©*Genus Homo* (ISSN 2457-0028)
Dept of Anthropology
West Bengal State University

Genus *Homo*, Vol. 9, 2025
Islam *et al*, pp 1-13
Accepted on 24th December 2025
Published on 31st December 2025

Original article

CHILD MARRIAGE AMONG WOMEN IN SOUTH AND SOUTHEAST ASIA: A COMPARATIVE STUDY

Md. Ariful Islam[1], Md. Kamrul Islam[2], Md. Mothashin[2], Abu Sayed Md. Al Mamun[2], Tasfiah Tamanna[2], Chandan Kumar Sarkar[1], Md. Golam Hossain[2*]

ABSTRACT

Introduction:
Child marriage (CM) often leads to adolescent pregnancy, posing health risks for mothers and their offspring. We aimed to assess the occurrence and relatedfactors of CM among women in South and Southeast Asian countries (SSC) and compared CM rates across the countries.

Methods:
The study was based on secondary data extracted from most recent Demographic and Health Surveys (DHS) of SSC for the study. The sample included 9540, 81187, 8542, 5118, 5568, 6802, 34355 and 15522 from Bangladesh, India, Myanmar, Maldives, Nepal, Cambodia, Indonesia and Philippines respectively. CM was identified by age at first marriage being <18 years. We implemented multilevel logistic regression to identify associated factors.

Results:
The highest rate of CM was to be found in Bangladesh (65.7%), followed by Nepal (52.5%) and India (39.2%), and lowest was observed in Maldives (18.3%). Rural residence increased the odds of CM likelihood in Bangladesh and Indonesia but decreased in Myanmar. Women's and their partners' (husbands) higher education showed a strong inverse association with CM. Female-headed households in Nepal had higher odds of CM, whereas in Cambodia and Indonesia, the odds were higher for male-headed households. Larger family size increased CM odds in Myanmar, Indonesia, and Philippines, but decreased in Bangladesh. Poorer households had higher likelihood of CM in India and Myanmar. Women aged 20–24 had the highest odds of CM, except in Maldives.

Conclusion:
Still CM in prevalent among women in SSC. Enhancing education, improving household quartile, and addressing family structure may reduce CM and improve maternal and child health outcomes.

KEY WORDS: Child marriage; South and Southeast Asian countries, Multilevel logistic regression model

INTRODUCTION

Child marriage (CM) refers to a formal or informal union in which one or both partners are under the age of 18. The United Nations recognizes child marriage as a harmful practice and a violation of human rights. In the past, CM was not questioned and seen as a normal marital practice in numerous countries around the world. However, over time, the harmful significance of CM became obvious. In many progressive Western countries, where men and women have equal access to education, employment, personal development, and opportunities for advancement, marriage before the age of 18 has largely become a practice of the past(Ahmed, 2015). Global estimates indicate that more than 12 million girls are married each year at a young age, accounting for approximately 21% of

[1]Khulna Agricultural University, Khulna-9100, Bangladesh
[2] Department of Statistics, University of Rajshahi, Rajshahi-6205, Bangladesh
*Corresponding author: hossain95@yahoo.com

women who marry before the age of 18 (UNICEF, 2002). One third of the South Asian women experience child marriage meanwhile in sub-Saharan Africa it is 37% (UNICEF, 2002). Nearly half of the women aged 20-24 years in South Asia have reported being married before 18 years in 2010. This indicates that approximately 24.4 million women in this region experienced CM and 130 million about to be the victim of CM between 2010 and 2030 (United Nations Fund for Population Activities, 2012). A survey within the population of women aged 20–24 years in Nepal found that 39.5 percent married before the age of 18 years and 59.2 percent married before age of 20 years (Bhandari, 2019). According to a study of women aged 20–24 years in Indonesia, about 17% and 6% of women were married before the age of 18 and 16 years at the time of the study, and the factors affecting child marriage in Indonesia were education, wealth, and media exposure (Rumble et al., 2018). Nearly half of the girls in India get married before turning 18 years. Women's education costs and social insecurity are important factors in child marriage (Lal, 2015).

Child marriage is a practice that is harmful reproductive health and overall well-being. Despite the well-known risk and negative impact of child marriage, the prevalence of CM is still enormous in resource-constrained countries (UNICEF, 2014). UNICEF estimates that over 12 million girls across the world enter marriage prematurely (UNICEF, 2019). Of these 12 million early marriages, approximately 37% occur in sub-Saharan Africa and 30% in South Asia (UNICEF, 2019). Limited educational attainment and financial hardship are major contributors to the high prevalence of child marriage in low- and middle-income countries (Montazeri et al., 2016). Although the practice has declined in many economically developing nations, child marriage remains highly prevalent in countries such as Bangladesh (Rahman, 2017), Ghana (De Groot et al., 2018), Iraq (Al-Ridhwany & Al-Jawadi, 2014), and several others. Evidence from multiple Demographic and Health Surveys (DHS) indicates that the median age at marriage in these settings remains below 18 years. A range of socio-demographic and economic factors contribute to early marriage, including low levels of education, poverty, religious conservatism, and entrenched cultural norms (Rumble et al., 2018; De Groot et al., 2018). In many communities, parents believe that marrying daughters at an early age protects them from sexual abuse and sexually transmitted infections; however, empirical evidence contradicts this perception (De Groot et al., 2018). Child marriage is associated with serious adverse outcomes, including poor maternal and neonatal health, increased vulnerability to sexually transmitted infections, a higher risk of domestic violence, and other long-term social and health consequences (Sarwade et al., 2019).Such beliefs or misconceptions often arise from limited access to education.

