Multilevel Approach of Factors Influencing Child Marriage among Bangladeshi Women: Data from the 2017-18 Bangladesh Demographic and Health Survey

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Abstract

Child marriage is defined as the marriage of individuals below the age of 18 and is considered a violation of children's rights. The study aimed to determine the prevalence of child marriage among women in Bangladesh and identify the associated factors. This study utilized data from the Bangladesh Demographic and Health Survey (BDHS-2017-18) to analyze a sample of 18,851 ever-married women in Bangladesh. Chi-square test and multilevel logistic regression model was used in this study. By employing this statistical approach, the study aimed to uncover significant factors that contribute to the occurrence of child marriage in the country. The prevalence of child marriage among Bangladeshi women was 73.6%. The multilevel logistic regression model revealed several significant risk factors for child marriage among women in Bangladesh were; division (p<0.01), place of residence (p<0.01), women's and their husbands' education level (p<0.01), number of family members (p<0.01) and religion (p<0.01). The median age at first marriage among Bangladeshi women has been decreasing but still it is a great problem in the nation. This study emphasize the need for targeted interventions and policy measures to address the root causes of child marriage, such as improving access to education, promoting gender equality, and raising awareness about the negative consequences of early marriage on the well-being and development of children. Efforts should be made to empower women and girls, enhance their agency, and create an enabling environment that protects their rights and promotes their overall well-being.

1. Introduction

Child marriage, the practice of formal marriage or informal union before the age of 18, has been recognized by the United Nations Human Rights Council as a harmful violation of human rights (United Nations, 2015). For many years, child marriage was unquestioned and accepted as the norm in numerous countries. However, as development progressed, the negative consequences of child marriage became evident. A comparison was made with advanced countries where marrying before the age of 18 was a thing of the past, and both men and women had equal access to education, employment, personal growth, and advancement (Ahmed, 2015).

Globally, over 12 million girls are married at a young age each year, which accounts for approximately 21% of young women marrying before the age of 18 (UNICEF, 2002). Sub-Saharan Africa witnesses around 37% of these child marriages, while South Asia experiences about 30% (UNICEF, 2002). In South Asia, nearly 46% of women aged 20-24 years reported being married before the age of 18 in 2010. This corresponds to approximately 24.4 million women in the region, with projections suggesting that about 130 million girls may become victims of child marriage between 2010 and 2030 (UNFPA, 2012).

Bangladesh, in particular, has a long history of early marriage, especially for girls. It holds the highest prevalence of child marriage not only in South Asia but also globally (Singh & Samara, 1996). According to recent statistics, child marriage prevalence in Bangladesh stands at 71%, followed by Nepal (62%), India (59%), and Pakistan (50%) (Godha et al., 2013). Factors contributing to child marriage in Bangladesh include not only poverty but also traditions, culture, and social settings (ICRW, 2012). Parents often hesitate to postpone marriage beyond the teenage years due to increased dowry costs for older brides (Caldwell et al., 1983).

Reproductive rights advocates argue that laws specifying a minimum age for marriage are seldom enforced, as customary practices tend to take precedence over civil law (Boye et al., 1991). Child marriage has adverse health impacts on both young women and their offspring. It increases the risk of sexually transmitted diseases, cervical cancer, maternal and child mortality during labor, and obstetric fistulas (Nour, 2006). Early marriage also leads to unintended pregnancies, preterm delivery, low birth weight babies, fetal mortality, and violence within marriage (Santhya, 2011).

Girls between the ages of 15 and 19 are twice as likely to die from pregnancy-related complications. Early marriage prolongs the period of exposure to the risk of pregnancy, resulting in a higher likelihood of induced abortions and higher fertility rates due to limited access to contraception. Child marriage also directly affects girls' education, psychological well-being, human rights, and economic survival (Walker, 2012).

Considering the serious adverse social and health effects of child marriage, it is crucial to focus on accelerating its eradication (Jones, 2001). Efforts must be made to address the underlying causes, change societal norms and practices, enforce existing laws, and promote education and empowerment for girls to ensure a better future for them.

