Prevalence and predictors of teenage pregnancy in Pakistan: a trend analysis from Pakistan Demographic and Health Survey datasets from 1990 to 2018

Anna Ali,†, Asif Khalique,†, Laavanya Lokeesan, Salima Meherali and Zohra S. Lassi

Robinson Research Institute, The University of Adelaide, Frome Rd, Adelaide SA 5000, Australia; School of Public Health and Social Work, Queensland University of Technology, 2 George St, Brisbane City QLD 4000, Australia; Department of Nursing, Faculty of Health Sciences, Open University of Sri Lanka, Nawala, Nugegoda 11222, Sri Lanka; Faculty of Nursing, University of Alberta, 116 St & 85 Ave, Edmonton, AB T6G 2R3, Canada

Corresponding author: E-mail: zohra.lassi@adelaide.edu.au
Joint First Authors

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Background: Teenage pregnancies carry an increased risk of adverse obstetric and health outcomes for mothers and children.

Methods: This study assessed the prevalence and predictors of teenage pregnancies over time in Pakistan using the Pakistan Demographic and Health Survey (PDHS). Data on 400,076 ever-married pregnant women aged 15–49 y from four PDHS datasets were used. Teenage pregnancy was the outcome variable, whereas a woman's and her partner's education, occupation, wealth quintile, region, place of residence and access to knowledge on family planning were the explanatory variables. Pooled prevalence was estimated and regression analysis was undertaken to produce an adjusted prevalence ratio with 95% CIs.

Results: Although the prevalence of teenage pregnancy decreased from 54.4% in 1990–1991 to 43.7% in 2017–2018, the pooled prevalence was 42.5% (95% CI 37.9 to 49.6%). The prevalence of teenage pregnancy was significantly associated with place of residence, wealth quintile, education and occupation.

Conclusion: Despite a growing focus on women's education, access to sexual and reproductive health (SRH) services and contraception in the last decade in Pakistan, the prevalence of teenage pregnancy is still high. There is a pressing need to develop appropriate strategies for increasing access to education, SRH services and use of contraception in Pakistan.

Keywords: demographic and health survey, Pakistan, teenage pregnancy.

Introduction
Teenage pregnancies are a global public health concern and they result in a wide range of health and socioeconomic consequences for mothers and their babies. Early age (i.e. 13–19 y at the first pregnancy) is referred to as teenage pregnancy and is also known as adolescent pregnancy. Globally, approximately 21 million girls aged 15–19 y become pregnant each year and around 12 million of them give birth. The prevalence of teenage pregnancies is much higher (95%) in low- and middle-income countries (LMICs) compared with high-income countries. Globally, pregnancy and childbirth complications are the major cause of death in adolescent girls and 99% of all adolescent maternal death occurs in LMICs. Teenage pregnancies carry an increased risk of adverse obstetric and health outcomes for women and their children. Nutritional anemia during pregnancy is a major health issue in teenage pregnancies: because girls experience a rapid growth spurt at the start of menstruation, their iron requirement is high, and therefore inadequate intake of iron during pregnancy may result in anemia. These mothers are not only at an increased risk of developing nutritional anemia but also obstructed labor and eclampsia. Further, teenage pregnancies incur adverse child outcomes such as preterm births, low birthweight,
fetal growth retardation and neonatal death.\textsuperscript{4,8,9} Moreover, pregnancy in teenage years affects girls emotionally because they lack family as well as financial support and sometimes leave education, and therefore not at the stage of bearing the burden of childcare.\textsuperscript{6}

To decrease the adverse effect of teenage pregnancies on women’s health, the WHO declared an indicator to improve maternal health in the Sustainable Development Goals (SDGs) by aiming to eliminate all harmful practices including a child and early marriages by 2030.\textsuperscript{10} However, a still high prevalence of teenage pregnancies occurs across the world.\textsuperscript{5} In South Asia, a larger proportion of women become pregnant in early life because of early marriage and the social expectation to have a child soon after marriage.\textsuperscript{7} Further, knowledge gaps regarding pregnancies and misconceptions regarding contraception in teenage girls results in early pregnancies.\textsuperscript{11,12} Additionally, sociocultural beliefs regarding early marriage and lack of knowledge regarding contraception are considered to be common causes for teenage pregnancies among Pakistani women; however, it appears unclear how these circumstances explain the prevalence of teenage pregnancies.\textsuperscript{15} Therefore it is important to assess the dynamics and predictors of teenage pregnancies over time.