In the present study, we examined eight South and Southeast Asian countries—Bangladesh, India, Nepal, Indonesia, Cambodia, Maldives, Myanmar, and the Philippines—to provide an updated overview of child marriage in the region. The aim of marriage varies from country to country based on social and cultural aspect. So, we included these eight countries from different regions of South and Southeast Asia where child marriage is a major problem for girls. A comparison between these countries would be useful to move towards the Sustainable Development Goals (SDGs). The Millennium Development Goals established the reduction of CM as an international priority in 2000, but it remained a worldwide priority when the SDGs were established in 2015. SDG Target

5.3 emphasizes gender equality and the empowerment of women and girls, building on progress made in eliminating child marriage (Svanemyr et al., 2015). Reducing child marriage contributes to improvements in the health of women and their children. This study provides an updated overview of child marriage in South and Southeast Asian countries, offering valuable insights for policymakers to develop effective strategies aimed at reducing child marriage and achieving SDG Target 5.3.

2. LITERATURE REVIEW

UNICEF (2020) reports child marriage (CM) is a deeply entrenched social practice with far-reaching consequences for individuals and societies. Despite global commitments to eliminate CM under Despite the SDGs (Target 5.3), child marriage remains widespread across South and Southeast Asia.

A well-established fact about the CM is that it hinders the development of women along with several health hazards. Early married women often bears children at premature age which elevates the risk of adverse maternal and neonatal outcomes complications including obstructed labor and low birth weight (Raj et al., 2010; Nour, 2009). Early child bearing mothers suffer from obstetric fistula often leading to death due to child-birth related causes (WHO, 2018). Additionally CM disrupts the education and economic empowerment of women repeating the cycle of poverty and dependence (Wodon et al., 2017). Anxiety, depression, lack of autonomy and other psychological conditions are also common among early married women (Parsons et al., 2015).

CM is driven by the interplay of several factors. Educations' being a protective factor for CM. Evidence shows those girls with secondary or higher education had lower likelihood of experience CM. Also girls with educated parents show inverse relation to CM (Yaya et al., 2019). Household wealth is another influential factor of CM. Girls from poorer household are more vulnerable to CM often getting married off just for economic relief and social security. In rural area CM has almost become a normal practice due to weaker law enforcement and traditional norms (Raj et al., 2010). In addition, household structure and the decision-making power of the household head are key determinants of CM, particularly in female-headed households, which show higher rates of CM (Yaya et al., 2019).

Traditions, cultural norms and religious views are directly associated with CM. In South Asia early marriage is more frequent in patriarchal and conservative communities. In these communities concerns about female chastity, dowry and domestic honor are the driving factor of child marriage. In many Southeast Asian societies, a legal loophole is used to married off girls early with their parental consent, since religious norms intersects with state law (UNFPA, 2021).

Countries like Indonesia and Philippines, marriage practices are highly diverse across the region and ethnic groups because of distinct cultural and religious values. Hence the national level policies come up short unless the cultural aspects are considered. Meanwhile most of the countries in South and Southeast Asia have passed the law about the minimum age of marriage is 18years; a proper enforcement of this law is still lacking. Countries with national strategies to deal with CM like Bangladesh and Nepal minimum marriage law is being undermined by parental or judicial consent. In order to reduce CM national action plans, awareness campaigns and community based intervention is necessary while considering structural and cultural roots of early marriage practices (UNFPA & UNICEF, 2019).

Despite well documentation of the causes and consequences of CM in individual countries, a cross-national study to compare the CM is necessary for better understanding and policy making effectively. Previous studies have isolated either South Asia or Southeast Asia limiting the understanding of shared factor across the region. Therefore this study utilizes nationally representative data from both South and Southeast Asia for identifying shared risk factors and country specific drivers of CM.

