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Addressing Adolescent Pregnancy and Maternal and Neonatal Health Services: A Policy and Support System Analysis of Hard-to-Reach Areas in Rangpur, Bangladesh

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Abstract

Adolescent pregnancy and child marriage are critical public health issues in Bangladesh, particularly in hard-to-reach (HtR) areas. It brings consequences for young women, including increasing the possibility of high risk of maternal mortality, morbidity, and poor health outcomes for their children. To understand the underlying causes and factors associated with teenage pregnancy and child marriage in the HtR areas this study aim was to reveal the essential causes of adolescent pregnancy and child marriage, improving maternal and neonatal health (MNH) services, and framing an advocacy strategy with government counterparts. It was employed a mixed-methods approach followed a convenient sample technique, incorporating quantitative data from household surveys and qualitative insights from facility visits, focus group discussions, and key informant interviews. The methodology facilitated a detailed examination of the prevailing conditions and attitudes towards child marriage, adolescent pregnancy and gap on MNH services. The results deeply rooted social norms and gender inequality contribute to the perception of early marriage as beneficial.

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This is further exacerbated by limited economic opportunities and educational access in these districts. Six out of ten adolescent girls of surveyed household are married, with a significant number of them are going or gone through pregnancy. These phenomena are largely driven by socio-economic factors, including poverty and restricted access to education, which compel families to view marriage to secure a girl's financial future. For both child marriage and adolescent pregnancy, a peer pressure from family and society has been observed. Its highlights the entirely lack of awareness about the health risks associated with* child marriage and adolescent pregnancy. Mothers often skip the antenatal care (ANC) and postnatal care (PNC) visits due to ignorance or financial constraint. Additionally, gaps in the availability and quality of MNH services were evident, particularly at the union and upazila levels. Most of the deliveries take place at home (50.3%) under the supervision of birth attendants (both skilled and traditional) of which 26.8% are traditional birth attendants. Overall, the study highlighted social, economic, and cultural elements that contribute to improve levels of child marriage and adolescent pregnancy in Rangpur and Lalmonirhat, specifically in HtR areas. The lack of sufficient access to high-quality MNH services, especially those tailored to meet the needs of adolescents, worsens the health risks faced by young mothers and their newborns. Inadequate enforcement of the legally mandated minimum age for marriage, coupled with a lack of understanding of the health hazards, were identified as substantial elements that contribute to the issue.

Keywords: HtR; MNH; Adolescent Pregnancy; Child Marriage, ANC; PNC; and Quality Service.

1. Introduction

The socio-cultural and system-level factors associated with child marriage, adolescent pregnancy, and inadequate Maternal and Neonatal Health (MNH) services in hard-to-reach (HtR) areas of Bangladesh are multifaceted and deeply rooted in the social fabric of the country. In Rangpur Division, the women who are living in rural areas are more likely to get married at an early age than their counterparts from urban areas. Although the Total Fertility Rate (TFR) of Rangpur division has increased from 2.1 to 2.5 between 2018 to 2022, the existing literature shows that adolescent mothers from Rangpur Division of Bangladesh have little access to quality maternal healthcare [1]. Their maternal healthcare seeking decisions were highly influenced by individual, family, community/social, and organizational levels. It leads them not to seek quality maternal healthcare. It can be assumed that the situation could be more volatile and complex in the HtR areas of the Rangpur division [2]. The social value placed on childbearing for wives in Bangladesh and the prospect of improving one's status within the husband's family through childbirth are likely drivers of adolescent pregnancies [3]. Child marriage contributes to adolescent pregnancies, which are a risk factor for perinatal death and obstetric complications, thereby impacting the utilization of maternal and neonatal services [2].

The study caried out to understand the context of adolescent pregnancy, child marriage including maternal & neonatal health services in HtR areas of Rangpur and Lalmonirhat districts of Rangpur division. It covers 13 upazilas (sub-districts) of targeted 2 districts. The names of the upazilas were Badarganj, Gangachara, Kaunia, Mithapukur, Pirgacha, Pirganj, Rangpur Sadar, Taraganj, Aditmari, Hatibandha, Kaliganj, Lalmonirhat Sadar and Patgram.

1.1. Operational definition of hard-to-reach (HtR) areas

The term “Hard to Reach” may contain many definitions. In most cases, the term is used to describe the portion of a population who faces difficulty to involve in public participation [4]. To define HtR, researchers also used synonyms such as hidden populations, vulnerable, under-served, fragile families, socially excluded, disengaged marginalized, non-(or reluctant) user, high risk or at risk, families with complex needs, minority groups, minority ethnic, ethnic communities, and less likely to access services [5]. In public health research, the HtR indicates the segments of the population who have less (or difficult) access to health services or existing techniques are insufficient to influence (or cover) them [4]. Both aspects (either the poor access or the insufficient coverage) make them vulnerable which leads them towards poor health outcomes or deaths.

