



## KNOWLEDGE OF REPRODUCTIVE HEALTH AMONG ADOLESCENT GIRLS AT KHULNA CITY CORPORATION AREA IN BANGLADESH

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**Abstract:** Inadequate knowledge regarding reproductive health among adolescent girls is a common scenario in Bangladesh which affects adversely on safe motherhood in future. For this reason the study focused on analyzing the knowledge about reproductive health among adolescent girls in Khulna City Corporation (KCC) area. This study tried to find out the level of their knowledge about components of reproductive health which consisted of knowledge about contraceptives, sexually transmitted diseases, menstruation, safe motherhood, abortion and receiving health care services among adolescent girls. Five schools of Ward no. 16 in Khulna City Corporation (KCC) were selected purposively as the study area. The study was explanatory in nature and survey method had been used to conduct this study. Girls of aged 11 to 16 years old, students of class seven to class ten, had been selected as respondents and 200 samples from 414 population were selected using stratified random sampling procedure. Interview technique has been used to collect data from June to August, 2018 through interview schedule. The study revealed that the average age of the respondents was 14.48 years and most of the cases (92 percent) got information about reproductive health from their mother. Additionally, regarding knowledge about components of reproductive health majority of the respondents had medium knowledge about contraceptives, sexually transmitted diseases, menstruation, safe motherhood, receiving health care services except abortion as most of them (41.5 percent) responded low knowledge about it. Besides, the age structure had no impact on access to information about reproductive health ( $p > 0.502$ ) but there was statistically significant ( $p < 0.000$ ) relationship between age of the respondents and knowledge about components of reproductive health. Furthermore, knowledge about reproductive health did not vary with their religious views ( $p > 0.318$ ) but age, year of schooling year of schooling of household head, access to information and importance of source of information were related with knowledge about reproductive health. Finally, the study generalized that age, year of schooling, availability of information and preference of source of information pave the way for knowledge about reproductive health.

**Key words:** Adolescent girls, reproductive health, knowledge and taboo.

### Introduction

Adolescent's reproductive health has taken the center stage within the discourse of reproductive health problems in Bangladesh (Uddin & Choudhury, 2018). Adolescence is a profound and complex

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stage of life that influences future health outcomes, attitudes, and behaviors. However, it is seen that adolescent girls have lack of knowledge on reproductive health. Adolescence is a phase of storm and stress and adolescents are the most vulnerable group who suffer from various health problems, as they have lack of knowledge about reproductive health (Santhya & Jejeebhoy, 2015). In Bangladesh, 34 million populations are adolescents whose age is ranged between 10-19 years, which represents roughly 23 percent of the country's population. Additionally, about 12 percent of the adolescents belong to the age group of 10-14 years and around 11 percent are in the age group of 15 to 19 years (Aktar, 2014).

Adolescent girls are extreme poorly informed regarding their own anatomical well-being, their bodies and their health. Moreover, these knowledge that they have of reproductive health is imperfect and distracted (Kamal, 2018). A research also shows that schools do not implement sex education fruitfully, and parents are either ashamed or unconscious to teach or instruct their children about reproductive health (Bhuiya, 2016). They represent deficiency knowledge as the high risk of pregnancy, complicating situation during pregnancy, lack of knowledge about pursuing care after pregnancy and other gynecological problems (Hakim, Shaheen & Tak, 2017). Furthermore, what is known is often inapposite and accomplished through interaction with friends who are uniformly or equally unknowledgeable. Illness relating to sexual and reproductive health may receive inadequate attention as their problems are shrouded in a culture of silence, fear of reprisal, embarrassment and shame (Conigrave and Lazzari, 2008).