3. METHODS

3.1 Data: This study covers eight countries of the South and Southeast Asian region, such as Bangladesh, India, Myanmar, Maldives, Nepal, Cambodia, Indonesia, and the Philippines. Data were extracted from Demographic and Health Surveys (DHS) of each country. We have considered Bangladesh DHS-2022 (conducted by NIPORT and USAID), India, National Family Health Survey (NFHS-5), 2019–21 (Ministry of Health and Family Welfare), Myanmar DHS 2015-2016 (Ministry of Health and Sports), Maldives DHS 2016-17 (Ministry of Health),Nepal DHS 2016-17 (New ERA and Ministry of Health and Population), Cambodia DHS 2021-22 (National Institute of Statistics and Ministry of Health), Indonesia DHS 2017 (BKKBN, BPS, and Ministry of Health) and Philippines DHS 2022 (Philippine Statistics Authority). DHS programs ensure high reliability of data making this study robust for cross –country analyses.

3.2 Sampling: The DHS uses a household questionnaire and a specific questionnaire for women aged 15 to 49 years to gather information about the key indicators which are related to Sustainable Development Goals (SDGs)

The data were collected by the DHS using a two-stage stratified cluster sampling method. The DHS covered 30078, 724115, 12885, 7699, 14845, 19496, 49627, and 27821 residential households from Bangladesh, India, Myanmar, Maldives, Nepal, Cambodia, Indonesia, and the Philippines respectively. In the present study, the statistical analysis covered a total of 9,540 married women aged 20–49 in Bangladesh, 81187 in India, 8542 in Myanmar, 5118 in Maldives, 5568 in Nepal, 6802 in Cambodia, 34355 in Indonesia, and 15522 in Philippines.

3.3 Dependent variable: This study examined age at first marriage (AAFM) as the outcome variable. According to UNICEF (2014), CM was defined as AAFM being <18 years. Age at first marriage was divided into two groups: child marriage (Category 1: under 18 years) and adult marriage (Category 0: 18 years and above).

3.4 Independent variables: Several socio-economic, demographic, and health-related factors were included as independent variables. The selection of these variables was guided by previous studies (Hossain et al., 2016; Saleheen et al., 2021). A detailed description of the independent variables is provided in Table 1.

3.5 Statistical Analysis: We separately analyzed the data of eight selected countries. The prevalence and distribution of the independent variables were analyzed using frequency distribution. We used Chi-square (χ^2) test to find the association between CM and socioeconomic and demographic factors. Factors showing significant association by the χ^2-test were used as predictors in logistic regression models. MOR was used to examine clustering effects in the dependent variable. The formula of MOR is, $\text{MOR} = \exp\left\{0.6745\sqrt{2}\sqrt{\sigma_u^2}\right\} = \exp(0.95\sqrt{\sigma_u^2})$ ..... (i)

where, σ_u^2 is the variance across clusters. The MOR is always greater than or equal to 1. An MOR of 1 indicates no cluster-level variation, whereas an MOR greater than 1 suggests the presence of clustered variation

in the outcome, highlighting the need for multilevel regression analysis (Larsen & Merlo, 2005).Multilevel models are mostly suitable for study plans in which participants are organized at two or more hierarchical levels. In our analysis, we observed an MOR >1 for each selected country. Two levels multiple logistic regression was utilized in our present study for determining the factors associated with child marriage, level-The standard errors (SE) were observed to find the multicollinearity problem among the independent variables. SE values below 0.5 were taken to indicate the absence of multicollinearity, with 0.5 as the threshold (Chan, 2004).Because the samples were not proportionally allocated, the use of sampling weights was necessary to ensure the national representativeness of the survey results. Sampling weights were applied in univariate, bivariate, and multivariate analyses. Conventional single-level statistical models are not appropriate for this type of clustered data (Khan & Shaw, 2011). To account for clustering and reduce bias, multilevel logistic regression analysis was employed to examine the influence of socio-economic and demographic factors on child marriage among women in South and Southeast Asian countries. A p-value of less than 0.05 was considered statistically significant. All analyses were performed using STATA 14.2 and IBM SPSS 26 software.

4. RESULTS

4.1 Prevalence of child marriage among women: The prevalence of early marriage among women in South and Southeast Asian countries was Bangladesh (65.7%), Nepal (52.5%), Indonesia (26.2%), India (39.2%), Cambodia (26.1%), Maldives (18.3%), Myanmar (25.9%), and Philippines (21.7%) (Figure1).

4.2 Associated factors of child marriage: Factors found to be significant in the Chi-square test were included as predictors of age at marriage in eight separate multilevel logistic regression models. After adjusting for cluster effects and other covariates, the analysis identified the significant predictors of CM.

