age range of puberty set by WHO while non-SK mothers had a more generic definition of puberty. Besides, SK-mothers addressed the changes that occur in both male and female adolescents while non-SK mothers were aware of only the changes in female body. More importantly, SK mothers identified puberty changes as comprised of both physical and mental changes. Physical changes include both visible (menstruation, nocturnal emission, puberty hair growth) and invisible changes (hormonal changes). Mental changes include frustration, fear, curiosity, tendency to take charge etc. On the other hand, non-SK mothers were only aware of the visible physical changes that occur during puberty.

Mother's attitude towards reproductive health

Both the groups were asked about the importance of knowing about reproductive health and early marriage. In the case of reproductive health, the non-SK mothers identified that absence of knowledge regarding reproductive health will result in fear, guilt and shyness in adolescents. On the other hand, SK mothers addressed reproductive health knowledge as an importance for both physical well-being and mental well-being.

The SK-mothers were also able to relate reproductive health knowledge with nutrition intake.

"The girls need proper nutrition to remain healthy during this phase. The nutritional intake is different at this age when they are going through change. And as a mother I have to look after if she is having necessary foods that she requires"

(SK-mother from Mymensingh)

Therefore, the SK-mothers think that when adolescents have complete knowledge of the physical changes and the process of changes, they can be more aware of what kind of foods they need to eat every day or how much water they need to drink. The discussion regarding nutritional intake being related to reproductive health knowledge was absent in the FGD of non-SK mothers.

Mother's practice regarding reproductive health

Both SK-mothers and non-SK mothers agreed that parents should be more open regarding discussing reproductive health issues with their sons/daughters. However, SK-mothers addressed that the importance of peers or siblings is more prominent here. One of the participants said-

"Parents, whether they are friend-like with their adolescent sons/daughters or not, are not the first that they prefer to come to. They are more comfortable reaching out to their friends first. My daughter, when she got her first period, asked her friend who already had her first one."

(SK-mother from Kishoreganj)

Non-SK mothers identified parents, teachers, NGO workers and textbooks as sources of knowledge for adolescents. Whereas SK-mothers, besides these sources, also identified radio, television and internet as powerful sources of knowledge of reproductive health and early marriage. Therefore, they allow their adolescent sons and daughters to spend time on informative programs.

SK-mothers were seen to be aware of the malpractices adolescents and their parents engaged in in the absence of proper knowledge e.g., watching pornography, eve-teasing, considering physical changes such as disease, seeking help of Kaviraj instead of doctors etc. Acknowledging these malpractices, the SK-mothers agreed that these are harmful practices and parents should make the adolescents aware of these practices beforehand.

5.6 Father's view

FGDs were run between 2 groups- fathers of adolescents who are members of SK-club and fathers of adolescents who are not members of SK-clubs. They will be addressed as SK fathers and non-SK fathers.

Father's knowledge of reproductive health

The definition of reproductive health in puberty coming from SK fathers were more distinct than non-SK fathers. While non-SK fathers defined puberty with physical changes only, non-SK fathers acknowledged the physical as well as mental and behavioral changes that occurs in puberty. They believe that taking care of adolescents while they are going through these changes should not only be limited to physical changes but also the sensitivity of their psychological changes should be given attention to. Besides, the SK-fathers acknowledged that male adolescents also go through a number of changes during this time, and they need help too. It was pointed out in the discussion that male adolescents have more risk of leaning towards bad practices regarding reproductive health and they should be made aware of the upcoming changes a lot before the female adolescents. The discussion of male adolescent changes was absent in the FGD of non-SK fathers.

Father's attitude towards reproductive health

The difference of attitude regarding early marriage and reproductive health between SK-father group and non-SK father group was visible. SK-fathers acknowledged the social taboo around reproductive health and stated that things need to be changed. One of the participants said that-

> *"I told my wife that your mother did not discuss these things with you. But that should not happen with my daughter. We have to create a safe space for our daughter so that she can come to us in any confusion. I believe in this era, whether the parents are educated or not, they should be friend-like with their adolescent children."*
>
> *(SK-father from Barisal)*

Non-SK fathers also emphasized the role of parents in providing adolescents with a safe space during their difficulties. They agreed that family is the most important entity whose awareness can bring changes. However, they highlighted the role of mothers in this regard. It was agreed during the discussion that daughters have a closer bond with their mothers. Therefore, the mothers have to have eyes everywhere to provide their daughter with help whenever they need. On the other hand, SK-fathers' opinion was that fathers have to play a role in this regard as well. Whether it is a male or female adolescent, fathers should be aware of the physical and mental condition of the adolescents and discuss the phenomenon without any rigidity.