In Bangladesh, only 12 percent of unmarried adolescents had an inclusive knowledge about the sexual and reproductive health (SRH) (BDHS, 2017) as they are not given ample opportunities to enhance their knowledge on reproductive health their process of growing up (Zakaria, Xu, Karim and Cheng, 2019). Furthermore, discussion about reproductive health is still a cultural taboo in Bangladesh while parents do not feel comfortable to discuss reproductive health issues with their adolescent children, and schools provide minimal information on it which results severe health risk among the adolescent girls (Zaman, Shampa & Rahman, 2016). These underlying aspects lead to high rates of early pregnancy, sexually transmitted infections (STIs), sexual violence, limited negotiation skills, forced marriage and high fertility rates (Das & Roy, 2016).

Most of the adolescent girls in Khulna City, especially those are living in backward areas, they do not have sufficient knowledge about their menstruation cycle, family planning, early pregnancy related risk, sexually transmitted diseases (STIs/HIV/AIDS), unwanted pregnancies, safe abortion and safe motherhood (Karim, 2014). Due to societal bias and cultural influence, adolescences in Khulna City have limited knowledge on various health issues such as reproductive health (Milton, 2013). They also poorly represent abject knowledge or perception about the use of contraceptive, reproductive track information, infertility, breast cancer, female genital mutilation, injuries and anemia (Haque, 2015).

The family bondage in Bangladesh is still very strong and plays a major role in the lives of adolescents providing aid, affection and care, but fails to respond to the services for reproductive health of adolescents (Rashid, 2015). The breakdown of family, community, social norms, loss of parental supervision, lack of schooling and recreational activities, frustration, boredom and uncertainty are responsible for the lack of knowledge about reproductive health among adolescent (Mishra, 2012). In addition, low rates of educational attainment, limited sex education activities, and inhibited attitudes toward sex contribute to this ignorance of knowledge about reproductive health (Barkat & Majid, 2013).

The above studies mainly focused on reproductive health risks of the adolescents, parent's responsibilities to provide information on reproductive health along with social and cultural contexts regarding knowledge about reproductive health of adolescents but this study was conducted to assess

whether the age structure, year of schooling and religious status of adolescent girls influenced knowledge on reproductive health or not. To conduct this study two specific objectives were *identified i.e.* to find out the level of knowledge about reproductive health along with its components and exploring the factors affecting reproductive health knowledge among adolescent girls. Besides, this study also tried to find out the relationship between age composition, religious status and year of schooling and knowledge about reproductive health respectively as well as correlation among index of components of reproductive health with its covariates.

**Materials and method**

**Key concept(s) operationalized:** In this study, using the mentioned components about reproductive health by World Health Organization (2008) a composite index of components of reproductive health had been constructed to measure knowledge about reproductive health of adolescent girls. Additionally, the components were knowledge about contraceptives; knowledge about sexually transmitted diseases (STDs); knowledge about menstruation; knowledge about safe motherhood; knowledge about abortion and knowledge about receiving health care services (Hall, Moreau & Trussell, 2008). Furthermore, the influential interrelated indices of reproductive health components, had been measured by using Likert-type questions with five probable response (strongly agreed, agreed, undecided, disagreed and strongly disagreed). Moreover, to construct knowledge about components of reproductive health index the sum of each domain was calculated into three equal intervals *i.e.* Low; Medium and High (table 1)

Table 1. Knowledge on components of reproductive health index

Variables	Range		
	Low	Medium	High
Knowledge about contraceptives	≤ 21	22-33	34≥
Knowledge about sexually transmitted diseases (STDs)	≤ 18	19-29	30≥
Knowledge about menstruation	≤ 14	15-22	23≥
Knowledge about safe motherhood	≤ 16	17-25	26≥
Knowledge about abortion	≤ 12	13-19	20≥
Knowledge about receiving health care services	≤ 23	24-36	37≥
Index on knowledge about components of reproductive health	≤109	110-168	169≥

Source: Field Survey, 2018

**Research design:** The study design was explanatory in nature because it tried to find out the relationship between age, year of schooling, religious status and components of reproductive health with index of knowledge among adolescent girls. Additionally, survey method had been used to conduct the study.