Therefore, the purpose of this study was to determine the prevalence of child marriage in Bangladesh and identify various socio-demographic factors associated with child marriage.

2. Methodology
2. 1. Materials

This was a cross-sectional study and the secondary data was used in this study was extracted from the data set of Bangladesh Demographic and Health Survey (BDHS-2017-18), they conducted from October 2017 to March 2018. Data were collected from Bangladeshi ever-married women in their reproductive age (15-49 years). This was a national-level survey with the various districts of Bangladesh represented. The sample size of this study consisted of 20127 ever-married women in their reproductive age. The survey collected socio-demographic, health and lifestyle information from each subject. All information regarding subject and characteristics has been described elsewhere (NIPORT, 2020).

2. 2. Methods

2. 2. 1. Sampling

The BDHS-2017-18 survey in Bangladesh employed a two-stage stratified cluster sampling approach to select a sample of married women. Bangladesh is divided into seven administrative divisions, further divided into zilas, upazilas, wards (in urban areas), and union parishads (in rural areas). This division facilitated the categorization of the country into rural and urban regions. The survey utilized the list of enumeration areas (EAs) from the 2014 BDHS as a sampling frame, with an average of 120 households per EA. In the first stage, 675 EAs were selected in proportion to their size, resulting in 20,250 residential households and an expected 20,108 completed interviews with ever-married women. A sample of 18,851 married Bangladeshi women was collected and checked for outliers and missing values. After removing outliers and incomplete cases, the dataset was reduced to 18,851 for analysis in the study.

2. 2. 2. Outcome variable

The outcome variable of this study was age at first marriage. According to the rule of Bangladesh government age at first marriage was divided into two categories expressed as category 1 for child marriage (age <18 years) and category 0 for adult marriage (age ≥ 18 years).

2. 2. 3. Independent variables

Various socio-economic and demographic factors were used in this study as independent variables and they included: Division (Sylhet, 1; Chittagong, 2; Dhaka, 3; Khulna, 4; Mymensingh, 5; Rajshahi, 6; Rangpur, 7; Barisal, 8), Place of residence (Urban, 1; Rural, 2), women's educational level (no education, 0; primary education, 1; secondary education, 3; higher education, 4), husband's educational level (no education, 0; primary education, 1; secondary education, 3; higher education, 4), family members (number of family member less than or equal to 4, 1; number of family member 5 to 10, 2; number of family member greater than or equal to 11, 3), wealth index (poor, 1; middle, 2; rich, 3), and religion (Muslim, 1; others, 2). More detail on the definition of these variables is available in the BDHS 2017-18 survey report (NIPORT, 2020). All independent variable had been selected on the basis of previous variable (Hossain, 2015).

2. 2. 4. Statistical Analysis

Frequency distribution was used to determine the prevalence of child marriage and also it was used to percentage of child marriage for each category a particular subject of independent variable. Chi-square (χ^2-test) was utilized in the present study to find the association between child marriage and their socio-economic and demographic factors. The significantly associated factors that were provided by χ^2-test were to be used as independent variables in logistic models. BDHS 2017-18 collected data using two stage stratified cluster sampling. Since the observations were derived from several levels of hierarchy, it was possible to obtain a clustering effect in our outcome

variable. A single level statistical model would not be appropriate for analyzing this type of data set (Khan, 2011). To remove the clustering effect, multilevel logistic regression analysis was used to detect the impact of socio-economic and demographic factors on child marriage among Bangladeshi women. The median odds ratio (MOR) was used to check the existence of clustering effect in our outcome variable. The MOR is defined as

$$\text{MOR} = \exp\{0.6745 \sqrt{2} \sqrt{\sigma_u^2}\} = \exp(0.95 \sqrt{\sigma_u^2}) \tag{i}$$