Father's practice regarding reproductive health and marriage

Both SK fathers and non-SK fathers agreed that parents should be more forthcoming when it comes to discussing sensitive topics related to reproductive health with their sons and daughters. The SK-fathers indicated that it does not matter if it is the male child or female child, both parents should provide a safe place for their adolescent children so that they may come to them in need of help. One of the SK-fathers stated-

> *"Whenever I see a TV program regarding early marriage or girl's menstruation, I call my wife and daughter to sit with me and watch. There is no shame in building awareness."*
>
> (SK-father from Sylhet)

During the FGDs that were held with the SK fathers, it was clearly agreed that as fathers of daughters, it is the fathers' job to remain steadfast in the commitment that they have made to educate their child first and not get them married because of the pressure that is put on them by society. It is the responsibility of fathers to prioritize

the health and happiness of their daughters over the opinions of others in their community. In the same respect, the non-SK fathers exhibited a fear of society and comprehended the helplessness of their children's parents.

Teacher's view

Two groups of teachers participated in separate FGDs. One consisted of teachers who have *Shornokishoree* clubs in their schools and other consisted of teachers who do not have those. They will be addressed as SK-teachers and non-SK teachers.

Teacher's knowledge of reproductive health

The SK-teachers were able to define reproductive health along with its different dimension including- physical change, mental change, behavioral change, social change etc. Such a rigorous definition was not found in the discussion of non-SK teachers.

Teacher's attitude towards reproductive health

The attitude of both SK-teachers and non-SK teachers towards reproductive health was found similar. Both groups addressed puberty changes as natural and acknowledged that considering these changes as curse or diseases is wrong. They also agreed that the reproductive health issues should be discussed openly without any hesitation to ensure that adolescents are able to access the help that they need.

Teacher's practice regarding reproductive health

Both the groups identified parents, teachers, peers, media, NGOs, community leaders, religious leaders as agents of change. They emphasized the importance of family and educational institutions as a safe space for adolescents to reach out for help. The non-SK teachers mentioned that their schools do not have any clubs to play a role in this regard. They acknowledged the importance of school clubs where adolescents get to interact with their peers.

Analysis of KIIs: Impact of Shornokishoree as community mobilization network

KIIs were conducted with education ministry representative, INGO representative and media representative. The interviewees were asked about the positive/negative impacts, gaps, and scopes of community mobilization programs like *Shornokishoree* in the context of Bangladesh. In the analysis of the KIIs, authors found the following results.

Shornokishoree overcoming the existing social barriers.

Every person who was interviewed for the KII brought up the point that discussing reproductive health is not yet common practice in Bangladesh. The official from the INGO stated that matters pertaining to reproductive health are still regarded to be taboo. Parents and teachers are uncomfortable discussing these topics in conversation. Because these young people do not have access to a secure environment in which to seek assistance, it will eventually influence their reproductive health. In a circumstance such as this one, an intervention such as *Shornokishoree* is bringing about a different strategy. They act as intermediary entities in order to bridge the communication gap that exists between adolescents, their parents, and their teachers. The representative of the education ministry mentioned that *Shornokishoree*'s innovative actions, such as including reproductive health issues as extra-curricular activities and involving both students and teachers in those activities, is an effective approach to normalizing the dialogues surrounding reproductive health. The spokesperson of the media expressed gratitude toward *Shornokishoree* for her involvement with the media. Broadcasting reproductive health issue related interventions in the media is a powerful tool for overcoming the socio-cultural barrier that exists in Bangladesh. Given that the media is one of the most influential entities in society, this tool can help Bangladesh.