**Population and sampl:** Khulna Govt. Girls’ High School, Nurnagar Wapda Secondary Sheikha Niketan, Boyra Secondary High School, Hazi Foyazuddin Girls’ High School and Nurnagar Govt. Secondary School at 16 No. Ward of Nurnager, Boyra in Khulna City Corporation were selected purposively to continue this study based on convenience and ample amenities to collect data from the respondents.

To attain the objectives of the study, specific criteria were prescribed to specify the unit of analysis and the criteria were-the age of the adolescent girls was between 11 to16 years old, the adolescent girls must be students of the mentioned schools (class seven to class ten), they would have to be unmarried and the adolescent girls must be permanent dwellers of the selected area. According to the specific criteria, an inventory list was prepared after talking with students having permission from the school authority.

The population of this study consisted of 414 adolescent girls who were the current students of above mentioned schools in 16 no. ward of Nurnager, Boyra within Khulna City Corporation. Stratified random sampling was used to choose respondents equally from each school of the selected area and the total number of sample was 200 (Table 2).

Table 2. Population and sample size of the study at a glance

Sl. No.	Name of the school	Population	Sample Size
1.	Khulna Govt. Girls' High School	99	47
2.	Nurnagar Wapda Secondary Sheikkha Niketan	54	27
3.	Boyra Secondary High School	86	42
4.	Hazi Foyazuddin Girls' Secondary High School	90	43
5.	Nurnagar Govt. Secondary High School	85	41

Source: Field Survey, 2018

Furthermore, the personal and household information of the respondents had been represented as sample demography to conduct the study (Table 3).

Table 3. Sample demography

Variables	Frequency (Percentage)	Mean (Standard Deviation)
Age (in years)		
11-12	18(9.0)	14.48
13-14	74 (37.0)	(1.41)
15-16	108(54.0)	
Religious status		
Islam	143(71.5)	
<i>Sanatan</i>	55(27.5)	-
Christianity	02(1.0)	
Attending religious services		
Never	38(19.0)	
Occasionally	102(51.0)	-
Always	60(30.0)	
Year of schooling (in years)		
Class vi to vii	18(9.0)	8.50
Class viii to ix	76(38.0)	(1.36)
Class x	106(53.0)	
Head of the household		
Father	164(82.0)	
Mother	13(6.5)	
Brother	18(9.0)	-
Grandfather	05(2.5)	
Year of schooling (in years)		
Primary	39(19.2)	
Secondary	88(44.3)	-
Higher Secondary	73(36.5)	
Type of family		
Nuclear	141(70.7)	-

Extended	55(27.3)	
Broken	04(2.0)	
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Monthly household income (in BDT)		
≤10000	105(52.5)	11007.35
10001-15000	63(31.5)	
20000≥	32(16.0)	
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Monthly household expenditure (in BDT)		
≤9500	88(44.0)	10789.53
9501-16501	98(49.0)	
19500≥	14(7.0)	
<hr/>		
Monthly household savings (in BDT)		
≤500	193(96.5)	215.63
501-1000	06(3.0)	
1500≥	01(0.5)	

Source: Field Survey, 2018

**Research instrument:** Data collection technique of this study was face to face interview using an interview schedule. Though the interview schedule was developed in English but during data collection the questions were translated into Bangla. The interview schedule included personal information, household information, adolescent knowledge about reproductive health and knowledge about components of reproductive health. The field work for this study was carried out from June to August, 2018.

**Data collection method:** This study is based on primary data which were collected through face to face interview. Required secondary data and information were obtained from relevant published references, previous researches, books, journals, materials, web information and other secondary sources.

