Comparing trends of perinatal mortality in two rural areas of Matlab, Bangladesh

Aminur Rahman
College of Public Health Sciences, Chulalongkorn University, Phathumwan, Thailand and Department of Health System and Population Studies Division, ICDDRB, Dhaka, Bangladesh
Anne Austin
JSI, Boston, Massachusetts, USA
Iqbal Anwar
Department of Health System and Population Studies Division, ICDDRB, Dhaka, Bangladesh, and
Surasak Taneepanichskul
College of Public Health Sciences, Chulalongkorn University, Phathumwan, Thailand

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Abstract

Purpose – Sixteen million adolescents give birth each year, constituting 11% of all births worldwide. Adverse adolescent pregnancy outcomes are well-documented. Available data on adolescent pregnancies have mainly relied on self-reported age and retrospective survey data, which might not capture adolescent births accurately. This paper reports on trends in adolescent pregnancy and associated adverse birth outcomes in Matlab, Bangladesh, using data from the Matlab Heath and Demographic System (HDSS) which precisely documents maternal age.

Design/methodology/approach – The study was conducted in the rural subdistrict of Matlab in Bangladesh. HDSS data were used to examine trends in adolescent motherhood (10–19 years) in the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr, b) service areas (ISA) and government service areas (GSA) between 2007 and 2015. A total of 4,996 adolescent mothers were included in the analysis. Chi-square testing and binary logistic regression were used to document adolescent pregnancy trends and the differences in and causes of perinatal death.

Findings – The fertility rate was 27 per 1000 adolescent mothers in ISA and 20 per 1000 adolescent mothers in GSA, during the 9 years of the study period. The adjusted odd of an adolescent mother having a perinatal death in ISA, relative to GSA was 0.69. Significant determinants of perinatal death among adolescent mothers included maternal education, paternal education, mother's age at first birth, asset score and distance from the nearest health facility.

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Originality/value – This paper documents the real trend of adolescent pregnancy by capturing the accurate age at pregnancy for the first time in Bangladesh.

Keywords Adolescent pregnancy, Perinatal death, Maternal health, Bangladesh

Paper type Research paper

Introduction

Adolescence, as defined by the World Health Organization (WHO), is the period between 10 and 19 years of age [1]. About 16 million adolescents give birth each year, constituting 11% of all births worldwide. A total of 95% of adolescent births occur in low- and middle-income countries [2, 3]. The average adolescent birth rate in low-income countries is more than five times as high as that of high-income countries. The proportion of births that takes place during adolescence is approximately 2% in China, 18% in Latin America and the Caribbean and more than 50% in sub-Saharan Africa. Nearly half of all adolescent births occur in just seven countries as follows: Bangladesh, Brazil, the Democratic Republic of the Congo, Ethiopia, India, Nigeria and the United States [4].

Becoming pregnant during the adolescent period is a biological risk both for the mother and her newborn. Globally, adolescent births (11% of all births), account for 23% of the overall burden of disease (disability-adjusted life years) due to pregnancy and childbirth. Each year, approximately 70,000 adolescents die from pregnancy-related causes [5].

Approximately 2.5 million adolescents have unsafe abortions every year, accounting for 14% of all unsafe abortions, and adolescents are more seriously affected by birth complications compared to older women [6]. Younger mothers are at an increased risk of obstetric fistula, anemia, eclampsia, postpartum hemorrhage and puerperal endometritis [7–9]. Up to 65% of women with obstetric fistula develop this during adolesence, with terrible consequences for their lives, both physically and socially [6, 10].

Adolescent pregnancy is also dangerous for the newborn. Deaths during the first month of life are 50–100% more frequent if the mother is an adolescent compared to a mother of 20 years old and above. The risk of stillbirths and deaths in the first week of life is inversely related to the age of the mother; the younger the mother, the higher the risk. Stillbirths and newborn deaths are 50% higher among babies born to mothers less than 20 years, relative to babies born to mothers of 20–29 years of age [11]. Newborns of mothers lesser than 19 years of age also have an increased risk for preterm birth, low birth weight, cesarean delivery and asphyxia [8, 12]. Preterm birth, low birth weight and asphyxia all increase the chance of death and of future health problems for the newborn [13–16].