Typically, the term “Hard to Reach Areas” does not indicate towards a location only. In 2012, the Ministry of Local Government of Bangladesh developed National Strategy for Water and Sanitation Hard to Reach Areas. The ministry defined HtR areas by considering both hard-to-reach in terms of remote geographical locations and slipping populations from all sorts of development activities [6]. The strategy blueprint defined HtR areas as “areas having poor water and sanitation coverage due to adverse hydro-geological condition, having poor and inadequate communication network, and frequent occurrence of natural calamities which in turn results in higher rate of child mortality and accelerates the vicious cycle of poverty, are referred as hard-to-reach areas and the people of those areas as well as people who do not have any fixed place for living, e.g., gypsies, sex workers, are called hard-to-reach people due to their social exclusion from adequate Water and Sanitation services [6]”.

Unfortunately, recent health policies and strategies of Bangladesh did not provide any constructive outline to define HtR areas. Formulation of such definition requires expert consultations, discussions and a series of meetings and workshops with sector insiders, development professionals, officials of government agencies, academia, policymakers and community people.

2. Literature and policy review

Child marriage, adolescent pregnancy, maternal mortality, and maternal health services scenario in Bangladesh: In Bangladesh, 38% of the population is aged 10-19, and early marriage and childbearing are common, increasing maternal death risks. Maternal mortality is high at 196 per 100,000 live births, especially among uneducated, rural, and poor women with inadequate prenatal and postnatal care. Barriers include cost, distance, and sociocultural taboos. Addressing child marriage and improving healthcare access are crucial for better health outcomes and advancing women's rights and education [7,8]. Malnutrition, indicated by a low Body Mass Index (BMI< 18.5) and severe iron deficiency anemia, affects 35-38% of pregnant women in Bangladesh, increasing maternal and infant mortality. Nutritional deficiencies in Vitamin D, B12, iron, and folate are prevalent, particularly among rural and urban poor women. Calcium and zinc supplements can significantly reduce pregnancy complications. Addressing these deficiencies is crucial for improving maternal health [7].

The scenario of Rangpur division of Bangladesh:

Rangpur division witnesses a maternal mortality ratio of 223 per 100,000 live births and a neonatal mortality rate of 37 per 1,000 live births. The region is also affected by cultural taboos such as restrictions on adequate food intake and limitations on leaving home. 44% of people in this division live above the poverty line, while 58% of child marriages occur before the age of 18 and 29% of childbearing takes place before the age 18. Moreover, only 14% of women aged 15-49 years receive quality antenatal care (ANC) four or more times [9].

maternal and neonatal health (MNH) services in the rural areas and its challenges:

To improve maternal and child health in Bangladesh, the government launched the emergency obstetric care (EmOC) program in the 1990s and the National Maternal Health Strategy in 2001, integrated into HPSP (Health and Population Sector Programme), HPNSP (Health Population Nutrition Sector l Program), and HPNSDP (Health, Population and Nutrition Sector Development Program). Supported by UNICEF, UNFPA, WHO, EU, and NGOs, these programs offer comprehensive care at the Primary Health Care level. The National Strategy for Maternal Health (2019-2030) and HPNSP (2017-2022) aim to achieve Sustainable Development Goals by expanding quality health care access. Despite efforts, service utilization remains low due to poor quality perceptions, though initiatives like EmOC and NGO projects have been effective [6].

Barriers to improve maternal health care in rural Bangladesh:

Cost of delivery and other services: The cost of delivery is a major barrier to maternal healthcare in Bangladesh, with many unable to find money when needed. About half of the families in urban lack funds for a normal delivery, and three-quarters for a Caesarean section (C-section) in Sylhet. Delays in securing funds can harm maternal and newborn outcomes [10]. Even in public hospitals, childbirth can be expensive for users due to out-of-pocket costs highlighting unofficial fees and significant expenses for complicated deliveries [11,12]. Costs for complicated deliveries often exceed 10% of annual household income [13].

Distance of health facilities: Over 60% of individuals in impoverished countries, especially those in rural areas, live more than five miles from a health facility, hindering access to maternal health services due to the time and cost of travel and the burden it places on women's domestic responsibilities [11].

Skilled Birth Attendant (SBA): Bangladesh, despite reducing maternal mortality, still faces significant challenges. Between 2000-2004, only 13% of delivering women received professional care, and 9% of births occurred in facilities. By 2007, these figures improved slightly to 18% receiving professional care and 15% in facilities (NIPORT, 2004; NIPORT, 2010) [14,15]. The use of skilled birth attendants in rural areas increased from 5.6% (1991-1993) to 13% (2005-2007), and in urban areas, it rose to 36.5% (2005-2007) from around 30% (NIPORT, 2009-2010) [16].