where σ_u^2 is the cluster variance. The value of MOR is always greater than or equal to 1. MOR=1 means no cluster variation. However, when MOR>1, it is important to apply multilevel regression due to cluster variation of the outcome variable (Larsen, 2005). Multilevel models are particularly useful in study designs where participant is organized at two or more levels. In this study, level-I was considered for the individual level and level-II for the cluster (EA). Multilevel model is particularly appropriate for research designs where data for participants are organized at more than one level. In this study, level I was considered for individual and level II for clusters (EAs). The underlying two level logistic regression model corresponding to each variable is:

$$\text{Level I}: \eta_{ij} = \beta_{0j} + \beta_1 x_{1j}, \; P_{ij} = \frac{\exp(\eta_{ij})}{1 + \exp(\eta_{ij})} \text{ where } y_{ij} = 1$$

with probability p_{ii},

$$y_{ij} = 0, \text{ with probability } 1 - P_{ij}, \text{ in } \frac{P_{ij}}{1 - P_{ij}} = \beta_{0j} + \beta_1 x_{1j}$$

$$\text{Level II}: \beta_{0j} = y_{00} + u_{0j}, \; \beta_{1j} = y_{10}, \; u_{0j} \sim N(0, \tau_{00}),$$

$$\pi = p(Y \mid X_1 = x_1, X_2 = x_2, \text{K}, X_p = x_p) = \frac{\exp\{g(x_i)\}}{1 + \exp\{g(x_i)\}},$$

$$\text{where } g(x_1) = \beta_0 + \beta_1 x_{i1} + \beta_1 x_{i2} + \text{K} + \beta_k x_{ik}; (i = 1, 2, \text{K}, n).$$

Where, β_i = unknown logistic regression coefficients (i = 1, 2, …, n). The parameter β_i refers to the effect of X_i on the log odds such that Y=1, controlling the other X_i. The standard error (SE) was used to validate the multicollinearity problem among the independent variables. If the magnitude value of SE was less than 0.5 it was considered as no evidence of the multicollinearity problem (Chan, 2004). BDHS 2017-18 did not use a proportional allocation of the samples with the national administrative divisions or with respect to their type of residence. Sampling weight was necessary for any statistical analysis using the BDHS 2017-18 data to ensure actual national representation of the survey results. In this study, sample weights for univariate, bivariate and multivariate analyses were calculated. Statistical significance was accepted at p<0.05. All statistical analyses were carried out using STATA (version 14.2) and SPSS software (IBM version 26).

3. Results
3. 1. Prevalence of child marriage among Bangladeshi women

A total of 18,851 Bangladeshi ever-married women age at 18 and older were considered as a sample in the study. The prevalence of child marriage among Bangladeshi women was 73.6% (Fig 1).
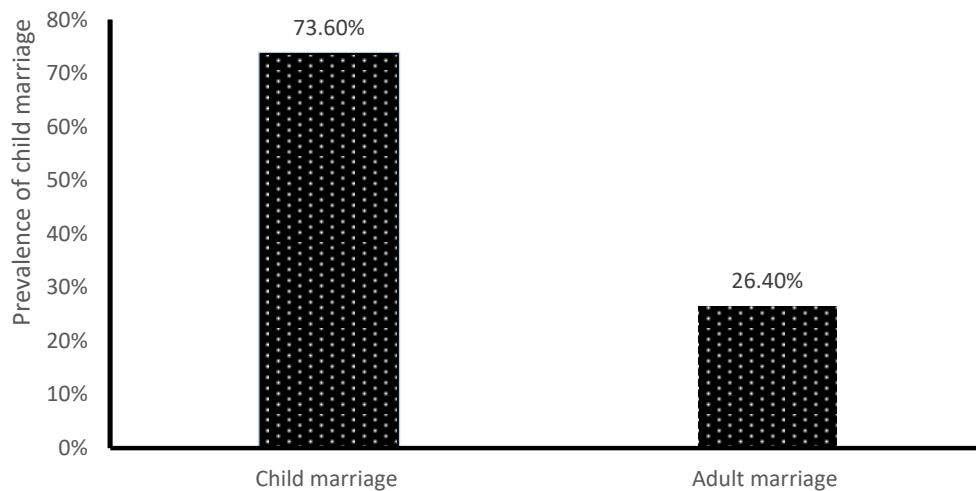
Fig 1: Prevalence of child marriage among Bangladeshi women in 2017-18.