Situation in Bangladesh

Despite substantial progress in reducing maternal mortality over the past two decades, the issue of adolescent (aged 10–19 yrs) pregnancy is still rampant in Bangladesh. Adolescents comprise 22% of the total population in Bangladesh, and the adolescent birth rate is 84 per 1000 live births, which is one of the highest in the world [17–19]. Recent data show that among adolescent mothers, 20% do not receive any antenatal care, 64% give birth at home and 58% of deliveries take place without any assistance from skilled attendants. Perinatal mortality rates among births from adolescent mothers – 44 per 1000 live births – is second only to perinatal mortality rates among mothers between the age of 20 and 29 [18].

Adverse adolescent pregnancy outcomes are well-documented; however, there is continued debate about whether this is attributable to the biological nature of adolescents, or is the result of poor socioeconomic conditions that perpetuate young age marriages and also reduced access to quality health care [11, 13, 15, 16, 20–22]. Documenting the true burden of adolescent births is often a major challenge as accurate adolescent age estimation demands a strong vital registration system. Available data on adolescent pregnancies have mainly relied on self-reported age and retrospective survey data, which might not capture adolescent births accurately. There is evidence that survey data may be biased in collecting maternal age, particularly when legal and social norms are changing and women's less likelihood to report accurate maternal ages [23–25]. In contrast to that, longitudinal surveillance data (both ISA and GSA in Matlab), where demographic and service information are collected periodically and age is estimated from the date of birth, provide a robust mechanism to ensure that maternal age is accurately reported. Data in HDSS (both ISA and GSA areas) are more robust with both areas being longitudinal in nature compared to data from government areas across the country where data are being collected in reduced numbers. Though the proposed study site has been collecting information on maternal and child health including other vital demographic events since 1966 [26], there is still no single publication to date using Matlab HDSS data which has explored adolescent pregnancy events. There are publications based on perinatal mortality findings between two areas in 2012 [27], but there is no such publication comparing these two areas after this date.

The questionnaire format for data collection in the HDSS area was different before 2007 and after 2015 which is the reason for considering data from 2007–2015 for this particular paper. Thus, this paper reports on trends in adolescent pregnancy and associated adverse birth outcomes among adolescent mothers between 2007 and 2015 using the Matlab Health and Demographic Surveillance System (HDSS) database.

Methodology

Study design

This study used retrospective longitudinal data (2007–2015) from the Health and Demographic Surveillance System (HDSS) database run by the International Centre for Diarrhoeal Disease (icddr,b).

Study population

In total, 5,774 adolescent women, who became pregnant between 10 and 19 years of age were identified in the HDSS database. Adolescent women who gave birth below the age of 20 years between 2007 and 2015, were included in this study.

Inclusion criteria

All adolescent women who had a pregnancy lasting for at least 28 weeks' gestation and who gave birth before the age of 20 between 2007 and 2015 were included in the HDSS database .

Exclusion criteria

Adolescent women having an adverse pregnancy outcome before 28 weeks of gestational age and whose pregnancy outcome data were not available for the study period were excluded from the study. In total, 778 cases were excluded from this study based on the exclusion criteria.

