Socioeconomic and Demographic Disparities in Knowledge of Reproductive Healthcare among Female University Students in Bangladesh

Md. Nazrul Islam Mondal, PhD;\(^1\) Md. Monzur Morshad Nasir Ullah, MSc;\(^1\) Md. Nuruzzaman Khan, MSc;\(^1\) Mohammad Zamirul Islam, PhD;\(^2\) Md. Nurul Islam, PhD;\(^3\) Sabiha Yasmin Moni, MPhil;\(^4\) Md. Nazrul Hoque, PhD;\(^5\) Md. Mashiur Rahman, MSS\(^6\)

\(^1\)Department of Population Science and Human Resource Development, University of Rajshahi, Rajshahi 6205, Bangladesh, \(^2\)Department of Social Work, University of Rajshahi, Rajshahi 6205, Bangladesh, \(^3\)Department of Statistics, University of Rajshahi, Rajshahi 6205, Bangladesh, \(^4\)Department of Pharmacology and Therapeutics, Rajshahi Medical College, Rajshahi 6200, Bangladesh, \(^5\)Hobby Center for Public Policy, University of Houston, Houston, TX 77204-5021, USA, \(^6\)Population Council, Gulshan, Dhaka 1212, Bangladesh

Corresponding author email: nazrulupm@gmail.com

ABSTRACT

Background: Reproductive health (RH) is a critical component of women’s health and overall well-being around the world, especially in developing countries. We examine the factors that determine knowledge of RH care among female university students in Bangladesh.

Methods: Data on 300 female students were collected from Rajshahi University, Bangladesh through a structured questionnaire using purposive sampling technique. The data were used for univariate analysis, to carry out the description of the variables; bivariate analysis was used to examine the associations between the variables; and finally, multivariate analysis (binary logistic regression model) was used to examine and fit the model and interpret the parameter estimates, especially in terms of odds ratios.

Results: The results revealed that more than one-third (34.3%) respondents do not have sufficient knowledge of RH care. The \(X^2\)-test identified the significant \((p < 0.05)\) associations between respondents’ knowledge of RH care with respondents’ age, education, family type, watching television; and knowledge about pregnancy, family planning, and contraceptive use. Finally, the binary logistic regression model identified respondents’ age, education, family type; and knowledge about family planning, and contraceptive use as the significant \((p < 0.05)\) predictors of RH care.

Conclusions and Global Health Implications: Knowledge of RH care among female university students was found unsatisfactory. Government and concerned organizations should promote and strengthen various health education programs to focus on RH care especially for the female university students in Bangladesh.

Key words: Reproductive Health Care • Contraceptive Use • Family Planning • Women’s Health • Female University Students • Bangladesh

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Knowledge about Reproductive Healthcare of Female Students

Introduction
Adolescents constitute a large and important target population for sexual and reproductive health (RH) interventions. The RH has been a great concern for every woman. It is the state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. It therefore implies that people are able to have a satisfying and safe sexual life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so.[1] RH programs and services are commonly targeted to women's RH and offered their services exclusively to them especially with family planning, prevention of unwanted pregnancy, and maternal care during the pregnancy period, risky abortion and the improvement of safe motherhood.[2] Thus, RH occupies a central position in the identity of the health and is essential for sound economic development and poverty alleviation.[3,4] The RH care needs of young people in Bangladesh are one of the most under-researched aspects of our population. This is concerning at a time when all communities in the world are threatened by morbidity and mortality due to the spread of the human immunodeficiency virus (HIV). More than half the world's youth are initiating their sexual activity during their adolescence.[5] In Bangladesh, the religious teaching and cultural norms emphasize abstinence from sexual activity until marriage.

Most of the previous studies of females were related to RH rather than the impact of socioeconomic, demographic, and health factors on RH care.[6-10] It is then an important task of health researchers to identify the needs for RH promotion and to plan and implement the necessary educational programs that might include prevention of sexually transmitted infections (STIs) or HIV and unwanted pregnancies. However, accurate and correct knowledge of RH are important because they are vulnerable to a range of RH problems, including too-early pregnancy and childbearing, unsafe abortion and STIs.[11] Therefore, the specific objectives of this study were to indentify the associations between knowledge of RH care with sociodemographic, and health factors; and to determine the factors affecting knowledge of RH care among female university students in Bangladesh.