**Data processing and analysis:** Data processing included some strategies such as ensuring appropriate, accurate and useful data, arranging the elements in some sequences editing, coding, tabulation and list detail or summary data or computed information. The data were processed through statistical technique like SPSS software package and Microsoft word. After processing the data were analyzed and interpreted through specific objectives. Descriptive analysis along with Likert scale, Pearson's Chi-square ( $\chi^2$ ) test, Pearson's correlation coefficient were used to describe the level of knowledge regarding reproductive health of the adolescent girls.

## Results

**Knowledge about reproductive health:** Regarding knowledge about reproductive health (table 4) represents that most of the respondents (46.5 percent) have reported medium level of knowledge about reproductive health and only 11.5 percent of them have low level of knowledge. In response to both access to information and importance of source of information about reproductive health majority of the respondents have reported (67.0 percent and 50.5 percent) medium level of access and importance. Moreover, mother is the most preferred source of information about reproductive health for most of the cases (92 percent) while only 26 percent cases reported newspaper as the preferred source of information.

Table 4. Knowledge about reproductive health

Variables	Frequency (Percentage)
Knowledge about reproductive health	
Low	23(11.5)
Medium	93(46.5)
High	84(42.0)
Access to information about reproductive health	
Low	27(13.5)
Medium	134(67.0)
High	39(19.5)
Importance of the source of information about reproductive health	
Low	15(7.5)
Medium	101(50.5)
High	84(42.0)
Preferred source of information about reproductive health	
Preferred to mother	184(92.0)
Preferred to sister	141(70.5)
Preferred to cousins	84(42.0)
Preferred to grandmother	95(47.5)
Preferred to relatives	91(45.5)
Preferred to neighbors	56(28.0)
Preferred to friends	159(79.5)
Preferred to educational institutions	144(72.0)
Preferred to health workers	118(59.0)
Preferred to television	127(63.5)
Preferred to newspaper	52(26.0)
Preferred to magazines or books	144(72.0)
Preferred to internet or social media	108(54.0)

Source: Field Survey, 2018

**Knowledge about components of reproductive health:** Table 5 reveals that in response to knowledge about contraceptives; sexually transmitted diseases and menstruation, most of the respondents reported (55 percent, 47.5 percent and 49 percent respectively) medium level of knowledge. Again, 32.5 percent of the respondents reported high level of knowledge about safe motherhood whereas most of the respondents (41.5 percent) reported low level of knowledge about abortion. Moreover, most of the respondents (67 percent) reported medium level of knowledge about receiving healthcare services. Overall result shows that in case of index on components of reproductive health majority of the respondents (44.5 percent) reported medium level of knowledge, 32.5 percent reported high level of knowledge and 23 percent reported low level of knowledge about components of reproductive health.

Table 5. Knowledge about components of reproductive health

Variables	Frequency (Percentage)
Knowledge about contraceptives	
Low	48(24.0)
Medium	110(55.0)
High	42(21.0)
Knowledge about sexually transmitted diseases (STDs)	

Low	35(17.5)
Medium	95(47.5)
High	70(35.0)
<hr/>	
Knowledge about menstruation	
Low	51(25.5)
Medium	94(47.0)
High	55(27.5)
<hr/>	
Knowledge about safe motherhood	
Low	37(18.5)
Medium	98(49.0)
High	65(32.5)
<hr/>	
Knowledge about abortion	
Low	83(41.5)
Medium	62(31.0)
High	55(27.5)
<hr/>	
Knowledge about receiving health care services	
Low	09(4.5)
Medium	134(67.0)
High	57(28.5)
<hr/>	
Index on knowledge about components of reproductive health	
Low	46(23.0)
Medium	89(44.5)
High	65(32.5)

Source: Field Survey, 2018

**Reproductive health and its covariates**

**Relationship between age structure and knowledge about reproductive health:** In case of relationship between age and knowledge about reproductive health, data in table 6 demonstrates that adolescents with higher age have more knowledge about reproductive health which is significant statistically whereas in case of access to information about reproductive health the Pearson's  $\chi^2$  value illustrates that the age structure has no impact on access to information about reproductive health. The study also clarifies that the importance of source of information about reproductive health does not have any relationship with age of the adolescents. Additionally, adolescents with higher age reported medium level of knowledge about components of reproductive health which is significant statistically.

