

Levels, trends and differentials of teenage fertility in Nepal: assessing universal coverage of adolescence sexual and reproductive health to achieve Sustainable Development Goal 5 in 2030

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ABSTRACT

Introduction: Adolescence is a transition period from childhood to adulthood and is critically important especially for teenage girls as adolescent birth rate has remained high despite declining fertility in Nepal. Consequently, adolescents are more likely to drop out from the school thus losing the potential earning and leadership opportunities, which in turn, hampers their overall well-being. Thus it was included in the Millennium Development Goals and also in the Sustainable Development Goals (SDGs).

Methods: The 1996, 2001, 2006 and 2011 Nepal Demographic Health and Survey (NDHS) datasets were used. Single age birth rates were derived using births histories whereas age-specific fertility rates of 15-19 years women were derived using Poisson regression. Regression-based standard errors and its confidence intervals were used to test the levels and trends statistically.

Results: The adolescent birth rate was higher among 18-19 years than 15-17 years old females. Teenage fertility rate was 81 in 2011: second highest in South Asia. Urban adolescent birth rates were significantly different from rural areas and country for all the surveys. Adolescent birth rate was significantly lower than the national estimates for women with some secondary and beyond secondary levels of education. Eastern and Western Development regions had lower teenage fertility compared to other regions of Nepal.

Conclusion: Nepal needs to use best practices and approaches from around the globe to systematically reduce its high teenage fertility as aspired by the Target 6, Goal 5 of the Sustainable Development Goals (SDGs) to be implemented between 2016-2030.

Key words: adolescent, DHS, fertility rate, levels and trends, Nepal

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INTRODUCTION

The adolescence period between 10 and 19 years of age is an important part of human growth as a lot of changes occur in this stage including puberty, which in turn prepares the adolescents for sexual and reproductive activities. This is a transition period from childhood to adulthood and is critically important especially for Nepalese adolescent girls as teenage fertility has remained high despite declining fertility in the country.¹

The higher teen fertility also indicates the prevalence of early marriage among the adolescent girls and when they start early childbearing then their own natural growth and development retards thus putting themselves and the prospective child in great danger.² Consequently, they are more likely to drop out from the school thus losing the potential earning and leadership opportunities, which in turn, hampers their overall well-being.

Thus, adolescent birth rate was included as a new target within Goal 5 of the revised Millennium Development Goals (MDGs) in 2008³ as well as Sustainable Development Goals (SDGs) in 2015.⁴ So, the main aim of this study is to analyse the levels, trends and differentials of the adolescent fertility in Nepal to assess its status at the end of MDGs and set target for the Goal 5 of SDGs.

METHODS

Levels and trends of single-age teenage fertility rates were derived from the 1996, 2001, 2006 and 2011 Nepal Demographic and Health Survey (NDHS) datasets using total births with respect to women years of exposures at specific age, i.e. 15, 16, 17, 18 and 19 year. Poisson regression was used to estimate Age-specific fertility Rate (ASFR) of 15-19 years for place of residence, educational levels, development regions and national levels as all the surveys had sample weights for these variables. Poisson regression based standard errors and confidence intervals were used to find the statistical difference between levels and trends in these

surveys. ASFRs were obtained using births occurred in the 3 years period before the survey to make it comparable with the NDHS published rates. A Stata 13.1 MP software and its “tfr2⁵” module alongside Microsoft Excel 2013 were used in the analysis.

RESULTS

Age-specific fertility rate or total live births per 1000 teen women declined among all the teen ages for the urban and rural areas but the pace of decline was steeper for urban area. ASFR for 15 year declined to zero for urban areas in 2011 but it was still 13 births per 1000 teens in rural areas. The early teen fertility (15-17) was declining whereas late teen fertility (18-19) remained very high.

The overall teen fertility declined significantly from 127 to 110 (13%) between 1996 and 2001 and from 98 to 81 (17%) between 2006 and 2011 statistically. Even though teen fertility declined from 110 to 98 (11%) between 1998-2000 and 2003-2005, it was not statistically significant as the confidence intervals overlapped for these periods. Yet, the adolescent fertility level was very high with 81 births per 1000 teen women in 2011 at national level.

The urban teen fertility declined significantly by 42% between 2006 and 2011 but the decline of 15% between 1996 and 2001 and 12% between 2001 and 2006 were not statistically significant. Even though the rural teen fertility declined by 8%, 13% and 16% between 2001, 2006 and 2011, they were not found to be different for these periods statistically. The highest level of teen fertility was estimated for the teens “without education” for all the survey and it was constantly rising from one survey to other. The lowest level of teen fertility was found for teens with SLC and higher (i.e. beyond secondary) level of education for all the surveys. Yet, teen fertility among women with beyond secondary level of education increased by 32% between 1996 and 2001 before decreasing by 70% between 2001 and 2006 and 10% between 2006 and 2011.