Study setting

Matlab is located in rural Bangladesh and is a subdistrict of Chandpur, located 55 km southeast of Dhaka. Since 1966, the International Centre for Diarrheal Disease Research, Bangladesh (icddr,b) has been collecting vital statistics through community health research workers (CHRWs) and has developed a health and demographic surveillance system (HDSS) [28]. The Matlab HDSS area is divided into two parts as follows: the icddr,b service area (ISA) and the government service area (GSA), covering 142 villages. In ISA areas, services by a Maternal and Child Health and Family Planning Program of the icddr,b are available in addition to the usual government health and family planning services; but in GSA areas, only government health and family planning services are available. Since the introduction of the icddr,b service program in Matlab, the CHRWs have collected data on child and reproductive health from female respondents, delivered maternal health care, provided information on contraception and contraceptives and administered immunizations to mothers and children in the icddr,b service area. CHRWs have obtained vital demographic and health information by visiting each household in their assigned areas bi-monthly since 2007. Prior to that, visits were monthly for all areas. 1200 households are covered on a bi-monthly basis by each CHRW. The similarity in data collection methods of different maternal indicators of both ISA and GSA areas and equality in the number of CHRWs in both areas provided the field of comparison between both areas of HDSS in Matlab. The icddr,b SA was further subdivided into 4 administrative blocks (A, B, C & D), each serving a population of about 27,000. These subcenter hospitals are directly linked with the MCH–FP clinic in the Matlab Township, which is staffed by doctors and nurses, to provide basic obstetric care around the clock [29]. The government area also serves 115,000 members of the population and is divided into three blocks (E, F and G). In government areas, only surveillance CHRWs are available who collect data from written records [29].

The maternal, neonatal, and child health (MNCH) project has been embedded in the ongoing MCH–FP project in the icddr,b SA, since 2007. The MNCH project has worked to increase the proportion of facility-based deliveries and to introduce an evidence-based maternal and neonatal package [30]. In the Matlab hospital, every delivery follows standard clinical guidelines prepared by the Obstetrics and Gynecology Society of Bangladesh (OGSB) and Lamb Hospital. All the doctors working in this hospital follow this protocol, and caesarian sections are only performed for medically valid reasons unless a mother requests a caesarian birth [30, 31].

The HDSS data set comprises health, demographic and social characteristics at the individual and household level. These data can be linked to a wide range of research and clinical information. This array of interrelated information is invaluable in a country that has no nationwide registration systems, has scant resources to develop health information systems and has no capacity to monitor trends in the nation's health.

Data collection in the icddr,b service area (ISA) and government service area(GSA)

There are two groups of CHRWs in the HDSS of the icddr,b: surveillance CHRWs (#43) and service CHRWs (#41). In the ISA, both types of CHRWs are available; in the GSA, only surveillance CHRWs are available. Service CHRWs collected data through monthly visits to each household. Surveillance CHRWs in both areas visit each household every two months. In the ISA, CHRWs collect data on reproductive events (menstrual status, pregnancy and outcome status, lactation status, contraceptive use, under-five children's diarrhea and pneumonia history in the previous two weeks), the immunization status of eligible women and their children below 5 years of age. All services provided to eligible mothers and children are recorded in a family visit record (FVR) book for every household in the ISA. In each FVR, all data are recorded for each member of the household. Each CHRW carries an electronic tablet with her to collect data during her field visits, and each CHRW covers 24 households in a month and 410 couples in 18 months. During these visits, if a woman has missed her period for one and a half months, the CHRW performs a urine test for pregnancy and gives her a health service card and asks the woman to visit the subcenter clinic for further care. Midwives are fully qualified nurses or midwives and CHRWs have at least passed class ten [28]. The icddr,b HDSS deployed 6 CHRWs for each block solely for surveillance data collection from

1966 onwards. CHRW from both areas completed data collection from 1200 households every two months.

Quality of the data

Each month, all the CHRWs from both the icddr,b and government service areas sat together to exchange information, update their registrar books and discuss relevant issues. Each CHRW area was assigned annually; so, yearly work plans to visit the households were prepared and kept with the supervisors. The supervisors know beforehand if a CHRW was available for a particular day. They also routinely provided a monthly spot check of a 2% sample.

The collected data went through three tiers of supervision. The first tier was composed of the field research supervisor (FRS), the second supervisory tier was conducted by the field research officer (FRO) using the 2% sample, and then finally, the data were reviewed by a senior manager during routine monthly meetings with all the supervisors. Afterwards, all cleaned data were sent to the Dhaka office for storage within the longitudinal data system and checked with a validation set before final storage. In this way, all the data were linked by year since 1966.

Data analysis

Variables for which completed data were available for both areas were incorporated in the analysis of this paper. Before analyzing the data, variables were converted wherever necessary for making a valid comparison between ISA and GSA methods.