**Materials and Methods**

This study used datasets from the Pakistan Demographic and Health Survey (PDHS). Demographic and Health Surveys (DHS) provide the health, demographic and socioeconomic characteristics of a representative sample of the population. From 1984 onwards, more than 90 LMICs participated in rounds of DHS.\textsuperscript{17,18} Pakistan implemented four DHS from 1990 to 2018 under the aegis of the National Institute of Population Sciences and Pakistan Bureau of Statistics.\textsuperscript{17} The PDHS dataset targeted ever-married women of reproductive age (MWRA) aged 15–49 y. The data regarding teenage pregnancy were obtained by secondary data analysis of all the DHS conducted in Pakistan.

In each PDHS, women were approached using a multistage stratified cluster systematic sampling technique. Initially, urban and rural stratification of all the provinces was carried out, followed by a selection of enumeration blocks (EBs). Each EB was a cluster of 200 to 250 households (HH), and from each EB, 20 to 30 HH were selected randomly. More specifically, the number of ever-MWRA was 6428 in the 1990–1991 PDHS; 9177 in the 2006–2007 PDHS; 11,763 in the 2012–2013 PDHS; and 12,708 in the 2017–2018 PDHS. Thus, the total sample size in four waves of the PDHS was 400,076. Factors such as illegitimacy and a refusal to participate were considered in the sample size calculation beforehand.\textsuperscript{17,19}

The outcome variable of this study was teenage pregnancy. Teenage pregnancy was defined by using the information on age at first childbirth. Women aged ≤20 y were considered to have a teenage pregnancy. The information regarding maternal age was collected verbally by the interviewers of the PDHS. Each respondent’s and their partner’s education were coded into four categories: no education, primary, secondary or higher. Both a respondent’s and their partner’s occupation were coded as not working, professional, services/sales, agricultural, skilled or unskilled. To avoid a small cell count, the occupation categories for respondents were merged into working and not working; for their partners, these were merged into not working, unskilled and professional categories. Place of residence was coded as either urban or rural; the regions were coded as Punjab, Sindh, Khyber Pakhtunkhwa (KPK), Baluchistan and Islamabad Capital Territory (ICT). The wealth index was constructed using principal component analysis on assets ownership including land and livestock with a range of socioeconomic factors, including household construction, utilities, source of drinking water and sanitation facilities: these were categorized as five wealth quintiles, namely, poorest, poorer, middle, richer and richest; also, access to knowledge regarding family planning via radio, TV and newspaper was merged and categorized as either yes and no to avoid small cell counts.

Frequency and percentage of categorical variables are reported. Collinearity was assessed with no variables needing to be excluded due to weak associations. The rate of teenage pregnancy was determined for each year (1990–1991, 2007–2008, 2012–2013 and 2017–2018) separately and later collated to estimate the total pooled prevalence. Bivariate associations between teenage pregnancy, sociodemographics and media exposure were tested for statistical significance using Cox regression. All variables with borderline statistical significance (p < 0.25) were considered as either a potentially confounding or an interacting variable. The determinant of teenage pregnancy is reported as the prevalence ratio (PR) with a 95% CI. Multivariable regression models were used to produce covariate-adjusted PRs and 95% CIs. At this level, different categories were merged to avoid a small cell count problem. To select the final variables, we included all candidate variables (sociodemographics and media exposure) in the model and then applied purposeful backward elimination, until the model contained only variables significant at p < 0.05. All analyses were undertaken in SPSS version 26 (Developed by Norman H. Nie, Dale H. Bent, and C. Hadlai Hull, USA) and pooled prevalence was estimated using Joanna Briggs Institute software, SUMARI (Developed by the Joanna Briggs Institute, Australia).\textsuperscript{20,21}

