

# ACCESSIBILITY OF RURAL ADOLESCENTS TO SEXUAL AND REPRODUCTIVE HEALTH INFORMATION

Jannatul Ferdous<sup>1</sup>, Mohammad Shafat Hossain<sup>2</sup>, Sadia Afrin Bithi<sup>3</sup>,  
Abdullah Al Nahian<sup>4</sup>, Mohammad Nurunnabi<sup>5\*</sup>, Afroza Begum<sup>6</sup>

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## ABSTRACT

### Reviewed by

Fouzia Ibrahim

Saig College of Medical Science and  
Technology, Dhaka, Bangladesh.

Indira Sofia Khan

Medical College for Women & Hospital  
Dhaka, Bangladesh.

### \* Correspondence

Mohammad Nurunnabi

Email: [nur.somch@gmail.com](mailto:nur.somch@gmail.com)

Orcid id: <https://orcid.org/0000-0001-9472-9369>

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**Background:** Access to sexual and reproductive health (SRH) information is crucial for adolescents to promote healthy behaviors and prevent adverse reproductive health outcomes. However, rural adolescents often experience limited access to accurate SRH information due to socio-cultural and service-related barriers. **Objective:** To assess the accessibility of sexual and reproductive health information among rural adolescents. **Materials and Method:** cross-sectional study was conducted from January to December 2019 among 393 adolescents aged 11-16 years studying in classes VI–X at two secondary schools in Jamalpur, Bangladesh. Data were collected through face-to-face interviews using a pretested questionnaire. **Results:** The mean age of the respondents was  $13.9 \pm 1.4$  years, and males (50.1%) and females (49.9%) were almost equally represented. More than half of the adolescents (51.4%) had an average level of SRH knowledge, while 39.2% had good knowledge. Knowledge regarding puberty-related changes was highest (92.6%), followed by sexual abuse (60.3%) and teen pregnancy (48.1%). Family members (43.0%) were the most common source of SRH information. Most adolescents reported that SRH information was neither readily available (70.0%) nor easily accessible (66.9%). Socio-cultural barriers were the leading obstacles to both availability (70.9%) and accessibility (63.9%) of SRH information. Significant associations were observed between SRH knowledge level and age ( $\chi^2=112.236$ ,  $p<0.001$ ), sex ( $\chi^2=63.843$ ,  $p<0.001$ ), educational status ( $\chi^2=78.585$ ,  $p<0.001$ ), parental education, parental occupation, and monthly household income ( $p<0.05$ ). Sources of SRH information ( $\chi^2=27.147$ ,  $p=0.001$ ), availability ( $p=0.046$ ), and accessibility ( $p=0.048$ ) of SRH information were also significantly associated with knowledge level. **Conclusion:** Rural adolescents had moderate SRH knowledge, but access to SRH information was limited, primarily due to socio-cultural barriers.

**Keywords:** Adolescents, Sexual and reproductive health, Knowledge, Accessibility, Information sources, Rural Bangladesh.

## INTRODUCTION

Adolescence (10-19 years) is a critical stage of physical, psychological, and social development during which individuals experience rapid changes in sexual and reproductive health (SRH). According to the World Health Organization (WHO), there are approximately 1.5 billion adolescents worldwide, accounting for nearly one-sixth of the global population, and the majority reside in low- and middle-income countries (LMICs)<sup>1,2</sup>.

1 Department of Mental Child health, National Institute of prevention and Social Medicine, Dhaka, Bangladesh.

2 Department of Casualty Accident and Emergency, Lab Aid Cardiac Hospital, Dhaka, Bangladesh.

3 Department of Health promotion & Health Education, National Institute of prevention and Social Medicine, Dhaka, Bangladesh.

4 Department of Pedodontics and Dental Public Health, City Dental College & Hospital, Dhaka, Bangladesh.

5\* Department of Community Medicine, Syhlet Women's Medical College, Syhlet, Bangladesh.

Email: [nur.somch@gmail.com](mailto:nur.somch@gmail.com), Orcid id: <https://orcid.org/0000-0001-9472-9369>, [Corresponding Author].