We calculated the fertility rate among adolescents over the 9-year study period. The numerator was the number of live births among the female population in the 10–19 years' age group in each year; the denominator was the midyear female population in the 10–19 years' age group of the corresponding year. Sociodemographic differences between the two service areas were measured through the chi-square test for categorical variables and *t*-tests for the quantitative variables. Annual trends in fertility rates and perinatal death were documented in the two areas. The perinatal death outcome was defined as a stillbirth or neonatal death within the first seven days after birth, among women who had passed 28 weeks of gestation. Economic status was measured in asset quintiles rather than in terms of income or consumption [32, 33]. Assets included durable goods (e.g. table, chair, watch, television or bicycle), housing facilities (e.g., type of toilet or source of drinking water), housing materials (e.g. type of wall or roof) and possession of farming land. Socioeconomic survey data from 2014 were used to construct asset quintiles [34]. The predictors of perinatal death were determined through logistic regression analysis and adjusted for sociodemographic variables. Data were analyzed using SPSS 23 version analytical software.

Ethical considerations

The institutional review committee at the icddr,b provided ethical clearance for this analysis. Data were accessed in compliance with the icddr,b's published data policies. The confidentiality and anonymity of study participants were strictly maintained. Data were presented in such a way that any individual person could not be identified or traced back through the reported presentation of the information.

Results

There were 4,996 adolescents in the HDSS database, who gave birth (live birth or stillbirth) between the ages of 10 and 19, between 2007 and 2015 (2857 live births and 35 stillbirths were recorded in ISA and 2,066 live births and 38 stillbirths were recorded in GSA). Using the total midyear female population of the 15–19 age group as the denominators in these two areas during 2007–2015 periods (1,04,426 in the ISA; 1,02,798 in the GSA), the fertility rate was 27 per 1000 adolescent mothers in ISA and 20 per 1000 adolescent mothers in GSA, during the 9 years of the study period. Throughout the study period, the annual fertility rates per 1000 adolescent mothers were higher in the ISA compared to those in the GSA. The difference was much wider in 2010 when the annual fertility rate per 1000 adolescent mothers was almost double in ISA relative to GSA. However, the annual fertility rate per 1000 adolescent mothers started to increase in the GSA in 2011 [16], and again in 2014 and 2015, the fertility rate in ISA and GSA remained the same (29 in ISA; and 24 in GSA) (Figure 1).

Among the 4,996 adolescent mothers, more than 90% had completed at least primary education or higher in both the icddr,b and government service areas, which is greater than the percentage of the father's primary and higher education level. In both areas, adolescent mothers were predominantly Muslim, and most of the adolescent mothers had a parity of 1. The mean age of first birth was 17.93 (SD:2.51) years for ISA and 17.95 (SD:2.43) years for GSA (Table I).

Figure 2 shows the perinatal death per thousand live births in the icddr,b area (blue) and the government area (red). Dots indicate that perinatal death rates were decreasing more quickly in the icddr,b area relative to the government area. In 2009 and 2013, the perinatal death rate (2009 = 57 and 2013 = 48) was higher in the GSA relative to the ISA. The lowest perinatal death was recorded in 2014 in the ISA (15). At the end of the study, it was noticed that the perinatal death rate per thousand births was lower (30) in the ISA relative to the GSA (39).

There were a total of 187 perinatal deaths among the 4,996 adolescent mothers. Bivariate findings in Table II revealed that there was no significant difference in the number of perinatal deaths between the icddr,b area (n = 99) and the government area (n = 88). The level of maternal education is found to be the only significant determinant for perinatal deaths. Bivariate findings show that there was no significant difference in perinatal deaths by paternal education, mother's age at first birth, number of ANC visits, asset score and repeated pregnancy. To examine the impact of the icddr,b area in reducing perinatal deaths, binary logistic regression was used to adjust for the effect of all other variables.