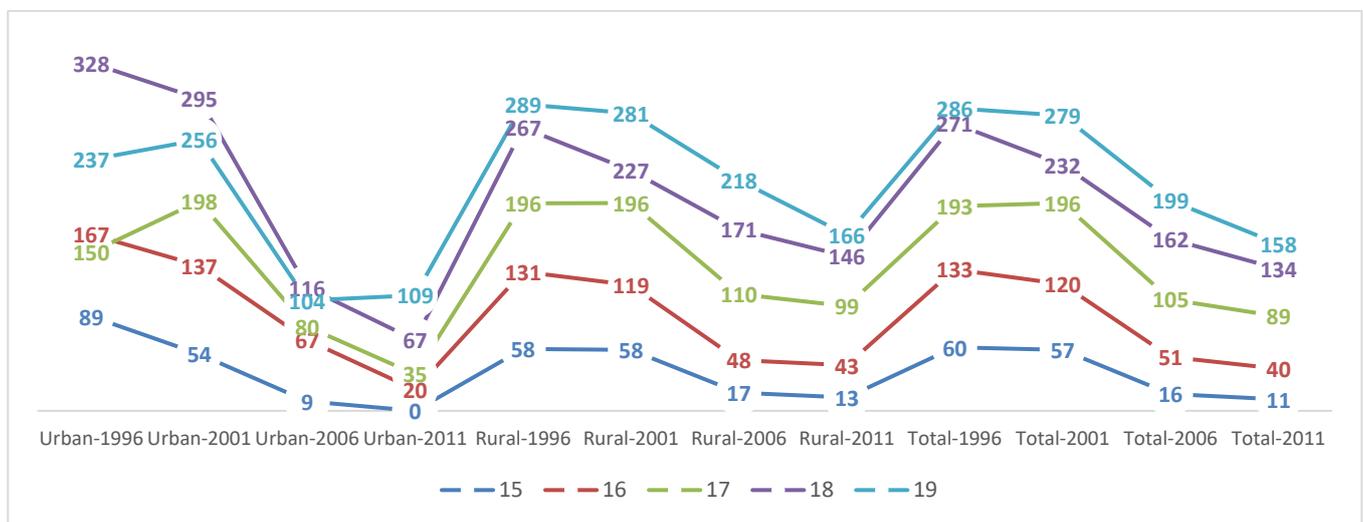


Figure 1: Levels and trends of teen fertility rates for 1996, 2001, 2006 and 2011 NDHS

Table 1: Levels and trends of teenage-specific fertility rates by place of residence, education levels, development regions and country for three years periods: 1996, 2001, 2006 and 2011 NDHS

Survey Year	1996	2001	2006	2011
Reference Period	1993-1995 ^a	1998-2000 ^a	2003-2005	2008-2010
Place of Residence				
Urban^b				
ASFR	97	82	72	42
95% CI	74 – 120	65 – 98	60 – 84	34 – 51
Rural^b				
ASFR	130	119	103	87
95% CI	120 – 139	110 – 128	94 – 112	80 – 95
Education Level				
No Education^c				
ASFR	151	154	181	180
95% CI	138 – 164	140 – 168	161 – 200	157 – 204
Primary^c				
ASFR	131	120	115	127
95% CI	110 – 152	102 – 138	98 – 133	107 – 146
Some secondary^c				
ASFR	70	63	69	62
95% CI	57 – 83	52 – 73	59 – 79	55 – 70
SLC and above^c				
ASFR	25	33	10 ^d	9
95% CI	0 – 60	2 – 64	- ^e	3 – 14
Development Region^f				
Eastern Development Region				
ASFR	97	81	104	73
95% CI	81 – 114	67 – 94	89 – 119	61 – 85
Central Development Region				
ASFR	140	133	107	94
95% CI	122 – 158	117 – 150	91 – 123	79 – 108
Western Development Region				
ASFR	113	115	91	71
95% CI	95 – 131	95 – 134	74 – 107	57 – 85
Mid-Western Development Region				
ASFR	161	133	136	102
95% CI	136 – 187	108 – 157	113 – 159	86 – 119
Far-Western Development Region				
ASFR	129	121	106	100
95% CI	105 – 153	100 – 141	85 – 126	83 – 117
Total				
ASFR	127	110	98	81
95% CI	118 – 136	102 – 117	91 – 106	75 – 87

a. Data were collected for the ever-married women aged 15-49 years for these surveys

b. Urban and rural ASFRs were calculated after adjusting sampling weight for these areas separately

c. Education related ASFRs were calculated after adjusting sampling weights for educational levels separately

d. Only teen aged 19 years gave birth in this category

e. Could not calculate the standard error as the tfr2 module failed after maximum iterations

f. Regional ASFRs were calculated after adjusting sampling weights for regional levels separately