6 Department of Maternal and Child Health, National Institute of prevention and Social Medicine, Dhaka, Bangladesh.

Access to accurate, age-appropriate, and evidence-based SRH information during this period is essential for promoting healthy behaviors, preventing unintended pregnancy, reducing sexually transmitted infections (STIs), and supporting informed decision-making<sup>3</sup>.

Despite global commitments under the Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being) and SDG 5 (Gender Equality), many adolescents continue to face barriers in obtaining reliable SRH information, especially in rural settings where cultural norms, stigma, and inadequate health services limit access<sup>4,5</sup>.

Globally, inadequate access to SRH information remains a major public health concern. WHO and UNICEF have emphasized that adolescents frequently encounter social, cultural, and structural barriers that prevent them from receiving comprehensive sexuality education and adolescent-friendly SRH services<sup>1,4,6</sup>. Limited knowledge contributes to early marriage, adolescent pregnancy, unsafe abortion, gender-based violence, and increased vulnerability to STIs, including HIV<sup>3</sup>. Evidence from studies conducted in LMICs has consistently shown that adolescents living in rural areas have significantly lower SRH knowledge than their urban counterparts because of poor communication with parents, insufficient school-based education, limited access to healthcare providers, and widespread misconceptions regarding puberty and reproductive health<sup>7-10</sup>. Strengthening access to accurate SRH information has therefore become a global priority for improving adolescent health outcomes<sup>11</sup>.

In Bangladesh, adolescents constitute approximately one-fifth of the total population and represent an important demographic group for national development<sup>12</sup>. Although the government has introduced adolescent-friendly health services and school health initiatives, access to SRH information remains inadequate, particularly in rural communities<sup>5</sup>. Cultural taboos surrounding discussions of sexuality, limited parent-child communication, gender inequality, and insufficient adolescent-friendly health services continue to restrict adolescents' opportunities to obtain reliable information<sup>9,13,14</sup>. Bangladesh have reported that many adolescents rely on peers or informal sources rather than healthcare professionals for SRH information, resulting in misconceptions and inadequate knowledge regarding puberty, menstruation, contraception, sexually transmitted infections, and sexual violence<sup>5,9,15,16</sup>. These challenges highlight persistent disparities in access to SRH information despite ongoing policy efforts.

Although several studies have examined adolescents' knowledge or SRH practices in Bangladesh, evidence specifically addressing the accessibility of SRH information among rural adolescents remains limited. Moreover, few studies have explored how socio-demographic characteristics, information sources, and barriers to accessibility influence adolescents' SRH knowledge. Understanding these factors is essential for designing effective school-based education, community awareness programmes, and adolescent-friendly health services. Therefore, the present study aimed to assess the accessibility of sexual and reproductive health information among rural adolescents in Bangladesh and to identify the socio-demographic and information-related factors associated with their level of SRH knowledge.

## **MATERIALS AND METHOD**

### ***Study design and settings***

This cross-sectional study was conducted to assess the accessibility of rural adolescents to sexual and reproductive health (SRH) information. The study was carried out from January to December 2019 in two purposively selected secondary schools named Nandina Model Academy and Kharkharia Romija Momin Girl's High School situated in the Jamalpur, Bangladesh.

### ***Sample selection criteria***

A total of 383 adolescents (both male and female), aged 11–16 years and studying in classes 6–10, were included in the study. Adolescents who were unwilling to participate or who were psychologically unwell at the time of data collection were excluded.

### ***Data collection procedures***

A pretested questionnaire was used to collect data from the participants through face-to-face interviews. Participants were interviewed depending on their convenience with informed written assent and school authorities consent. All the participants were interviewed once at one point of time.

### ***Data analysis***

The collected data were analyzed by using IBM SPSS v26 software. The quantitative data were analyzed descriptively such as mean; standard deviation and percent were computed for continuous variables. Chi-square test was used to assess significance of associations between two nominal variables and a P-value of  $<0.05$  at 95% confidence interval was taken as significant. The results were presented in tables and diagram.