Table 6. Relationship between age structure and knowledge about reproductive health

Age Structure	Low	Medium	High	Pearson's $X^2_{(df)}$	p-value
Knowledge about reproductive health					
11-12	11(61.1)	05(27.8)	02(11.1)	18.473 <sub>(4)</sub>	$p < 0.001^*$
13-14	18(24.3)	33(44.6)	23(31.1)		
15-16	17(15.7)	51(47.2)	40(37.0)		
Access to information about reproductive health					
11-12	04(22.2)	10(55.6)	04(22.2)	3.347 <sub>(4)</sub>	$p > 0.502$
13-14	12(16.2)	50(67.6)	12(16.2)		
15-16	11(10.2)	74(68.5)	23(21.3)		

Importance of source of information about reproductive health					
11-12	02(11.1)	09(50.0)	07(38.9)	1.007 <sub>(4)</sub>	<i>p</i> >0.909
13-14	05(6.8)	40(54.1)	29(39.2)		
15-16	08(7.4)	52(48.1)	48(44.4)		
Index on knowledge about components of reproductive health					
11-12	11(61.1)	07(38.9)	00(0.0)	21.753 <sub>(4)</sub>	<i>p</i> <0.000*
13-14	21(28.4)	40(54.1)	13(17.6)		
15-16	16(14.8)	63(58.3)	29(29.9)		

\* Significant level-1%

Source: Field Survey, 2018

**Relationship between religious status and knowledge about reproductive health:** Table 7 indicates that religion of the respondent has no significant impact on knowledge about reproductive health which is significant statistically. Moreover, access to information about reproductive health has no association with their religious views. Moreover, in case of importance of sources of information and index on knowledge about reproductive health the Pearson's  $\chi^2$  value represents that the religious values did not have any relationship with importance of sources of information and knowledge about components of reproductive health.

Table 7. Relationship between religious status and knowledge about reproductive health

Religion	Low	Medium	High	Pearson's $X^2$ <sub>(df)</sub>	<i>p</i> -value
Knowledge about reproductive health					
Islam	11(7.7)	53(37.1)	79(55.2)	4.712 <sub>(4)</sub>	<i>p</i> >0.318
Sanatan	07(12.7)	21(38.2)	27(49.1)		
Christianity	00(0.0)	02(100.0)	00(0.0)		
Access to information about reproductive health					
Islam	31(21.7)	68(47.6)	44(30.8)	2.709 <sub>(4)</sub>	<i>p</i> >0.608
Sanatan	15(27.3)	20(36.4)	20(36.4)		
Christianity	00(0.0)	01(50.0)	1(50.0)		
Importance of source of information about reproductive health					
Islam	19(13.3)	96(67.1)	28(19.6)	1.410 <sub>(6)</sub>	<i>p</i> >0.842
Sanatan	08(14.5)	37(67.3)	10(18.2)		
Christianity	00(0.0)	01(50.0)	01(50.0)		
Index on knowledge about components of reproductive health					
Islam	36(25.2)	79(55.2)	28(19.6)	1.804 <sub>(4)</sub>	<i>p</i> >0.772
Sanatan	12(21.8)	30(54.5)	13(23.6)		
Christianity	00(0.0)	01(50.0)	01(50.0)		

Source: Field Survey, 2018

**Relationship between year of schooling and knowledge about reproductive health:** Table 8 indicates that year of schooling has significant effect on knowledge about reproductive health which is statistically proved in this study. Access to information about reproductive health does not depend on the educational year of the adolescents and this study also did not find any relationship between the mentioned variables. Additionally, in case of importance of sources of information and knowledge about components of reproductive health the Pearson's  $\chi^2$  value represents that year of schooling of the adolescents has no significant relationship with source of information and knowledge about components of reproductive health.

