



Pattern of Declining Fertility and Associated Factors in Nepal

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Abstract

Nepal has experienced a remarkable fertility transition over the past four decades, with the total fertility rate (TFR) declining from 6.3 children per woman in 1976 to the replacement level of 2.1 by 2021. This study explores the trends, patterns, and determinants behind this demographic shift using secondary data from the Nepal Demographic and Health Surveys (NDHS) conducted in 2006, 2011, 2016, and 2022, as well as national census reports and relevant scholarly literature. The analysis reveals that increased contraceptive prevalence, delayed age at marriage, rising levels of female education, and enhanced access to reproductive health services particularly after the legalization of abortion have significantly contributed to reduced fertility. Additionally, socio-economic changes and evolving cultural norms have played crucial roles in shaping reproductive behavior. The study highlights the broader implications of this transition, including a shrinking youth population, a growing working-age demographic, and the potential for Nepal to benefit from a demographic dividend. However, it also emphasizes the urgent need for targeted social and economic policies to ensure that the demographic window is effectively leveraged for sustainable development. This research contributes to the understanding of Nepal's fertility dynamics and offers policy insights for managing demographic change in similar low-income contexts.

Key words: *Fertility rate, contraception rate, age at marriage, maternal childcare*

Introduction

Over recent decades, global fertility rates have been steadily declining, marking a significant demographic transition that is reshaping population structures worldwide. Historically confined to high-income nations, this fertility decline has now

become a global phenomenon, influencing low- and middle-income countries, including Nepal (UN, 2015; Bongaarts, 2008). The global total fertility rate dropped to 2.5 children per woman in 2015, and more recent estimates suggest continued decline across nearly all regions (World Bank, 2022). Nepal has followed this trajectory closely, witnessing a sharp reduction in its total fertility rate from 6.3 children per woman in 1976 to 2.1 in 2021 (Ministry of Health and Population, Nepal, New ERA, and ICF, 2023). This dramatic shift reflects a combination of demographic, socio-economic, cultural, and policy-related transformations that have altered reproductive behavior and family dynamics in the country.

A central factor contributing to this decline is the increased accessibility and utilization of contraceptives. With a contraceptive prevalence rate (CPR) of 57% among married women of reproductive age in 2022 - 43% using modern methods - Nepal has made significant progress in family planning (NDHS 2022). International studies underscore that effective family planning programs are strongly associated with fertility reduction (Cleland et al., 2006; Casterline & Sinding, 2000). The role of government-led initiatives, NGO partnerships, and donor-funded health projects has been instrumental in promoting contraceptive use, especially in rural and underserved regions of Nepal (Hertog, 2020).

Equally important is the role of rising female education, which is closely linked with delayed marriage, reduced desired family size, and improved reproductive autonomy (Jejeebhoy, 1995; Bhandari, 2004). The median age at first marriage has steadily increased in Nepal from earlier teenage years to 18.3 years for women and 22.3 years for men as of 2022 (NDHS 2022). This change reflects shifting socio-cultural norms, growing educational aspirations, and increased economic participation of women. Educated women are more likely to make informed reproductive choices, postpone childbirth, and have fewer children overall (Martin, 1995; Upadhyay & Karasek, 2012).

In addition, policy reforms such as the legalization of abortion in 2002 have also played a pivotal role. Since its legalization, access to safe abortion services has significantly improved, with the number of women utilizing these services rising from 20,000 to nearly 50,000 by 2021 (Thapa et al., 2012). Legal access to abortion complements contraceptive use by offering women a broader spectrum of reproductive health choices, thereby contributing to lower fertility (Sedgh et al., 2016).

These changes have had a measurable impact on Nepal's overall population dynamics. The annual population growth rate decreased from 2.1% in 1971 to just 0.9% in 2021 (CBS, 2021). With lower fertility and increasing life expectancy, Nepal's age structure is shifting toward a larger working-age population and a smaller

youth cohort. This demographic configuration presents an opportunity to harness a “demographic dividend,” which refers to the potential economic growth resulting from a high proportion of working-age individuals (Bloom, Canning, & Sevilla, 2003). However, this opportunity is time-sensitive and dependent on the country's ability to implement policies that enhance education, employment, and health systems to support productive engagement of its labor force (Lee & Mason, 2006).

Given this context, the present study aims to analyze the extent, causes, and implications of Nepal's fertility transition over the past two decades. By integrating national survey data with insights from demographic literature, the research seeks to contribute to a deeper understanding of population change in Nepal and support evidence-based policy-making for sustainable development.

Methods and Materials

This study employs a descriptive and quantitative research design based on secondary data analysis to explore fertility trends and their determinants in Nepal from 2006 to 2022. The primary data sources include four rounds of the Nepal Demographic and Health Survey (NDHS) 2006, 2011, 2016, and 2022 supplemented by population census reports from the Central Bureau of Statistics and relevant scholarly literature. Key variables analyzed include total fertility rate (TFR), contraceptive prevalence rate, age at first marriage, women's education, and urban-rural residence. Descriptive statistics, trend analysis, and cross-tabulations were used to examine changes over time, while SPSS and Excel facilitated data processing and visualization. As the research relies entirely on publicly available and anonymized data, no ethical clearance was required.

