International Journal of MCH and AIDS (2015), Volume 4, Issue 2, 32-39

IJMA

INTERNATIONAL JOURNAL
of MCH and AIDS
ISSN 2161-864X (Online)
ISSN 2161-8674 (Print)

Available online at www.mchandaids.org

ORIGINAL ARTICLE

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

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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

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 the 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:

$$Y = \begin{cases} 1, \textit{ if the respondent has sufficient knowledge of RH care;} \\ 0, \textit{ otherwise.} \end{cases}$$

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 (30.00%), 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)

Table 1. Distribution of Knowledge of Reproductive Healthcare and Associations with Socioeconomic, Demographic and Health Related Factors

Factors	Knowledge of reproductive healthcare			
	Sufficient (%)	Insufficient (%)	Total (%)	*p*-values
Age (years)				
17-20	37 (12.33)	78 (26.00)	115 (38.34)	0.000
21-24	160 (53.34)	25 (8.33)	185 (61.66)	
Current education level				
Honors	14 (4.67)	91 (30.33)	105 (35.00)	0.000
Masters	183 (61.00)	12 (4.00)	195 (65.00)	
Family type				
Nuclear	138 (46.00)	90 (30.00)	228 (76.00)	0.001
Joint	59 (19.67)	13 (4.33)	72 (24.00)	
Residence area				
Rural	133 (44.34)	67 (22.33)	200 (66.67)	0.667
Urban	64 (21.33)	36 (12.00)	100 (33.33)	
Monthly family income (Taka)				
<10000	53 (17.67)	24 (8.00)	77 (25.67)	0.470
10000-19000	47 (15.67)	41 (13.67)	88 (29.33)	
20000-29000	62 (20.67)	26 (8.66)	88 (29.33)	
≥30000	35 (11.66)	12 (4.00)	47 (14,67)	
Watching television				
No	17 (5.67)	18 (6.00)	35 (11.67)	0.023
Yes	180 (60.00)	85 (28.33)	265 (88.33)	
Reading newspaper				
No	16 (5.33)	9 (3.00)	25 (8.33)	0.855
Yes	181 (60.34)	94 (31.33)	275 (91.67)	
Knowledge about pregnancy				
No	5 (1.67)	97 (32.33)	102 (34.00)	0.000
Yes	192 (64.00)	6 (2.00)	198 (66.00)	
Knowledge about family planning				
No	10 (3.34)	97 (32.33)	107 (35.67)	0.000
Yes	187 (62.33)	6 (2.00)	193 (64.33)	
Knowledge about contraceptive use				
No	15 (5.00)	98 (32.67)	113 (37.67)	0.000
Yes	182 (60.67)	5 (1.66)	187 (62.33)	
Total	197 (65.67)	103 (34.33)	300 (100.00)	

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

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'

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

socioeconomic, demographic and health factors. 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.[14] 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,[15] and consequently decrease adolescent fertility while increase the life expectancy.[16-19] Moreover, education is the determinant factor for the accurate knowledge about STIs and HIV acquisition or transmission,[20] and education also increases safer sexual behaviors.[21-24]

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.[25] 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.[26,27] 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.[28,29] 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.[30]

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.

Conflict of Interest: *The authors declare no relevant conflict of interest.* **Acknowledgements/Funding:** *The authors would like to thank the Department of Population Science and Human Resource Development, University of Rajshahi, Bangladesh without whose support this research would not have been possible. The authors thank data collectors and study participants for their cooperation as well editors and peer-reviewers for their valuable comments and criticisms, which greatly improved this article.* **Ethical Consideration:** *This paper is based on analysis of primary data and ethical issue was not considered according to the guidance of the Institute of Biological Sciences (IBSc), University of Rajshahi, Bangladesh regulations as authors detail in the methodology section.*