Table 8. Relationship between year of schooling and knowledge about reproductive health

Year of schooling	Low	Medium	High	Pearson's $X^2_{(df)}$	$p$ -value
Knowledge about reproductive health					
Class vii to viii	14(36.8)	16(42.1)	08(21.1)	8.064 <sub>(4)</sub>	$p < .089^{***}$
Class viii to ix	20(19.6)	50(49.0)	32(31.4)		
Class ix	12(20.0)	23(38.3)	25(41.7)		
Access to information about reproductive health					
Class vii to viii	06(15.8)	26(68.4)	06(15.8)	1.061 <sub>(4)</sub>	$p > 0.897$
Class viii to ix	12(11.8)	70(68.6)	20(19.6)		
Class ix	09(10.0)	38(63.3)	13(21.7)		
Importance of source of information about reproductive health					
Class vii to viii	12(31.6)	23(60.5)	03(7.9)	5.724 <sub>(2)</sub>	$p > 0.221$
Class viii to ix	24(23.5)	55(53.9)	23(22.6)		
Class ix	12(20.0)	32(53.3)	16(26.7)		
Index on knowledge about components of reproductive health					
Class vii to viii	02(5.3)	24(63.2)	12(31.6)	4.486 <sub>(4)</sub>	$p > 0.344$
Class viii to ix	07(6.9)	67(65.7)	28(27.5)		
Class ix	00(0.0)	43(71.7)	17(28.3)		

\*\*\* Significant level-10%

Source: Field Survey, 2018

**Correlation between index on knowledge about components of reproductive health and its covariates :** Data in Table 9 disclose the correlation between index on knowledge about components of reproductive health and the socio-demographic and health status of the adolescent girls. It has been found from the study that the age of the respondents was positively correlated with the index on components of the reproductive health while lower religious conservativeness ensures higher knowledge about components of reproductive health. Again the years of schooling of household head along with the year of schooling of the adolescent had positive correlation with the index on components of the reproductive health. Moreover, the higher the knowledge about reproductive health and access to information about reproductive health represented higher the chance of gathering of knowledge about components of reproductive health. At last, the importance of source of information about reproductive health positively approved the adolescents to be more capable of gaining knowledge about components of reproductive health.

Table 9. Correlation between index on knowledge about components of reproductive health and its covariates

Independent Variables	Index on knowledge about components of reproductive health	
	Pearson Correlation ( $r$ )	$p$ - value
Age structure	0.243 <sup>***</sup>	0.001
Religious status	-0.234 <sup>***</sup>	0.000
Years of schooling	0.224 <sup>***</sup>	0.001
Years of schooling of household head	0.420 <sup>***</sup>	0.000
Knowledge about reproductive health	0.190 <sup>***</sup>	0.001
Access to information about reproductive health	0.200 <sup>***</sup>	0.005
Importance of source of information about reproductive health	0.241 <sup>*</sup>	0.060

\*\*\*. Correlation is significant at the 0.01 level (2-tailed); \* Correlation is significant at the 0.10 level (2-tailed). Source: Field Survey, 2018

## Discussion

The present study stressed to explain whether age structure, religious views, year of schooling, family type, sources and access to information about reproductive health affect the knowledge on reproductive health among adolescent girls and enable them making informed choice about reproductive health issues or not. Reproductive health issue had become a common phenomenon among adolescent girls in Bangladesh. The adolescent girls comprise a significant portion of total population in Bangladesh (Barkat & Majid, 2013). The physical and psychological wellbeing of adolescents depended on the availability of knowledge and access to reproductive health services they could avail. The ability to make informed choice was an essential issue for the adolescents and the choices directly or indirectly are influenced by the knowledge on reproductive health (Kyyilleh, Tabong & Konlaan, 2018). Most of the adolescents did not have enough knowledge about family planning, contraceptive method, STDs, the age of menstruation, women health and safe motherhood etc. (Suha & Haque, 2013).

