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Reproductive Health Advances in Bangladesh: National Policies, Selected Outcomes, and Improved Equity

John A Ross
Barkat-e-Khuda

Abstract

This paper announces major gains for women in Bangladesh in multiple features. It also shows welcome equity improvements between the poor and the rich over time pertaining to later marriage and first births; pregnancy-related services; short birth-interval and high order births; contraceptive use, and maternal and child mortality. These gains are the result of decades of efforts by Bangladesh to strengthen health infrastructures and to encourage the private sector and NGOs, with a deliberate focus upon reproductive health. This evidence is based on eight nationally representative Demographic and Health Surveys (DHS) carried out in the country over a period of 24 years. These remarkable developments appear to reflect the impact of the series of national policies and programmes covering both public and private sectors and NGOs. We recommend that these efforts should be augmented, and the revolution in reproductive behaviour should be repeatedly traced. The documentation of the change in Bangladesh presented in this paper may also gain the attention of other countries in the region.

Background

The last two decades have seen increasing international attention to reproductive health of women, most notably, in the international goals promulgated by the United Nations. The Millennium Development Goals (MDGs), running from 2000 to 2015 (United Nations, 2000), have been succeeded by the Sustainable Development Goals (SDG) adopted in 2015 (United Nations, 2015) to run through 2030. These goals have sharpened the emphasis upon sexual and reproductive health and rights, especially of women. Sub-goals include adolescent birth rate, coverage of births by skilled personnel, maternal mortality, and infant and child mortality. Bangladesh has accorded special attention to reproductive health issues of women and closely related concerns in all of its five-year plans. In the Fifth Five-Year Plan (1998-2003), a "sector-wide approach" (SWAP) was adopted in the form of an integrated health and population programme which was designed to expand access to essential health care services and to reduce further population growth rate (Government of Bangladesh, 1998). The second SWAP, launched in 2003, aimed at achieving further improvements in health, population, and nutrition (HPN) of the population, especially the vulnerable groups. The goal was to increase the availability and use of services that were

both equitable and affordable. Another aim was a reduction in the total fertility rate (TFR) (Government of Bangladesh, 2004; 2008; 2011a). An early review of these initiatives has been carried out using the data from the Demographic and Health Surveys (DHS) through 2011 to trace the progress in the key reproductive health indicators and to assess programme effects (Ahsan et al, 2015).

The third SWAP (2011-16) incorporated MDGs related to HIV/AIDs and maternal and infant/child mortality (Government of Bangladesh, 2011b). Improvements in the health care system were envisaged, especially, to address special needs of women, children, adolescents, the elderly, and the poor. The goal of achieving replacement level fertility was also included and the use of long-acting and permanent family planning methods and reducing the unmet need of family planning was emphasised (Government of Bangladesh, 2011b). The aim was to raise the contraceptive prevalence rate to 72 per cent of the married women and to achieve the replacement level fertility (TFR=2.1) by the year 2015 (Government of Bangladesh, 2014).

The fourth SWAP (2017-22) incorporated modified strategies and activities to improve both access to and quality of health care services including maternal and child health, nutrition, family planning, reproductive health, and adolescent health. Better equity across income groups was stressed, along with financial protection for the needed services. This coincided with the adoption of the Sustainable Development Goals (SDGs) by the United Nations in September 2015 (United Nations, 2015) and with the evolving attention to lower maternal and child mortality and decline in the prevalence of HIV/AIDS. The 8th Five Year Plan (2020-2025) of the country is continuing with these features, including targets related to maternal mortality, skilled attendance at birth, adolescent births, contraceptive use, and total fertility rate (Government of Bangladesh, 2020). All the SWAPs implemented in the country since 1998 have been "pro-poor" and have contributed to the promotion of equity through the reduction in the rich-poor gap in health-related outcomes, especially, outcomes related to the reproductive health of women.

At the same time, the private health sector and NGOs in the country experienced major expansion of services during this period, notably for the social marketing of contraceptives. Income generation through small loans was also a new departure. The Bangladesh Rural Advancement Committee (BRAC), founded in 1972, focused on low-interest loans and other microfinancing opportunities for the poor women (Chowdhury and Bhuiya, 2004). The scope of the BRAC was subsequently expanded to cover social development programmes in education, health care, and empowerment of women. The BRAC has now established its operations in 11 other countries in South Asia and sub-Saharan Africa. Another initiative taken by Bangladesh was the creation of the Grameen Bank in the mid-1970s, which advanced microcredit through loans to those poor women who could not qualify for regular bank loans. Through the Grameen Bank and the BRAC, the concept of micro-financing to help lift women out of poverty is now well-established in Bangladesh.

The health infrastructure in Bangladesh is extensive and works upward from the village to higher administrative levels. At the grassroots level, there are over 4,000 Union Health and Family Welfare Centres (UHFWCs). At the next level of the administrative hierarchy, there are over 490 rural Upazila Health Complexes, and then there are numerous

Maternal and Child Welfare Centres (MCWCs) at various levels to provide maternal health care services. Some 7600 hospitals in both public and private sectors operate in the country. There are 146197 hospital beds, out of which 54660 are located in hospitals owned by the government. There are over 101000 registered physicians and around 20000 registered nurses who staff these public health facilities. The "maturing" of the health care system in the country is illustrated by improved doctor-population ratio which more than doubled over the last 25 years.

These advances in the public and private health sectors in Bangladesh have plausibly been responsible for historic improvements in the reproductive health status of women of the country as reflected through the trend in selected reproductive health indicators over a period of 25 years beginning 1993. The gains in reproductive health status of women in Bangladesh are remarkable given that it started its journey as one of the poorest countries of the world but has transformed itself into a developing country. In this paper we document the progress in the reproductive health status of women in Bangladesh as revealed through eight rounds of Demographic and Health Survey (DHS) conducted in the country during the period 1993-2018. No precise cause and effect can be shown for the links to the outcomes, but it is useful to juxtapose the two and be attentive to the clear proximate determinants from the outcomes back to direct services provided by the health sector. This follows on an earlier, similar analysis of the trend in India for reproductive health advances (Ross, 2022). The progress is documented from two perspectives. The first is the trend in selected reproductive health indicators related to women and the second is the analysis of the equity in reproductive health of women across different income groups. We have found that, although, Bangladesh has made remarkable progress in meeting the reproductive health needs of its women, yet there are areas of concern that have emerged from the analysis presented in this paper. There are few studies that have assessed the reproductive health situation in Bangladesh (Begum, 1999; El-Saharty et al, 2014). The present study analyses how the reproductive health scenario has changed over time in the country. The 25-year period examined in this paper falls just prior to the Covid-19 Pandemic. As such, the present analysis the past record against which the impact of the Covid-19 Pandemic can be gauged in subsequent surveys.

The paper is organised as follows. The next section of the paper describes the data sources and outlines the methods used for analysing the progress. We have followed the indicator-based approach of analysing progress in reproductive health. On the other hand, odds ratios have been calculated to analyse the trend in the rich-poor gap in selected indicators of reproductive health. Progress in selected reproductive health indicators has been described and discussed in section three of the paper while section four presents findings of the equity analysis. The last section of the paper summarises the findings of the analysis and discusses their policy implications.

Data and Methods

The present paper is primarily based on the analysis of the data available through the eight Demographic and Health Surveys (DHS) conducted in Bangladesh during the period 1993-2018. The first DHS was conducted in Bangladesh in 1993-94 (Mitra et al, 1994)

which was followed by DHS in 1996-97 (Mitra et al, 1997), 1999-2000 (NIPORT, 2001), 2004 (NIPORT, 2005), 2007 (NIPORT, 2009), 2011 (NIPORT, 2013), 2014 (NIPORT, 2016), and 2017-18 (NIPORT, 2020). The methodology adopted in different rounds of DHS has remained more or less the same which allows comparing the reproductive health situation as revealed through different rounds. We have used the open source STATcompiler tool (ICF, 2015) to generate a set of reproductive health indicators for the present analysis. The reproductive health indicators set generated from the data available from different rounds of DHS are given in the appendix table for the period 1993-2018. The focus of the analysis is women aged 15-49 years, either married or in union, although some indicators such as the total fertility rate (TFR) and age-specific fertility rates, pertain to all women aged 15-49 years. Data available from DHS have been supplemented by data drawn from United Nations Population Division, World Bank, and other international agencies.

We assume that the change between two successive rounds DHS is linear. Under this assumption, the annual per cent change between two successive rounds of DHS can be calculated as

$$APC = \frac{1}{t_2 - t_1} \times \left(\frac{x_2 - x_1}{x_1}\right) \times 100$$

where t_1 is the year of the first survey, t_2 is the year of second survey, x_1 is the value of the reproductive health indicator in the first survey, and t_2 is the value of the reproductive health indicator in the second survey. The change between different rounds of DHS may be different so that APC in different time segments may not be the same. We combine APC in different time segments into the average annual per cent change (AAPC) during the entire reference period as follows:

$$AAPC = \sum_i w_i \times APC_i$$

where w_i is the proportionate length of the time segment i relative to the total reference period. The *AAPC* reflects the trend in a more appropriate manner than the conventional way of calculating the change by considering only the beginning and end of the reporting period (Clegg et al, 2009). *AAPC* takes into consideration the different pace of change in different time segments of the reference period.

On the other hand, the equity analysis has been carried out by calculating the inequality in reproductive health indicators across wealth index quintiles groups with the richest wealth index quintiles group serving as the reference. The index of inequality across the five wealth index quintiles groups has been calculated as

$$I = \frac{1}{x_{ir}} \times \sqrt{\frac{\sum\left(x_{ij} - x_{ir}\right)^2}{5}}$$

where x_{ij} is the value of the indicator i in the wealth index quintiles group j and x_{ir} is the value of the indicator i in the richest wealth index quintiles group or the reference group. The index I is zero when the value of the indicator is the same in all wealth index quintiles groups whereas the higher the index I the higher the inequality.

Progress in Reproductive Health

Table 1 gives annual per cent change (APC) in different time segments of the period 1993-2018 in different reproductive health indicators along with the average annual per cent change (AAPC) in the entire reference period which gives an idea about the change in the reproductive health indicator during the 25-years time horizon from 1993 through 2018. The table gives the snapshot of the progress in reproductive health of women of the country over a period of 25 years. The progress is different with reference to different reproductive health indicators. However, the overall improvement in the reproductive health status of the women of the country is very much evident from the table. To be more specific, we have discussed in the following pages the progress in different dimensions of reproductive health of women.