### **Ethical statement**

Participation was entirely voluntary, and informed assent was obtained from all participants prior to enrollment. Confidentiality and anonymity were ensured by assigning a unique identification code to each participant and restricting access to the collected data. Ethical approval for the study was obtained from the Institutional Review Board (IRB) of the National Institute of Preventive and Social Medicine (NIPSOM), Dhaka, Bangladesh (Approval No.: NIPSOM/IRB/2018/471). Permission to conduct the study was also obtained from the respective school authorities, who allowed data collection within the school premises.

## **RESULTS**

Table 1 shows that among the 393 adolescents, the majority (53.9%) were aged 14–15 years, with a mean age of  $13.9 \pm 1.4$  years. Male (50.1%) and female (49.9%) participants were almost equally represented. Most respondents (60.1%) were studying at the JSC level. The majority of fathers (62.3%) and mothers (76.6%) had education below the graduate level, while 25.4% of fathers and 19.8% of mothers were illiterate. Fathers were mainly service holders (33.1%), agriculture workers (31.8%), or businessmen (29.3%), whereas most mothers (92.9%) were homemakers. Most adolescents belonged to nuclear families (77.4%). Regarding household income, 71.0% of families earned  $\leq$  Tk. 20,000 per month, with a mean monthly income of Tk.  $18,554.7 \pm 14,508.8$ .

Table 2 presents adolescents' knowledge and sources of sexual and reproductive health (SRH) information. Among the SRH issues, the highest proportion of adolescents had knowledge about changes during puberty (92.6%), followed by sexual abuse (60.3%) and teen pregnancy (48.1%). Knowledge regarding STDs (40.1%), wet dreams (38.4%), and menstrual hygiene (29.8%) was comparatively lower. Regarding the level of SRH knowledge, more than half of the respondents (51.4%) had an average level of knowledge, while 39.2% had good knowledge and 9.4% had poor knowledge. The mean knowledge score was  $56.6 \pm 15.2$ . Family members were the most common source of SRH information (43.0%), followed by peers (22.4%), mass

media (17.8%), and teachers (13.7%). Only a small proportion of adolescents (3.1%) reported receiving SRH information from healthcare providers. Regarding SRH topics searched by adolescents, puberty (65.6%) was the most frequently searched issue, followed by STDs (41.2%), menstruation (33.8%), and sexual abuse (28.5%). Comparatively fewer adolescents searched for information on wet dreams (19.8%) and teen pregnancy (11.5%).

Table 3 demonstrates adolescents' help-seeking behavior and barriers related to sexual and reproductive health (SRH) problems. Among the SRH issues requiring discussion, sexual abuse (36.9%) was the most commonly reported concern, followed by RTI/STI (25.2%), menstrual problems (24.7%), and early pregnancy (13.2%). For seeking help regarding SRH problems, adolescents most frequently relied on peers (78.1%), followed by family members (66.9%), healthcare providers (57.0%), and teachers (20.9%). However, only 44.0% of respondents had sought care from a healthcare facility, while 56.0% had not. Regarding the availability of SRH information, 70.0% of adolescents reported that SRH information was not readily available. Among those reporting unavailability, socio-cultural barriers (70.9%) were the most common obstacle, followed by healthcare service-related barriers (17.1%) and discriminatory policies (12.0%). Similarly, 66.9% of respondents reported that SRH information was not easily accessible. The major barriers to accessibility included socio-cultural barriers (63.9%), lack of adolescent health services (42.2%), and lack of confidentiality (40.7%). Other barriers included lack of information sources (24.3%), lack of knowledge (24.0%), economic problems (16.3%), long waiting times (13.3%), and long distance to healthcare centers (11.0%).

Figure 1 illustrates regarding future discussions of SRH problems, most adolescents preferred to discuss these issues with family members (59.3%), followed by healthcare providers (22.6%), friends (15.5%), and teachers (2.5%).