3.2. Association between child marriage and socio-economic and demographic factors

Associations between child marriage and socio-demographic variables were shown in Table 1. There was a significant ($p<0.01$) association between child marriage and division. The highest percentages of child marriages were observed in Rajshahi (82.1%), Rangpur (80.2%), Khulna (78.3%), Barisal (77.2%), Mymensingh (77.1%), Dhaka (70.0%), while the lowest percentage is in Sylhet (53.3%). Child marriage was also significantly ($p<0.01$) varied due to place of residence. Child marriage was more prevalent in rural areas (77.3%) compared to urban areas (67.0%). Women with higher education have a significant ($p<0.001$) lower prevalence of child marriage (34.4%) compared to women with no education (85.9%), primary education (81.6%), and secondary education (76.9%). Again, husband's education level was significantly ($p<0.01$) associated with the prevalence of child marriage. Higher levels of education among husbands were linked to a lower prevalence of child marriage. Specifically, those with no education have the highest rate of child marriage (85.0%), while the percentage decreases progressively with each level of education, with the lowest rate observed among husbands with a higher education (48.4%). Significant ($p<0.01$) association was also observed between number of family members and the child marriage. As family size increases, there was a slight upward trend in the percentage of child marriages, with rates of 73.4% in families with less than or equal to 4 members and 74.7% in families with 5-10 members. However, in larger families with 11 or more members, there was a surprising decrease in the prevalence of child marriages to 62.6%. Child marriage was significantly ($p<0.01$) associated with the wealth index. Respondents classified as poor have a notably high prevalence of child marriage (81.8%). In the middle wealth index category, the prevalence of child marriage slightly decreases to 79.4%. Interestingly, individuals classified as rich demonstrate a significantly lower prevalence of child marriage, with only 63.7% having experienced it. There was a significant ($p<0.01$) variation observed between child marriage and religion. Among the Muslim population, the prevalence of child marriage was 75.5%, while among individuals of other religions, the prevalence was lower at 56.5%.

Table 1: Association between child marriage on different socio-economic
and demographic factors

Variables	Child marriage, N (%)	Adult marriage, N (%)	χ^2 value	p-value
Division				
Sylhet	1076(53.3)	943(46.7)	666.86	0.001
Chittagong	1884(69.5)	828(30.5)		
Dhaka	1970(70.0)	845(30.0)		
Khulna	1940(78.3)	538(21.7)		
Mymensingh	1582(77.1)	470(22.9)		
Rajshahi	1987(82.1)	434(17.9)		
Rangpur	1881(80.2)	465(19.8)		
Barisal	1550(77.2)	458(22.8)		
Place of residence				
Urban	4606(67.0)	2264(33.0)	237.22	0.001
Rural	9264(77.3)	2717(22.7)		
Women's education level				
No education	2396(85.9)	394(14.1)	2613.93	0.001
Primary	4818(81.6)	1083(18.4)		
Secondary	5717(76.9)	1713(23.1)		
Higher	939(34.4)	1791(65.6)		
Husband's education level				
No education	3379(85.0)	597(15.0)	1519.49	0.001
Primary	4776(80.6)	1147(19.4)		
Secondary	4083(73.2)	1496(26.8)		
Higher	1632(48.4)	1741(51.6)		
Family Members				
Less ≤ 4 members	5954(73.4)	2158(26.6)	59.28	0.001
5-10 members	7378(74.7)	2501(25.3)		
≥ 11 members	540(62.6)	322(37.4)		
Wealth index				
Poor	5830(81.8)	1301(18.2)	710.18	0.001
Middle	2893(79.4)	752(20.6)		
Rich	5147(63.7)	2928(36.3)		
Religion				
Muslim	12808(75.5)	4164(24.5)	312.34	0.001
Others	1062(56.5)	817(43.5)		