Time of Marriage and Time of First Birth. Women in Bangladesh generally get married at a very young age. The median age of marriage of females in the country is the fourth lowest in the world and the lowest first in Asia (United Nations, 2018). The good sign, however, is that the age at marriage of females in the country is increasing. The median age at marriage of women aged 20-24 years increased from 15.3 years in 1993 to 17.3 years in 2018, a rise of 13 per cent. A more telling measure is the proportion of women marrying by exact age 15 years, 18 years, and 20 years as shown in figure 1. The proportion of women who got married by 15 years of age decreased sharply from 47.2 per cent to less than 20 per cent between 1993 and 2018. The decrease in women who got married by 18 years of age and by 20 years of age has been comparatively less, but the decrease is very much evident from the figure.

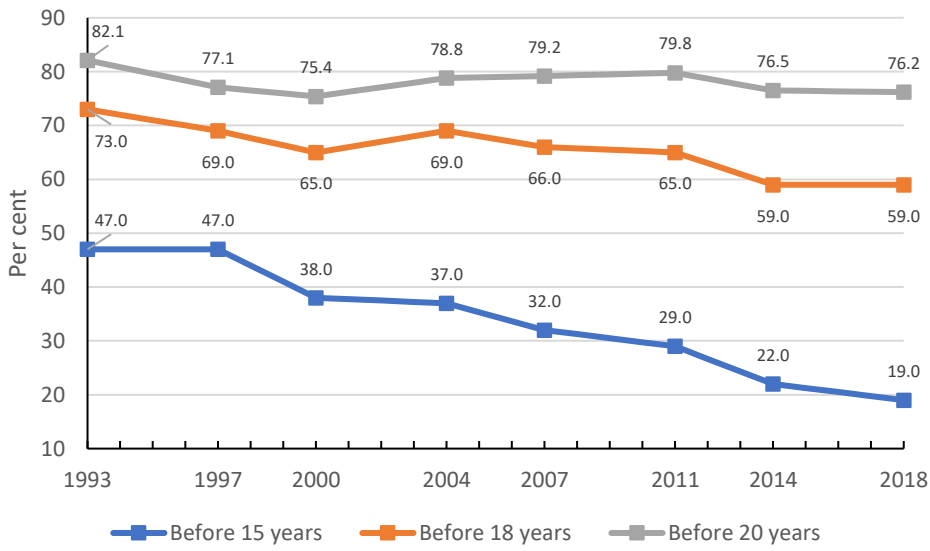

Figure 1: Proportion of women aged 20-24 years who got married before reaching 15 years, 18 years, and 20 years of age in Bangladesh, 1994-2017.
Source: Authors based on data from different rounds of DHS.

The median age at marriage of females in Bangladesh increased by an AAPC of around 0.5 per cent per year from 15.3 years in 1993 to 17.3 years in 2018. The increase in the median age at marriage of females was the most rapid during 1997-2000. The median age at marriage of females also increased very rapidly during 2011-2014. On the other hand, there has been virtually no change in the median age at marriage of females during 1993-1997 whereas it decreased, instead increased, 2000-2004 according to DHS. It may be seen from the table that most of the increase in the median age at marriage of females was confined to the time segments 1997-2000 and 2011-2014. Data available from DHS suggests that in other time segments, there has been only a marginal increase in the median age at marriage of women.

The proportion of women aged 20-24 years who got married before reaching 15 years of age decreased annually by more than 3 per cent per year during the 25 years period under reference. The decrease in this proportion was the most rapid during 2011-2014 when this proportion decreased by more than 8 per cent per year. However, the decrease in this proportion has slowed down considerably during 2014-2018. On the other hand, the proportion of women aged 20-24 years who got married before reaching 18 years of age decreased by just around 0.8 per cent per year during 1993-2018. The decrease in this proportion was very rapid during 2011-2014 but there has been no change in this proportion during 2014-2018. By comparison, the decrease in the proportion of women aged 20-24 years who got married before reaching 20 years of age was only marginal, from around 82 per cent in 1993 to around 76 per cent in 2018. The decrease in this proportion also nearly stagnated during the period 2014-2018. This proportion increased, instead decreased, during the period 2000-2011, but the decrease was quite rapid during the period 2011-2014.

When the age at marriage of females increases, the age at first birth also increases. Figure 2 shows the trend in the proportion of women aged 20-24 years who had their first birth before reaching 15 years of age; before reaching 18 years of age; and before reaching 20 years of age. In 1993, around 15 per cent married women aged 20-24 years had their first birth before 15 years of age. This proportion decreased to less than 6 per cent in 2018, the decrease has been the most rapid during 2014-2018. On the other hand, the proportion of women aged 20-24 years who had their first birth before 18 years of age decreased at around 1.4 per cent per year during the last 25 years and most of the decrease was confined to the period 2011-2018. By comparison, the decrease in the proportion of married women aged 20-24 years who had their first birth before 20 years of age decreased only marginally at around 0.4 per cent per year on average. The decrease in this proportion was very rapid during 2011-2014 but it slowed down considerable during 2014-2018.

In Bangladesh, the age at marriage of females signals the beginning of socially acceptable reproductive life, the lower the age at marriage the longer the reproductive life of the female. Female age at marriage also has implications for the education of women. The female age at marriage and the associated age at first birth has a telling impact on the level of fertility. The evidence available from different rounds of DHS suggests that although there has been improvement in the marriage dimension of the reproductive health of women in Bangladesh, the slowdown in the increase in the female age at marriage and in the age at first birth is a matter of concern from the policy perspective.

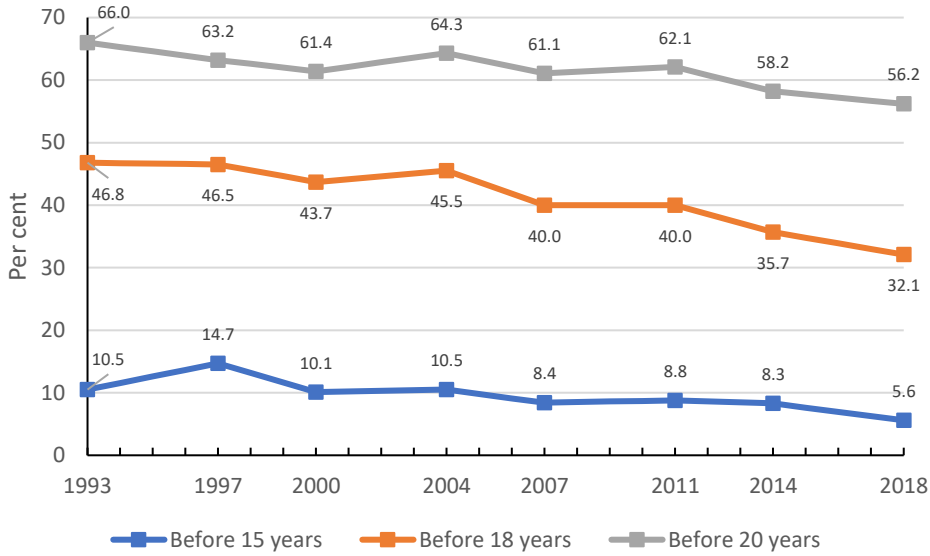

Figure 2: Proportion of women aged 20-24 years who delivered first birth before reaching 15 years of age; before reaching 18 years of age; and before reaching 20 years of age in Bangladesh, 1994-2018.
Source: Authors based on data from different rounds of DHS.

The delay in the time of marriage and the postponement of the first birth contribute not only to the improvement in the reproductive health status of women but also to the reduction in fertility. The total fertility rate (TFR) in Bangladesh decreased by about one-third from 3.4 births per woman of reproductive age in 1993 to 2.3 births per women of reproductive age in 2018. Nearly all the decrease in the fertility of Bangladesh has been confined to the period 2000-2011 when the TFR decreased from 3.3 to 2.3 births per woman of reproductive age. TFR in Bangladesh is still above the replacement fertility of 2.1 births per woman of reproductive age which has emerged as a matter of serious concern to Bangladesh.

Antenatal, Natal, and Postnatal Care. For health care services surrounding pregnancy and childbirth, available indicators show remarkable upward trend from 2004 onwards (Figure 3). The latest round of DHS suggests that more than 80 per cent of the pregnant women in Bangladesh had received at least one antenatal visit by a trained health care services provider in 2018, and nearly half of them had received at least four visits by "any" health care services provider – trained or untrained. Majority of the services providers during pregnancy and at the time of the delivery are either doctors or nurses/midwives. Similarly, the proportion of the deliveries which were assisted by a skilled provider increased from less than 10 per cent in 1993 to almost 54 per cent in 2018. On the other hand, the proportion of women who received a postnatal visit within two days of the delivery increased from less than 20 per cent in 2004 to more than 50 per cent in 2018. Although, these trends are remarkable, yet they leave sufficient scope for the realisation of universal access to antenatal, natal and postnatal care in the country.

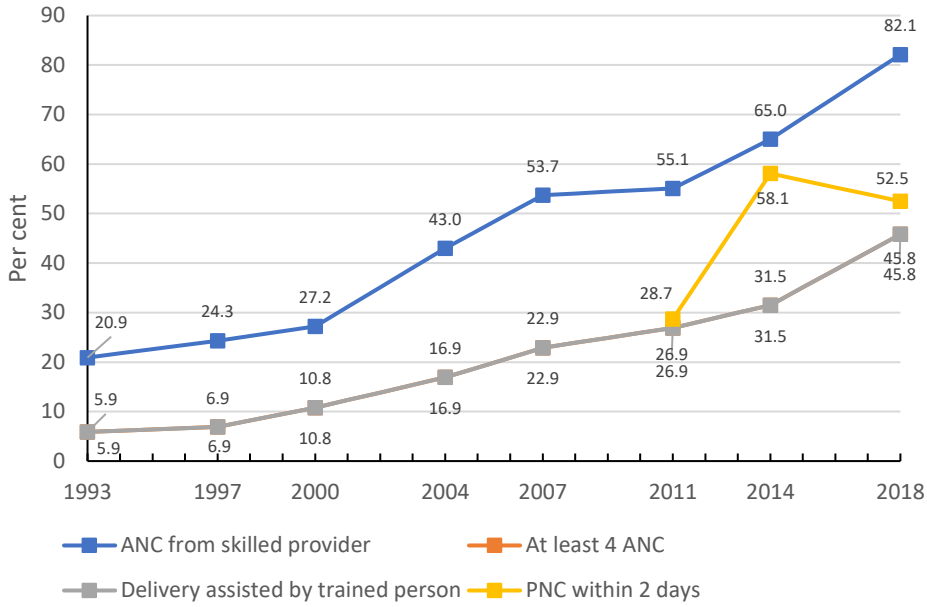

Figure 3: Trends in selected indicators of antenatal, natal and postnatal care in Bangladesh, 1993-2018.
Source: Authors, based on data from different rounds of DHS.