Table 4 shows a significant association between adolescents' socio-demographic characteristics and their level of SRH knowledge. Age was strongly associated with knowledge level ( $\chi^2=112.236$ ,  $p<0.001$ ), where older adolescents (14–15 years and  $\geq 16$  years) had a higher proportion of good knowledge compared to younger adolescents (11–13 years). Sex was also significantly associated with knowledge ( $\chi^2=63.843$ ,  $p<0.001$ ); females had a higher proportion of good knowledge (58.7%) compared to males (19.8%). Educational status showed a strong association ( $\chi^2=78.585$ ,  $p<0.001$ ), with SSC-level students demonstrating higher good knowledge (65.0%) than JSC-level students (22.0%). Parental education was significantly associated with knowledge level. Both father's education ( $\chi^2=27.584$ ,  $p<0.001$ ) and mother's education ( $\chi^2=9.337$ ,  $p=0.048$ ) showed that higher parental education was associated with better adolescent SRH knowledge. Similarly, father's occupation ( $\chi^2=30.347$ ,  $p<0.001$ ) and mother's occupation ( $\chi^2=11.338$ ,  $p=0.003$ ) were significantly associated with knowledge level, with children of service-holder parents showing relatively higher good knowledge. Family type was not significantly associated with knowledge ( $\chi^2=2.239$ ,  $p=0.326$ ). However, monthly household income showed a significant association ( $\chi^2=16.643$ ,  $p<0.001$ ), where adolescents from higher-income families (>20,000 Taka) had a higher proportion of good knowledge (52.6%) compared to those from lower-income households.

Table 5 presents the association between sources and accessibility of SRH information with adolescents' level of knowledge. The source of SRH information showed a statistically significant association with knowledge level ( $\chi^2=27.147$ ,  $p=0.001$ ). Adolescents who received information from healthcare providers (58.3%) and family members (50.3%) had a higher proportion of good knowledge compared to those relying on peers, mass media, or teachers.

## Accessibility of SRH information among Rural Adolescents

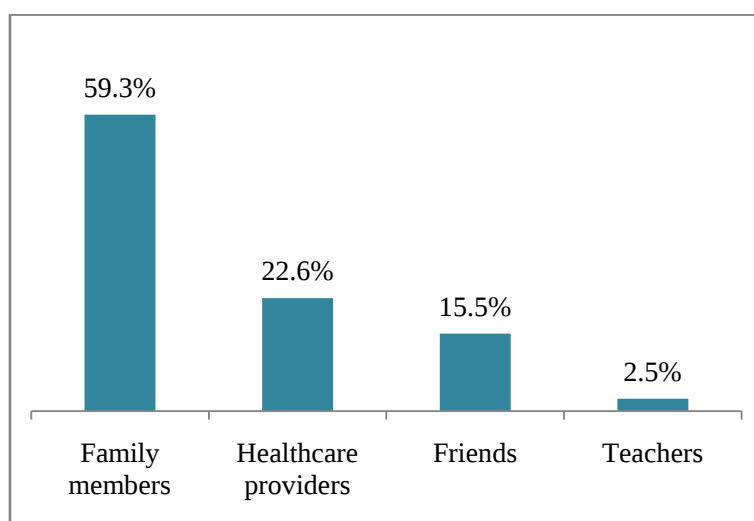
Availability of SRH information was also significantly associated with knowledge level ( $\chi^2=1.555$ ,  $p=0.046$ ), where adolescents who reported availability of SRH information demonstrated a slightly higher proportion of good knowledge (43.2%) compared to those who reported unavailability (37.5%). Similarly, accessibility of SRH information showed a significant association with knowledge level ( $\chi^2=5.931$ ,  $p=0.048$ ). Adolescents who had access to SRH information had a higher proportion of good knowledge (47.7%) than those who did not have access (35.0%).