From this study, it has been found that majority of the respondents (54 percent) belong to the age group of 15 to 16 years as age is a vital factor in receiving the knowledge about reproductive health because Salam and Bhutta (2016) also found that lower age of the adolescent girls indicated lower scope of having knowledge about reproductive health. It is also found that the highest portion of the respondents belongs to Islam religion whereas 27.5 percent adolescents belonged from *Sanatan* religion and majority of the respondents attended religious services occasionally (51 percent). Additionally, Petroni (2014) also found that religious practice could dominate the adolescent's reproductive health knowledge because high believers of religion thought this issue as taboo and reluctant to discuss about it. In case of schooling, the highest portion of the respondents belonged to class ten but Ara (2017) stated that if the educational institutions taught the growing up children about reproductive health properly, they could have knowledge about it and it did not matter in which class they belonged to. Additionally, Year of schooling of household head is another important factor that affects the access of reproductive knowledge of adolescents.

In the present study, majority of the respondent's father were the household head and the year of schooling of father or mother was considered to be important factor influencing adolescents. Baku, Agbemafle & Adanu (2017) found that the year of schooling of parents was one of the important factors that influence the attitude of adolescent girls towards reproductive health and training of parents could be a great initiative to instigate this. Findings also depicted that majority of the respondent's household head had completed secondary education and it had been found that poor educational attainment of household causes lower access to information regarding reproductive health (Rashid, 2015).

Findings in this study revealed that the age structure had no impact on access to information about reproductive health ( $p>0.502$ ). However, there was statistically significant ( $p<0.000$ ) relationship between age of the respondents and knowledge about components of reproductive health. But Sydsjö, Selling, Nyström, Oscarsson & Kjellberg (2006) tried to find the knowledge of reproductive health, anatomical changes and STDs among adolescents and young adults' students in primary school, upper secondary school and first year of university in Sweden. They found that the higher age group tended to have higher level of knowledge about reproductive health. And almost half of them were well informed about oral contraceptives act to protect against pregnancy.

The respondents in this study reported to have medium involvement in religious services. Findings, indeed, did not imply religion encourages or discourages the adolescents to avail knowledge on reproductive health. Haque (2015) stated that religion had become an issue of concern regarding reproductive health. Sexuality and discussion about sexual issues with others were considered as taboo in conservative Muslim society of Bangladesh. People usually felt uncomfortable in talking

about sexual and reproductive health usually. But the findings of the study revealed that most of the adolescents were the believers of Islam. Religion of the respondent had no significant impact on knowledge about reproductive health which was significant statistically ( $p > 0.318$ ). Moreover, access to information about reproductive health and importance of source of information did not vary with their religious views and knowledge on components about reproductive health had negative relationship with religious status of the respondents.

Findings also revealed that year of schooling affected the reproductive knowledge of adolescent girls ( $p < 0.089$ ). Maharjan, Rishal & Svanemyr (2019) in their study also found that the barrier to ensure reproductive health was the poor knowledge that results in early child birth, loss of autonomy and increase the vulnerability to risky pregnancies. Findings showed that the knowledge of reproductive health could be attained by various preferred sources but a significant percent (72 percent) of the adolescent girls reported that educational institutions as the preferred source of information and access to those information. Thus the year of schooling kept the adolescents away from facing a range of barriers to use existing health services and pregnancy risks, verbal abuse by health care providers, and shyness and embarrassment.

An individual's attitudes towards sexuality and reproductive health often came from their family education and values. The attitude and knowledge about reproductive health was found fundamental to ensure safe motherhood and in this case the pattern of family was important. The members in the family and their values influenced the adolescents generating their attitudes about this issue. With whom an adolescent girl could share the feelings and ideas about puberty stages affected their lifestyle (Govender, Naidoo & Taylor, 2019). In the present study, it was found that most of the respondents (70.7 percent) were from nuclear family and the rest was extended family. Another study found that more than half of the urban family adolescents could talk about reproductive issue with their family members and the adolescents in extended families were privileged with more information than the nuclear ones as there were more people to share and build up peer group to know about reproductive issues (Grossman, Tracy, Richer & Erkut, 2015).