Birth Interval. When births occur at short birth intervals, the health risks to the mother and the child are elevated. The reduction in the proportion of births with a short birth interval (less than 36 months) is, therefore, an important indicator of the reproductive health status of women. The median birth interval in Bangladesh increased sharply from 34.7 months in 1993 to more than 55 months in 2018 at an AAPC of almost 2 per cent per year. The increase in the median birth interval reflects the rise in the use of contraceptive methods, especially for birth spacing. The increase in the median birth interval may be attributed mainly to both decrease in the proportion of births with a birth interval of less than 36 months and increase in the proportion of births with birth interval of at least 60 months (Figure 4). The proportion of births with a birth interval of less than 36 months in Bangladesh decreased by more than 50 per cent from almost 54 per cent in 1993 to just around 25 per cent in 2018 which implies that this proportion decreased at an AAPC of almost 2.9 per cent per year. On the other hand, the proportion of births with a birth interval of at least 60 months increased from just around 12 per cent in 1993 to around 45 per cent in 2018 which implies that this proportion increased at an AAPC of almost 5.9 per cent per year during the 25 years under reference. These improvements are impressive and have implications to the health of both mothers and children. However, the increase in the proportion of births with a birth interval of at least 60 months slowed down considerably during 2014. The APC in this proportion during 2014-2018 was the lowest among different time segments of the period 1993-2018 as may be seen from table 1. There is a need to explore reasons for the slowdown in the increase in the proportion of births with a birth interval of at least 60 months.

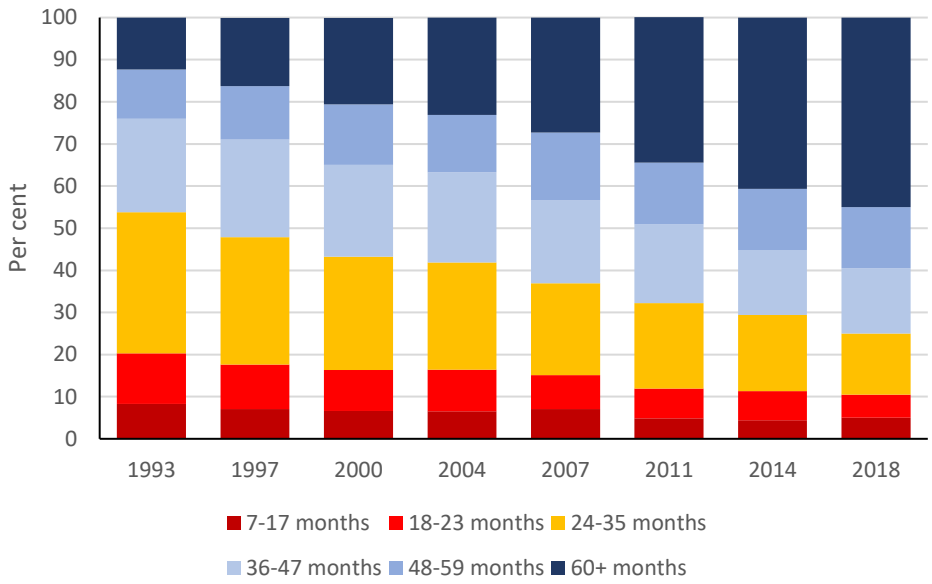

Figure 4: Distribution of births by birth interval in Bangladesh, 1993-2018.
Source: Authors based on data from different rounds of DHS.

Family Planning. The contraceptive prevalence rate in Bangladesh has increased from around 45 per cent in 1993 to more than 61 per cent in 2011. On the other hand, the prevalence of modern methods of family planning increased from 37 per cent in 1993 to around 54 per cent in 2014 but decreased sharply to less than 52 per cent in 2018 (Figure 5). This means that the prevalence of traditional family planning methods increased from around 8 per cent in 1993 to 9 per cent in 2018 which is an area of concern. Similarly, a matter of serious concern is that the prevalence of contraception in the country has almost stagnated since 2011 whereas there is a clear indication of the decrease in the prevalence of modern methods of family planning. The stagnation in the contraceptive prevalence rate and the decrease in the prevalence of modern methods of family planning appear to be a factor in the stagnation of TFR in the country at around 2.3 births per woman of reproductive age after 2011.

The unmet need of family planning in the country decreased from about 22 per cent to around 12 per cent but there has been no decrease in the unmet need for family planning since 2014. The unmet need of family planning for limiting or stopping births has decreased but the unmet need of family planning for birth spacing has virtually stagnated since 2011 which is also a matter of concern in the context of the reproductive health status of women of the country. Combining the contraceptive prevalence rate and the unmet need for family planning, the total demand for family planning in the country increased only marginally from 67 per cent in 1993 to less than 74 per cent in 2018. The demand for family planning in the country remains low by international standards. The total demand for family planning in the country recorded an increase during 1993-2011 but demand for family planning has decreased continuously since 2011 which is also a matter of concern.

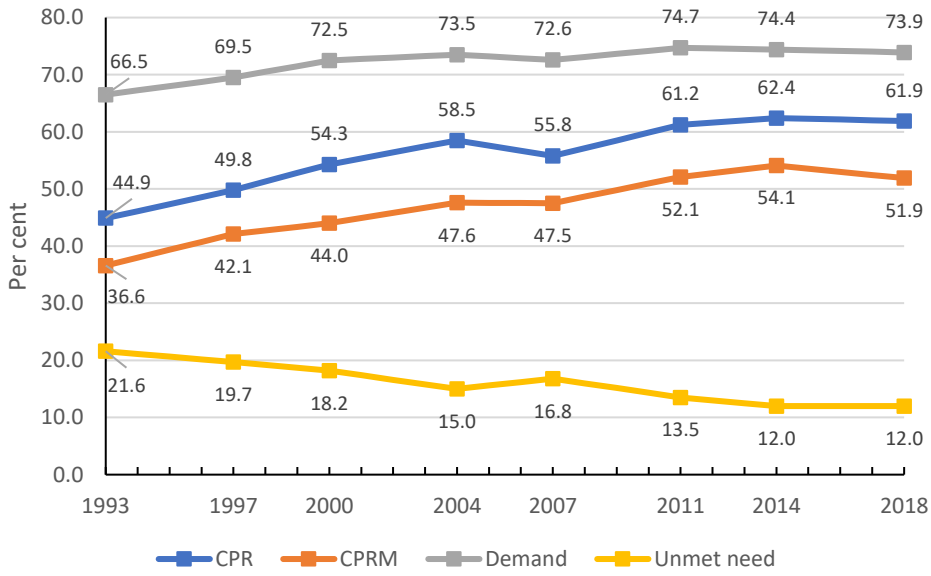

Figure 5: Demand for family planning and indicators of family planning use in Bangladesh, 1993-2018.
Source: Authors based on data from different rounds of DHS.

A similar trend can also be observed in case of the proportion of women who wanted either to postpone or to stop the next birth at the time of the survey. This proportion increased from almost 58 per cent in 1993 to almost 65 per cent in 2011 but has decreased after 2011. In 2018, less than 60 per cent of the married women wanted to postpone or to stop their next child. This observation, in conjunction with the observation that the demand for contraception has decreased after 2011 indicates that there has been an unwelcome change in the reproductive behaviour of the people of the country. Reasons for this change in the reproductive behaviour of the people of the country need to be explored. In any case, this change in the reproductive behaviour has implications for the reproductive health of women.

The observation that a substantial proportion of women in Bangladesh want to either delay or stop the next birth indicates that a sizeable proportion of unwanted pregnancies in Bangladesh would have undoubtedly been aborted. Estimates of the incidence of abortion are not available in Bangladesh. However, menstrual regulation is commonly used in Bangladesh to avoid unwanted pregnancies. According to the latest round of DHS, more than 70 per cent of the ever-married women knew of menstrual regulation as a method to avoid pregnancy, although only 7 per cent of them had practised this method. The method appears to be more common among old as compared to young women as almost 11 per cent of the ever-married women aged 40-44 years reported that they had used the method. A study based on the data from the 2014 round of DHS has revealed that more than 12 per cent of the ever-married women had used this method for avoiding the pregnancy (Rana et al, 2019).

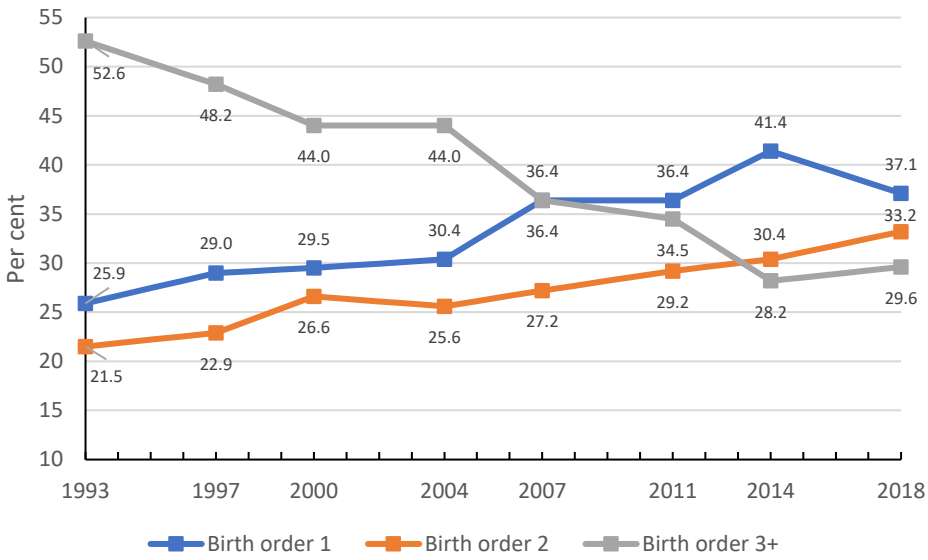

Figure 6: Distribution of births by birth order Bangladesh, 1993-2018.
Source: Authors based on data from different rounds of DHS.