**Table 1: Socio-demographic outlines of the adolescents (n=393)**

| Variables                          | Categories          | Frequency<br>(n) | Percent<br>(%) |
|------------------------------------|---------------------|------------------|----------------|
| Age groups (years)                 | 11-13               | 148              | 37.7           |
|                                    | 14-15               | 212              | 53.9           |
|                                    | ≥16                 | 33               | 8.4            |
|                                    | Mean±SD             | 13.9±1.4         |                |
| Sex                                | Male                | 197              | 50.1           |
|                                    | Female              | 196              | 49.9           |
| Education                          | JSC level           | 236              | 60.1           |
|                                    | SSC level           | 157              | 39.9           |
| Father's education                 | Illiterate          | 100              | 25.4           |
|                                    | Below graduate      | 245              | 62.3           |
|                                    | Graduate and above  | 48               | 12.2           |
| Mother's education                 | Illiterate          | 78               | 19.8           |
|                                    | Below graduate      | 301              | 76.6           |
|                                    | Graduate and above  | 14               | 3.6            |
| Father's occupation                | Agriculture workers | 125              | 31.8           |
|                                    | Service holders     | 130              | 33.1           |
|                                    | Businessmen         | 115              | 29.3           |
|                                    | Others              | 23               | 5.9            |
| Mother's occupation                | Homemakers          | 365              | 92.9           |
|                                    | Service holder      | 28               | 7.1            |
| Family types                       | Nuclear             | 304              | 77.4           |
|                                    | Joint               | 89               | 22.6           |
| Monthly household income<br>(Taka) | ≤20,000             | 279              | 71.0           |
|                                    | >20,000             | 114              | 29.0           |
|                                    | Mean±SD             | 18554.7±14508.8  |                |

**Table 2. Knowledge and Sources of SRH Information among Adolescents (n=393)**

| Variables                           | Frequency (n) | Percentage (%) |
|-------------------------------------|---------------|----------------|
| <b>Knowledge about SRH issues</b>   |               |                |
| Changes during puberty              | 364           | 92.6           |
| Sexual abuse                        | 237           | 60.3           |
| Teen pregnancy                      | 189           | 48.1           |
| STDs                                | 161           | 40.1           |
| Wet dream                           | 151           | 38.4           |
| Menstrual hygiene                   | 117           | 29.8           |
| *Multiple responses                 |               |                |
| <b>Level of knowledge about SRH</b> |               |                |
| Poor                                | 37            | 9.4            |
| Average                             | 202           | 51.4           |
| Good                                | 154           | 39.2           |
| Mean±SD                             | 56.6±15.2     |                |
| <b>Sources of SRH information</b>   |               |                |
| Family members                      | 169           | 43.0           |
| Peers                               | 88            | 22.4           |
| Mass media                          | 70            | 17.8           |
| Teachers                            | 54            | 13.7           |
| Healthcare providers                | 12            | 3.1            |
| *Multiple responses                 |               |                |
| <b>Most searched SRH issues</b>     |               |                |
| Puberty                             | 258           | 65.6           |
| STDs                                | 162           | 41.2           |
| Menstruation                        | 133           | 33.8           |
| Sexual abuse                        | 112           | 28.5           |
| Wet dream                           | 78            | 19.8           |
| Teen pregnancy                      | 45            | 11.5           |
| *Multiple responses                 |               |                |

**Figure 1: Preferred person to discuss SRH problems in future (n=393)**


**Table 3. Help-seeking behavior and barriers regarding SRH problems (n=393)**

| Variables                                           | Frequency (n) | Percentage (%) |
|-----------------------------------------------------|---------------|----------------|
| <b>SRH problems requiring discussion</b>            |               |                |
| Sexual abuse                                        | 145           | 36.9           |
| RTI/STI                                             | 99            | 25.2           |
| Menstrual problems                                  | 97            | 24.7           |
| Early pregnancy                                     | 52            | 13.2           |
| *Multiple responses                                 |               |                |
| <b>Sources of help sought for SRH problems</b>      |               |                |
| Peers                                               | 307           | 78.1           |
| Family members                                      | 263           | 66.9           |
| Healthcare providers                                | 224           | 57.0           |
| Teachers                                            | 82            | 20.9           |
| *Multiple responses                                 |               |                |
| <b>Sought care from healthcare facility</b>         |               |                |
| Yes                                                 | 173           | 44.0           |
| No                                                  | 220           | 56.0           |
| <b>Availability of SRH information</b>              |               |                |
| Yes                                                 | 118           | 30.0           |
| No                                                  | 275           | 70.0           |
| <b>Barriers to availability of SRH information</b>  |               |                |
| Socio-cultural barriers                             | 195           | 70.9           |
| Healthcare service-related barriers                 | 47            | 17.1           |
| Discriminatory policies                             | 33            | 12.0           |
| *Multiple responses                                 |               |                |
| <b>Accessibility of SRH information</b>             |               |                |
| Yes                                                 | 130           | 33.1           |
| No                                                  | 263           | 66.9           |
| <b>Barriers to accessibility of SRH information</b> |               |                |
| Socio-cultural barriers                             | 168           | 63.9           |
| Lack of adolescent health services                  | 111           | 42.2           |
| Lack of confidentiality                             | 107           | 40.7           |
| Lack of source of information                       | 64            | 24.3           |
| Lack of knowledge                                   | 63            | 24.0           |
| Economic problems                                   | 43            | 16.3           |
| Long waiting times                                  | 35            | 13.3           |
| Long distance to healthcare center                  | 29            | 11.0           |
| *Multiple responses                                 |               |                |