Results and Discussions

The average woman worldwide is giving birth to fewer than ever before. According to the results of 2015, world population prospects, total fertility is now 2.5 children per woman globally (UN, 2015). It is not just the phenomenon of developed countries: like Nepal has also shown the similar reduction in fertility status. Common reasons behind such decline are among others, rise in contraceptive use and socioeconomic change, rise in age at marriage and increase in women's education. Almost as the European countries have experienced a long pattern downward trend in fertility approaching below replacement level (Shakya, and Gubhaju, 2016).

The various researches show the relationship between population dynamics and fertility. The growth rate of population is primarily determined by the interplay of fertility, mortality and migration. The decline in the growth rate recorded in the latest census is consistent with the recent decline in fertility in Nepal, and impact of population on distribution of income and wealth. The growth rate is 2.1 percent in 1971

to a drastic decline in the growth rate of population 0.9 percent in 2021 has shown in the census (CBS, 2021).

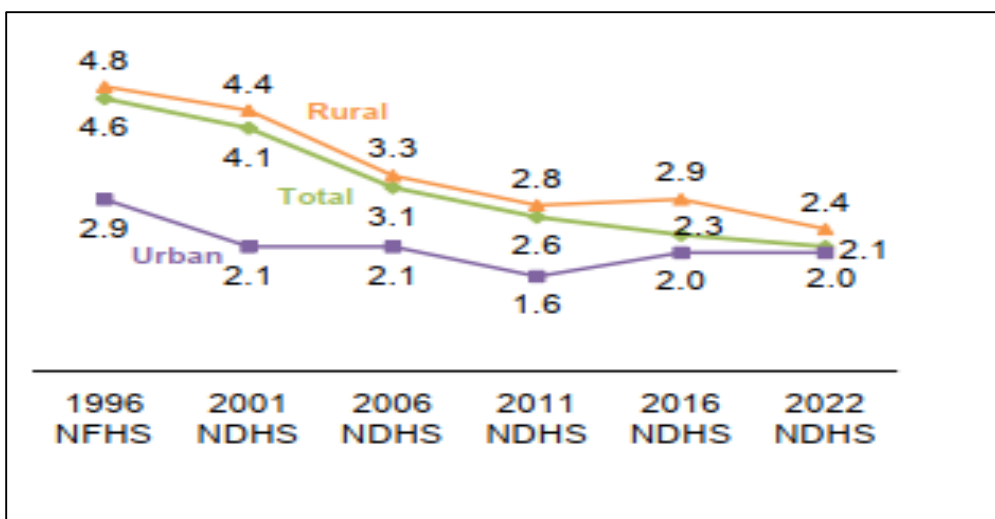
Age at which women marry is on the primary determinants of fertility. Women who marry early, on average in more likely to have their first child at young age and give birth too many children. Obviously contributing to high fertility (Shakya & Gubhaju, 2016).

Legal abortion is believed to be one of the contributing factors foe declining fertility. Since the legalization of abortion, the number of women seeking abortion services has steadily increase over the years. Initially, there were some 20000 women who had undergone abortion from abortion clinics certified by the government. By mid-2021AD this number has increased exponentially to nearly 50000 (CBS, 2021).

The continuous drop in fertility and increase in longevity have resulted in a substantial change in the age structure on the population, leading to a decrease in the young population and increase in working age population. The nation is therefore currently well-placed to reap the demographic dividend before its population starts aging rapidly. However, the government would need to urgently establish appropriate social and economic polies to reap the benefits of the demographic dividend to spur economic growth. Figure 1 shows the declining trends on Nepal from 1996 to 2022 by Nepal demographic health survey 2022.

Figure 1

Total Fertility Rate from 1996 to 2022 by Place of Residence



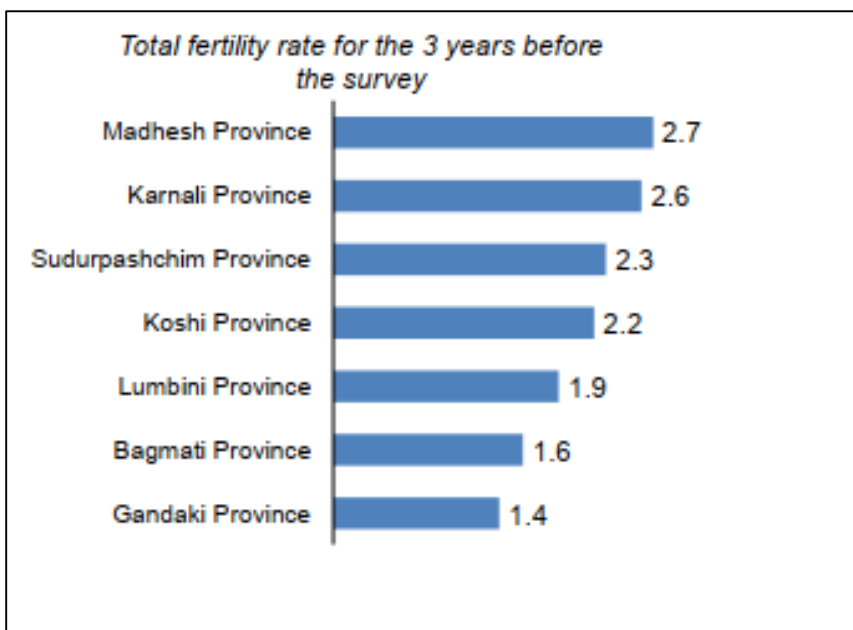
Source: NDHS 2022.