References

1. Glasier A, Gulmezoglu AM, Schmid GP, Moreno CG, Van Look PF. Sexual and reproductive health: a matter of life and death. Lancet (London, England). 2006;368(9547):1595-1607.
2. Kamal MM, Islam MS, Alam MS, Hasssn A. Determinants of male involvement in family planning and reproductive health in Bangladesh. American Journal of Human Ecology. 2013;2(2):83-93.
3. Rahman M, Mondal MNI, Ali MK. A study on the factors affecting the use of contraception in Bangladesh. International Research Journal in Biochemistry and Bioinformatics. 2011;7:178-183.
4. Hossain MK, Mondal MNI, Akter MN. Reproductive Health Rights of Women in the Rural Areas of Meherpur District in Bangladesh. Journal of Reproduction & Infertility. 2011;12(1):23-32.
5. Woods S. Report on the Global AIDS Epidemic: 4th Global Report. Joint United Nations Programme on HIV/AIDS (UNAIDS). 2004; Geneva, Switzerland. [Online]. [cited 2015 November 1], Available at: http://www.unaids.org/sites/default/files/media_asset/2006_gr-executivesummary_en_0.pdf
6. Haque M, Hossain S, Rumana Ahmed K, Sultana T, Chowdhury HA, Akter J. A Comparative Study on Knowledge about Reproductive Health among Urban and Rural Women of Bangladesh. Journal of Family and Reproductive Health. 2015;9(1):35-40.
7. Rahman MS, Khan MN, Mondal MNI, Alam MS, Ahmed KM, Islam MR. Knowledge Level about HIV/AIDS among the Villagers of Comilla District, Bangladesh. World Journal of AIDS. 2014;4(4):438-445.
8. Gyimah AA, Nakua EK, Owusu-Dabo E, Otupiri E. Contraceptive characteristics of women living with HIV in the Kumasi Metropolis, Ghana. International Journal of MCH and AIDS. 2013;2(1):111-120.
9. Mondal NI, Hossain K, Islam R, Mian AB. Sexual behavior and sexually transmitted diseases in street-based female sex workers in Rajshahi City, Bangladesh. Brazilian Journal of Infectious Diseases. 2008;12(4):287-292.
10. Mondal MNI, Khan MAR, Islam MR, Mamun A. Commercial sex workers in brothels are hallmark of HIV epidemic in Bangladesh. Pakistan Journal of Social Sciences. 2005;3(9):1152-1158.
11. Dida N, Darega B, Takele A. Reproductive health services utilization and its associated factors among Madawalabu University students, Southeast Ethiopia: cross-sectional study. BMC Research Notes. 2015;8(1):8-15.
12. Simbar M, Tehrani F, Hashemi Z. Reproductive health knowledge, attitudes and practices of Iranian college students. 2005. [Online]. [cited 2015 November 1], Available at: http://apps.who.int/iris/handle/10665/117016.
13. Mondal MNI, Hossain MK, Ali MK. Women's Status in Bangladesh: An Emperical Study. The Journal of the Institute of Bangladesh Studies. 2008; 31:117-126.
14. Tawfik M, El-Sharkawy O, Abdelbaqy M, Hanafy S, Shehata S, Malek A, et al. School-based reproductive health education among adolescent girls in Alexandria Egypt. Population Reference Bureau. 2013, Washington; DC 20009 USA.
15. Mittal K, Goel MK. Knowledge Regarding

Reproductive Health among Urban Adolescent Girls of Haryana. Indian Journal of Community Medicine. 2010;35(4):529-530.

16. Mondal MNI, Ullah MMMN, Islam MR, Rahman MS, Khan MN, Ahmed KM, et al. Sociodemographic and Health Determinants of Inequalities in Life Expectancy in Least Developed Countries. International Journal of MCH and AIDS. 2015;3(2):96-105.
17. Mondal MNI, Shitan M. Relative importance of demographic, socioeconomic and health factors on life expectancy in low-and lower-middle-income countries. Journal of Epidemiology. 2014;24(2):117-124.
18. Mondal MNI, Shitan M. Impact of socio-health factors on life expectancy in the low and lower middle income countries. Iranian Journal of Public Health. 2013;42(12):1354-1362.
19. Mondal MNI, Shitan M. Factors affecting the HIV/AIDS epidemic: an ecological analysis of global data. African Health Sciences. 2013;13(2):301-310.
20. Mondal MNI, Hoque N, Chowdhury MRK, Hossain MS. Factors Associated with Misconceptions about HIV Transmission of Ever-Married Women in Bangladesh. Japanese Journal of Infectious Diseases. 2015;68:13-19.
21. Mondal MNI, Hoque N, Chowdhury R, Moni S, Howard J. Risky Sexual Behaviors and HIV Vulnerability of Male Migrant Workers in Rajshahi City, Bangladesh. Epidemiology. 2014;4(3):2161-1165.
22. Mondal MNI, Rahman MM, Rahman MO, Akter MN. Level of Awareness about HIV/AIDS among Ever Married Women in Bangladesh. Food and Public Health. 2012;2(3):73-78.
23. Mondal NI, Islam R, Rahman O, Rahman S, Hoque N. Determinants of HIV/AIDS awareness among garments workers in Dhaka City, Bangladesh. World Journal of AIDS, 2012; 2:312-318.
24. Mondal NI, Takaku H, Ohkusa Y, Sugawara T, Okabe N. HIV/AIDS acquisition and transmission in Bangladesh: Turning to the concentrated epidemic. Japanese Journal of Infectious Diseases. 2009;62(2):111-119.
25. Lakew Y, Reda AA, Tamene H, Benedict S, Kebede Deribe K. Geographical variation and factors influencing modern contraceptive use among married women in Ethiopia: evidence from a national population based survey. Reproductive Health. 2013, 10:52.
26. Mondal MNI, Hossain MK, Ali MK. Factors influencing infant and child mortality: A case study of Rajshahi District, Bangladesh. Journal of Human Ecology. 2009;26(1):31-39.
27. Rahman MM, Khan MAR, Mondal MNI. Pregnancy wastage among married women in rural Rajshai, Bangladesh. Middle East Journal of Nursing. 2008;2(1):10-13.
28. Islam M, Thorvaldsen G. Family planning knowledge and current use of contraception among the Mru indigenous women in Bangladesh: a multivariate analysis. Open Access Journal of Contraception. 2012;3:9-16.
29. Marchant T, Mushi A, Nathan R, Mukasa O, Abdulla S, Lengeler C, et al. Planning a family: priorities and concerns in rural Tanzania. African Journal of Reproductive Health. 2004;8(2):111-123.
30. WHO. Medical eligibility criteria for contraceptive use. World Health Organization (WHO). The 5th Edition. 2010, Geneva; Switzerland. [Online]. [cited 2015 November 1], Available at: http://apps.who.int/iris/bitstream/10665/181468/1/9789241549158_eng.pdf