**Table 4: Association of socio-demographic outlines with the levels of knowledge (n=393)**

| Socio-demographic outlines      | Total (N) | Levels of knowledge |           |           | χ <sup>2</sup> value | P-value |
|---------------------------------|-----------|---------------------|-----------|-----------|----------------------|---------|
|                                 |           | Poor                | Average   | Good      |                      |         |
|                                 |           | n(%)                | n(%)      | n(%)      |                      |         |
| Age groups (years)              |           |                     |           |           |                      |         |
| 11-13                           | 148       | 33(22.3)            | 102(68.9) | 13(8.8)   | 112.236              | *0.000  |
| 14-15                           | 212       | 4(1.9)              | 87(41.0)  | 121(57.1) |                      |         |
| ≥16                             | 33(100)   | 0(0)                | 13(39.4)  | 20(60.6)  |                      |         |
| Sex                             |           |                     |           |           |                      |         |
| Male                            | 197       | 21(10.7)            | 137(69.5) | 39(19.8)  | 63.843               | *0.000  |
| Female                          | 196       | 16(8.2)             | 65(33.2)  | 115(58.7) |                      |         |
| Education                       |           |                     |           |           |                      |         |
| JSC level                       | 236       | 35(14.8)            | 149(63.1) | 52(22.0)  | 78.585               | *0.000  |
| SSC level                       | 157       | 2(1.3)              | 53(33.8)  | 102(65.0) |                      |         |
| Father's education              |           |                     |           |           |                      |         |
| Illiterate                      | 100       | 18(18.0)            | 56(56.0)  | 26(26.0)  | 27.584               | *0.000  |
| Below graduate                  | 245       | 17(6.9)             | 131(53.5) | 97(39.6)  |                      |         |
| Graduate and above              | 48        | 2(4.2)              | 15(31.3)  | 31(64.6)  |                      |         |
| Mother's education              |           |                     |           |           |                      |         |
| Illiterate                      | 78        | 12(15.4)            | 46(59.0)  | 20(25.6)  | 9.337                | *0.048  |
| Below graduate                  | 301       | 24(8.0)             | 149(49.5) | 128(42.5) |                      |         |
| Graduate and above              | 14        | 1(7.1)              | 7(50.0)   | 6(42.9)   |                      |         |
| Father's occupation             |           |                     |           |           |                      |         |
| Agriculture workers             | 125       | 19(15.2)            | 79(63.2)  | 27(21.2)  | 30.347               | *0.000  |
| Service holders                 | 130       | 11(8.5)             | 56(43.1)  | 63(48.5)  |                      |         |
| Businessmen                     | 115       | 4(3.5)              | 59(51.3)  | 52(45.2)  |                      |         |
| Others                          | 23        | 3(13.0)             | 8(34.8)   | 12(52.2)  |                      |         |
| Mother's occupation             |           |                     |           |           |                      |         |
| Homemakers                      | 365       | 37(10.1)            | 193(52.9) | 135(37.0) | 11.338               | *0.003  |
| Service holders                 | 28        | 0(0)                | 9(32.1)   | 19(67.9)  |                      |         |
| Family types                    |           |                     |           |           |                      |         |
| Nuclear                         | 304       | 25(8.2)             | 158(52.0) | 121(39.8) | 2.239                | 0.326   |
| Joint                           | 89        | 12(13.5)            | 44(49.4)  | 33(37.1)  |                      |         |
| Monthly household income (Taka) |           |                     |           |           |                      |         |
| ≤20,000                         | 279       | 34(12.2)            | 151(54.1) | 94(33.7)  | 16.643               | *0.000  |
| >20,000                         | 114       | 3(2.6)              | 51(44.7)  | 60(52.6)  |                      |         |

Chi-square was test done; A p-value of  $\leq 0.05$  was considered statistically significant.