Methods
In this study, our main independent variables were respondents’ age, current education level, family type, residence area, monthly family income, watching television (TV), reading newspaper, knowledge about pregnancy, knowledge about family planning, and knowledge about contraceptive use; our dependent variable was knowledge of RH care. Our study covariates were respondents’ age, current education level, family type, watching TV, knowledge about pregnancy, knowledge about family planning, and knowledge about contraceptive use.

The study sample consisted of 300 female university students residing in student residential halls at the University of Rajshahi, Bangladesh. The university has five female residential halls, accommodating a total of 3,000 students at any particular time. The University of Rajshahi is the second largest university in Bangladesh, in which the students come from all over the country. Fieldwork for data collection was completed between January and February 2014. The Institute of Biological Sciences (IBSc), University of Rajshahi, Bangladesh provides Ethical Review Certificates to conduct research works usually for the clinical trials of an investigational medicinal products. This study involves observation of people in public places where no intervention is staged by the researchers or direct interaction with the individuals or groups; the individuals or groups have no reasonable expectation of privacy and dissemination of research results does not allow identification of specific individuals. Thus, the ethical issue was not considered. The questionnaire comprised of the information on socioeconomic, demographic, and health factors related to RH care. For the purpose of data collection, personal interview approach was followed. Both bivariate and multivariate analyses were conducted to analyze the data.

The unit of analysis of this study was knowledge level of RH care. In order to measure the knowledge level of RH care, the respondents were asked 3 different questions to respond either “yes” or “no”. These
questions were: i) knowledge about pregnancy, ii) knowledge about contraceptive use, and iii) knowledge about family planning. Each correct response (yes) was scored as 1, while each incorrect response (no) was scored as 0. Among these questions, when a respondent replied two or more correct answers (scored ≥2), was considered as she has had sufficient knowledge (coded 1), otherwise she was considered to have insufficient knowledge (coded 0).

This study used 10 explanatory variables with categories shown in the parenthesis, viz: age (years) (17-20, 1; 21-24, 2); current education level (honors, 1; masters, 2); family type (nuclear, 1; joint, 2); residence area (urban, 1; rural, 2); monthly family income (Taka) (US $1=78 Taka) (< 10000, 1; 10000-19000, 2; 20000-29000, 3; ≥ 30000, 4); watching TV (no, 0; yes, 1); reading newspaper (no, 0; yes, 1); knowledge about pregnancy (no, 0; yes, 1); knowledge about family planning (no, 0; yes, 1); and knowledge about contraceptive use (no, 0; yes, 1).

The univariate analysis was used to describe the variables. The bivariate analysis was used to examine the associations between dependent and independent variables. Finally, the binary logistic regression model was fitted to identify the determinant factors of knowledge level of RH care among the study respondents. In multivariate logistic regression model, knowledge level of RH care (Y) was treated as the dependent variable and classified in the following way:

\[
Y = \begin{cases} 
1, & \text{if the respondent has sufficient knowledge of RH care;} \\
0, & \text{otherwise.}
\end{cases}
\]

In binary logistic regression model, seven explanatory variables \((X_i, i = 1, 2,..., 7)\), viz., respondents’ age \((X_1)\), current education level \((X_2)\), family type \((X_3)\), watching TV \((X_4)\), knowledge about pregnancy \((X_5)\), knowledge about family planning \((X_6)\), and knowledge about contraceptive use \((X_7)\) were entered.

The results of binary logistic regression model were presented as odds ratios (ORs) with 95% confidence interval (CI) for easy understanding of the effects of the associated factors on knowledge level on RH care. The Statistical Package for Social Sciences version 17.0 (SPSS Inc, Chicago, IL, USA) was used for all statistical analysis.