The impact of reducing the perinatal deaths among adolescent mothers was measured by adjusting the effect of area (government area or icddr,b area), maternal education, paternal education, asset score, distance from the nearest facility, number of antenatal care (ANC)

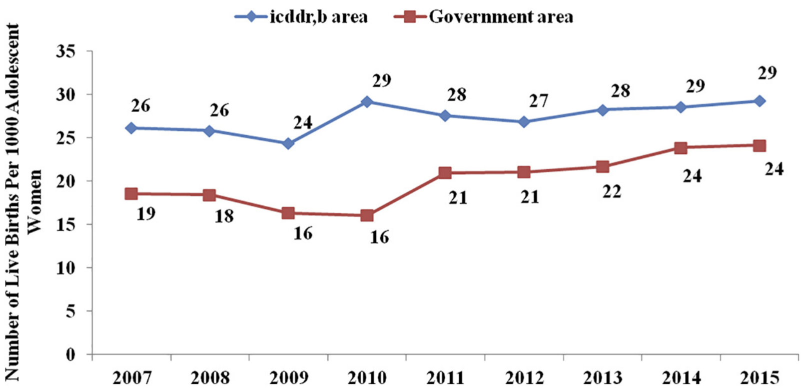

Figure 1.
Trends of adolescent fertility rates in the icddr,b service area and government service area, Matlab data (2007–2015)

Socio-demographic Variables	ISA (2892) *n* (%)	GSA (2104) *n* (%)	*p*-value
Age at first birth (mean ± SD)	17.93 ± 2.51	17.95 ± 2.43	0.383
Maternal education			
No education	83 (2.9)	74 (3.5)	<0.001*
Primary	472 (16.3)	431 (20.5)	
Above primary	2337 (80.8)	1599 (76.0)	
Paternal education			
No education	1270 (43.9)	905 (43.0)	0.008*
Primary	600 (20.7)	511 (24.3)	
Above primary	1022 (35.3)	688 (32.7)	
Religion			
Islam	2570 (88.9)	1963 (93.3)	<0.001*
Hindu	322 (11.1)	141 (6.7)	
Asset score			
Lowest	454 (15.7)	324 (15.4)	0.090
Second	545 (18.8)	403 (19.2)	
Middle	525 (18.2)	417 (19.8)	
Fourth	644 (22.3)	499 (23.7)	
Richest	724 (25.0)	461 (21.9)	
Parity			
Nullipara	46 (1.6)	43 (2.0)	<0.001*
1	2749 (95.1)	1922 (91.3)	
2	97 (3.4)	139 (6.6)	

Note(s): *indicates that the results are significant at p-value < 0.05

Table I. Sociodemographic characteristics of adolescent mothers in both the icddr,b service area (ISA) and government service area (GSA)

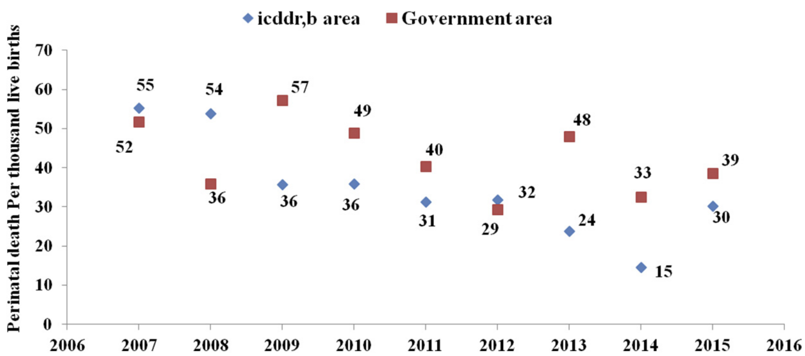

Figure 2. Perinatal death rate between the icddr,b areas and government areas over the years (2007–2015) among adolescent mothers

visits, adolescent mothers' age at birth and repeated pregnancy during the study period. The odds of perinatal death decreased by 31.0% for adolescent mothers residing in the icddr,b areas (OR: 0.69, CI: 0.52–0.91, p-value < 0.05) compared to an adolescent mother residing in government areas, keeping all the other variables at a fixed level (Table II). However, ANC visits were not associated with perinatal death. The other strong determinants of perinatal death were maternal education, paternal education, mother's age at first birth, distance from the nearest health facility and asset score. Adolescent mothers who had completed their