Cultural and religious beliefs: Gender-equity theories advocate women's empowerment, yet many Bangladeshi women lack crucial opportunities. Cultural and religious factors shape maternal healthcare, impacting practices related to pregnancy, birth, and the postpartum period. Access to prenatal and postpartum care is hindered by cultural expectations and transportation challenges. To improve maternal health outcomes, healthcare information must integrate local beliefs, addressing the high risks of maternal mortality and morbidity due to

cultural, religious, and socioeconomic factors [17].

National commitments and policy mandate of the government:

Bangladesh's Constitution and other policy frameworks show a strong commitment to improving maternal and reproductive health rights. The Constitution guarantees the right to healthcare for all citizens, laying the groundwork for subsequent health-related laws.

The National Health Policy (2011) purposes to reduce child and maternal mortality, enhance community-level maternal and child health services, increase access to reproductive health resources, and offer client-centered health and reproductive services [18].

The National Women Development Policy, 2011 aims to improve women's health across their lifetime by reducing maternal death rates, promoting reproductive rights, and expanding access to healthcare through initiatives like Integrated Maternal and Child Immunization (IMCI) program, Women Friendly Hospital Initiatives [19].

The 4th Health, Population, and Nutrition Sector Program (HPNSP) seeks to achieve a maternal mortality rate (MMR) of 121 per 100,000 live births and to lower the newborn mortality rate to less than 18 per 1,000 live births [20].

The Gender Equity Strategy (2014) aims for fair healthcare access for marginalized groups in Bangladesh. It focuses on improving health services for all ages and genders, with a focus on women-friendly care and removing barriers for safe childbirth [21].

The Bangladesh National Strategy for Maternal Health (2019-30) goals to reduce maternal and neonatal mortality and morbidity [22].

The National Adolescent Health Strategy 2017-2030 aims to address the overall health needs of adolescents comprehensively, ensuring they lead healthy, productive lives in a supportive environment with access to quality information and services [23].

The Government enacted the Child Marriage Restraint Act 2017, defining child marriage as a union where one or both parties are under the legal age of adulthood (Act no. 06 of 2017, section 2.4 and 2.1) [24].

The National Action Plan to End Child Marriage (2018-2030) purposes to end marriage for girls under 15 years and reduce by one-third the rate of marriage for girls aged 15 to 18 by 2021, completely eliminating child marriage by 2041 [25].

3. Study objectives

The objective of this study was to frame a scenario on high-rate adolescent pregnancy due to child marriage and availability (including quality) of maternal and neonatal health (MNH) services. Furthermore, it aims was to

frame/showcase policy implementation and effectiveness of the government support system in HtR areas of the Jononi project.

The specific objectives were to identify:

- The socio-cultural and system-level factors associated with child marriage and adolescent pregnancy and inadequate MNH services in hard-to-reach areas.
- The gaps and measure the effectiveness of the existing policy and its implementation system to combat child marriage and adolescent pregnancy.
- The gaps and measure the effectiveness of existing health systems in hard-to-reach areas to ensure quality MNH services.
- The relevant advocacy issues for both local and national level on child marriage, adolescent pregnancy, and inadequate MNH services in hard-to-reach areas.

In addition to the objectives, the study was also investigated the following issues:

- Current situation of MNH and key differences between hard-to-reach areas and its counterparts.
- The bottlenecks of the MNH services in hard-to-reach areas and causes of such problems including evidence.
- Challenges associated with the prevention of early marriage and adolescent pregnancy at the individual, social, and institutional levels.

4. Methodology

The study has employed mixed-method research both qualitative and quantitative approach. The sample size for the household (HH) level surveys (targeting adolescent, married adolescent, pregnant adolescent and women, new mothers) has been calculated by using Bangladesh Demographic and Health Survey 2017-18 data.

The equation for sample calculation is

n= (z^2 pq)/d^2

Here,

n = Desired sample size

z = Standard normal deviate at 95% Confidence Interval

p = Rate of adolescent marriage or Rate of adolescent pregnancy

q = 1-p

d = error of margin or desired degree of precision

Based on the data of BDHS (Bangladesh Demographic and Health Survey) 2017-18, in Rangpur division among women aged 20-24, 67% got married before 18 and 32% of women aged 15-19 who began childbearing. Considering 4% margin of error the desired sample size is 531, which has been distributed in 13 upazilas equally (~41 HHs each) in the study area. Due to the limitation of the pre-mapping of households of respective upazilas and time-bound, a convenient sample selection approach was adopted. Case study, KII (Key Informant Interview), IDI (In-depth Interview), and FGD (Focus Group Discussion) were administered while conducted in qualitative approach.