**Results**

Data on 40,076 MWRA who have ever been pregnant were analyzed and are reported in Table 1. Of the total, more than half (57.4%) were from rural areas, almost half were either from the
# Table 1. Sociodemographic characteristics of pregnant women

| Sociodemographic characteristics | Total pregnant women N=40 076 Frequency (%) | Teenage pregnancy n=17 037 Frequency (%) | Adult pregnancy n=23 039 Frequency (%) | p  |
|----------------------------------|-----------------------------------------------|------------------------------------------|-----------------------------------------|----|
| Place of residence               |                                               |                                          |                                         |    |
| Urban                            | 17 057 (42.6)                                | 6733 (39.5)                              | 10 324 (44.8)                          | <0.001 |
| Rural                            | 23 019 (57.4)                                | 10 304 (60.5)                            | 12 715 (55.2)                          |     |
| Regions                          |                                               |                                          |                                         |    |
| Punjab                           | 11 941 (29.8)                                | 4351 (25.5)                              | 7590 (32.9)                            | <0.001 |
| Sindh                            | 9130 (22.8)                                  | 4266 (25.0)                              | 4864 (21.1)                            |     |
| KP                              | 12 128 (30.3)                                | 5491 (32.2)                              | 6637 (28.8)                            |     |
| Baluchistan                      | 5358 (13.4)                                  | 2518 (14.8)                              | 2840 (12.3)                            |     |
| ICT                              | 1519 (3.8)                                   | 411 (2.4)                                | 1108 (4.8)                             |     |
| Wealth index*                   |                                               |                                          |                                         |    |
| Poorest                          | 7801 (23.2)                                  | 3974 (28.9)                              | 3827 (19.2)                            | <0.001 |
| Poorer                           | 7249 (21.5)                                  | 3416 (24.9)                              | 3833 (19.2)                            |     |
| Middle                           | 6632 (19.7)                                  | 2802 (20.4)                              | 3830 (19.2)                            |     |
| Richer                           | 6079 (18.1)                                  | 2134 (15.5)                              | 3945 (19.8)                            |     |
| Richest                          | 5887 (7.5)                                   | 1404 (10.2)                              | 4483 (22.5)                            |     |
| Woman's education                |                                               |                                          |                                         |    |
| No education                     | 24 338 (60.7)                                | 12 118 (71.1)                            | 12 220 (53.0)                          | <0.001 |
| Primary                          | 5288 (13.2)                                  | 2362 (13.9)                              | 2926 (12.7)                            |     |
| Secondary                        | 6718 (16.8)                                  | 2167 (12.7)                              | 4551 (19.8)                            |     |
| Higher                           | 3732 (9.3)                                   | 390 (2.3)                                | 3342 (14.5)                            |     |
| Partner's education              |                                               |                                          |                                         |    |
| No education                     | 13 389 (33.6)                                | 6619 (39.1)                              | 6770 (29.6)                            | <0.001 |
| Primary                          | 6039 (15.2)                                  | 2921 (17.3)                              | 3118 (13.6)                            |     |
| Secondary                        | 13 227 (33.2)                                | 5222 (30.9)                              | 8005 (35.0)                            |     |
| Higher                           | 7136 (17.9)                                  | 2164 (12.8)                              | 4972 (21.7)                            |     |
| Partner's occupation             |                                               |                                          |                                         |    |
| Not working                      | 1260 (3.2)                                   | 578 (3.4)                                | 682 (3.0)                              | <0.001 |
| Professional                     | 4520 (11.4)                                  | 1402 (8.3)                               | 3118 (13.7)                            |     |
| Services                         | 4737 (12.0)                                  | 1953 (11.6)                              | 2784 (12.2)                            |     |
| Sales                            | 5589 (14.1)                                  | 2295 (13.6)                              | 3294 (14.4)                            |     |
| Agricultural                     | 6457 (16.3)                                  | 2944 (17.5)                              | 3513 (15.4)                            |     |
| Skilled                          | 7633 (19.3)                                  | 3274 (19.4)                              | 4359 (19.1)                            |     |
| Unskilled                        | 9443 (23.8)                                  | 4397 (26.1)                              | 5046 (22.1)                            |     |
| Woman's occupation               |                                               |                                          |                                         |    |
| Not working                      | 32 525 (81.2)                                | 13 512 (79.3)                            | 19 013 (82.6)                          | <0.001 |
| Professional                     | 821 (2.0)                                    | 130 (0.8)                                | 691 (3.0)                              |     |
| Services/sales                   | 2121 (5.3)                                   | 1031 (6.1)                               | 1090 (4.7)                             |     |
| Agricultural                     | 2544 (6.4)                                   | 1334 (7.8)                               | 1210 (5.3)                             |     |
| Skilled                          | 1242 (3.1)                                   | 620 (3.6)                                | 622 (2.7)                              |     |
| Unskilled                        | 804 (2.0)                                    | 403 (2.4)                                | 401 (1.7)                              |     |
| Heard about family planning on the radio |                   |                                          |                                         |    |
| Yes                              | 3047 (7.6)                                   | 1378 (8.1)                               | 1669 (7.3)                             | 0.002 |
| No                               | 36 992 (92.4)                                | 15 643 (91.9)                            | 21 439 (92.7)                          |     |
| Heard about family planning on TV |                                               |                                          |                                         |    |
| Yes                              | 8494 (25.3)                                  | 10 827 (78.9)                            | 14 300 (71.9)                          | <0.001 |
| No                               | 25 127 (74.7)                                | 2895 (21.1)                              | 5599 (28.1)                            |     |
| Heard about family planning from a newspaper ** |             |                                          |                                         |    |
| Yes                              | 895 (3.7)                                    | 202 (2.1)                                | 693 (4.7)                              | <0.001 |
| No                               | 23 549 (96.3)                                | 9345 (97.9)                              | 14 204 (95.3)                          |     |
| Year of data collection          |                                               |                                          |                                         |    |
| 1990–1991                        | 6428 (16.0)                                  | 3307 (19.4)                              | 3121 (13.5)                            | <0.001 |
| 2007–2008                        | 9177 (22.9)                                  | 4176 (24.5)                              | 5001 (21.7)                            |     |
| 2012–2013                        | 11 763 (29.4)                                | 4701 (27.6)                              | 7062 (30.7)                            |     |
| 2017–2018                        | 12 708 (31.7)                                | 4853 (28.5)                              | 7855 (34.1)                            |     |