The teen fertility levels were significantly higher than the national estimates for teens without education and primary education, living in the rural areas, Mid-Western, Central and Far-Western regions for all the surveys as the confidence

intervals for these categories did not overlap with that of the national estimate. Only teens with some secondary and beyond secondary levels of education, living in the eastern region and urban areas of the country had significantly lower

level of fertility than national estimates. Similarly, teen fertility level was very high in the Central and Mid-Western regions until 2001 which declined by 20% for Central region between 2001 and 2006 and by 25% between 2006 and 2011 for Mid-Western region. Ironically, teen fertility of Eastern development region increased by 28% between 2001 and 2006 before decreasing again by 30% between 2006 and 2011. Nevertheless, teen fertility levels remained very high in the Mid-Western, Far-Western and Central regions and moderately high in the Western and Eastern regions of the country for all the surveys.

DISCUSSION

The revised Millennium Development Goal (MDG) framework incorporated one target (5.B) and four indicators (contraceptive prevalence rate 5.3, adolescent birth rate 5.4, antenatal care coverage 5.5 and unmet need for family planning 5.6) related to the universal access to reproductive health within the improvement of maternal health goal (Goal 5).³ The adolescent birth rate/teenage fertility rate was given high importance among other proposed indicators as it was related with the health and well-being of both mother and her offspring.^{3,6} Thus, Nepal set the MDG target for teenage fertility as 70⁷ and it looks achievable by 2015 as this rate was decreasing recently by 3.4 percent point per year.

Nonetheless, Nepalese teen fertility rate of 2011 was ranked as 14th out of 24 surveys where Demographic and Health Survey (DHS) were carried out during 2010-2012 period.⁸ Further, Nepal had second highest teen fertility rate among the three South Asian nations included in these surveys. Yet, teenage fertility rate in Nepal declined by 3.4 per thousand point per year between 1996 and 2001 and it was the second highest decline among the Asian countries in the early 2000s.²

Ironically, teenage fertility rate was calculated as 54 from the 2011 census data using Arriaga's indirect estimation⁹, which was clearly less than the 2011 NDHS estimate of 81 and its 95% confidence interval of 75 – 87 births per 1000 teens. This clearly shows the underestimation/limitation of the 2011 census estimates of age-specific fertility rates using a well-known indirect method despite having close estimate of total fertility rate with respect to 2011 NDHS.

Yet, early adolescent fertility (15-17) were consistently lower than the late (18-19) adolescent fertility in Nepal. This is partly because older adolescents were more likely to be married or cohabitating, or sexually active if unmarried.¹⁰ For instance, the 2011 NDHS reported 28.8% of the female teens aged 15-19 already being married and 0.2% being separated compared to 6.9% and 0.2% of male teens of the same age already being married and separated respectively.¹ Further, 2011 NDHS also revealed that 53.2% of female aged 18-19 years already have had a live birth compared to 8.5% of teen aged 15-17 years. Similar findings were also reported in the 2010/11 Nepal Adolescent and Youth Survey (NAYS).¹¹ In

addition, NAYS also found median age at first marriage and first child among the females aged 10-24 as 17 and 19 years respectively, which clearly suggested the persistence of early marriage and childbearing during the adolescence in the country despite the legal female age of marriage being 18 years.¹ Thus, Nepal needs to educate its citizen on the rationale of setting the legal female age of marriage and also strengthen its legal system to implement the legal age effectively to save mothers, her child and a productive youth force in the country.

Urban adolescent birth rate were lower than the national estimates for all the surveys as the confidence intervals did not overlap with the national estimates whereas rural teen fertility rates remained close to the national estimates for all the surveys. In fact, urban teenage fertility rate was 25%, 32%, 31% and 51% less than the rural adolescent birth rate on 1996, 2001, 2006 and 2011 NDHS. A study found that 24% of rural women in developing world begin childbearing in their adolescence, compared to 16% of urban women.¹⁰ Study from Nepal also found that 82% and 63% of rural and urban adolescent girls got married according to their parents' wish and many were unaware about sexuality at the time of marriage.¹² Teen fertility remained very high in rural areas of Nepal as only 1 in 10 parents discussed sexuality with their children¹³ since most of them thought that sex education spoils their daughter's innocence and may prevent her finding a good husband.¹⁴ However, Dutch success in reducing teen fertility by 72 percent in 30 years was credited to the combination of relatively inclusive society with more open attitudes towards sex and sex education, including contraception.¹⁵ Same study revealed that The Netherlands not only have lowest teenage birth rate in Europe but also has one of the lowest teenage abortion rates in the developed world unlike Sweden, Denmark and Norway where teenage abortion rates are 70%, 67% and 60% respectively. Nepal needs to learn from both these approaches in order to reduce its current high teenage fertility rate to the lowest level possible by 2030 to meet the Target 6, Goal 5 of the Sustainable Development Goals.⁴