Table 1: Sampling distribution

Methods	Number
Case study	5
KII/IDIs	43
FGD	54
Household survey	531
Total	633

In addition, A total of 25 health facility center were observed followed pre-prepared checklist through SARA (Service Availability and Readiness Assessment) tool adapted from WHO (World Health Organization).

5. Ethical consideration & accountability

The ethical approval to conduct this study has been obtained from the IHE (Institute of Health Economics). Institute of Health Economics of University of Dhaka has an IRB (Institutional Review Board). The ethical approval reference number is Ref. No. IHE/IRB/DU/13/2024/Final.

During the study, data security protocols have been applied to minimize the risk of unauthorized access to participant information. Participant consent procedures have been strictly followed to ensure informed participation and protection of privacy. In addition, child safeguarding measures according to SCI (Save the Children International) Safeguarding Policy while including children and/or adolescents in research has been followed throughout the process.

6. Limitations

- Accessibility or unavailability issues of surveyed studies focused on this study objectives. However, research team relied on open accessed datasets and literatures to analysis and collected primary data only when access was ensured, and participants consent were taken.
- The study acknowledges potential biases in data collection, including selection, observer and proximity biases. To address this, data monitoring and cleaning procedures were used to maintained quality and consistency.
- Limited documentation of some data sources made cross-validation challenged. However, to ensure accurate results, secondary data sources were carefully assessed for validity and reliability.

7. Findings

7.1. Socio-cultural and system level factors

Age of marriage among women and practice of child marriages: In the figure 1 shows the distribution of age of marriage among the women, where mean age of marriage among women (n=716) is 15.5 years (marked as red line). A comparison of mean marriage age by current age group (see table 2) indicates a high practice of child marriage in the locality and how the rates are declining by time. However, the declining mean age for adolescents is not satisfactory.

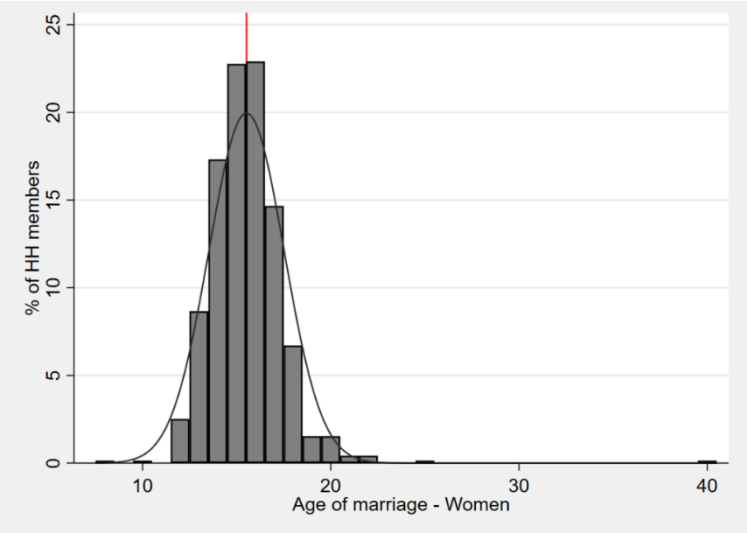

Figure 1: Age of Marriage of women surveyed households.

Among 219 adolescent females of surveyed households, 135 (or 61.6%) are married. Within this group of 135 married adolescents, 130 cases of child marriage (marriages occurring below 18 years of age) have been identified. This indicates that nearly 6 out of every 10 adolescents are affected by child marriages.

Table 2: Mean ages of marriages among women by current age groups

Age group	Mean age of first marriage	Number of married girls/women	Number of girls/women	Mean age of first marriage by district	
				Rangpur	Lalmonirhat
Adolescence	15.7	135	219	15.7	15.6
20 to 24 Years	16.3	177	178	16.4	16.0
25 to 49 Years	15.5	321	323	15.6	15.5
50 or above	13.7	83	83	13.5	13.9
Total	15.5	716	803	15.7	15.3

The prevalence of adolescent marriages in the HtR areas is contributing to adolescent pregnancies. 28.1% of

married adolescents are currently pregnant (see table 3), suggesting that nearly one in every six adolescents is pregnant.

Table 3: Rate of pregnancy by age groups

Current age group	Number of married girls/women	Number of pregnant girls/women	%
Adolescence	135	38	28.1
20 to 30 Years	386	76	19.7
31 to 49 Years	112	8	7.1
50 or above	83	2	2.4
Total	716	124	17.3

Inadequate enforcement of laws and guidelines has made it easier for underage marriages to occur. Younger generations are more prone to use different social media platforms now which leads them to seek love relationship at an early age. Therefore, they often marry at an early age to give their relationship societal acceptance. Parents usually marry off their children early due to societal pressure and fear of social backlash. In love marriages, teenagers may rush into parenthood to gain parental approval, further perpetuating the cycle of early pregnancies. *"Teenagers who enter into love marriages often end up having babies early to gain parental approval."*- KII, Teacher.