*data not available for 1990–1991.

**data not available for 1990–1991 and 2003–2004.
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Figure 1. Rates of adolescent pregnancy.

poorer (21.5%) or poorest (23.2%) wealth quintile and approximately one third (30.3%) were from either KPK or Punjab (29.8%). More than half of the women were not educated (60.7%) and 81.2% were not working. Almost one third (33.6%) of MWRA’s partners were not educated and almost all of them were working in different capacities (96.8%). Of all the women, about a quarter heard about family planning on the TV (25.3%), while less heard about it via radio (7.6%) or newspapers (3.7%).

Of the total number of pregnant women, 42.5% had teenage pregnancies. The rates of teenage pregnancy were 51% (95% CI 50 to 53%) during 1990–1991 and since then the rates have declined to 46% (95% CI 45 to 47%) in 2006–2007, 40% (95% CI 39 to 41%) in 2012–2013 and 38% (95% CI 37 to 39%) in 2017–2018. The overall pooled prevalence of teenage pregnancy is 44% (95% CI 38 to 50%) (Figure 1).

Of the total number of 17,037 teenage pregnant women, around two-thirds (61%) were from rural areas; about a quarter were from each of the provinces of Punjab (26%) and Sindh (25%); and more than half belonged to either the poorest or the poorer wealth quantiles (54%). More than two-thirds of women were not educated (71%) and not working (79%). Almost a quarter of their partners were uneducated (34%), but almost all of them were working (97%). More than three-quarters of teenage mothers had heard about family planning on TV (79%), while a few had heard about it on the radio (8%), although even fewer read about it in a newspaper (2%) (Table 1).

Upon bivariate analysis, the PR of teenage pregnancy was significantly higher among women from rural areas compared with those living in urban areas. Likewise, the PR was significantly higher among women who were from Sindh (adjusted PR [aPR] 1.20; 95% CI 1.14 to 1.26), KPK (aPR 1.27; 95% CI 1.21 to 1.33) and Baluchistan (aPR 1.14; 95% CI 1.08 to 1.21) compared with women from Punjab; among those who belonged to the poorest quantile (aPR 1.26; 95% CI 1.17 to 1.35) followed by the poorer quantile (aPR 1.22; 95% CI 1.14 to 1.31), middle quantile (aPR 1.20; 95% CI 1.12 to 1.28) and richer quantile (aPR 1.10; 95% CI 1.03 to 1.18) compared with women who belonged to the richest quantile; and among those who were uneducated (aPR 3.93; 95% CI 3.53 to 4.38) compared with women with a higher education. Regarding occupation, the PR was significantly lower among women who were not working (aPR 0.89; 95% CI 0.85 to 0.93) compared with women who were working (Table 2).