	Perinatal death			Adjusted effects	
	No (4809) *n* (%)	Yes (187) *n* (%)	*p*-value	Adjusted OR (95% CI)	*p*-value
Service area					
ISA	2793 (96.6)	99 (3.4)	0.163	0.69 (0.52–0.91)	0.009*
GSA	2016 (95.8)	88 (4.2)		Ref	
Distance from nearest				0.54 (0.40–0.72)	<0.001*
Number of ANC visits					
Less than 4 ANC	4127 (96.2)	165 (3.8)	0.351	Ref	
4 + ANC	682 (96.9)	22 (3.1)		0.80 (0.50–1.28)	0.358
Mothers age at first birth					
<=17	1112 (96.0)	46 (4.0)	0.444	Ref	
18	1415 (95.9)	61 (4.1)		0.68 (0.47–0.99)	0.043*
19	2282 (96.6)	80 (3.4)		0.76 (0.55–1.04)	0.084
Maternal education					
No education	146 (93.0)	11 (7.0)	0.019*	Ref	
Primary	861 (95.3)	42 (4.7)		0.22 (0.14–0.34)	<0.001*
Above primary	3802 (96.6)	134 (3.4)		0.19 (0.13–0.28)	<0.001*
Paternal education					
No education	2086 (95.9)	89 (4.1)	0.224	Ref	
Primary	1066 (95.9)	45 (4.1)		0.73 (0.51–1.06)	0.099
Above primary	1657 (96.9)	53 (3.1)		0.71 (0.50–1.00)	0.050*
Asset score					
Lowest	739 (95.0)	39 (5.0)	0.121	Ref	
Second	914 (96.4)	34 (3.6)		0.51 (0.33–0.78)	0.002*
Middle	902 (95.8)	40 (4.2)		0.65 (0.43–0.99)	0.045*
Fourth	1102 (96.4)	41 (3.6)		0.59 (0.38–0.89)	0.013*
Richest	1152 (97.2)	33 (2.8)		0.46 (0.29–0.72)	0.001*
Repeated pregnancy					
Multiple	307 (96.8)	10 (3.2)	0.568	0.69 (0.36–1.33)	0.267
Single	4502 (96.2)	177 (3.8)		Ref	

Note(s): *indicates that the results are significant at p-value < 0.05

Table II. Factors associated with perinatal death: results from bivariate and multivariate analysis

primary education (OR: 0.22, CI: 0.14–0.34, p-value < 0.05) and above primary education (OR: 0.19, CI: 0.13–0.28, p-value < 0.05) had 78% and 81% lower odds of perinatal mortality respectively compared to the adolescent mother with completely no education. The odds of perinatal mortality decreased with increases in the mother's age at first birth. Adolescent mothers who gave birth at age 18 years (OR: 0.68, CI: 0.47–0.99, p-value < 0.05) or 19 years (OR: 0.76, CI: 0.55–1.04, p-value < 0.10) had lower odds of perinatal mortality relative to adolescent mothers whose age at first birth was 17 or less. Wealthier adolescents had 54% (OR: 0.46, CI: 0.29–0.72, p-value < 0.05) lower odds of experiencing perinatal death compared to the poorest adolescents. Adolescent mothers residing close to health facilities had reduced odds of perinatal death (OR: 0.54, CI: 0.40–0.72, p-value < 0.05). We also performed subgroup analysis for stillbirths and found that a stillbirth was 44% less likely (OR: 0.56, CI: 0.36–0.88, $p < 0.05$) to happen in ISA than in GSA areas (data were not shown).

Discussion

The fertility rate among adolescent mothers in our study population for the last nine years ranged between 20 and 27 per 1,000 adolescent women. The rate was lower than the national and global rates. The most recent national demographic and health survey data from Bangladesh has reported the adolescent fertility rate as 113 per 1,000 adolescent women in 2014 [18];however, the World Bank stated a different lower number – 84 per 1,000 adolescent women in 2016 [19]. Similarly, global data suggest that the rate was 47 births per 1000 women in 2015 [17]. National or global level reporting of adolescent pregnancy often relies on survey data which are subject to recall bias and which might have contributed to the different estimates [23–25]. The observed variance in adolescent fertility rates may be a result of the calculation of maternal age from date of birth recorded in a well-defined population by HDSS longitudinally.