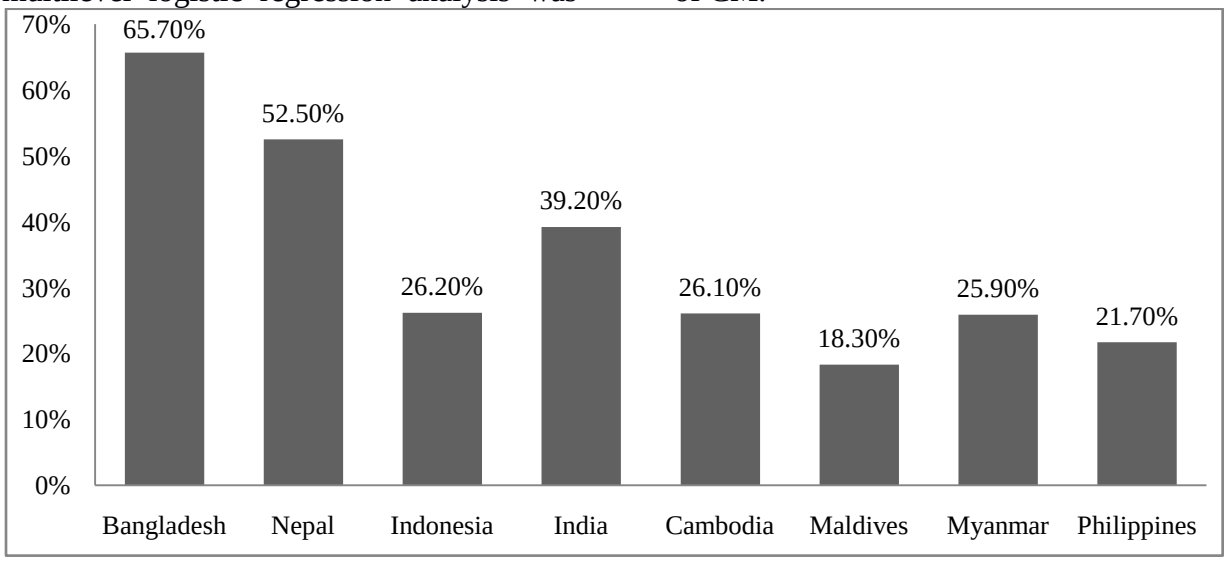

Figure 1: Prevalence of child marriage among women in eight countries of South and Southeast Asia

Table 1: Effect of socio-economic and demographic factors on child marriage among women in eight South and Southeast Asian countries

Characteristics	Child Marriage (< 18 years)															
	Bangladesh		India		Myanmar		Maldives		Nepal		Cambodia		Indonesia		Philippines	
	aOR	95% CI: Lower-Upper	aOR	95% CI: Lower-Upper	aOR	95% CI: Lower-Upper	aOR	95% CI: Lower-Upper	aOR	95% CI: Lower-Upper	aOR	95% CI: Lower-Upper	aOR	95% CI: Lower-Upper	aOR	95% CI: Lower-Upper
Residence																
Rural vsUrban[R]	1.25**	1.06-1.46	1.04	0.99-1.10	0.83*	0.69-0.97			1.04	0.89-1.22	1.14	0.97-1.33	1.46**	1.35-1.59	0.93	0.84-1.03
Women's education																
Primary vs No education[R]	0.95	0.78-1.14	0.91**	0.87-0.96	0.68**	0.58-0.79	0.61**	0.44-0.85	0.68**	0.58-0.80	0.68**	0.58-0.80	0.77**	0.64-0.91	1.68**	1.21-2.35
Secondary vs No education[R]	0.63**	0.52-0.77	0.46**	0.44-0.47	0.35**	0.29-0.42	0.09**	0.06-0.13	0.15**	0.12-0.19	0.42**	0.34-0.51	0.29**	0.24-0.34	0.73	0.52-1.02
Higher vs No education[R]	0.10**	0.08-0.13	0.81**	0.07-0.09	0.04**	0.03-0.08	0.09**	0.06-0.15	0.04**	0.02-0.07	0.06**	0.02-0.14	0.03**	0.02-0.04	0.18**	0.13-0.26
Husband's education																
Primary vs No education[R]	0.84*	0.72-0.98	1.08**	1.03-1.15	0.89	0.76-1.04	0.58**	0.45-0.74	0.81*	0.66-0.99	0.96	0.80-1.15	0.89	0.74-1.08	0.63**	0.47-0.84
Secondary vs No education[R]	0.75**	0.64-0.88	0.87**	0.83-0.91	0.68**	0.57-0.81	0.30**	0.22-0.42	0.74**	0.59-0.92	0.83	0.68-1.01	0.56**	0.47-0.68	0.45**	0.34-0.61
Higher vs No education[R]	0.49**	0.40-0.61	0.61**	0.57-0.66	0.49**	0.33-0.74	0.31**	0.19-0.49	0.65*	0.45-0.92	0.55**	0.37-0.81	0.35**	0.28-0.44	0.30**	0.22-0.41