3.3. Effect of risk factors on child marriage of ever-married women after controlling the cluster effect

This study found that the value of median odds ratio was 2.067, suggesting the presence of clustering variation in the dependent variable among clusters. All the associated factors were regarded as independent variables for age of marriage in the multilevel logistic regression model. After adjusting for cluster effects and controlling for other variables, the analysis revealed significant findings regarding the likelihood of child marriage among different factors. When comparing Chittagong to Sylhet, the adjusted odds ratio was 2.47, suggesting that individuals in Chittagong had 2.47 times higher odds of experiencing child marriage compared to those in Sylhet (AOR: 2.47, 95% CI: 2.06-2.97, p<0.01). Similarly, Dhaka had an AOR of 2.78, indicating a higher likelihood of child marriage compared to Sylhet (AOR: 2.78, 95% CI: 2.51-3.34, p<0.01). The divisions of Khulna (AOR: 4.84, 95% CI: 3.98-5.89, p<0.01), Mymensingh (AOR: 3.46, 95% CI: 2.83-4.23, p<0.01), Rajshahi (AOR: 5.25, 95% CI: 4.30-6.41, p<0.01), Rangpur (AOR: 5.35, 95% CI: 4.37-6.54, p<0.01) and Barisal (AOR: 4.06, 95% CI: 3.31-4.99, p<0.01) exhibited even higher odds ratios (ranging from 3.46 to 5.35) compared to Sylhet. These findings suggested a significantly increased likelihood of child marriage in these divisions compared to Sylhet. Additionally, rural women exhibited approximately 1.19 times higher odds of experiencing child marriage compared to their urban counterparts (AOR: 1.19, 95% CI: 1.07-1.33, p<0.01). Women with a primary education had a significantly lower likelihood of child marriage compared to those with no education (AOR: 0.78, 95% CI: 0.68-0.89, p<0.01). Similarly, women with a secondary education (AOR: 0.64, 95% CI: 0.55-0.73, p<0.01) and higher education (AOR: 0.11, 95% CI: 0.09-0.13, p<0.01) had substantially lower odds of child marriage compared to those with no education. Furthermore, husbands with a primary education had significantly lower odds of experiencing child marriage compared to husbands with no education, with an AOR of 0.87 (95% CI: 0.77-0.99, p < 0.05). Similarly, husbands with a secondary education (AOR: 0.76, 95% CI: 0.67-0.87, p < 0.01) and higher education (AOR: 0.55, 95% CI: 0.46-0.64, p < 0.01) demonstrated approximately 0.76- and 0.55-times lower odds of child marriage, respectively, compared to husbands with no education. Moreover, women belonging to families with 5-10 members had a 1.18 times higher likelihood of experiencing child marriage compared to women from families with less than 4 members (AOR: 1.18, CI: 1.09-1.27, p<0.01). Lastly, Muslim women were 0.82 times more likely to experience child marriage compared to women from other religions (AOR: 0.43, 95% CI: 0.38-0.49, p < 0.01).

Table 2: Effect of risk factors on child marriage of ever-married women after controlling the cluster effect.