**Table 5: Association of socio-demographic outlines with the levels of knowledge (n=393)**

| Variables                        | Total<br>(N) |          | Levels of knowledge |           | $\chi^2$<br>value | P-value |
|----------------------------------|--------------|----------|---------------------|-----------|-------------------|---------|
|                                  |              | Poor     | Average             | Good      |                   |         |
|                                  |              | n(%)     | n(%)                | n(%)      |                   |         |
| Sources of SRH information       |              |          |                     |           |                   |         |
| Family members                   | 169          | 11(6.5)  | 73(43.2)            | 85(50.3)  | 27.147            | *0.001  |
| Peers                            | 88           | 11(12.5) | 57(64.8)            | 20(22.7)  |                   |         |
| Teachers                         | 54           | 3(5.6)   | 29(53.7)            | 22(40.7)  |                   |         |
| Mass media                       | 70           | 11(15.7) | 39(55.7)            | 20(28.6)  |                   |         |
| Healthcare providers             | 12           | 1(8.3)   | 4(33.3)             | 7(58.3)   |                   |         |
| Availability of SRH information  |              |          |                     |           |                   |         |
| Yes                              | 118          | 12(10.2) | 55(46.6)            | 51(43.2)  | 1.555             | *0.046  |
| No                               | 275          | 25(9.1)  | 147(53.5)           | 103(37.5) |                   |         |
| Accessibility of SRH information |              |          |                     |           |                   |         |
| Yes                              | 130          | 11(8.5)  | 57(43.8)            | 62(47.7)  | 5.931             | *0.048  |
| No                               | 263          | 26(9.9)  | 145(55.1)           | 92(35.0)  |                   |         |

Chi-square was test done; A p-value of  $\leq 0.05$  was considered statistically significant.

## DISCUSSION

The present study assessed the accessibility of sexual and reproductive health (SRH) information among rural adolescents in Bangladesh and identified factors associated with their level of SRH knowledge. The study found that 51.4% of adolescents had an average level of SRH knowledge, while 39.2% had good knowledge and 9.4% had poor knowledge, with a mean knowledge score of  $56.6 \pm 15.2$ . Knowledge regarding pubertal changes was high (92.6%), whereas knowledge of sexually transmitted infections (40.1%), wet dreams (38.4%), and menstrual hygiene (29.8%) remained relatively poor. These findings are consistent with previous studies conducted in Bangladesh and other low- and middle-income countries, which reported that adolescents generally possess better knowledge of physical changes during puberty than of broader reproductive health issues, contraception, and sexually transmitted infections<sup>17,18</sup>. The persistence of these knowledge gaps suggests that comprehensive sexuality education remains insufficient, particularly in rural settings where access to reliable SRH information is limited.

This study also demonstrated that family members (43.0%) were the most common source of SRH information, followed by peers (22.4%), whereas only 3.1% of adolescents reported healthcare providers as their source of information. Similarly, adolescents most frequently sought help from peers (78.1%) for SRH-related problems, although the majority preferred to discuss future SRH issues with family members (59.3%). These findings indicate that families continue to play a central role in adolescents' reproductive health communication, despite peers being the immediate source of support. Comparable findings have been reported in Bangladesh and other South Asian countries, where parents and peers are the predominant sources of SRH information because discussions with healthcare professionals are often limited by cultural stigma, embarrassment, and inadequate adolescent-friendly services<sup>6,19</sup>. The World Health Organization recommends that adolescents should have equitable access to confidential, acceptable, and youth-friendly SRH services; however, the very low utilization of healthcare providers observed in this study indicates that substantial gaps remain between national policies and service delivery<sup>7</sup>.