Sex of household head																
Female vsMale[R]									1.17[*]	1.03-1.33	0.86[*]	0.74-0.99	0.81[**]	0.72-0.92	0.94	0.83-1.07
Family size																
4-6 vs 1-3 members[R]	0.93	0.82-1.06	1.02	0.98-1.06	1.29[**]	1.12-1.49	1.19	0.91-1.56					1.05	0.98-1.13	1.26[**]	1.11-1.42
7[+] vs 1-3 members[R]	0.79[**]	0.68-0.93	1.05	0.99-1.10	1.41[**]	1.19-1.67	1.15	0.86-1.54					1.16[**]	1.06-1.27	1.47[**]	1.29-1.69
Wealth status																
Middle vsPoor[R]	1.01	0.87-1.16	1.01	0.96-1.05	0.82[**]	0.71-0.95	0.94	0.75-1.15	0.86	0.72-1.01	0.97	0.82-1.14	1.07	0.99-1.16	0.83[**]	0.73-0.93
Rich vsPoor[R]	1.09	0.95-1.26	0.86[**]	0.82-0.90	0.78[**]	0.67-0.91	1.12	0.83-1.50	0.93	0.79-1.10	1.03	0.88-1.22	1.10[*]	1.02-1.19	0.93	0.82-1.06
Current age																
25-34 vs 20-24 years[R]	0.64[**]	0.56-0.73	0.76[**]	0.72-0.79	0.40[**]	0.34-0.47	0.88	0.56-1.39	0.49[**]	0.42-0.59	0.29[**]	0.25-0.35	0.39[**]	0.36-0.43	0.40[**]	0.35-0.46
35-49 vs 20-24 years[R]	0.63[**]	0.55-0.72	0.85[**]	0.81-0.89	0.32[**]	0.28-0.38	2.64[**]	1.66-4.22	0.37[**]	0.31-0.44	0.30[**]	0.26-0.36	0.41[**]	0.37-0.44	0.21[**]	0.18-0.24

Note: Blank cells mean, the variable/s were not significantly associated with child marriage provided by Chi-square test of a particular country; NA: data were not available; aOR: adjusted odds ratio; CI: Confidence interval; *: 5% and **: 1% level of significance**.**

In Bangladesh and Indonesia, rural women were 1.25 and 1.46 times higher chance to get early marriage compared to urban women respectively, but the opposite result was found in Myanmar. In all eight countries, women's education showed a strong inverse relationship with their child marriage. We also found that husbands' (partners) education showed an inverse relationship with child marriage of women in the eight countries. Female headed households in Nepal had higher odds of child marriage among women compared to male-headed households. However, in Cambodia and Indonesia female headed household showing lower odds of child marriage. Women from Myanmar, Indonesia, and Philippines having a higher likelihood of experiencing child marriage in larger families, in contrast, Bangladesh showed the opposite trend. Household quartile (WI) was found as an important predictor of child marriage for three countries; poorer households exhibited a greater rate of early marriage in India and Myanmar the opposite results was found in Indonesia. Women aged 20–24 years had the highest odds of experiencing child marriage in all countries except the Maldives. The results show that, compared to women aged 25–34 and 35–49 years, those aged 20–24 years were significantly more likely to have experienced child marriage in Bangladesh, India, Nepal, Myanmar, the Philippines, Indonesia, and Cambodia. Conversely, in the Maldives, the results demonstrated an opposite trend, with women aged 35-49 years being 2.64 times more likely to child marriage than those aged 20–24 years (Table 1).

5. DISCUSSION

This study presents the prevalence of child marriage among women in eight South and Southeast Asian countries such as Bangladesh at 65.7%, Nepal at 52.5%, Indonesia at 26.2%, India at 39.2%, Cambodia at 26.1%, Maldives at 18.3%, Myanmar at 25.9%, and the Philippines at 21.7%. Other studies, involving both economically developed and developing countries are as follows. Child marriage rates have been reported as 21% in the United States, 18% in Pakistan, 10% in Sri Lanka, 20.7% in Ghana, 34% in Zimbabwe, 23% in Kenya, 40% in Ethiopia, and 34% in Uganda (UNICEF, 2018). These findings indicate that child marriage is a persistent issue not only in South and Southeast Asia but also globally.

In Bangladesh and Indonesia rural women had significantly higher chance of CM than urban women. Some previous studies showed that rural residential areas were more number of women were got child marriage than urban women (Rumble et al., 2018; Rahman, 2017; Saleheen et al., 2021).This aligns with a previous study showing that residence plays a crucial role and direct driver of CM (Hotchkiss et al., 2016).

Our findings showed that women without any education had more tendencies to undergo CM than secondary and highly - educated women. Other studies have shown that the relationship between education level and age at first marriage is consistent with existing literature, suggesting that higher levels of education are associated with marrying at a later age (Kamal, 2012).It was found that marrying at early age in developing country was related with limited education. Expanding educational opportunities can help address this issue by empowering girls and providing them with personal and professional development before entering marriage (Raymo, 2003; Borkotoky & Unisa, 2015).These findings are consistent with the majority of studies conducted elsewhere (Bezie & Addisu, 2019; Wodon et al., 2016). Other research has shown that women with higher levels of education are less likely to enter into child marriage compared to uneducated women

(Biswas et al., 2019; Islam et al., 2023). Higher education provides access to better information about marital responsibilities and health, thereby empowering women (Saleheen et al., 2021; Porter, 2013; Duflo, 2012; Mim, 2017). Additionally, well-educated women are more likely to pursue career opportunities, which often lead to delayed marriage. Previous studies also report a positive relationship between female education and age at first union in Bangladesh and other contexts (Bezie & Addisu, 2019; Talukder et al., 2020).Our research showed among the eight countries, India exhibited significantly higher likelihood of CM among husbands with primary schooling followed by Cambodia, Indonesia, Myanmar, Bangladesh, Nepal, Philippines and Maldives.