There has also been a very significant decrease in the proportion of higher order births in the country during the 25 years period under reference. The proportion of third and higher order births in the country decreased from 53 per cent in 1993 to 28 per cent in 2014. However, this proportion increased after 2014 as may be seen from the figure 6. The increase in the proportion of third and higher order births has been associated with the decrease in the proportion of first order births. However, the proportion of 2nd order births in the country increased from around 21 per cent to almost 30 per cent during the 25 years under reference.

Maternal, Infant, and Child Mortality. Estimates of maternal mortality ratio and the life time risk of a maternal death are not available from the DHS. However, the World Health Organization, in collaboration with its sister agencies, has prepared estimates the maternal mortality ratio and life time risk of a maternal death for its member countries, for the period 2000-2020 (WHO, 2023). These estimates suggest that Bangladesh has experienced a major decrease in the maternal mortality ratio from an estimated 441 maternal deaths for every 100 thousand live births in 2000 to 123 maternal deaths for every 100 thousand live births in 202020. On the other hand, it is estimated that one in every 390 women in the country face the life time risk of a maternal death. Although, the risk of death associated with the complications of pregnancy and child birth has decreased quite rapidly in Bangladesh during 2000-2020, yet this risk remains very high by international standards. One reason, probably and so obviously, is that the proportion of deliveries assisted by a skilled provider remains quite low. According to the latest DHS, less than 55 per cent of the deliveries in the country were assisted by a skilled services provider in 2018. Improving skilled assistance at delivery may contribute significantly towards reducing the risk of death due to complications of pregnancy and child birth in the country.

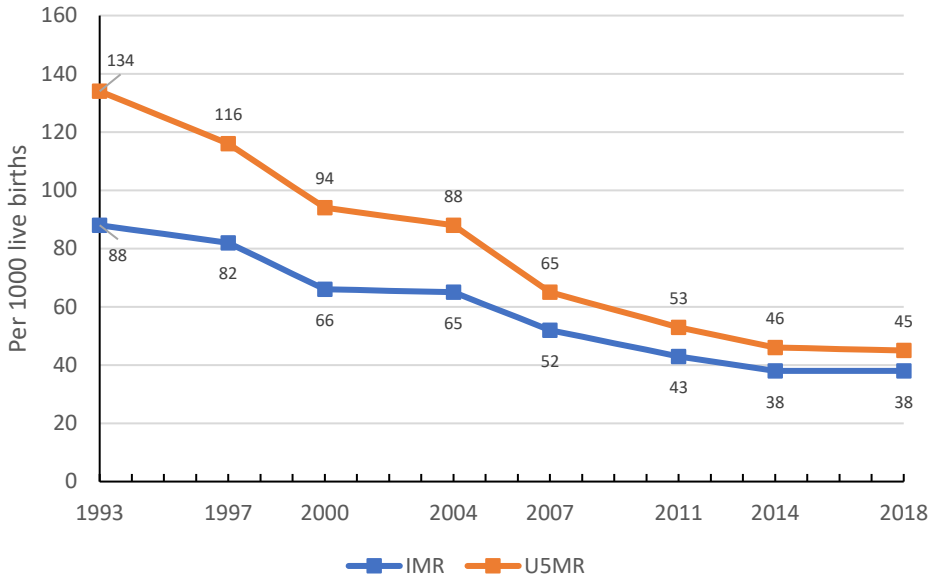

Figure 6: Infant mortality rate and under-five mortality rate in Bangladesh, 1993-2018. Source: Different rounds of DHS.

As regards the risk of death in the first five years of life, Bangladesh has recorded a sharp decline in the risk of death in the first five years of life (U5MR) during the 25 years under reference, from 134 under-five deaths to 45 under-five deaths for every 1000 live births between 1993 and 2018 (Figure 7). However, the decrease in this risk almost stagnated after 2014 as the U5MR decreased from 46 to 45 under-five deaths for every 1000 live births between 2014 and 2018. The decrease in U5MR in the country was the most rapid during 1993-2000 when it decreased from 134 to 94 under-five deaths for every 1000 live births in a period of seven years only. The decreased slowed down considerably during 2000-2004. However, the decrease decelerated continuously after 2004 despite high levels of U5MR.

Compared to the decrease in the risk of death in the first five years of life, the decrease in the risk of death in the first year of life has been slower during the period under reference as the infant mortality rate (IMR) decreased from 88 infant deaths for every 1000 live births to 38 infant deaths for every 1000 live births between 1993 and 2018 and the decrease in IMR virtually stagnated during 2014-2018 at an unacceptably high level. Like the decrease in U5MR, most of the decrease in IMR was also confined to the period 1993-2000 when IMR decreased from 88 to 66 infant deaths for every 1000 live births in a period of seven years. However, the decrease in IMR nearly stagnated during 2000-2004 and, like U5MR, the decrease in IMR also decelerated continuously after 2004. The near stagnation in the decrease in the risk of death in the first five years of life in Bangladesh after 2014 is a matter of serious concern as the prevailing risk of death during childhood in the country remains high by international standards and well above the targets set under the United Nations Sustainable Development Agenda.

Table 1: Trend in selected reproductive health indicators in Bangladesh, 1993-2018.

Reproductive health indicator	Annual per cent change (APC)							Average annual per cent change 1993-2018
	1993-1997	1997-2000	2000-2004	2004-2007	2007-2011	2011-2014	2014-2018	
Time of marriage and first birth								
Median age at marriage	0.000	1.743	-0.155	0.833	0.305	1.205	0.145	0.501
Women aged 20-24 years married before 15 years of age	0.000	-6.383	-0.658	-4.505	-2.344	-8.046	-3.409	-3.298
Women aged 20-24 years married before 18 years of age	-1.370	-1.932	1.538	-1.449	-0.379	-3.077	0.000	-0.809
Women aged 20-24 years married before 20 years of age	-1.523	-0.735	1.127	0.169	0.189	-1.378	-0.098	-0.282
Women aged 20-24 years who had first by 15 years of age	10.000	-10.431	0.990	-6.667	1.190	-1.894	-8.133	-1.631
Women aged 20-24 years who had first by 18 years of age	-0.160	-2.007	1.030	-4.029	0.000	-3.583	-2.521	-1.419
Women aged 20-24 years who had first by 20 years of age	-1.061	-6.224	6.274	-1.659	0.409	-2.093	-0.859	-0.435
Fertility								
Total fertility rate	-0.735	0.000	-2.273	-3.333	-3.704	0.000	0.000	-1.474
Fertility of women 15-19 years	1.250	-0.680	-1.215	-2.676	-1.587	-1.412	-1.106	-0.998
Fertility of women 20-24 years	-0.510	-0.694	0.399	-3.141	-2.890	-2.179	0.000	-1.202
Fertility of women 25-29 years	-1.266	3.333	-4.848	-1.504	-3.937	0.935	0.909	-1.131
Fertility of women 30-34 years	-2.143	1.042	-4.040	-5.221	-5.000	0.595	1.754	-1.939
Fertility of women 35-39 years	-5.357	0.000	-1.136	-6.349	-9.559	4.762	-6.250	-3.759
Fertility of women 40-44 years	-1.316	0.000	-1.389	-13.725	-10.000	-11.111	6.250	-4.013
Fertility of women 45-49 years	-14.286	-16.667	-8.333	-16.667	50.000	22.222	-20.000	-0.152
Proportion of third and higher order births	-2.091	-2.905	0.000	-5.758	-1.305	-6.087	1.241	-2.115
Total wanted fertility rate	-1.136	1.587	-3.409	0.000	-3.947	2.083	0.000	-0.918

Reproductive health indicator	Annual per cent change (APC)							Average annual per cent change 1993-2018
	1993-1997	1997-2000	2000-2004	2004-2007	2007-2011	2011-2014	2014-2018	
Family planning								
Total demand for family planning	1.128	1.439	0.345	-0.408	0.723	-0.134	-0.168	0.432
Contraceptive prevalence rate	2.728	3.012	1.934	-1.538	2.419	0.654	-0.200	1.356
Prevalence of modern family planning methods	3.757	1.504	2.045	-0.070	2.421	1.280	-1.017	1.479
Unmet need of family planning	-2.199	-2.538	-4.396	4.000	-4.911	-3.704	0.000	-2.110
Unmet need for spacing	-2.336	-4.124	-5.294	0.000	-4.851	-0.617	0.472	-2.490
Unmet need for limiting	-2.064	-1.000	-3.608	7.229	-4.950	-5.761	-0.373	-1.703
Women wanting to delay or stop next birth	0.389	0.680	0.042	1.331	0.960	-1.233	-1.040	0.149
Birth interval								
Median birth interval	1.441	1.907	0.322	3.647	2.179	3.024	1.934	1.970
Births with birth interval less than 36 months	-2.695	-3.333	-0.752	-3.978	-3.252	-2.804	-3.741	-2.884
Births with birth interval at least 60 months	7.927	8.848	3.171	6.061	6.593	5.990	2.641	5.761
Child mortality								
Infant mortality rate	-1.705	-6.504	-0.379	-6.667	-4.327	-3.876	0.000	-3.071
Under-five mortality rate	-3.358	-6.322	-1.596	-8.712	-4.615	-4.403	-0.543	-3.950
Antenatal, natal and postnatal care								
Antenatal care from a skilled provider	4.067	3.978	14.522	8.295	0.652	5.989	6.577	6.322
Antenatal visits for pregnancy: 4+ visits	4.237	18.841	14.120	11.834	4.367	5.700	11.349	9.817
Assistance during delivery from a skilled provider	-1.359	16.475	4.808	15.699	11.075	11.550	5.418	8.437
Mother first postnatal checkup within two days after birth	na	na	na	na	na	34.146	-2.410	13.257

Source: Authors' calculations based on the data available from different rounds of DHS in Bangladesh.
na Not available.