Variables	B	S.E.	p-value	AOR	95% CI for AOR	
					Lower	Upper
Division						
Chittagong vs Sylhet[R]	0.90	0.23	0.001	2.47	2.06	2.97
Dhaka vs Sylhet[R]	1.02	0.26	0.001	2.78	2.51	3.34
Khulna vs Sylhet[R]	1.57	0.48	0.001	4.84	3.98	5.89
Mymensingh vs Sylhet[R]	1.24	0.35	0.001	3.46	2.83	4.23
Rajshahi vs Sylhet[R]	1.65	0.53	0.001	5.25	4.30	6.41

Rangpur vs Sylhet[R]	1.67	0.54	0.001	5.35	4.37	6.54
Barisal vs Sylhet[R]	1.40	0.42	0.001	4.06	3.31	4.99
Place of residence						
Rural vs Urban[R]	0.18	0.06	0.001	1.19	1.07	1.33
Women's education level						
Primary vs No education[R]	-0.24	0.05	0.001	0.78	0.68	0.89
Secondary vs No education[R]	-0.44	0.04	0.001	0.64	0.55	0.73
Higher vs No education[R]	-2.19	0.08	0.001	0.11	0.09	0.13
Husband's education level						
Primary vs No education[R]	-0.12	0.05	0.036	0.87	0.77	0.99
Secondary vs No education[R]	-0.26	0.05	0.001	0.76	0.67	0.87
Higher vs No education[R]	-0.59	0.04	0.001	0.55	0.46	0.64
Family members						
5 to 10 vs Less than or equal to 4[R]	0.16	0.04	0.001	1.18	1.09	1.27
<= 11 vs Less than or equal to 4[R]	0.06	0.09	0.449	1.07	0.89	1.27
Wealth Index						
Middle vs Poor[R]	0.09	0.06	0.115	1.09	0.97	1.23
Rich vs Poor[R]	-0.08	0.05	0.143	0.92	0.82	1.02
Religion						
Others vs Muslim[R]	-0.82	0.02	0.001	0.43	0.38	0.49

N.B: AOR=Adjusted odds ratio, CI=Confidence interval, R= Reference category

4. Discussion

The findings the study revealed that the overall prevalence of child marriage among ever-married Bangladeshi women was 73.6%. Although this rate was still high, it indicated some improvement compared to the rate of 78.2% reported in a previous survey conducted in 2011. In comparison to other countries, including both developed and developing nations, Bangladesh had a higher prevalence of child marriage. For instance, the rates in the United States were reported at 21%, India at 47%, Pakistan at 18%, Sri Lanka at 10%, Ghana at 20.7%, Zimbabwe at 34%, Kenya at 23%, Nepal at 38.5%, Ethiopia at 40% and Uganda at 34% (UNICEF, 2018). These comparisons highlighted the need for continued efforts to address the issue of child marriage not only in Bangladesh but also globally.

The study findings regarding the divisions of Chittagong, Dhaka, Khulna, Mymensingh, Rajshahi, Rangpur and Barisal showed higher odds ratios compared to Sylhet in relation to child marriage, which were consistent with previous studies conducted in 2016 (Islam, 2016). These earlier studies likely observed similar patterns and associations between division and child marriage prevalence in Bangladesh. The consistency across studies strengthened the validity and reliability of the findings, suggesting that the identified divisions consistently exhibited higher rates of child marriage compared to Sylhet.

The findings of the present study indicated that child marriage had a higher prevalence in rural areas (77.3%) compared to urban areas (67.0%). The socialization process plays a role in shaping

the practices and norms within different residential areas, and observable cultural differences and economic disparities between rural and urban areas may influence the age of marriage (Kamal, 2015). These results are consistent with a previous study conducted in Bangladesh, which reported that over 78.2% of Bangladeshi women were married below the legal age of marriage. Furthermore, the study found that the prevalence of child marriage was higher in rural areas (86.1%) compared to urban areas (71.9%) (Hossain, 2015). This suggests that child marriage is more prevalent and deeply rooted in rural communities, possibly due to various socio-cultural factors and limited access to education and economic opportunities.