Gender of household head was significantly linked with CM in Nepal, Cambodia and Indonesia. Female-headed households in Nepal were more likely to experience child marriage than male-headed households, whereas the opposite pattern was observed in Cambodia and Indonesia. Previous studies have shown that child marriage is more common in patriarchal families compared to matriarchal families in Bangladesh. However, no significant effect of household head type on child marriage was observed in countries such as Ghana and Iraq (Saleheen et al., 2021).In this study, child marriage was more common among women from larger families in Myanmar, Indonesia, and the Philippines, whereas Bangladesh showed the opposite pattern. Compared to previous studies in Ethiopia, it has been noted that family size is associated with age at marriage, with early marriage occurring more frequently in larger families (Bezie & Addisu, 2019).Another study showed that child marriage increased in an extended family compared to a nuclear family(Saleheen et al., 2021). Additionally, household wealth was found to be inversely related to the prevalence of child marriage, with lower wealth associated with higher rates of early marriage. In India, children from poorer families were more likely to experience child marriage compared to those from wealthier households. Similarly, in Myanmar, women from middle- and high-income households were less likely to marry early than those from poorer households. In contrast, Indonesia showed an unexpected pattern, where women from wealthy households were more likely to experience child marriage. A study showed that concerning household economic status, that girls from poor and middle-income households are disproportionately affected by child marriage than women of the rich quintile in Bangladesh and Ghana (Saleheen et al., 2021). Similar findings have been reported in studies conducted in Iran, Bangladesh, and East Africa (Kamal, 2012; Montazeri et al., 2016; Schaffnit et al., 2019).CM is less common in societies where women are empowered and have greater autonomy in decision making (Otoo-Oyortey & Pobi, 2003). We found that women aged 20–24 years had the highest odds of child marriage in all countries except in Maldives. A previous study demonstrated that early marriage in all three countries Bangladesh, Ghana and Iraq decreased with age, highlighting younger women tend to delay marriage compared to their older counterparts than their younger counterparts (Saleheen et al., 2021). This finding is consistent with other studies that have shown a relationship between age and the likelihood of marrying at a younger age (Saleheen et al., 2021; Kumchulesi et al., 2011; Palamuleni, 2011; Adebowale et al., 2012).

6. LIMITATION OF THE STUDY:

The present study was a cross-sectional, which limits our capacity to determine causal relationships among variables. Comparing data set of different time scale is the first limitation. Again, some variables were not available in some countries, could not possible to analyze the variables. Some important variables such as parents' socio-economic and demographic factors such as education, residence; household quartile, occupations, number of children etc. could not possible to consider as possible predictors of child marriage of their daughters due to unavailable in the secondary dataset.

7. CONCLUSION:

Child marriage is still in practice in South and Southeast countries. Education levels and respondents' current age are the common factors of child marriage in the selected countries. Governments and non-governmental organizations must continue to work towards improving access to education for girls, empowering women economically, and creating policies that protect young girls from early marriage. Ultimately, reducing child marriage will require a multifaceted approach, integrating education, economic empowerment, gender equality, and health interventions to protect the rights and futures of young women across the countries.

8. DECLARATIONS

Ethics approval and consent to participate: Nationally representative data were used in this study from Bangladesh, India, Myanmar, Maldives, Nepal, Cambodia, Indonesia and Philippines obtained from the Demographic and Health Survey (DHS) and publicly accessible. The ICF Institutional Review Board (IRB) evaluated and authorized the study design and participant confidentiality, as the data were previously ethically approved, further ethical clearance was not necessary for this study.

Consent for publication: Not applicable.

Availability of data and materials: The secondary data are freely available in the following links:

Bangladesh (2022):
https://dhsprogram.com/data/dataset/Bangladesh_StandardDHS_2022.cfm?flag=1

India (2019-21):
https://dhsprogram.com/data/dataset/India_Standard-DHS_2020.cfm?flag=1

Mynmar (2015-16):
https://dhsprogram.com/data/dataset/Myanmar_Standard-DHS_2016.cfm?flag=1

Maldives (2016-17):
https://dhsprogram.com/data/dataset/Maldives_Standard-DHS_2016.cfm?flag=1

Nepal (2022):
https://dhsprogram.com/data/dataset/Nepal_Standard-DHS_2022.cfm?flag=1

Cambodia (2021-22):
https://dhsprogram.com/data/dataset/Cambodia_Standard-DHS_2021.cfm?flag=1

Indonesia (2017):
https://dhsprogram.com/data/dataset/Indonesia_Standard-DHS_2017.cfm?flag=1

Philippines (2022):
https://dhsprogram.com/data/dataset/Philippines_Standard-DHS_2022.cfm?flag=1

Competing interests: The authors declare no competing interests.