Reproductive Health Inequality

It is well-known that with the improvements in reproductive health, inequality across population sub-groups at different standards of living reduces and reproductive health status across population sub-groups converges. Information about selected reproductive health indicators by wealth index quintiles groups – poorest, poor, average, rich and richest – are available from DHS with roughly 20 per cent of the households in each wealth index quintiles group. Selected reproductive health indicators across five wealth index quintiles groups in Bangladesh are given in the appendix table 2 for different rounds of DHS. The table reflects the inequality in reproductive health across five wealth index quantiles groups and the change in this inequality over time. The table suggests that, although there has been a decrease over time, there still exists a substantial degree of inequality in reproductive health status of women across different wealth index quintiles groups in the country.

Table 2 presents estimates of the index of inequality in different reproductive health indicators across wealth index quintiles groups for different years of the period 1993-2018. The trend in the index of inequality reflects the progress towards equity in reproductive health status of women in the country. The table reflects that there has been, in general, progress towards reproductive health equity in the country during the period under reference as reflected in the decrease in the index of inequality in most of the reproductive health indicators during the 25 years under reference. There are, however, some disturbing trends as the index of inequality has increased in recent years with respect to some indicators related to fertility and family planning. Although, the inequality in the level of fertility across wealth index quintiles groups has decreased consistently from 0.485 in 2004 to 0.177 in 2018, yet the inequality in the fertility of women aged 15-19 years has increased in 2018 relative to 2014. There has also been an increase in the inequality across wealth index quintiles groups in recent years in most of the indicators related to family planning. The inequality in the demand for family planning across different wealth index quintiles groups has increased because of the increase in the inequality across wealth index quantiles groups in both contraceptive prevalence rate and prevalence of modern methods of contraception. Similarly, there has been an increase in the inequality across wealth index quantiles groups in terms of the unmet need of family planning for birth spacing, although the inequality across wealth index quintiles groups in terms of the unmet of family planning for birth limitation has decreased consistently during the period under reference. There has also been an increase in recent years in the inequality across wealth index quintiles groups in the proportion of women who wanted either to delay or stop their next birth. Similarly, the inequality across wealth index quintiles groups in the proportion of women who had their first birth respectively by the age of 15 years, 18 years, and 20 years has also increased in recent years. The index of inequality across different wealth index quantiles groups has also increased between 2014 and 2018 in terms of the proportion of women who had undergone a health check-up within 2 days of the delivery as reflected through the increase in the index of inequality. It appears that, in recent years, there has been a diverging trend in the reproductive behaviour of women of different wealth index quantiles groups. Reasons behind the observed diverging trend in recent years are not known at present, but they need an examination from the policy perspective.

Table 2: Index of inequality across wealth index quintiles groups in Bangladesh, 1993-2018.

Reproductive health indicator	Year							
	1993	1997	2000	2004	2007	2011	2014	2018
Time of marriage and first birth								
Median age at marriage	na	na	ma	0.136	0.125	0.100	0.089	0.073
Women aged 20-24 years married before 15 years of age	0.641	0.850	0.850	0.721	0.783	0.746	0.659	0.639
Women aged 20-24 years married before 18 years of age	0.204	0.278	0.343	0.301	0.306	0.274	0.259	0.235
Women aged 20-24 years married before 20 years of age	0.103	0.104	0.123	0.116	0.128	0.101	0.123	0.096
Women aged 20-24 years who had first by 15 years of age	0.465	1.063	0.954	1.290	1.778	1.237	1.268	1.778
Women aged 20-24 years who had first by 18 years of age	0.413	0.469	0.690	0.551	0.628	0.593	0.587	0.696
Women aged 20-24 years who had first by 20 years of age	0.220	0.278	0.364	0.278	0.317	0.299	0.318	0.337
Fertility								
Total fertility rate	na	na	na	0.485	0.298	0.327	0.206	0.177
Fertility of women 15-19 years	na	na	na	0.785	0.815	0.580	0.276	0.530
Fertility of women 20-24 years	na	na	na	0.406	0.204	0.339	0.231	0.115
Fertility of women 25-29 years	na	na	na	0.218	0.125	0.155	0.136	0.094
Fertility of women 30-34 years	na	na	na	na	na	na	na	na
Fertility of women 35-39 years	na	na	na	na	na	na	na	na
Fertility of women 40-44 years	na	na	na	na	na	na	na	na
Fertility of women 45-49 years	na	na	na	na	na	na	na	na
Proportion of third and higher order births	0.249	0.477	0.391	0.440	0.445	0.652	0.879	0.478
Total wanted fertility rate	na	na	na	0.325	0.205	0.112	0.063	0.037

Reproductive health indicator	Year							
	1993	1997	2000	2004	2007	2011	2014	2018
Family planning								
Total demand for family planning	0.104	0.070	0.068	0.040	0.037	0.020	0.011	0.036
Contraceptive prevalence rate	0.183	0.167	0.155	0.081	0.078	0.019	0.013	0.057
Prevalence of modern family planning methods	0.157	0.152	0.149	0.059	0.045	0.030	0.030	0.088
Unmet need of family planning	0.135	0.303	0.312	0.169	0.132	0.103	0.107	0.099
Unmet need for spacing	0.127	0.264	0.382	0.255	0.121	0.165	0.108	0.156
Unmet need for limiting	0.161	0.376	0.265	0.139	0.236	0.088	0.133	0.071
Women wanting to delay or stop next birth	0.043	0.068	0.019	0.073	0.081	0.088	0.107	0.141
Birth interval								
Median birth interval	0.080	0.109	0.168	0.130	0.125	0.176	0.125	0.076
Births with birth interval less than 36 months	0.180	0.230	0.206	0.187	0.210	0.388	0.378	0.276
Births with birth interval at least 60 months	0.383	0.352	0.385	0.258	0.278	0.279	0.173	0.118
Child mortality								
Infant mortality rate	na	na	na	na	na	na	na	na
Under-five mortality rate	na	na	na	na	na	na	na	na
Antenatal, natal and postnatal care								
Antenatal care from a skilled provider	0.613	0.632	0.613	0.486	0.442	0.431	0.344	0.195
Antenatal visits for pregnancy: 4+ visits	0.824	0.782	0.769	0.692	0.626	0.578	0.508	0.421
Assistance during delivery from a skilled provider	0.731	0.761	0.732	0.712	0.685	0.558	0.482	0.414
Mother first postnatal checkup within two days after birth	na	na	na	na	na	0.582	0.328	0.421

Source: Authors' calculations based on the data available from different rounds of DHS in Bangladesh.
na Not available.

Another way of analysing the reproductive health inequality is to compare reproductive health indicators in a wealth index quintiles group with the reproductive health indicator in the richest wealth index quintiles group. This can be done by calculating the odds ratio. The odds ratio is one if the value of the reproductive health indicator in a wealth index quintiles group is the same as in the richest wealth quintiles group. A deviation from 1 in the odds ratio signals the inequality. The odds ratio converges to 1 when the rich-poor gap diminishes, and that depends upon how the paths of the poor and the rich move relative to each other. Often the improvement in different wealth index quintiles groups comes closer to the richest wealth index quintiles group, and this may happen while the reproductive health status is improving in all wealth index quantiles groups. This is the "ideal" result, even if the final levels of the indicator may still leave much to be achieved. It may, however, be noted that odds ratios can be calculated in case of proportions only.

The odds ratios are presented in table 3. The movement towards equity has been different in different reproductive health indicators. In some, there is evidence of rich-poor convergence whereas in other, there appears a divergence over time. For example, the rich poor gap in the female marriage behaviour has narrowed in Bangladesh. In 1993, the poorest women aged 20-24 years were more than 3 times more likely to get married before 15 years of age compared to their richest counterparts. This ratio decreased to less than 2.5 times in 2018. There has, however, been little change in the rich-poor odds ratio in women aged 20-24 years marrying by 18 years of age and by 20 years of age. On the other hand, the gap between the richest and the poorest women in terms of the proportion giving first birth by 15 years; 18 years; and 20 years of age has decreased over time.

The richest-poorest gap in family planning has, however, increased over time, especially in recent years. Similarly, the riches-poorest gap in the proportion of women wanting to delay or stop the next birth has also increased. Similarly, the richest-poorest gap in the proportion of third and higher order births has also increased with time. The diverging trend in the reproductive behaviour of the rich and the poor people in the country is an area of concern. On the other hand, there is virtually little change in the richest-poorest gap in the proportion of births with birth interval less than 36 months.

The trend in the richest-poorest gap in antenatal, natal and postnatal care services has been mixed. The richest-poorest gap in the proportion of women who received antenatal care from a skilled service provider has increased over time but the gap in terms of the proportion of women receiving at least four antenatal visits during the antenatal period has decreased. On the other hand, the richest-poorest gap in the proportion of women who were assisted by a skilled provider at the time of the delivery decreased during the period 1993 through 2014 but this gap increased quite rapidly after 2014. Similarly, the richest-poorest gap in the proportion of women who had a health check-up within two days after the delivery has been higher in 2014 and 2018 as compared to the richest-poorest gap observed in 2011, although this gap appears to have decreased between 2014 and 2018. These observations indicate a mixed trend in the progress towards equity in reproductive health in the country. There has been remarkable progress towards equity in some dimensions of reproductive health of women, but the progress towards equity appears to have reversed, particularly, in recent years in other dimensions of the reproductive health of women.

Table 3: Odds ratios of different wealth index quintiles groups in selected reproductive health indicators in Bangladesh, 1993-2018.