Figure 1 illustrates a significant decline in fertility rates between 1996 and 2022. In rural areas, the total fertility rate dropped from 4.8 to 2.4 children per woman a reduction of 2.4 over nearly 25 years. In urban areas, the rate decreased from 2.9 to 2.0 children per woman, marking a decline of 0.9. Nationally, Nepal's total fertility rate fell from 4.6 in 1996 to 2.1 in 2022, representing a total reduction of 2.5 children per woman.

The figure 2 shows the total fertility rate across different provinces of Nepal for the three years preceding the survey. Madhesh Province recorded the highest fertility rate at 2.7 children per woman, followed closely by Karnali Province with 2.6. Sudurpashchim and Koshi Provinces reported fertility rates of 2.3 and 2.2, respectively. In contrast, Lumbini Province had a lower rate of 1.9, while Bagmati Province registered 1.6. Gandaki Province had the lowest fertility rate among all provinces, at just 1.4 children per woman. These figures highlight regional variations in fertility trends across the country.

Figure 2

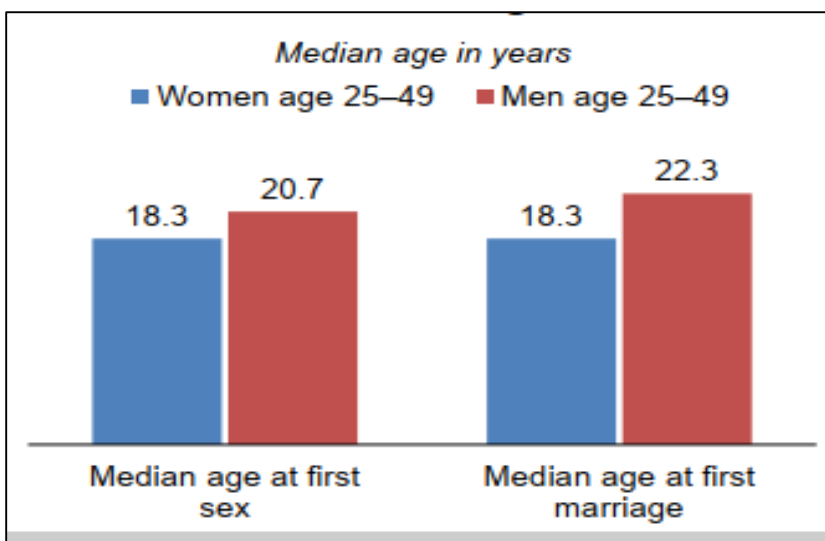
Total Fertility Rate by Providence



Source: NDHS 2022

Figure 3

Median age at first sex and median age at first marriage



Source: NDHS 2022

Figure 3 presents the median age at first sex and at first marriage among men and women aged 25-49 years. According to the data, women had their first sexual experience at a median age of 18.3 years, while men had their first sexual experience later, at a median age of 20.7 years. Similarly, the median age at first marriage for women is 18.3 years, whereas for men it is significantly higher at 22.3 years. This indicates that women tend to both engage in sexual activity and marry at a younger age compared to men in this age group.

According to the Nepal Demographic and Health Survey 2022, which closely follows the 2021 census data, the contraceptive prevalence rate (CPR) among married women aged 15-49 stands at 57%, with approximately 43% using modern methods and 15% using traditional methods.

Singulate mean age at marriage in Nepal was female for 19.5 years and male for 22.5 years (CBS 2021). The gap between male and female were 3 years.

Findings

Total fertility rate was drastically changing in two decades. At 2006 the total fertility rate of Nepal was 3.1 per woman which is decline by 1 per woman and reached 2.1 per woman at 2022. Main contributing factor were women empowerment, women's education status, outside work, changing concept of desire family size and

no discrimination between daughter and son. Society is changing by closed society to open society.

One of most important factor was use of contraception. In Nepal contraceptive prevalence rate was among married women aged 15-49 stands at 57%, with approximately 43% using modern methods and 15% using traditional methods (NDHS 2022). Improving maternal child health care, legislation of abortion, birth interval, and abortion service provided by government other factor of declining fertility.

Conclusion

In Nepal, the fertility rate is declining. Many factors contributing such as women empowerment, women's education status, outside work, changing concept of desire family size and no discrimination between daughter and son. Society is changing by closed society to open society. Despite the legal restrictions against marrying at young age, early marriage is common in the country therefore the different program should aim to reduce fertility by focusing on all these identified predictors so that fertility as well as infant and maternal mortality and morbidity can be decrease and the overall wellbeing of family maintained and enhanced.

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