Discussion

This study investigated the prevalence and predictors of teenage pregnancy in Pakistan using data from the PDHS (1990–2018). Almost half of all women in Pakistan became pregnant before the age of 19 y. Although the rates of teenage pregnancies have decreased from 51% to 38% in 28 y, this is not sufficient to reach the targets set by SDGs to improve maternal and child morbidity and mortality rates. The current study identified that region and socioeconomic status, including education, occupation and wealth index, were the key determinants of teenage pregnancy.

This study found an association between education and teenage pregnancy. Teenage girls who have higher education or who remain in school longer generally have lower rates of early pregnancy compared with girls who have little or no education or who are not in school at all.22 This was also true regarding the impact of a partner’s education on teenage pregnancy. This could be because less educated women and their partners lack adequate knowledge regarding early pregnancy and contraception, including misconceptions about the short- and longer-term effects of contraceptive methods.
Table 2. Social determinant of adolescent pregnancy

| Determinants                        | PR   | p     | 95% CI  | APR  | 95% CI  |
|-------------------------------------|------|-------|---------|------|---------|
| Place of residence                  |      |       |         |      |         |
| Rural                               | 1.13 | <0.001| 1.10 to 1.17 |
| Urban                               |      |       |         |      |         |
| Region                              |      |       |         |      |         |
| Sindh                               | 1.28 | <0.001| 1.23 to 1.34 | 1.20 | 1.14 to 1.26 |
| KPK                                 | 1.24 |       | 1.19 to 1.29 | 1.27 | 1.21 to 1.33 |
| Baluchistan                         | 1.29 |       | 1.23 to 1.36 | 1.14 | 1.08 to 1.21 |
| ICT                                 | 0.74 |       | 0.67 to 0.82 | 1.06 | 0.96 to 1.18 |
| Punjab                              |      |       |         |      |         |
| Wealth index                        |      |       |         |      |         |
| Poorest                             | 2.14 | <0.001| 2.01 to 2.27 | 1.26 | 1.17 to 1.35 |
| Poorer                              | 1.98 |       | 1.86 to 2.10 | 1.22 | 1.14 to 1.31 |
| Middle                              | 1.77 |       | 1.66 to 1.89 | 1.20 | 1.12 to 1.28 |
| Richer                              | 1.47 |       | 1.38 to 1.57 | 1.10 | 1.03 to 1.18 |
| Richest                             |      |       |         |      |         |
| Woman’s education                   |      |       |         |      |         |
| No education                        | 4.77 | <0.001| 4.31 to 5.27 | 3.93 | 3.53 to 4.38 |
| Primary                             | 4.27 |       | 3.84 to 4.76 | 3.85 | 3.44 to 4.30 |
| Secondary                           | 3.09 |       | 2.77 to 3.44 | 2.90 | 2.59 to 3.23 |
| Higher                              |      |       |         |      |         |
| Partner’s education                 |      |       |         |      |         |
| No education                        | 1.63 | <0.001| 1.55 to 1.71 | 1.55 | 1.12 to 1.77 |
| Primary                             | 1.60 |       | 1.51 to 1.69 | 1.51 | 1.10 to 1.69 |
| Secondary                           | 1.30 |       | 1.24 to 1.37 | 1.24 | 1.10 to 1.37 |
| Higher                              |      |       |         |      |         |
| Partner’s occupation                |      |       |         |      |         |
| Not working                         | 1.12 | <0.001| 1.03 to 1.22 | 1.03 | 1.10 to 1.22 |
| Unskilled                           | 1.14 |       | 1.10 to 1.18 | 1.10 | 1.07 to 1.18 |
| Professional                        |      |       |         |      |         |
| Woman’s occupation                  |      |       |         |      |         |
| Not working                         | 0.89 | <0.001| 0.86 to 0.92 | 0.89 | 0.85 to 0.93 |
| Working                             |      |       |         |      |         |
| Access to knowledge on family planning |      |       |         |      |         |
| No                                  | 1.12 | <0.001| 1.07 to 1.17 | 1.07 | 1.10 to 1.17 |
| Yes                                 |      |       |         |      |         |