Shornokishoree bringing changes.

All the interviewees pointed out that interventions *Shornokishoree* like are impactful in bringing changes by going out of the mainstream interventions. The KII participants brought out that *Shornokishoree* is providing access to reproductive health related knowledge to the adolescents in the socio-cultural setting of Bangladesh

where sex education is still not well-established. Moreover, female education and empowerment are neglected to a great extent. Rather the fear of dignity is prominent here. All these socio-cultural barriers make adolescents, especially the female vulnerable to different problems related to reproductive health. However, *Shornokishoree* is undertaking a different approach by including both the adolescents and their caregivers into a community development initiative. The media representative pointed out that *Shornokishoree*'s initiative of engagement, advocacy and outreach is a visionary one in bringing changes from the root and can be implemented in addressing other social calamities as well. The INGO representative pointed out that by going into microlevel intervention, *Shornokishoree* is being able to bring not only social changes but changing the lifestyle, thinking and behavioral pattern of the members of society where early marriage is a regular phenomenon.

Shornokishoree empowering adolescents

During the KII that took place with the representative of the education ministry, it was mentioned that *Shornokishoree* is, in a way, an attempt to unionize the adolescents. Adolescents are being brought together as part of the intervention, and they are being made aware of the fact that they are a vital component of the larger purpose that society and the nation are working toward. They are becoming more concerned about their rights, protection, and abilities. They are growing in self-awareness, self-identity, and the feeling of purpose that comes with leadership, as well as the ability to take charge. The representative from the education ministry sang the same song. He made the following statement:

> *"The way that Shornokishoree is bringing together adolescents and leaving them in charge, it is creating opportunities for the adolescents to learn independently and think critically. These kinds of interventions keep adolescents motivated and transform them into agents of change."*

IV. Discussion

This study's overarching objective is to evaluate the efficacy of the *Shornokishoree* Network (SK network) in advancing ASRH throughout Bangladesh. This study's findings suggest that the efforts of the SK network to educate adolescents about their ASRH rights have been fruitful in increasing awareness of these issues. There is enough evidence to indicate that those who participated in the intervention received more information on ASRH than those who did not. Results showed that participants in the intervention group learned more about the signs, symptoms, and risks of puberty in terms of their bodies. Compared to the control group, they also have a healthier perspective of reproductive health and lower levels of stigma. Members of SK are more likely to use ASRH effectively in the long run compared to those who are not members of SK. Adolescents who participated in SK clubs exhibited significant gains in ASRH knowledge, positive attitude, and habitual practice compared to their non-club counterparts.

Shornokishoree clubs are actively working throughout the country in order to enhance the knowledge of adolescents regarding reproductive health, early marriage, nutrition intake and healthy lifestyle. The outcome of this effort is visible in the data of this study. The disparity in the intervention and the control group in reproductive health related knowledge is huge. The first and foremost requirement for promoting ASRH is to disseminate the knowledge of reproductive health. The *Shornokishoree* club members showed implicit knowledge of reproductive health in the survey as well as in the FGD. Approximately 79% of the adolescents of SK clubs could define correctly and addressed all the dimensions of reproductive health. Moreover, 99.6% of them are aware of the importance of ASRH linking its impact on physical and mental well-being. The numbers of adolescents in the control group, on the other hand, were very low. Adolescents with appropriate ASRH knowledge were only 27.3%. In the FGD, they were not as responsive as the intervention group adolescents when asked about reproductive health knowledge. Besides, the survey shows that less than half of the control group adolescents are aware of reproductive health related diseases like- HIV and STIs. On the other hand, 88.3% and 78.6% of adolescents in the intervention group know about these diseases. Knowledge regarding preventive measures such as contraceptives is also significantly higher in the SK club adolescents. ($p<0.05$)

Shornokishoree club runs weekly group studies led by a teacher where they read and discuss about reproductive health knowledge from the *Shornokishoree* handbook. Moreover, they disseminate their knowledge with peers. As a result of these activities, the SK club adolescents have significantly better knowledge about reproductive health. ($p<0.05$)