Limited knowledge about contraception and societal pressure further discourages girls from seeking help. Despite efforts from different government and non-government stakeholders, the married adolescents in Rangpur and Lalmonirhat still lacks necessary knowledge and information in family planning and maternal and neonatal healthcare seeking, especially in the hard-to-reach areas. "Adolescent newlyweds are more vulnerable to adolescent pregnancy because they have no idea about family planning." - KII, Upazila Social Service Officer.

Attitudes of the family and social stereotypes towards adolescent pregnancy: According to the respondents of the study, often young brides are pressured by their in-laws to have a baby after getting married. Despite being at risk, the family is happy when she gets pregnant. If the girl doesn't get pregnant soon after the wedding, then the people taunt and blame her. Most adolescent married girls may feel insecure about their position in the family, and pressure from relatives to conceive early can lead to a rush to start a family. *"...if there is any delay in conceiving a baby, society believes that the girl is having some sort of issue."* - FGD, a female respondent.

Adolescent pregnant mothers in some households are often abused. They may be overburdened with household chores, prohibited from going outside, and pressured to deliver a baby boy. They may also face dowry-related harassment and be confined to their homes. If the pregnant mother is expecting a boy, the family is happy, but if it is a girl, she may be considered a burden. However, due to increasing awareness, some families have changed their attitude towards adolescent pregnancy because they are now aware of the risks associated with adolescent

pregnancy and are concerned for the expectant mother and baby. Parents provide nutritious food for the expectant mother despite their financial constraints.

ANC (Antenatal care) and PNC (Postnatal Care) services: From the response of mothers (who became mothers in last 12 months), 94.3% of mothers received ANC, while 62.4% received PNC services, both with at least one visit. However, completion rates for recommended visits reveal a gap (see the table 4): only 49.3% of mothers completed four or more ANC visits, and merely 18.4% completed three or more PNC visits within the recommended timeline. Although the ANC rate is relatively high, the completion of recommended visits falls short, indicating room for improvement. Conversely, the PNC uptake is notably lower, suggesting the need for targeted efforts to enhance utilization. Despite these challenges, mothers' express satisfaction with both ANC and PNC services, underscoring the importance of maintaining and enhancing quality care provisions at union-level facilities.

Table 4: ANC, PNC services

	ANC	**PNC**
% of mothers received services in HtR (at least one service)	94.3%	62.4%
Number of visits		
1	10.1	45.9
2	18.9	35.7
3	21.6	14.3
4 or more	49.3	4.1
Total %	100	100
When (ANC/PNC)		
Within 3 months/3 days	52.0	71.4
6 Months/Between 7-14 days	79.7	40.8
7 Months/Within 6 weeks	81.8	29.6
9 Months	80.4	
Satisfaction Rate		
Very bad	0	0
2	0.7	0
3	33.1	29.6
4	47.3	54.1
Very good	18.9	16.3
%	100.0	100.0
Total	148	98

Majority of childbirths occur at home (50.3%) followed by private hospitals (31.9%) and government hospitals (10.2%). In most of the cases, birth attendants (both trained midwives and traditional) are the primary providers (52.2%), followed by private doctors (30.6%) and government/voluntary nurses (17.8%). Responses shows that

in 26.8% cases TBA (Traditional birth attendants) provide delivery supports and in 4.9% cases household members were not aware of whether the birth attendant is skilled or not. Compared to the national average as per the BDHS 2022, this rate is slightly higher than national average of 25.9%.

Table 5: Childbirth services

Location of childbirth	Assistance during childbirth†					
	Govt. or Voluntary Doctor	Private Doctor	Govt. or Voluntary Nurse/Mid wives	Private Nurse	Birth Attendants (SBA+TBA)	% of location
Govt. Hospital	20.0	0.0	55.0	0.0	25.0	10.2
Private hospital	2.7	64.0	0.0	32.0	1.3	31.9
Volunteer (NGO) centers	14.3	0.0	14.3	0.0	71.4	3.8
Others‡: CC, UH&FWC	0.0	0.0	71.4	0.0	28.6	3.8
At home	4.7	0.0	12.9	1.2	81.2	50.3
% of assistance	7.0	30.6	17.8	15.9	52.2	100.0
Number of cases	11	48	28	25	82	157

Barriers to accessing adolescent maternal care: The study reveals a complex interplay of factors hindering access to maternal healthcare. Geographical remoteness and inadequate transportation emerge as significant challenges, particularly for women residing in hard-to-reach areas. In hard-to-reach areas, insufficient healthcare facilities cause maternal healthcare challenges. Poverty leads to a lack of access to nutrient-rich foods during pregnancy, while limited awareness further compounds the issue. *"Gynecologists are insufficient in hard-to-reach areas and as a result, many people are forced to take the risk of normal delivery at home."* – KII, a teacher.