Funding: No external funding or support was provided for this study.

Authors' contributions: MAI and MKI created the concept; MAI and MKI extracted the data; MAI, MGH, MKI and MM created the design of study. MAI, MGH, MKI and MM performed the statistical analysis and drafted the manuscript; MM, MGH, ASMAM, TT and CKS made critical revisions of the

study. The final version of the manuscript has been approved by all authors.

Acknowledgments: The authors wish to express their gratitude to the Demographic and Health Survey (DHS) for providing access to the datasets from Bangladesh, Indonesia, India, Cambodia, Maldives, Myanmar, and the Philippines.

REFERENCES

Adebowale SA, Fagbamigbe FA, Okareh TO, Lawal GO (2012) Survival analysis of timing of first marriage among women of reproductive age in Nigeria: regional differences. *African journal of reproductive health* 16(4):95-107

Ahmed T. (2015) Child marriage: A discussion paper. *Bangladesh Journal of Bioethics* 6(2):8-14

Al-Ridhwany H, Al-Jawadi AA. (2014)Early child marriage in Mosul at north of Iraq: Prevalence and preference. *World Family Medicine Journal: Incorporating the Middle East Journal of Family Medicine* 99 (1146):1-8

Bezie M, Addisu D. (2019) Determinants of early marriage among married women in Injibara town, North West Ethiopia: community-based cross-sectional study. *BMC women's health*19:1-6

Bhandari NR. (2019)Early marriage in Nepal: Prospects for schoolgirls. *Journal of International Women's Studies* 20(3):88-97.

Biswas RK, Khan JR, Kabir E. (2019) Trend of child marriage in Bangladesh: A reflection on significant socioeconomic factors. *Children and Youth Services Review*104: 104382

Borkotoky K, 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

Chan YH. (2004) Biostatistics 202: logistic regression analysis. *Singapore medical journal* 45(4):149-53

De Groot R, Kuunyem MY, Palermo T. (2018) Child marriage and associated outcomes in northern Ghana: A cross-sectional study. *BMC public health* 18:1-2

Duflo E. (2012) Women empowerment and economic development. *Journal of Economic literature* 50(4):1051-79

Hossain MG, Mahumud RA, Saw A. (2016) Prevalence of child marriage among Bangladeshi women and trend of change over time. *Journal of biosocial science* 48(4):530-8

Hotchkiss DR, Godha D, Gage AJ, Cappa C. (2016) Risk factors associated with the practice of child marriage among Roma girls in Serbia. *BMC international health and human rights* 16:1-0

Islam MA, Islam MK, Al Mamun AS, Rana MS, Hossain MG. (2023) Multilevel Approach of Factors Influencing Child Marriage among Bangladeshi Women: Data from the 2017-18 Bangladesh Demographic and Health Survey. *International Journal of Statistical Sciences* 23(2):63-73

Kamal SM. (2012) Decline in child marriage and changes in its effect on reproductive outcomes in Bangladesh. *Journal of health, population, and nutrition* 30(3):317

Khan HR, Shaw E. (2011) Multilevel logistic regression analysis applied to binary contraceptive prevalence data. *Journal of Data Science* 9:93-110

Kumchulesi G, Palamuleni M, Kalule-Sabiti I (2011) Factors affecting age at first marriage in Malawi. In: Call for papers. Sixth African Population Conference African Population: Past,

Present and Future. Ouagadougou–Burkina Faso, 5–9 December 2011: 5–9. Semantic Scholar. Available at https://api.semanticscholar.org/CorpusID:198186952

Lal BS. (2015) Child marriage in India: Factors and problems. *International Journal of Science and Research* 4(4):2993-8

Larsen K, 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):81-8

Mim SA. (2017) Effects of child marriage on girls' education and empowerment. *Journal of Education and Learning (EduLearn)*11(1):9-16

Montazeri S, Gharacheh M, Mohammadi N, Alaghband Rad J, Eftekhar Ardabili H. (2016) Determinants of early marriage from married girls' perspectives in Iranian setting: Aqualitative study. *Journal of environmental and public health* 2016(1):8615929

Nations U. (2015) Transforming our world: The 2030 Agenda for Sustainable Development. Department of economic and social affairs. Avialable at 21252030%20Agenda%20for%20Sustainable%20Development%20web

Nour NM. (2009) Child marriage: A silent health and human rights issue. Rev Obstet Gynecol. Winter 2(1):51-6

Otoo-Oyortey N, Pobi S. (2003) Early marriage and poverty: exploring links and key policy issues. *Gender & Development*11(2):42-51

Palamuleni ME. (2011) Socioeconomic determinants of age at marriage in Malawi. *Int. J. Social. Anthropol* 3 (7): 224-235