The study demonstrated that women with primary, secondary and higher education have a lower likelihood of entering child marriages compared to those with no education. This finding emphasized the empowerment aspect of education, as it equips girls with knowledge, skills and confidence to make informed decisions about their lives, including marriage. When girls have access to education and stay in school, they are more likely to prioritize their personal growth and future aspirations over early marriage. Completing their education allows them to acquire the necessary tools to lead independent and fulfilling lives. The correlation between education and age at first marriage also aligns with existing literature, which suggested that higher levels of education were associated with marrying at a later age (Kamal, 2012). The younger age at first marriage often observed in developing countries can be attributed, at least in part, to lower levels of education among women. By promoting education, societies can help address this issue by empowering girls and providing them with opportunities for personal and professional development before entering marriage (Raymo, 2003; Borkotoky, 2015).

This study also found that husbands with a primary, secondary and higher education had significantly lower odds of experiencing child marriage compared to husbands with no education. This finding highlighted the importance of education for both genders in addressing the issue of child marriage. When men received an education, they were more likely to possess knowledge, awareness and critical thinking skills that contributed to making informed decisions, including choices related to marriage. As a result of their education, men became better equipped to understand the negative consequences of child marriage and were more inclined to advocate for delayed marriages and prioritize the well-being of their partners. This finding was found to be consistent with an earlier study conducted by Kamal (2015).

Women belonging to large families (>5 members) had higher likelihood of experiencing child marriage compared to women from families with less than 4 members was found in this study. This finding indicated that family size played a role in influencing the occurrence of child marriages. The study revealed that larger families were associated with an increased risk of child marriage for women. The reasons behind this correlation could vary, but it might be attributed to factors such as economic constraints, cultural norms or limited resources within larger families. These factors could potentially contribute to an environment where child marriages are more prevalent. The study found that women from Muslim families had a higher likelihood of being involved in child marriage compared to women from other religious backgrounds. It is a common trend globally that Muslim women tend to marry at a younger age compared to women from non-Muslim backgrounds (Kamal, 2015). This observation is consistent with other research papers that have examined child marriage in South Asia, where religion, particularly Hindu and Muslim affiliations in specific countries, has been identified as a consistent factor associated with child marriage (Subramanee, 2022).

5. Strength and limitation of the study

Strength: The study has several strengths to consider. Firstly, it utilized nationally representative data, which means that the findings can be generalized to the broader population of the country. Additionally, the study used large sample sizes, enhancing the statistical power of the analysis and increasing the reliability of the results.

Limitation: The limitation of the study was that it relied on cross-sectional data. Cross-sectional data provides a snapshot of information collected at a specific point in time, which may limit the ability to establish causality or track changes over time. Another limitation was that it was retrospective data sets, which may have introduced under-reporting errors. Surveys conducted in developing countries, where proper vital registration systems may not be in place are susceptible to errors in reporting respondents' ages, age at marriage, age at first birth and other relevant factors. These limitations can affect the accuracy and reliability of the data collected.

6. Conclusions

This study findings of indicated that child marriage remains a significant issue in Bangladesh, with a prevalence rate of 73.6% among ever-married women. Although there has been some improvement compared to a previous survey conducted in 2011, the prevalence is still high. Based on these findings, several recommendations can be made to address the issue of child marriage in Bangladesh such as strengthen educational opportunities, raise awareness, improve economic opportunities, collaborative efforts, legal enforcement and research and monitoring. By implementing these recommendations, Government of Bangladesh can make significant progress in reducing child marriage rates, safeguarding children's rights and contributing to the achievement of the SDGs by 2030. It requires concerted efforts from various stakeholders to create a more equitable and prosperous society where child marriage becomes a thing of the past.

Acknowledgments

References

[1] Ahmed, T. (2015). Child Marriage: A Discussion Paper. Bangladesh Journal of Bioethics, 6(2), 8–14.

[2] Borkotoky, K., and Unisa, S. (2015). Female education and its association with changes in socio-demographic behaviour: evidence from India. Journal of Biosocial Science, 47(5), 687-706.

[3] Boye, A. K., Hill, K., Isaacs, S. and Gordis, D. (1991). Marriage law and practice in the Sahel. Studies in Family Planning, 22(6), 343–349.