**Results**

The distribution of the variables and associations of the factors with the knowledge level of RH care of the female university students are presented in Table 1. The results revealed that more than one-third (34.3%) of the respondents do not have sufficient knowledge about RH care. The higher percentages of respondents with insufficient knowledge were found who were 17-20 years (26.0%), current education level were honors (30.3%), living in the nuclear family (30.0%), rural residence areas (22.3%), lower monthly family income (< 19000 Taka) (21.7%); and not having knowledge about pregnancy (32.3%), family planning (32.3%), and contraceptive use (32.7%). The bivariate analysis showed that the knowledge of RH care was statistically significantly \((p < 0.05)\) associated with respondents’ age, education, family type, watching TV, knowledge about pregnancy, knowledge about family planning, and knowledge about contraceptive use.

The results of the binary logistic regression analysis are presented in Table 2. In this analysis, out of 7 explanatory variables, 5 variables, viz: respondents’ age, education, family type, knowledge about family planning, and knowledge about contraceptive use were identified as statistically significant \((p < 0.05)\) predictors of having sufficient knowledge of RH care. The results revealed that the respondents who were 21-24 years were 3.04 times (OR: 3.04; 95% CI: 1.70-5.40) more likely to have knowledge of RH care compared to the respondents aged 17-20 years. The respondents with master’s level education had 2.35 times (OR: 2.35; 95% CI: 1.04-5.28) more knowledge of RH care compared to the respondents with bachelor’s degree level education. The respondents who live in joint families were almost seven times (OR: 6.96; 95% CI: 3.61-13.42) more likely to have high knowledge of RH care. Again the respondents having knowledge about family planning were found to be 3.21 times (OR: 3.21; 95% CI: 1.13-9.10)
more knowledgeable of RH care compared to the respondents having no knowledge about family planning. Similarly, the respondents who have knowledge about contraceptive use were found to almost six times (OR: 5.57; 95% CI: 1.97-15.79) more knowledge about RH care compared to the respondents who had no knowledge of contraceptive use.

**Discussion**

The main purpose of this study was to examine the knowledge level of RH care among female university students.
students given the importance of knowledge of RH care for women as women's health, well-being, contraception, as well as for a woman to delay the birth of her first child or space the birth of her children.\[12\] The RH is considered as a great concern for every woman which is a crucial part of general health and an essential feature of human development. RH is determined not only by the quality and availability of healthcare, but also by sociodemographic and health related factors' development and women's position in the society.\[13\] The women's health is often compromised not by lack of medical knowledge, but by infringements on women's health rights. In Bangladesh, women are not very conscious about their health status though their good health is a pivotal factor in many of the circular relationships with development. In this regard, Bangladesh may have achieved significant progress in some aspects of health and family welfare sectors since her Independence in 1971. However, the overall health status, particularly the status of RH care, still remains unsatisfactory. Considering this, the study was conducted among university female students who came from different areas of Bangladesh. The knowledge level of RH care of these respondents was found unsatisfactory. Thus, it is easy to realize the real and drastic situations of knowledge level of RH care in the rural areas for illiterate women in Bangladesh.

In this study, the respondents were matured (17-24 years) enough and they were the students of honors (undergraduate) and master's levels. This study shows that women's unsatisfactory knowledge level of RH care was as a result of some

### Table 2. Results of Logistic Regression Analysis for the Effects of the Factors on Knowledge of Reproductive Healthcare

| Explanatory variables                  | Coefficients (β) | Odds ratio (OR) | 95% CI of OR |
|---------------------------------------|------------------|-----------------|-------------|
|                                       |                  |                 | Lower       | Upper       |
| **Age (years)**                       |                  |                 |             |             |
| 17-20 (r)                             | …….             | 1.00            |             |             |
| 21-24                                 | 0.29*            | 3.04            | 1.70        | 5.40        |
| **Current education level**           |                  |                 |             |             |
| Honors (r)                            | …….             | 1.00            |             |             |
| Masters                               | 0.41*            | 2.35            | 1.04        | 5.28        |
| **Family type**                       |                  |                 |             |             |
| Nuclear (r)                           | …….             | 1.00            |             |             |
| Joint                                 | 0.33*            | 6.96            | 3.61        | 13.42       |
| **Watching television**               |                  |                 |             |             |
| No (r)                                | …….             | 1.00            |             |             |
| Yes                                   | 0.36             | 2.00            | 0.98        | 4.07        |
| **Knowledge about pregnancy**         |                  |                 |             |             |
| No (r)                                | …….             | 1.00            |             |             |
| Yes                                   | 0.62             | 1.65            | 0.49        | 5.54        |
| **Knowledge about family planning**   |                  |                 |             |             |
| No (r)                                | …….             | 1.00            |             |             |
| Yes                                   | 0.53*            | 3.21            | 1.13        | 9.10        |
| **Knowledge about contraceptive use** |                  |                 |             |             |
| No (r)                                | …….             | 1.00            |             |             |
| Yes                                   | 0.53*            | 5.57            | 1.97        | 15.79       |