Shortages of medication supply, equipment for C-sections, and essential resources highlight the dire need for healthcare infrastructure improvement. Inadequate delivery room conditions, including insufficient lighting inside operating theaters, lack of uninterrupted supply of electricity and beds, underscore the urgent necessity for enhancing maternal healthcare facilities in these areas. Due to the long distance of the healthcare centers from the remote areas, there are many challenges in receiving proper maternal healthcare. Most pregnant mothers in these areas are tired from hard labour in household chores and lose interest in going to healthcare facilities due to fatigue and difficulties in receiving healthcare services in hard-to-reach areas. *"The roads are also in a poor state to commute from home to the healthcare centers"*- KII, Health Assistants.

7.2. Effectiveness of existing policy to reduce and control the child marriage and adolescent pregnancy in HtR areas: Identifying gaps and formulating strategies

† Multiple answers. The percentage in the table from left to right is equivalent to 100%.

‡ CC – Community Clinic, UH&FWC – Union Health & Family Welfare Center

a) Challenges associated with the prevention of early marriages and adolescent pregnancy at the individual, social and institutional level:

The Child Marriage Restrain Act, 2017 is not being implemented properly. The new act under section 19 the law sets the age of marriage for girls at 18 and 21 for boys. It also provides exemptions, allowing marriage with parental and judicial consent before the minimum age prescribed by the Act under "special circumstances when it is in the best interests of the child". The section, however, does not define what are the special circumstances and set any particular age limit for these special cases. This special clause is being misused or misrepresented, which contributed as a license to underage or child marriages.

Local Kazis (marriage registrar/Nikah registrar) are not aware of and sensitized about the Child Marriage Restrain Act. They are violating the law by taking bribes from the parents of both the brides and the grooms. They do not check the legal documents (e.g., birth certificate, national identity card, secondary school certificate or an equivalent certificate, junior school certificate or an equivalent certificate, primary school certificate or an equivalent certificate or passport) to prove the age of the brides and the grooms.

Due to prevalence of early marriages, adolescent pregnancy is the study area is high, which impacts on maternal health and increases risk of maternal mortality and morbidity.

Normal delivery with the help of SBA (Skilled birth Attended) at the UH&FWC is low and home birth with the TBA or Dai is high.

The rate of ANC and PNC visits of pregnant mothers, especially the adolescents, is also low, in the UH&FWC of the study area in comparison to that of plain land.

Pregnant mothers, including adolescents, have less access to the health facilities as well as the SBAs, and many of them are interested in delivery at home instead of UH&FWC, as they can claim extra money for her own.

The SBA's poor salary, delayed salary, less opportunity for promotion and lack of inspiration in the system, led them to be demotivated and earn extra money otherwise.

7.3. Effectiveness of policy and health support system for ensuring adequate MNH services in the HtR areas: existing bottlenecks

a) Lack of Adolescent Friendly UHCs and UH&FWCs: The facility survey showed that the reported upazila health complex (UHCs) and UH&FWCs are less focused on Quality of Care for MNCH (maternal, neonatal and child health); and they have lacked sufficient financing, manpower and equipment. Based on the facility visit, the research team identified multiple concerning issues which are given below:

- Female doctor is not available in the facilities;
- Lack of training among the staffs of the facilities;
- In the facilities, transfer/replacement of skilled staffs with new staffs is absence;

- Lack of initiative of identifying, documenting and disseminating the best practice as an adolescent friendly Health Initiatives in UHCs/UH&FWCs;
- Lack of monitoring of implementation of policies and laws from central level;
- Lack of initiatives for mainstreaming adolescent friendly facilities UHCs/UH&FWCs;
- Mindset of both service providers and service recipients are yet to be changed and a huge gap of understanding between the two groups was found;
- Lack of infrastructures and skilled professionals for maternal health care;
- Lack of inter-ministerial coordination, though a number of ministries are involved into the process;
- Inadequate human resources in UHCs and UH&FWCs;

No functional mechanism exists in the governance such as no fixed job responsibilities, working hours, or incentive system.

7.4. Advocacy issues for both local and national level on child marriage, adolescent pregnancy, and inadequate MNH services in HtR areas

Advocacy strategy for the prevention of child marriage and adolescent pregnancy in the HtR areas requires a comprehensive approach that addresses legal, cultural, economic, and educational dimensions. The following is the guideline for the advocacy both at local and national levels:

a) Local Level Advocacy:

Community mobilization and engagement

Engage community leaders: Work with local religious leaders, kazis, matchmaker, elders, and community influencers who can help change social norms and practices. Utilize their influence to advocate against child marriage and adolescent pregnancy.