Indicator and year	Wealth index quintiles group				
	Poorest	Poor	Middle	Rich	Richest (Reference group)
Proportion of women aged 20-24 years married by 15 years of age					
1993	3.093	2.970	2.154	1.621	1
1997	4.056	3.734	2.303	1.958	1
2000	3.144	3.545	2.267	1.448	1
2004	3.431	2.808	1.860	1.231	1
2007	3.407	2.349	2.154	1.405	1
2011	3.037	2.244	1.952	1.519	1
2014	2.791	1.889	1.598	1.329	1
2018	2.475	1.888	1.779	1.181	1
Proportion of women aged 20-24 years married by 18 years of age					
1993	2.306	2.306	1.839	1.364	1
1997	2.455	2.455	1.909	1.661	1
2000	2.571	2.571	2.226	1.632	1
2004	3.273	2.455	1.909	1.588	1
2007	2.969	2.398	2.069	1.330	1
2011	2.808	2.069	1.721	1.387	1
2014	2.676	1.628	1.437	1.325	1
2018	2.333	1.632	1.564	1.222	1
Proportion of women aged 20-24 years married by 20 years of age					
1993	1.864	1.894	1.574	1.521	1
1997	1.687	1.635	1.548	1.311	1
2000	1.686	1.811	1.548	1.360	1
2004	2.027	1.650	1.569	1.503	1
2007	2.224	1.853	1.756	1.320	1
2011	1.907	1.825	1.424	1.286	1
2014	2.064	1.649	1.572	1.316	1
2018	1.772	1.385	1.441	1.325	1
Proportion of women aged 20-24 giving first birth by 15 years of age					
1993	4.368	3.108	2.642	1.606	1
1997	4.016	1.941	1.813	1.535	1
2000	3.663	2.661	1.668	1.180	1
2004	4.208	3.192	2.741	2.370	1
2007	3.660	2.813	2.030	1.407	1
2011	2.105	2.767	2.190	1.446	1
2014	3.327	2.594	1.866	1.382	1
2018	1.833	1.785	1.232	1.232	1

Indicator and year	Wealth index quintiles group				
	Poorest	Poor	Middle	Rich	Richest (Reference group)
Proportion of women aged 20-24 giving first birth by 18 years of age					
1993	3.296	2.240	1.822	1.252	1
1997	3.156	1.931	1.773	1.300	1
2000	3.120	2.282	1.854	1.361	1
2004	3.062	2.568	1.870	1.453	1
2007	3.299	2.508	1.755	1.343	1
2011	2.639	3.318	2.426	1.478	1
2014	2.592	2.430	1.633	1.469	1
2018	2.350	2.275	1.541	1.427	1
Proportion of women aged 20-24 giving first birth by 20 years of age					
1993	2.774	1.959	1.758	1.319	1
1997	2.452	2.144	1.747	1.418	1
2000	2.839	2.094	1.631	1.415	1
2004	2.370	2.337	1.919	1.436	1
2007	2.579	2.077	1.826	1.450	1
2011	2.231	2.465	2.241	1.725	1
2014	2.057	2.313	1.677	1.649	1
2018	1.989	2.197	1.562	1.376	1
Proportion of births of birth order 3 and above					
1993	1.908	1.916	1.341	1.143	1
1997	2.333	2.428	1.748	1.820	1
2000	2.144	2.205	1.311	1.449	1
2004	2.983	1.796	1.471	1.248	1
2007	2.763	1.658	1.484	0.848	1
2011	3.846	1.785	1.340	1.347	1
2014	3.398	2.556	2.174	1.243	1
2018	2.460	1.820	1.336	1.216	1
Contraceptive prevalence rate					
1993	0.584	0.632	0.650	0.729	1
1997	0.544	0.676	0.751	0.668	1
2000	0.511	0.661	0.770	0.737	1
2004	0.701	0.832	0.835	0.842	1
2007	0.812	0.808	0.789	0.825	1
2011	1.030	1.093	1.026	0.947	1
2014	0.991	1.017	0.996	0.930	1
2018	1.323	1.170	0.975	1.056	1

Indicator and year	Wealth index quintiles group				
	Poorest	Poor	Middle	Rich	Richest (Reference group)
Prevalence of modern spacing methods					
1993	0.707	0.745	0.735	0.729	1
1997	0.673	0.732	0.824	0.673	1
2000	0.593	0.770	0.805	0.764	1
2004	0.822	0.931	0.883	0.901	1
2007	0.905	0.916	0.876	0.930	1
2011	1.075	1.114	1.041	0.980	1
2014	1.093	1.097	1.066	0.996	1
2018	1.402	1.164	1.058	1.105	1
Proportion of women who want to delay or stop next birth					
1993	0.818	0.992	0.955	0.888	1
1997	1.173	1.297	1.154	1.089	1
2000	1.038	1.064	1.069	1.025	1
2004	1.262	1.267	1.127	1.160	1
2007	1.514	1.215	1.092	0.996	1
2011	1.476	1.309	1.246	1.056	1
2014	1.584	1.419	1.162	1.017	1
2018	1.652	1.475	1.304	1.157	1
Proportion of births with birth interval: <36 months					
1993	1.587	1.510	1.222	1.263	1
1997	2.077	1.536	1.359	1.279	1
2000	1.978	1.753	1.463	1.285	1
2004	1.389	1.371	1.485	1.242	1
2007	1.683	1.226	1.267	1.147	1
2011	1.527	1.374	1.352	1.386	1
2014	1.454	1.640	1.633	1.248	1
2018	1.482	1.417	1.464	1.423	1
Proportion of women received antenatal care from a skilled provider					
1993	0.047	0.091	0.149	0.288	1
1997	0.056	0.142	0.176	0.338	1
2000	0.054	0.093	0.173	0.302	1
2004	0.068	0.086	0.138	0.295	1
2007	0.082	0.124	0.192	0.349	1
2011	0.077	0.101	0.157	0.268	1
2014	0.088	0.103	0.167	0.262	1
2018	0.097	0.143	0.247	0.335	1

Indicator and year	Wealth index quintiles group				
	Poorest	Poor	Middle	Rich	Richest (Reference group)
Proportion of women having at least 4 visits during antenatal period					
1993	0.147	0.196	0.301	0.412	1
1997	0.150	0.195	0.305	0.426	1
2000	0.106	0.141	0.214	0.440	1
2004	0.090	0.119	0.170	0.408	1
2007	0.056	0.080	0.184	0.256	1
2011	0.036	0.064	0.095	0.172	1
2014	0.056	0.038	0.074	0.247	1
2018	0.006	0.030	0.086	0.127	1
Proportion of women assisted by a skilled provider at the time of delivery					
1993	0.081	0.148	0.221	0.374	1
1997	0.076	0.146	0.236	0.379	1
2000	0.071	0.131	0.229	0.437	1
2004	0.053	0.052	0.129	0.279	1
2007	0.053	0.044	0.142	0.326	1
2011	0.058	0.088	0.114	0.215	1
2014	0.040	0.075	0.097	0.256	1
2018	0.088	0.107	0.115	0.262	1
Proportion of women who had first postnatal checkup in first two days after birth					
1993	na	na	na	na	na
1997	na	na	na	na	na
2000	na	na	na	na	na
2004	na	na	na	na	na
2007	na	na	na	na	na
2011	0.068	0.139	0.223	0.444	1
2014	0.158	0.229	0.284	0.455	1
2018	0.084	0.150	0.221	0.356	1

Source: Authors' calculations based on the data available from different rounds of DHS.
na Not available.

Discussion and Conclusion

During the 25 years between 1993 and 2018, Bangladesh has undergone an economic and social transformation, from severe poverty levels that made such a transformation implausible and surprising. The GDP (gross domestic product) grew over 7 times, and over 6 times per capita. Bangladesh graduated into lower-middle-income status in 2015 and is on track to become an upper-middle-income country by 2031 and a developed country by 2041. The human development index (HDI) almost doubled from 0.394 in 1990 to 0.632 in 2019 (UNDP, 2022). Both fertility and mortality have declined during this period so that average annual population growth rate decreased from around 3 per cent to 1.1 per cent in this period. Educational enrolment increased and there was

improvement in gender parity in education. Similarly, all indicators of the health and nutritional status of the population increased, and the life expectancy rose.

The favourable trends reported here for most measures of reproductive health are encouraging, though some continue to fall short of the goals in the national plans and in such international guides as the SDGs. The impact of the Covid 19 pandemic upon the trends is as yet unclear, pending the results of the 2022 survey. Most indicators show no sign of plateauing. However, there are the important exceptions of contraceptive use, the total fertility rate (TFR), and possibly infant and child mortality. Those are areas of serious concern among policymakers as well as the main development partners, the NGOs and collaborating international agencies.

Notwithstanding that Bangladeshi women still remain a disadvantaged group, their status has improved remarkably over the years. They are now more educated than in the past; they have greater freedom of movement, and a more enhanced role in household decision making. Especially, they have greater freedom from unwanted pregnancies and births. Measures of empowerment and autonomy have improved, and more women are employed in the labour force, with more control over their own earnings.

Government initiatives to advance the past advances are well underway; however, more efforts are needed to address the issues where they need more attention such as stalling in fertility decline and near stagnation in contraceptive prevalence rate. They are the primary driver of reproductive health services for women across the country, along with the private sector. Together these constitute the infrastructure that women depend upon. They interact with the less direct influences of better empowerment for women and socio-economic advances. The next national survey will clarify the extent to which all of these remarkable changes continue.

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Appendix Table 1: Indicators of reproductive health status of women in Bangladesh, 1993-2018.