Parsons, Jennifer & Edmeades, Jeffrey &Kes, Aslihan & Petroni, Suzanne & Sexton, Maggie & Wodon, Quentin. (2015). Economic Impacts of Child Marriage: A Review of the Literature. *The Review of Faith & International Affairs* 13:12-22

Porter E. (2013) Rethinking women's empowerment. *Journal of Peace building & Development* 8(1):1-4

Rahman M. (2017) Determinates of early marriage in Bangladesh: An evidence of the nationally representative survey. *International Journal of Sociology and Anthropology* 9(1):1-7

Raj A, Saggurti N, Winter M, Labonte A, Decker MR, Balaiah D, Silverman JG. (2010) The effect of maternal child marriage on morbidity and mortality of children under 5 in India: Cross sectional study of a nationally representative sample. *BMJ* 21(340): b4258

Raymo JM. (2003) Educational attainment and the transition to first marriage among Japanese women. *Demography* 40:83-103

Rumble L, Peterman A, Irdiana N, Triyana M, Minnick E. (2018) An empirical exploration of female child marriage determinants in Indonesia. *BMC public health* 18:1-3

Saleheen AAS, Afrin S, Kabir S, Habib MJ, Zinnia MA, Hossain MI, Haq I, Talukder A (2021) Sociodemographic factors and early marriage among women in Bangladesh, Ghana and Iraq: An illustration from Multiple Indicator Cluster Survey. Heliyon. 2021 May 25;7(5):e07111. doi: 10.1016/j.heliyon.2021.e07111. PMID: 34095593; PMCID: PMC8167229

Sarwade RR, Hankare J, Chavan T. (2019) Issues of reproductive health after child marriage: a study among NT-DNT community in Nashik district of

Maharashtra. *Panacea J. Med. Sci* 9(3):117-22

Schaffnit SB, Urassa M, Lawson DW. (2019) "Child marriage" in context: exploring local attitudes towards early marriage in rural Tanzania. *Sexual and reproductive health matters* 27(1):93-105

Stark L. Early (2018) marriage and cultural constructions of adulthood in two slums in Dar es Salaam. *Culture, health & sexuality* 20(8):888-901

Svanemyr J, Chandra-Mouli V, Raj A, Travers E, Sundaram L. (2015) Research priorities on ending child marriage and supporting married girls. *Reproductive health* 12:1-4

Talukder A, Hasan MM, Razu SR, Hossain Z. (2020) Early marriage in Bangladesh: A cross-sectional study exploring the associated factors. *Journal of international women's studies* 21(1):68-78

UNFPA & UNICEF (2019) *Ending child marriage: A guide for global policy action*. Available at https://www.ippf.org/sites/default/files/ending_child_marriage.pdf

UNFPA (2021) *Child marriage in humanitarian settings in South and Southeast Asia: A review of evidence and programmatic approaches*. *United Nations Population Fund.* Available at https://www.unicef.org/rosa/media/9991/file/Child%20Marriage%20in%20Humanitarian%20Settings%20in%20South%20Asia.pdf

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

UNICEF (2014) Ending Child Marriage: Progress and Prospects. UNICEF 2014. Available at: https://data.unicef.org/resources/ending-child-marriage-progress-andprospects/. Accessed on 19th April 2021

UNICEF (2018) *Child Marriage: Latest trends and future prospects*. UNICEF. New York

UNICEF (2019) Child Marriage Around the World. Available at: https://www.unicef.org/stories/child-marriage-around-world. Accessed on 19th April 2021

UNICEF (2020) *Child marriage: Latest trends and future prospects.* Available at https://data.unicef.org/ resources/ child-marriage-latest-trends-and-future-prospects/

United Nations Fund for Population Activities (2012) Marrying too young: end child marriage. https://www.unfpa.org/sites/default/files/pub-pdf/MarryingTooYoung.pdf

Wodon Q, Nguyen MC, Tsimpo C. (2016) Child marriage, education, and agency in Uganda. *Feminist Economics* 22(1):54-79

Wodon, Quentin T.; Male, Chata; Nayihouba, Kolobadia Ada; Savadogo, Aboudrahyme; Yedan, Ali; Edmeades, Svetlana; Kes, A.; Murithi, L.; Steinhaus, M.; Petroni, S. (2017) *Economic impacts of child marriage: Global synthesis brief (English). Economic Impacts of Child Marriage* Washington, D.C.: World Bank Group.http://documents.worldbank.org/curated/en/454581498512494655

World Health Organization (WHO) (2018) *Adolescent pregnancy*. https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy

Yaya S, Odusina EK, Bishwajit G (2019) Prevalence of child marriage and its impact on fertility outcomes in 34 sub-Saharan African countries. *BMC Int Health Hum Rights* 19(1):33 doi: 10.1186/s12914-019-0219-1. PMID: 31856810; PMCID: PMC6924035