The adolescent birth rate was significantly higher than the national estimates for teens without education and primary levels of education whereas it was statistically lower than the national estimates for teens with some secondary and beyond secondary levels of education for all the surveys. In addition, teen fertility increased for women without education and it remained stagnant for women with primary level of education between the four surveys included in the analysis. However, teen fertility rate declined for both women with some secondary and beyond secondary levels of education between these surveys. Thus, education has had the highest impact on teen fertility levels as well as trends in Nepal. It is well known that higher education develops self-confidence and decision making power in adolescent girls which in turn instils knowledge, attitude, beliefs and values on sexuality thus helping them to delay sexual activities and marriages.¹⁴ Further, educated teens

can plan for future, use contraception properly, and develop self-esteem¹³ as well.

The teen fertility levels were significantly higher for Central, Mid-Western, and Far-Western regions for all the surveys as the confidence intervals for these categories did not overlap with that of the national estimates. This is partly due to the early age at first intercourse among females living in these regions. For instance, reproductive age women from Far-Western Hill, Western Mountains, Far-Western Terai and Central Terai had 62%, 46%, 40% and 30% higher chance of having early first intercourse than those living in the Central Hill.¹⁶ Further, same study revealed cohabitation being started early by 19%, 16%, 15% and 2% for women from Central Terai, Far-western Terai, Mid-Western Terai and Far-Western Hill respectively compared to the Central Hill¹⁶. Teen fertility of Eastern Development Region increased by 28% between 2001 and 2006 despite having 20%, 40% and 60% less change of first sexual intercourse among reproductive women of Eastern Terai, Eastern Hill and Eastern Mountains respectively compared to those from Central Hill. Yet, adolescent birth rate decreased again by 30% between 2006 and 2011 suggesting the impact of reduction on age at first intercourse and cohabitation among teens in for eastern development region. In addition, literacy rate could have also played important role on low teenage fertility rate at Western and Eastern regions as Western Hill, Eastern Hill, Eastern Mountain and Western Mountain had 94.5%, 92.6%, 90.90% and 88.0% female youth literacy rate (15 – 24 years) respectively.¹⁷ Yet, teen fertility levels remained very high in the Mid-Western, Far-Western and Central region and moderately high in the Western and Eastern regions of the country for all the surveys compared to other South Asian nations as the average rate for the Southern Asian region was 90.1 in 1990 and 53.0 in 2007.¹

Nepal had a persistently lower age at marriage among the females and there is a great pressure to these girls to establish their status in their family and society with immediate childbearing. Further, influence of urbanization and mass/social media has increased premarital sex and unwanted pregnancies among the adolescent girls¹² putting them in great danger of sexually transmitted diseases as well.¹⁹ A study done at 3 rural communities of Kathmandu valley found 65% of the teen mothers having social problems. Among them early 3 out of 10 teens dropped out from school/college after getting pregnant²⁰ whereas 1 out of 4 were found bearing the health risk (25.0%) followed by handicapped in getting job (18.1%), polygamy marriages (13.8%), infertility (6.9%), separations (5.2%), divorces (1.7%) and widowed (0.9%). Further, nearly 3 out of 5 teens had problems of anaemia, 1 out of 3 had induced abortion and 1 in 10 had pre-term delivery thus putting them and child in great danger. Another study done in Nepal found low birth weight as the commonest neonatal complication followed by antepartum and postpartum haemorrhage among the adolescents mothers.² These factors confirm that teenage

fertility is counter-productive to the well-being of the adolescent mothers and her child.^{22,23} Thus, Nepalese policy makers and planners should take concrete evidence-based steps^{10,13,24,25} to address these issues in time in order to ensure/achieve the universal access to sexual and reproductive health/rights of the adolescents to achieve SDGs Goal 5.

CONCLUSION

Nepal achieved the moderate MDG target on adolescent birth rate in 2015 but differentials persist at place of residence, education and development regions. Thus, it needs to implement the best practices and approaches from around the globe to gradually reduce its high teenage fertility rate of 81 in 2011 to, say, 50 by 2020, 30 by 2025 and 10 by 2030 as aspired by the Target 6 (Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of International Conference on Population and Development and Beijing Platform for Action and the outcome documented for their review conferences), Goal 5 (Achieve gender equality and empower all women and girls) of the Sustainable Development Goals (SDGs) to be implemented, monitored and evaluated between 2016 and 2030. This calls for special plans and policies within the sexual and reproductive health frameworks like Safe Motherhood Program to formulate a plan of action. This in turn requires a special dedicated working group/cell to devise, implement, monitor and evaluate the adolescent pregnancy, fertility, motherhood and its differentials at national, provincial, municipal and village level of the country.

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