However, the trend analysis shows that the adolescent fertility rate is on an upward trend in both the study locations. Starting from 26 and 19 per 1000 adolescent women in ISA and GSA respectively, the fertility rate has reached 29 in ISA and 24 in GSA per 1000 adolescent women at the end of 2015. While much improvement has been achieved in reducing the total fertility rate in Bangladesh, fertility rates among adolescents have declined at a slower pace [35]. According to earlier studies, the overall pregnancy rate is much lower in the ISA relative to the GSA, from the effect of MNCH project intervention [30]. However, there is no real difference between ISA and GSA in adolescent pregnancies. These findings indicate that ongoing health-related interventions are not sufficient to reduce adolescent pregnancy rates. In order to reduce the prevalence of adolescent pregnancies, health interventions must be coupled with comprehensive societal support for delaying the age of marriage and improving education standards among adolescent age groups. These efforts must be coupled with the introduction and implementation of policies targeting sexual and reproductive health rights for adolescents and improving contraceptive access and use among this age group [36].

In contrast to fertility rates, perinatal death rates were found to be lower in ISA, relative to GSA; the perinatal death rate per 1000 live births in GSA was higher than the ISA for the entire study period. In the icddr,b area, the perinatal death was 31% less than the government service area. The reported low perinatal death rate in the ISA may be a result of the MNCH project interventions as the difference in stillbirth rates is the main cause for lower levels of perinatal death in the ISA [30]. This project particularly worked to improve maternal health, irrespective of maternal age. Similar to our study, in another study that evaluated the impact of the MNCH project intervention, it was proven that residing in the ISA is a strong determinant of reduced perinatal mortality [30].

The age of an adolescent mother at first birth was a significant predictor for perinatal death in our study, which supports other studies [6, 13, 20]. This study found that health facility proximity reduced the occurrence of perinatal death among adolescent mothers, which is similar to previous studies [37–39]. Our study documented that the wealthier the adolescent mother, the lower the chance of a perinatal death incidence which is a similar finding to other studies [40–42], possibly due to poorer families finding it harder to access timely and quality services. Adolescent mothers having a primary education or above that had a lower chance of perinatal mortality than the adolescent mother with no education, which is consistent with the findings of other studies [43]. Education may help in seeking perinatal care whereby the less educated may not know of this type of help offered [44]. Stillbirth death numbers were also found to be lower among adolescent mothers of the icddr,b area relative to the government area which is again similar to other global findings. This could be the effect of intensive MNCH services at the icddr,b area compared with the government areas [30].

Strengths and limitations

This analysis is based on data from Matlab which has been criticized for not being representative of other rural areas in Bangladesh because of its many and long-term interventions in the field of health, population and nutrition [45]. Moreover, due to the nonflexibility of the data available, we may have missed some important contextual variables during the analysis phase.

The quality and robustness of this surveillance data are the main strengths of this paper. The rigor of the data quality procedures and long-standing follow-up from the HDSS has provided a unique opportunity to produce authentic results from the analysis [28].

Conclusions

The study has demonstrated that the rates of adolescent pregnancy per 1000 live births in the ISA and GSA are much lower than the current adolescent fertility rates in Bangladesh overall. This study documented that perinatal deaths are much lower in the icddr,b service area relative to the government service area although the fertility rate is higher in the ISA than in the GSA. Lessons learned from the implementation of the MNCH interventions could help other national efforts to improve maternal and newborn health outcomes. Learning interventions from the icddr,b service area will strengthen Bangladesh's efforts to achieve SDG 3 which is to "ensure healthy lives and promote wellbeing for all at all ages".

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Corresponding author
Aminur Rahman can be contacted at: draminur@icddrb.org