A major finding of the present study was the limited availability and accessibility of SRH information among rural adolescents. Approximately 70.0% of respondents reported that SRH information was not readily available, while 66.9% stated that it was not easily accessible. Among those reporting poor availability, 70.9% identified socio-cultural barriers as the principal obstacle, followed by healthcare service-related barriers (17.1%) and discriminatory policies (12.0%). Likewise, socio-cultural barriers (63.9%), lack of adolescent health services (42.2%), and lack of confidentiality (40.7%) were the major barriers to accessing SRH information. These findings agree with previous studies from Bangladesh and other low- and middle-income countries, which have consistently shown that social taboos, gender norms, fear of stigma, and concerns regarding confidentiality discourage adolescents from seeking SRH information and services<sup>20,21</sup>. WHO and UNICEF have similarly emphasized that socio-cultural norms and inadequate adolescent-friendly health services remain major barriers to improving adolescent SRH outcomes worldwide<sup>2,15</sup>.

The present study further identified several socio-demographic determinants of adolescents' SRH knowledge. Age ( $\chi^2=112.236$ ,  $p<0.001$ ), sex ( $\chi^2=63.843$ ,  $p<0.001$ ), educational status ( $\chi^2=78.585$ ,  $p<0.001$ ), father's education ( $\chi^2=27.584$ ,  $p<0.001$ ), mother's education ( $\chi^2=9.337$ ,  $p=0.048$ ), father's occupation ( $\chi^2=30.347$ ,  $p<0.001$ ), mother's occupation ( $\chi^2=11.338$ ,  $p=0.003$ ), and monthly household income ( $\chi^2=16.643$ ,  $p<0.001$ ) were significantly associated with adolescents' level of SRH knowledge, whereas family type was not significantly associated ( $\chi^2=2.239$ ,  $p=0.326$ ). Furthermore, the source of SRH information ( $\chi^2=27.147$ ,  $p=0.001$ ), availability ( $\chi^2=1.555$ ,  $p=0.046$ ), and accessibility ( $\chi^2=5.931$ ,  $p=0.048$ ) were significantly associated with knowledge level. Adolescents who received information from healthcare providers (58.3%) and family members (50.3%) had better knowledge than those relying on peers or mass media. These findings are consistent with previous studies showing that older age, higher educational attainment, better parental education, and greater socioeconomic status positively influence adolescent SRH knowledge<sup>18,19,21,22</sup>. Unlike many previous studies conducted in Bangladesh that focused primarily on knowledge or practices among female adolescents, the present study simultaneously assessed male and female rural adolescents and explored the influence of information accessibility on SRH knowledge. This provides important evidence that improving the availability of adolescent-friendly health services, strengthening school-based comprehensive sexuality education, and promoting family-centered communication could substantially improve adolescents' access to accurate SRH information and ultimately enhance their reproductive health knowledge.

## CONCLUSION

This study found that rural adolescents in Bangladesh had a moderate level of sexual and reproductive health (SRH) knowledge, with notable deficiencies in knowledge regarding sexually transmitted infections, menstrual hygiene, and wet dreams. Family members were the primary source of SRH information, while healthcare providers contributed minimally. Most adolescents reported that SRH information was not readily available or easily accessible, mainly because of socio-cultural barriers, inadequate adolescent-friendly health services, and concerns regarding confidentiality. Furthermore, socio-demographic characteristics, including age, sex, educational status, parental education, parental occupation, household income, and the availability and accessibility of SRH information, were significantly associated with adolescents' SRH knowledge. These findings underscore the need for comprehensive strategies to improve access to accurate and reliable SRH information among rural adolescents.

## AUTHOR'S CONTRIBUTION

Concepts, methods and literature reviews: FerdousJ, Begum A; Data collection: FerdousJ; Statistical analysis: FerdousJ, Hossain MS, and Nurunnabi M; Draft manuscript: FerdousJ, Hossain MS, Bithi SA, Nahian AA, Nurunnabi M, Begum A. All the authors work and approved the final manuscript.

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## CONFLICT OF INTEREST

There is no conflict of interest.

## FINANCIAL DISCLOSURE

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