[4] Caldwell, J., Reddy, P. H., and Caldwell, P. (1983). The causes of marriage change in South India. Population Studies, 37(3), 343–361.

[5] Chan, Y. H. (2004). Biostatistics 202: logistic regression analysis. Singapore medical journal, 45(4), 149-153.

[6] Godha, D., Hotchkiss, D. R., and Gage, A. J. (2013). Association between child marriage and reproductive health outcomes and service utilization: a multi-country study from South Asia. Journal of Adolescent Health, 52, 552–558.

[7] Hossain, M. G., Mahumud, R. A., and Saw, A. (2015). Prevalence of child marriage among Bangladeshi women and trend of change over time. Journal of biosocial science, 48(4), 530-538.

[8] ICRW. (2012). Child Marriage in Southern Asia: Policy Options for Action. ICRW, Washington, DC.

[9] Islam, M. K., Haque, M. R., and Hossain, M. B. (2016). Regional variations in child marriage in Bangladesh. Journal of Biosocial Science, 48(5):694-708.

[10] Jones, G. W. (2001). Which Indonesian women marry youngest, and Why? Journal of Southeast Asian Studies, 32(1), 67–78.

[11] Kamal, S. M. (2012). Decline in child marriage and changes in its effect on reproductive outcomes in Bangladesh. Journal of health, population, and nutrition, 30(3), 317.

[12] Kamal, S. M., Hassan, C. H., Alam, G. M., and Ying, Y. (2015). Child marriage in Bangladesh: trends and determinants. Journal of biosocial Science, 47(1), 120-139.

[13] Khan, H. R., and Shaw, E. (2011). Multilevel logistic regression analysis applied to binary contraceptive prevalence data. Journal of Data Science, 9, 93-110.

[14] Larsen, K., and Merlo, J. (2005). Appropriate assessment of neighborhood effects on individual health: integrating random and fixed effects in multilevel logistic regression. American journal of epidemiology, 161(1), 81-88.

[15] NIPORT (2020). Bangladesh demographic and health survey, 2017-18. Dhaka: National Institute of Population Research and Training, Dhaka; Bangladesh and Rockville, Maryland, USA: NIPORT and ICF.

[16] Nour, N. M. (2006). Health consequences of child marriage in Africa. Emerging Infectious Diseases, 12(11), 1644–1549.

[17] Raymo, J. M. (2003). Educational attainment and the transition to first marriage among Japanese women. Demography, 40(1), 83-103.

[18] Santhya, K. G. (2011). Early marriage and sexual and reproductive health vulnerabilities of young women: a synthesis of recent evidence from developing countries. Current Opinion in Obstetrics & Gynecology, 23(5), 334–339.

[19] Singh, S., and Samara, R. (1996). Early marriage among women in developing countries. International Family Planning Perspectives, 22, 148–157 & 175.

[20] Subramanee, S. D., Agho, K., Lakshmi, J., Huda, M. N., Joshi, R., and Akombi-Inyang, B. (2022). Child marriage in South Asia: a systematic review. International journal of environmental research and public health, 19(22), 15138.

[21] UNFPA (2012). Marrying too Young: End Child Marriage; UNFPA: New York, NY, USA.

[22] UNICEF (2002). Baseline Survey Report on Rural Adolescents in Bangladesh: Kishori Abhijan Project. UNICEF and Ministry of Women and Children Affairs, Dhaka, Bangladesh.

[23] UNICEF (2018). Child Marriage: Latest trends and future prospects, UNICEF, New York. UNICEF (2022). Child Marriage around the World. Available online: https://www.unicef.org/stories/child-marriage-aroundworld (accessed on 13 Nov. 2022).

[24] United Nations (2015). Resolution adopted by the Human Rights Council 29/8, Strengthening efforts to prevent and eliminate child, early and forced marriage, A/HRC/RES/29/8.

[25] Walker, J. (2012). Early marriage in Africa – trends, harmful effect and intervention. African Journal of Reproductive Health, 16(2), 231–240.