Reproductive health Indicator	Year							
	1993	1997	2000	2004	2007	2011	2014	2018
Time of marriage and first birth								
Median age at marriage	15.3	15.3	16.1	16.0	16.4	16.6	17.2	17.3
Proportion of women aged 20-24 years								
Married before reaching 15 years of age	47.0	47.0	38.0	37.0	32.0	29.0	22.0	19.0
Married before reaching 18 years of age	73.0	69.0	65.0	69.0	66.0	65.0	59.0	59.0
Married before reaching 20 years of age	82.1	77.1	75.4	78.8	79.2	79.8	76.5	76.2
Who had first birth before 15 years of age	10.5	14.7	10.1	10.5	8.4	8.8	8.3	5.6
Who had first birth before 18 years of age	46.8	46.5	43.7	45.5	40.0	40.0	35.7	32.1
Who had first birth before 20 years of age	66.0	63.2	51.4	64.3	61.1	62.1	58.2	56.2
Fertility								
Total fertility rate	3.4	3.3	3.3	3.0	2.7	2.3	2.3	2.3
Fertility of women 15-19 years	140	147	144	137	126	118	113	108
Fertility of women 20-24 years	196	192	188	191	173	153	143	143
Fertility of women 25-29 years	158	150	165	133	127	107	110	114
Fertility of women 30-34 years	105	96	99	83	70	56	57	61
Fertility of women 35-39 years	56	44	44	42	34	21	24	18
Fertility of women 40-44 years	19	18	18	17	10	6	4	5
Fertility of women 45-49 years	14	6	3	2	1	3	5	1
Proportion of third and higher order births	52.6	48.2	44	44	36.4	34.5	28.2	29.6
Total wanted fertility rate	2.2	2.1	2.2	1.9	1.9	1.6	1.7	1.7
Family planning								
Total demand for family planning	66.5	69.5	72.5	73.5	72.6	74.7	74.4	73.9
Contraceptive prevalence rate	44.9	49.8	54.3	58.5	55.8	61.2	62.4	61.9
Prevalence of modern family planning methods	36.6	42.1	44.0	47.6	47.5	52.1	54.1	51.9
Unmet need of family planning	21.6	19.7	18.2	15.0	16.8	13.5	12.0	12.0
Unmet need for spacing	10.7	9.7	8.5	6.7	6.7	5.4	5.3	5.4
Unmet for limiting	10.9	10.0	9.7	8.3	10.1	8.1	6.7	6.6
Proportion of women wanting to delay or stop next birth	57.9	58.8	60.0	60.1	62.5	64.9	62.5	59.9

Reproductive health Indicator	Year							
	1993	1997	2000	2004	2007	2011	2014	2018
Birth interval								
Median birth interval	34.7	36.7	38.8	39.3	43.6	47.4	51.7	55.7
Proportion of births with birth interval <36 months	53.8	48.0	43.2	41.9	36.9	32.1	29.4	25.0
Proportion of births with birth interval ≥60 months	12.3	16.2	20.5	23.1	27.3	34.5	40.7	45.0
Child mortality								
Infant mortality rate	88	82	66	65	52	43	38	38
Under-five mortality rate	134	116	94	88	65	53	46	45
Antenatal, natal, postnatal care								
Antenatal care from a skilled provider	20.9	24.3	27.2	43.0	53.7	55.1	65.0	82.1
Antenatal visits for pregnancy: 4+ visits	5.9	6.9	10.8	16.9	22.9	26.9	31.5	45.8
Assistance during delivery from a skilled provider	9.2	8.7	13.0	15.5	22.8	32.9	44.3	53.9
Mother's first postnatal checkup in the first two days after birth	na	na	na	na	na	28.7	58.1	52.5

Source: Authors' calculations based on different rounds of DHS.
na Not available.

Appendix Table 2: Variation in reproductive health indicators by wealth index quintiles groups in Bangladesh, 1993-2018

Indicator and year	Total	Wealth index quintiles group				
		Lowest	Second	Middle	Fourth	Highest
Median age at first marriage						
1993	15.3	na	na	na	na	na
1997	15.3	na	na	na	na	na
2000	16.1	na	na	na	na	na
2004	16.0	14.5	15.0	16.0	16.9	18.2
2007	16.4	15.0	15.6	16.0	17.2	18.4
2011	16.6	15.5	15.9	16.5	17.1	18.2
2014	17.2	15.7	16.9	17.0	17.6	18.5
2018	17.3	16.2	16.9	17.2	17.7	18.4
Women aged 20-24 years who got married before 15 years of age						
1993	47.0	57.0	56.0	48.0	41.0	30.0
1997	47.0	60.0	58.0	46.0	42.0	27.0
2000	38.0	47.0	50.0	39.0	29.0	22.0
2004	37.0	52.0	47.0	37.0	28.0	24.0
2007	32.0	46.0	37.0	35.0	26.0	20.0
2011	29.0	40.0	33.0	30.0	25.0	18.0
2014	22.0	33.0	25.0	22.0	19.0	15.0
2018	19.0	27.0	22.0	21.0	15.0	13.0
Women aged 20-24 years who got married before 18 years of age						
1993	73.0	79.0	79.0	75.0	69.0	62.0
1997	69.0	75.0	75.0	70.0	67.0	55.0
2000	65.0	72.0	72.0	69.0	62.0	50.0
2004	69.0	80.0	75.0	70.0	66.0	55.0
2007	66.0	77.0	73.0	70.0	60.0	53.0
2011	65.0	76.0	70.0	66.0	61.0	53.0
2014	59.0	72.0	61.0	58.0	56.0	49.0
2018	59.0	70.0	62.0	61.0	55.0	50.0
Women aged 20-24 years who got married before 20 years of age						
1993	82.1	84.9	85.1	82.6	82.1	75.1
1997	77.1	80.2	79.7	78.8	75.9	70.6
2000	75.4	78.1	79.3	76.6	74.2	67.9
2004	78.8	83.7	80.7	79.9	79.2	71.7
2007	79.2	84.8	82.3	81.5	76.8	71.5
2011	79.8	84.1	83.5	79.8	78.1	73.5
2014	76.5	82.4	78.9	78.1	74.9	69.4
2018	76.2	80.9	76.8	77.5	76.0	70.5
Women aged 20-24 years who had their first birth before 15 years of age						
1993	10.5	13.1	12.8	9.2	9.2	7.6
1997	14.7	22.2	18.2	13.8	10.6	7.9
2000	10.1	11.1	14.1	11.5	7.9	5.6
2004	10.5	17.0	13.6	10.2	7.3	5.3
2007	8.4	12.9	10.1	8.8	7.7	3.4
2011	8.8	15.3	11.6	7.6	5.5	4.7
2014	8.3	15.6	8.2	7.7	6.6	4.4
2018	5.6	9.7	7.1	6.1	3.8	2.4

Indicator and year	Total	Wealth index quintiles group				
		Lowest	Second	Middle	Fourth	Highest
Women aged 20-24 years who had their first birth before 18 years of age						
1993	46.8	55.2	54.4	44.7	42.8	34.4
1997	46.5	56.3	54.7	44.8	42.2	33.2
2000	43.7	49.9	55.6	47.8	35.8	27.4
2004	45.5	60.6	53.9	45.0	38.5	31.8
2007	40.0	52.6	48.2	40.4	34.5	26.6
2011	40.0	53.7	45.9	40.8	33.6	27.1
2014	35.7	51.0	38.9	36.9	30.0	24.8
2018	32.1	47.0	37.6	32.9	25.2	21.2
Women aged 20-24 years who had their first birth before 20 years of age						
1993	66.0	71.1	73.1	65.9	63.0	55.3
1997	63.2	67.9	70.4	63.3	62.9	50.7
2000	61.4	65.8	68.0	65.9	59.8	46.3
2004	64.3	73.8	69.4	66.6	61.3	52.2
2007	61.1	68.8	68.5	64.1	57.2	48.2
2011	62.1	73.8	67.5	61.8	58.4	49.8
2014	58.2	67.8	64.8	60.0	54.9	46.2
2018	56.2	68.9	61.0	58.4	51.3	44.4
Total fertility rate						
1993	3.4	na	na	na	na	na
1997	3.2	na	na	na	na	na
2000	3.3	na	na	na	na	na
2004	3.0	4.1	3.2	3.2	2.5	2.2
2007	2.7	3.2	3.1	2.7	2.5	2.2
2011	2.3	3.1	2.5	2.2	2.1	1.9
2014	2.3	2.8	2.4	2.2	2.1	2.0
2017	2.3	2.6	2.5	2.1	2.1	2.0
Age specific fertility rate 15-19						
1993	140.0	na	na	na	na	na
1997	147.0	na	na	na	na	na
2000	144.0	na	na	na	na	na
2004	137.0	190.0	158.0	153.0	121.0	85.0
2007	126.0	170.0	154.0	131.0	124.0	77.0
2011	118.0	171.0	135.0	123.0	98.0	84.0
2014	113.0	146.0	119.0	117.0	102.0	96.0
2018	108.0	140.0	127.0	101.0	104.0	76.0
Age specific fertility rate 20-24						
1993	196.0	na	na	na	na	na
1997	192.0	na	na	na	na	na
2000	188.0	na	na	na	na	na
2004	191.0	258.0	185.0	208.0	164.0	147.0
2007	173.0	184.0	198.0	167.0	175.0	149.0
2011	153.0	181.0	174.0	155.0	140.0	120.0
2014	143.0	172.0	158.0	132.0	141.0	123.0
2018	143.0	165.0	155.0	134.0	132.0	136.0

Indicator and year	Total	Wealth index quintiles group				
		Lowest	Second	Middle	Fourth	Highest
Age specific fertility rate 25-29						
1993	158.0	na	na	na	na	na
1997	150.0	na	na	na	na	na
2000	165.0	na	na	na	na	na
2004	133.0	155.0	130.0	151.0	118.0	115.0
2007	127.0	141.0	134.0	136.0	105.0	120.0
2011	107.0	133.0	96.0	96.0	109.0	100.0
2014	110.0	133.0	99.0	111.0	103.0	103.0
2018	114.0	124.0	118.0	110.0	110.0	106.0
Age specific fertility rate 30-34						
1993	105.0	na	na	na	na	na
1997	96.0	na	na	na	na	na
2000	99.0	na	na	na	na	na
2004	83.0	114.0	87.0	79.0	60.0	73.0
2007	70.0	78.0	72.0	65.0	60.0	72.0
2011	56.0	77.0	56.0	45.0	48.0	56.0
2014	57.0	59.0	67.0	57.0	53.0	53.0
2018	61.0	62.0	65.0	62.0	57.0	61.0
Age specific fertility rate 35-39						
1993	56.0	na	na	na	na	na
1997	44.0	na	na	na	na	na
2000	44.0	na	na	na	na	na
2004	42.0	63.0	41.0	48.0	36.0	24.0
2007	34.0	42.0	50.0	30.0	24.0	26.0
2011	21.0	45.0	16.0	17.0	18.0	15.0
2014	24.0	41.0	29.0	17.0	21.0	17.0
2018	18.0	19.0	22.0	16.0	14.0	20.0
Age specific fertility rate 40-44						
1993	19.0	na	na	na	na	na
1997	18.0	na	na	na	na	na
2000	18.0	na	na	na	na	na
2004	17.0	37.0	36.0	9.0	4.0	4.0
2007	10.0	24.0	6.0	16.0	5.0	2.0
2011	6.0	14.0	8.0	5.0	2.0	2.0
2014	4.0	5.0	3.0	7.0	4.0	2.0
2018	5.0	6.0	7.0	3.0	5.0	3.0
Age specific fertility rate 45-49						
1993	14.0	na	na	na	na	na
1997	6.0	na	na	na	na	na
2000	3.0	na	na	na	na	na
2004	2.0	3.0	7.0	0.0	0.0	0.0
2007	1.0	4.0	0.0	1.0	0.0	0.0
2011	3.0	4.0	6.0	3.0	2.0	0.0
2014	5.0	7.0	1.0	5.0	0.0	10.0
2018	1.0	0.0	2.0	0.0	0.0	1.0