Educational workshops: Conduct workshops for parents and guardians to educate them about the adverse effects of child marriage and adolescent pregnancy on the health of mother and neonate.

Empowering girls through education

School retention programs: Implement programs that help to stop dropout of girls in secondary education, such as scholarship programs, school feeding programs, and facilities improvement (e.g., providing adequate sanitation).

Life skills training: Offer comprehensive life skills trainings, including sexual and reproductive health education, to girls in schools and community centers.

Strengthening support networks

Establish girls' clubs: Create safe spaces like girls' clubs where young women can receive mentorship, learn about their rights, and access health resources.

Legal aid and counseling services: Provide accessible legal support and counseling for girls at risk or victims of child marriage.

b) National Level Advocacy

Policy advocacy and legal reform

Comprehensive legal frameworks: Advocate for the enforcement of existing laws that set the legal minimum age of marriage at 18 and lobby for closing legal loopholes that permit child marriages under certain conditions.

National policies and procedures: Push for comprehensive national policies and procedures that address both child marriage and adolescent pregnancy, focusing on multi-sectoral approaches that include health, education, and legal components.

Building partnerships and alliances

Collaboration with development partners: Partner with local and international non-government organizations to unify efforts and create a stronger advocacy front. Collaborate with organizations like UNICEF, UNFPA, WHO, and Girls Not Brides.

Government partnerships: Engage with various government ministries (e.g., Ministry of Health and Family Welfare, Ministry of Women and Children Affairs, Ministry of Education, Ministry of Social Welfare) to ensure that policies are integrated and implemented effectively.

Public Awareness Campaigns

Media campaigns: Use national and local media to run awareness campaigns highlighting the negative impacts of child marriage and the benefits of delaying marriage and pregnancy.

Celebrity and influencer endorsements: Leverage the popularity of local celebrities and social media influencers to reach a wider audience and change public perceptions.

Research and Data Utilization

Utilize data for advocacy: Collect and use data to support advocacy efforts, demonstrating the scope of child marriage and adolescent pregnancy and tracking progress.

Impact studies: Conduct studies to show the long-term negative impacts of child marriage and the positive effects of education and delayed marriage.

c) Cross-Cutting Actions

Economic Incentives

Conditional cash transfers: Advocate for government programs that provide financial incentives to families that keep their daughters in school and delay their marriage.

Healthcare Services Enhancement

Improve access to healthcare: Work to ensure that adolescent-friendly sexual and reproductive health services are widely available and that healthcare workers are trained to address the needs of young people.

Monitoring and Accountability

Regular reporting: Establish mechanisms for regular monitoring and reporting on the status of child marriage and adolescent pregnancy, holding stakeholders accountable.

This strategy should be adaptive, continuously evaluated, and adjusted based on feedback and changing circumstances. The ultimate goal is to create a supportive environment where young women in Bangladesh can pursue education and personal development, free from the pressures of child marriage and early pregnancy.

7.5. Key lessons learned: a comparison of HtR areas

In-line with the above discussion, a comparison between national statistics and the current scenario of HtR has been drawn (table 6). According to the BDHS 2017-18 and 2022, the rate of child marriage has declined (from 58.9% to 50.1%) which is expected to decline more in near future. However, the rate of HtR is 59.3% which is quite high.

A similar pattern is also found in the case of place of delivery – home. Though the national rate has declined (from 50.0% to 34.9%), the 50.3% of the deliveries in HtR areas are taking place in home. The study also estimated current adolescent pregnancy rate to estimate the portion of "risk group" among the adolescent girls. A comparison with BDHS (Bangladesh Demographic and Health Survey) 2022, shows a high gap in HtR areas (17.3% compared to 5.9% of national rate).

In case of TBA during birth, the nation observed a sharp decline. 45.3% of 2017-18 compared to 25.9% of 2022 shows a decline of ~57%. Based, on this declining rate, it can be assumed that this rate will be minimize in upcoming years. The rate of TBA during birth is 13.6% in HtR areas.

Though 94.3% mothers are completing at least one ANC visit, many of them are not completing all visits as per the recommendation (see the discussion written in earlier chapters). In case of C-section rate, HtR areas scored 33.8% compared to 45.0% of national rate.

Table 6: Comparison of key statistics: HtR vs. national rate.

Indicator	National statistics		HtR statistics
	BDHS 2017-18	BDHS 2022	
Child or adolescent marriage	58.9%	50.1%	59.3%
Adolescent pregnancy	-	5.9%	17.3%
Place of delivery - Home	50.0%	34.9%	50.3%
TBA	45.3%	25.9%	13.6%
ANC (at least one time)	82.0%	88.0%	94.3%
C-section	32.7%	45.0%	33.8%.