Note: *p<0.05, and 'r', reference category; 'CI, confidence interval'
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Among these factors education is considered as the pathway of communication for any message of RH care. Increased age with increased level of education may give an opportunity to have more and updated RH care information and increased use of healthcare services and supports from peer groups. Moreover, the adolescents, often termed the “generation of hope,” play a vital role in the health status of any country. Their behaviors, attitudes, and beliefs are shaping the societies of the future. Thus, it is imperative to promote healthy practices during adolescence to prepare them for the transition to adulthood. In Bangladesh, however, health education is weak and the educational institution curriculum offers little to educate students about health in general and about RH care in particular. This represents a missed opportunity for the country, since the great majority of adolescents in Bangladesh are enrolled in educational institutions. Another worrisome fact is that the teenage and premarital sexual activity is common and is on the raise worldwide. Obviously, there is need for the promotion of a healthy RH lifestyle through the process of providing appropriate knowledge to bring about appropriate behavioral change and improve participation in the use of RH services, and consequently decrease adolescent fertility while increase the life expectancy. Moreover, education is the determinant factor for the accurate knowledge about STIs and HIV acquisition or transmission, and education also increases safer sexual behaviors.

Pregnancy is associated with a myriad of physiological and emotional changes and knowledge of RH care strongly associated with it. The study found that around one-third of respondents had no knowledge about family planning and contraceptive use. Globally, each year nearly 350,000 women die while another 50 million suffer illness and disability from complications of pregnancy and child birth and contribute to about 50% of maternal deaths annually. Contraceptive use is considered an effective way to improve the health of mothers to prevent the incidence of unwanted pregnancy, abortion and enhances adequate child spacing and reduced infant and child mortality. Women's decision about use, non-use or discontinuation of contraceptive methods can be affected by their perceptions of contraceptive risks and benefits, and assessment of how particular methods may affect relationships with partners or other family members. Family planning helps everyone (women, children, men, families, nations, the earth). Specifically, it protects women from unwanted pregnancies, thereby saving them from high risk pregnancies or unsafe abortions. If all women could avoid high-risk pregnancies, the number of maternal deaths could fall by one-quarter. Also other benefits accruing from family planning methods include prevention from cancers, STIs and HIV.

Conclusion and Global Health Implications

This study investigated the interrelationships between sociodemographic and RH related factors with knowledge of RH care of female university students in Bangladesh. The study identified that more than one-third female students do not have sufficient knowledge of RH care. Of them, most of the respondents were aged 17-20 years, studying in the honors level, living in the nuclear family, residence areas were rural, monthly family incomes were low; and did not have knowledge about pregnancy, family planning, and contraceptive use. The respondents' age, education, family types, watching TV; and knowledge about pregnancy, family planning, and contraceptive use were found significantly associated with their knowledge of RH care. On the other hand, the respondents' age, education, family type, knowledge about family planning, and contraceptive use were identified as the determinant factors. The knowledge of RH care of female university students was impressive, but these findings did not fulfill our expectation. In this circumstance, government needs to include the RH education within the formal education as a compulsory course and also take various programs about RH care for emphasize its importance and also address the gap so that they may be fully aware about their RH care. To identify the factors that influence the knowledge level of RH care, future research should evaluate larger dataset and wider range of factors.
Key Messages

- Knowledge level of reproductive health care among female university students in the study was unsatisfactory.
- The mass media did not play the vital role of creating awareness of reproductive health care among females.
- Government and relevant organizations should promote and strengthen various health education programs focusing on reproductive health care in Bangladesh.

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