Indicator and year	Total	Wealth index quintiles group				
		Lowest	Second	Middle	Fourth	Highest
Proportion of third and higher order births						
1993	52.6	59.3	59.4	50.6	46.6	43.3
1997	48.2	53.8	54.8	46.6	47.6	33.3
2000	44.0	50.8	51.5	38.7	41.1	32.5
2004	44.0	58.4	45.8	40.9	37.0	32.0
2007	36.4	51.8	39.2	36.6	24.8	28.0
2011	34.5	53.6	34.9	28.7	28.8	23.1
2014	28.2	40.0	33.4	29.9	19.6	16.4
2018	29.6	40.4	33.4	26.9	25.1	21.6
Total wanted fertility rate						
1993	na	na	na	na	na	na
1997	na	na	na	na	na	na
2000	na	na	na	na	na	na
2004	1.9	2.6	1.9	2.1	1.7	1.6
2007	1.9	2.1	2.0	1.9	1.8	1.6
2011	1.6	1.8	1.7	1.6	1.5	1.5
2014	1.7	1.8	1.7	1.6	1.6	1.6
2018	1.7	1.8	1.8	1.7	1.7	1.7
Women wanted to delay or stop next birth						
1993	57.9	54.8	59.5	58.6	56.8	59.7
1997	58.8	59.5	61.9	59.1	57.7	55.6
2000	60.0	60.0	60.6	60.7	59.7	59.1
2004	60.1	62.2	62.3	59.5	60.2	56.6
2007	62.5	68.9	64.0	61.5	59.3	59.4
2011	64.9	69.6	67.0	65.9	62.1	60.8
2014	62.5	68.8	66.4	61.8	58.6	58.2
2018	59.9	65.8	63.2	60.3	57.4	53.8
Total demand for family planning						
1993	66.5	61.0	65.6	65.1	68.4	73.1
1997	69.5	65.2	70.1	69.2	69.0	73.8
2000	72.5	68.1	71.1	74.2	72.3	76.8
2004	73.5	70.1	73.1	73.8	74.5	75.8
2007	72.6	71.9	72.9	70.9	72.1	75.0
2011	74.7	75.3	75.3	74.8	74.6	73.4
2014	74.4	75.7	73.8	74.8	74.1	74.1
2018	73.9	76.2	75.0	72.0	74.4	71.9
Contraceptive prevalence rate						
1993	44.9	40.4	42.3	43.0	45.8	53.7
1997	49.8	43.1	48.5	51.1	48.2	58.2
2000	54.3	45.8	52.2	56.0	54.9	62.3
2004	58.5	54.1	58.3	58.4	58.6	62.7
2007	55.8	54.8	54.7	54.1	55.2	59.9
2011	61.2	61.5	62.9	61.4	59.5	60.8
2014	62.4	62.6	63.2	62.7	61.1	62.8
2018	61.9	66.3	63.5	59.2	61.1	59.8

Indicator and year	Total	Wealth index quintiles group				
		Lowest	Second	Middle	Fourth	Highest
Prevalence of modern contraceptive methods						
1993	36.6	34.5	35.7	35.4	35.2	42.7
1997	42.1	38.8	40.8	43.7	38.8	48.5
2000	44.0	37.4	43.7	44.8	43.5	50.2
2004	47.6	45.2	48.3	47.0	47.5	50.1
2007	47.5	46.9	47.2	46.1	47.6	49.4
2011	52.1	52.9	53.8	52.1	50.6	51.1
2014	54.1	55.1	55.2	54.5	52.8	52.9
2018	51.9	57.2	52.6	50.2	51.3	48.8
Unmet need of family planning for birth spacing						
1993	10.7	11.2	11.1	10.4	11.0	9.6
1997	9.7	11.6	10.0	8.7	10.2	8.0
2000	8.5	10.3	8.5	8.9	8.4	6.4
2004	6.7	6.6	6.5	7.3	7.6	5.5
2007	6.7	6.2	7.2	5.5	7.8	6.6
2011	5.4	5.2	5.4	5.4	6.3	4.8
2014	5.3	5.3	4.5	5.9	5.8	5.1
2018	5.4	4.0	5.0	6.3	6.1	5.3
Unmet need of family planning for birth limiting						
1993	10.9	9.4	12.2	11.6	11.6	9.8
1997	10.0	10.5	11.7	9.4	10.6	7.5
2000	9.7	12.0	10.5	9.2	9.0	8.1
2004	8.3	9.4	8.4	8.1	8.3	7.5
2007	10.1	11.0	11.0	11.2	9.1	8.5
2011	8.1	8.6	7.0	8.1	8.8	7.8
2014	6.7	7.8	6.1	6.2	7.1	6.2
2018	6.6	5.9	6.5	6.5	7.2	6.8
Total unmet need of family planning						
1993	21.6	20.6	23.3	22.1	22.6	19.4
1997	19.7	22.1	21.6	18.1	20.8	15.6
2000	18.2	22.3	18.9	18.2	17.4	14.5
2004	15.0	16.0	14.8	15.4	15.9	13.1
2007	16.8	17.1	18.2	16.8	16.9	15.1
2011	13.5	13.8	12.4	13.4	15.1	12.6
2014	12.0	13.1	10.6	12.1	13.0	11.3
2018	12.0	9.9	11.5	12.8	13.3	12.1
Median birth interval						
1993	34.7	34.0	34.2	34.3	34.4	37.6
1997	36.7	36.4	35.2	35.4	37.8	41.1
2000	38.8	37.3	38.6	38.4	38.5	47.0
2004	39.3	36.5	39.1	39.5	41.3	45.5
2007	43.6	41.9	42.1	41.1	44.7	49.2
2011	47.4	41.0	45.4	48.4	52.7	57.3
2014	51.7	45.6	52.3	51.9	54.2	58.5
2018	55.7	50.5	54.8	59.4	58.9	59.4

Indicator and year	Total	Wealth index quintiles group				
		Lowest	Second	Middle	Fourth	Highest
Proportion of births with birth interval less than 36 months						
1993	53.8	55.7	54.6	55.4	54.7	45.9
1997	48.0	48.6	51.6	51.5	44.8	39.4
2000	43.2	46.2	43.6	43.2	43.8	36.0
2004	41.9	48.3	40.5	41.3	38.9	35.7
2007	36.9	38.2	37.9	39.8	35.6	30.8
2011	32.1	37.8	35.0	31.0	28.3	23.5
2014	29.4	36.8	30.1	27.6	26.4	21.9
2018	25.0	28.4	27.4	23.4	24.0	20.0
Proportion of births with birth interval at least 60 months						
1993	12.3	10.1	10.7	11.3	12.7	19.5
1997	16.2	14.0	13.9	14.4	17.9	24.6
2000	20.5	15.2	17.6	21.7	22.1	33.1
2004	23.1	16.8	22.6	23.7	27.6	30.6
2007	27.3	22.1	26.9	25.5	29.3	37.2
2011	34.5	24.1	32.1	35.5	42.2	46.4
2014	40.7	32.5	41.9	41.3	44.0	48.1
2018	45.0	37.9	43.3	49.3	48.2	49.4
Antenatal care by skilled service provider						
1993	20.9	8.4	11.9	18.9	24.0	48.5
1997	24.3	11.4	13.0	19.6	27.6	59.3
2000	27.2	12.7	16.0	22.8	33.5	65.3
2004	43.0	22.7	30.8	40.8	55.6	78.2
2007	53.7	32.0	37.5	48.9	67.2	87.4
2011	55.1	28.4	40.6	55.9	68.9	88.0
2014	65.0	36.5	59.2	64.3	77.6	91.1
2018	82.1	63.1	76.6	84.3	91.2	97.3
At least four ANC visits during pregnancy						
1993	5.9	0.2	1.0	2.8	4.1	25.2
1997	6.9	1.9	1.3	2.5	7.9	25.8
2000	10.8	2.4	4.2	6.1	10.5	40.5
2004	16.9	4.9	6.8	14.4	19.0	47.8
2007	22.9	8.8	11.3	15.4	30.4	51.7
2011	26.9	11.7	15.0	21.1	35.5	55.6
2014	31.5	16.6	20.6	28.9	36.2	57.1
2018	45.8	28.0	34.2	44.4	52.2	72.6
Delivery assisted by skilled person						
1993	9.2	3.4	4.1	4.4	9.5	28.6
1997	8.7	1.7	3.1	4.0	9.9	30.0
2000	13.0	4.1	6.1	7.8	13.7	42.5
2004	15.5	4.3	3.6	10.7	21.6	45.8
2007	22.8	7.2	7.1	15.8	28.9	59.3
2011	32.9	11.5	19.4	29.7	44.6	64.8
2014	44.3	19.5	31.8	43.0	54.8	76.2
2018	53.9	28.7	42.4	52.4	65.1	83.3

Indicator and year	Total	Wealth index quintiles group				
		Lowest	Second	Middle	Fourth	Highest
Health checkup of women within two days of delivery						
1993	na	na	na	na	na	na
1997	na	na	na	na	na	na
2000	na	na	na	na	na	na
2004	na	na	na	na	na	na
2007	na	na	na	na	na	na
2011	28.7	9.0	16.8	24.5	39.3	59.3
2014	58.1	40.6	49.7	55.1	66.3	81.2
2018	52.5	28.3	41.2	50.9	62.5	82.4

Source: Authors' calculations based on different rounds of DHS.
na Not available.