One of the major problems in developing countries like Bangladesh is social stigma regarding reproductive health. Especially, there are lot of misconceptions regarding menstruation. (Reference) The study addressed those misconceptions in the survey and explored the difference of attitude in the intervention and control group adolescents. The acceptance of menstruation as a natural physiological process and bodily function is found to be significantly higher in the intervention group (95.8%) than the control group (68%). More than half of the adolescents in the control group agreed that menstruation blood is impure whereas only 20% of the adolescents in the control group agreed to that statement. Besides, SK adolescents showed positive attitude regarding women doing usual household chores during menstruation (89.6%). On the other hand, only 65.8% of the control group showed such positivity in this regard. The adolescents who believe that girls are untouchable during menstruation were significantly higher in the control group than the intervention group. This result shows that the exposure to a community mobilization program that is actively trying to break the social stigmas have positive impact on the beneficiary adolescents. They are overcoming the established social stigmas better than those in the control group.

One of the main objectives of *Shornokishoree* clubs regarding reproductive health is an environment for adolescents where they can discuss ASRH issues and ask for help without any hesitation. The outcome of this effort is supported by the data. *Shornokishoree* members participate in the club activities not only inside the school but also outside of it. Every week they arrange a courtyard meeting where the audiences are the adults and children in the neighborhood. SK adolescents run this courtyard meetings to disseminate the knowledge they gain from the group studies. Engaging in activities like this reduces the hesitation that exists in the society of Bangladesh. (Reference) In the intervention group, 53.6% adolescents stated that they reached for clinical help for reproductive health issues whereas this number was only 19.9% in the control group. Besides, the number of adolescents who discuss reproductive health issues with their peers, parents or teachers are significantly higher in the intervention group than in the control group. ($p<0.05$) In fact, the FGD results show that the parents of adolescents who attended *Shornokishoree* club activities are way more aware regarding their children's adolescent health than those who did not. The SK-parents could define reproductive health more prominently. They were aware of the social stigmas related to ASRH and spoke against them. The study finds out that the SK-parents have a better understanding of the psychological and hormonal changes of their children during their puberty and try to be more sensitive towards these changes. They discuss ASRH issues with their adolescent sons and daughters, watch informative programs together, take care of their nutritional requirements and make a safe environment for them to ask for help. The community level campaign of *Shornokishoree* club certainly has a positive impact on these parents.

As a community mobilization program, *Shornokishoree* attempts to engage multiple stakeholders in their activities. The data collected from the KIIs evidence that *Shornokishoree* focuses on providing health and gender education to adolescents through different interactive methods such as group discussions. These education sessions help adolescents to learn about health issues and how to maintain good hygiene, prevent diseases, and maintain reproductive health. However, through these activities *Shornokishoree* is serving bigger purposes. It promotes social networking among adolescents by encouraging them to form peer groups, participate in social events, and engage with community elders. This helps strengthen social ties and provides adolescents with a support system to navigate the challenges of adolescence. Thus, *Shornokishoree* has been an agency of adolescent empowerment and advocate of adolescent health and education rights.

V. Conclusion

The study aimed to analyze the impact of *Shornokishoree* intervention on adolescents in relation to their knowledge, attitudes, and practices towards reproductive health. The findings indicate that the intervention group scored significantly higher in terms of knowledge, positive attitudes, and practices compared to the control group. The data suggests that *Shornokishoree*'s intervention initiative represents a promising approach to driving knowledge and behavioral modifications through peer-based and multi-level advocacy efforts. Evidence displays that adolescents who persistently participate in the intervention-led knowledge program witness a surge in their awareness level, indicating its proficiency in transforming attitudes and outlook around reproductive health. The findings contribute to the existing understanding about how the program led by peers can help promote reproductive health in a society where norms do not allow us to discuss openly about these issues. The platform established by the program has allowed adolescents to take an active role in understanding their reproductive health rights. They have been able to inform both their peers and parents about the importance of reproductive health. The students working with clubs have also taken the initiative to involve teachers and parents in raising awareness about the issue. Together, they hope to normalize discussing reproductive health, prevent engaging in harmful practices and break the hesitation that prevents hundreds of adolescents to reach for health.

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