In spite of having relatively medium level of knowledge on reproductive health by adolescents, the topics related with reproduction were found difficult to discuss by teacher in schools and colleges as they might feel hesitation or lack the skill or confidence and consequently, the students had to read those topics by themselves from textbook. They also lacked the confidence and skills to address the psychosocial and sexuality related problems of adolescents (Malleshappa, Shivram & Nanadini, 2011). Bhuiya (2016) found that schools did not instigate sex education fruitfully and parents often felt shame or they were unconscious to teach their children about reproductive health. In this study a significant percent (72 percent) of the adolescent girls reported educational institutions as preferred source of information about reproductive health. Besides, mother was the most preferred (92 percent) source of information about reproductive health by the adolescent girls while 79.5 percent cases reported friends and peer groups as preferred source of information. Besides, adolescents might have needs for reproductive health knowledge but parents, schools or health care services do not listen to these needs. (Mittal & Goel, 2010). Moreover, most adolescent girls got preliminary knowledge about sexuality and reproductive issues from their fellows and their ideas were very often inappropriate and based on rumors, misconceptions and from mass media. (Bankole, Guiella & Zulu, 2007)

Sathe, Sathe, Kotnis & Mangulikar (2016) observed that women who were less vulnerable to RTI and its consequences usually had increased knowledge about menstrual management, hygiene practices and safe motherhood. They also found that one third of the girls in middle school had complete knowledge about family planning. Findings of the present study showed that a significant percent of the adolescents reported medium level of knowledge components of reproductive health

and the adolescent with higher age had more knowledge about reproductive health which was significant statistically ( $p < 0.001$ ). Besides, most of the changes of woman took place in puberty, menstruation, pregnancy and child birth and to ensure protective healthy lifestyle the adolescents need to be knowledgeable (Malleshappa, Shivram & Nanadini, 2011). Kamal (2008) found that the adolescents lacked the knowledge about physical and mental illness during menstruation and knowledge of taking nutritious food during menstruation.

Finally, in case of correlation the study found that with the increase of age access information regarding reproductive health knowledge also increases which positively associated. Besides, both year of schooling of the respondents and year of schooling of the respondents had positive relationship with the concerned issue. But, believing in any religion had no relationship with the index of knowledge on components of reproductive health. At last, source of information about reproductive health was important for the adolescents to gather knowledge on components of reproductive health as the study illustrated that major portion of the respondents felt comfortable to get information about it from either their mother or female members of their family.

### Conclusion

The study among adolescent girls aged 11 to 16 years had illustrated that majority of the respondents had medium level of knowledge regarding reproductive health while only 19.5 percent adolescent girls had high access to information about reproductive health. Moreover, in case of index on knowledge about components of reproductive health represented that 32.5 percent respondents belonged to high knowledge. Moreover, age composition and year of schooling had relationship with knowledge about reproductive health. The study also disclosed that religious status of the respondents was negatively related with components of reproductive health knowledge whereas higher year of schooling of the household head represented higher knowledge about reproductive health components. Additionally, access to information and importance of source of information about reproductive health were positively correlated with components of knowledge on reproductive health. So, inadequate knowledge, socio-cultural factors and lack of proper health care adversely affect the knowledge about sexual and reproductive health. Actually, availability and preferred source of information about reproductive health are very important where the adolescent girls can gather knowledge on reproductive health. Mass media like television, radio, newspaper, Internet, social networks, and different magazines might play a vital role for raising awareness through drama, cartoon, theater, short film etc. So, the adolescents should be given proper opportunities to gather knowledge about reproductive health.

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