8. Conclusions and Recommendations

Overall, the study focused on adolescent pregnancy due to child marriage and maternal and neonatal health services in hard-to-reach areas, underscores significant challenges and sheds light on the intertwined nature of socio-cultural practices and health outcomes. It conclusively shows that child marriage and adolescent pregnancy continue to pose severe risks to health and wellbeing, perpetuating a cycle of poverty and limited educational opportunities for young women.

Despite legislative frameworks aimed at curbing child marriage, the persistence of these practices highlights a critical gap between policy and enforcement, exacerbated by deeply ingrained societal norms and economic constraints. The inadequacy of maternal and neonatal health services in remote areas further complicates the situation, where limited access to quality care continues to endanger the lives of mothers and their newborns.

The key findings from the study have highlighted below:

Socio-cultural Factors: Deeply entrenched social norms and gender inequality contribute to the perception of early marriage as beneficial. This is further exacerbated by limited economic opportunities and educational access in these districts.

High Prevalence of Child Marriage and Adolescent Pregnancy: Six out of ten adolescent girls surveyed were married, with a significant number of them becoming pregnant. These phenomena are largely driven by socio-economic factors, including poverty and restricted access to education, which compel families to view marriage as a means to secure a girl's financial future. For both child marriage and adolescent pregnancy, a peer pressure from family and society has been observed.

Health Risks and Service Availability: The study highlights a stark lack of awareness about the health risks associated with child marriage and adolescent pregnancy. Mothers often skip the ANC and PNC visits due to ignorance or financial constraint. Additionally, gaps in the availability and quality of MNH services were evident, particularly at the union and upazila levels. Most of the deliveries take place at home (50.3%) under the supervision of birth attendants (both skilled and traditional) of which 26.8% are traditional birth attendants.

The findings emphasize the need for a sustained and integrated approach that not only focuses on strengthening healthcare systems but also on transforming community norms and behaviors through education and engagement. The conclusion drawn from this comprehensive analysis is that multifaceted strategies are essential to make a tangible impact, requiring the collaboration of community leaders, healthcare professionals, policymakers, and international partners to foster environments that support the health and rights of women and children in Bangladesh. The policy recommended are outlined below:

1. Workshops and Training: Organize comprehensive workshops for local marriage registrars, Kazis, and religious leaders to increase awareness of the consequences of child marriage and the Child Marriage Restraint Act, 2017. Additionally, law enforcement agencies should also participate in workshops and training and engage with local key stakeholders.
2. Community Awareness Campaigns: Conduct comprehensive campaigns (banners, billboards, rallies, slogans, posters, folk songs, community dialogues, and rallies) to inform the community about the detrimental effects of adolescent pregnancy and child marriage, with a particular emphasis on adolescents and their parents and in-laws. Specific program centered around adolescent girls and boys to encourage them to use family planning devices and tools along with participate in family planning sessions in local healthcare.
3. Educational Materials: To guarantee that the community is well-informed about the repercussions of child marriage laws, distribution of printed materials to local organizations and volunteers is recommended.
4. Enforcement and Monitoring: Implement weekly monitoring visits by volunteers to prevent child marriages and guarantee the strict enforcement of laws against child marriage.
5. Educational Opportunities for females: Establish initiatives to mitigate school dropout rates and enhance educational opportunities for adolescent females, such as income-generating activities and life-skills training.
6. Economic Incentives: Offer economic incentives to families that delay their daughters' marriages and keep them in school. Programs should prioritize the economic empowerment of women and girls in order to provide alternative routes to early marriage.
7. Maternal and Neonatal Health Campaigns: Conduct medical camps and campaigns to inform the community about the health risks associated with adolescent pregnancy. Engage physicians in discussions regarding the effects on mothers and neonates. Local healthcare centers should prioritize their family planning services and make them confidential. They also need to arrange campaigns on the available services offered by the family planning centers.
8. Access to Skilled Birth Attendants (SBAs): Develop policies to guarantee that expectant women have access to skilled birth attendants (SBAs) and midwives for antenatal and maternity healthcare, thereby encouraging them to deliver in healthcare facilities or hospitals.
9. Emergency Healthcare Services: Provide free emergency ambulance services to pregnant women in remote locations and equip all UHCs with C-section delivery facilities and strengthen existing facilities with necessary equipment required in the operation theatre and maternity ward.
10. Comprehensive Care and Training: Incorporate nutritional support, mental health services, and sexual and

reproductive health services that are accessible to adolescents into maternal healthcare programs. Guarantee that all healthcare providers receive training in order to provide services that are suitable for adolescents and to fortify the management committees of local health facilities.

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9. Conflict of interest

We authors declare that we have no conflicts of interest relevant to the content of this paper.

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