Long-term adverse effects of using contraceptives, lack of exposure to mass media and lack of knowledge concerning the negative consequences of early childbearing on their own health, as well as that of their children. Previous studies reported that exposure to mass media exerts a strong positive impact in reducing teenage pregnancy as it contributes to creating awareness about the negative consequences of early childbearing and is very influential in motivating couples to adopt family-planning methods. Our finding of a higher risk of pregnancy among uneducated women is consistent with studies conducted in LMICs. The current study also found that the prevalence of teenage pregnancy was high among girls who had not heard about family planning, although this finding was not significant upon multivariable analysis. Young girls in LMICs who may want to avoid pregnancies may not be able to do so due to knowledge gaps and misconceptions about where to obtain contraceptives and how to use them. Adolescent girls in Pakistan face barriers to accessing contraception due to restrictive laws and policies regarding the provision of contraceptives based on age or marital status, health worker bias and/or lack of willingness to acknowledge adolescents’ sexual health needs, as well as the inability of adolescents to access contraceptives because of knowledge, transportation and financial constraints. Additionally, young girls also lack the autonomy to ensure the correct and consistent use of contraceptive methods. These factors are further aggravated by low socioeconomic status and poor wealth indexes. Poverty in Pakistan is a serious issue and it plays a significant cyclical and compounding role in the level of education and rates of teenage pregnancy. The rate of child marriage is higher among poor females, which eventually leads to early childbearing among millions of young females in Pakistan. Additionally, many young girls living...
in rural areas drop out from school when they feel that marriage is a better option in their socioeconomic conditions and this in turn contributes to teenage pregnancy.\(^3\)\(^6\) Young females with a lower educational level have a lack of knowledge about the negative consequences of early childbearing; they are financially dependent on their husbands, have lower levels of empowerment within the family and society and have a limited to no role in the decision-making process, which essentially restricts their capability to postpone their childbearing to older ages.\(^5\)\(^7\) Lower education level and poorer wealth indexes were found to be associated predictors with a higher prevalence of teenage pregnancies in earlier studies from LMICs such as Pakistan, India, Bangladesh and Nepal.\(^5\)\(^7\)\(^22\)\(^24\)\(^31\)

The bivariate analysis also revealed that teenage pregnancy was significantly higher among women who resided in rural areas compared with those who resided in urban areas. This finding is consistent with previous studies conducted in Bangladesh and Nepal.\(^5\)\(^7\) First, in Pakistan in particular, young women residing in rural areas are forcefully married because parents believe that this will save their daughters from unacceptable relationships and sexual abuse. Second, poverty and low literacy rates prompt early marriages and consequently teenage pregnancies. Third, because Pakistani society is patriarchal, females are excluded from decision-making and the husband has the authority over conception. There are also social expectations to have a child during the first year of marriage.\(^3\)\(^6\) Although teenagers represent a large proportion of the population in Pakistan, still relatively little is known about their sexual knowledge and experience and the risk associated with teenage pregnancy.

Although the findings of the current study represent the prevalence and predictors of teenage pregnancy at the national level, due to the secondary nature of the dataset, certain limitations need to be considered. First, as these data are of a cross-sectional nature, it is difficult to determine the temporal relationships between the dependent and explanatory variables. Second, a self-reported questionnaire was used to collect information on most of the variables, therefore it is subject to recall bias. Third, the data were collected from some clusters in each DHS due to security constraints and non-participation. Moreover, Azad Jammu and Kashmir, Federally Administered Tribal Regions, as well as Gilgit and Baltistan regions, were not covered in all the PDHS (except for PDHS 2017–2018), and for that reason were merged with KPK because those regions were all part of North-West Frontier Province.

### Conclusions

Teenage pregnancies can be a major threat to the growth and development of the upcoming generation. They can have devastating health, economic and social implications for individuals, families and the entire country. Pakistan needs to strengthen female child education to support their empowerment and to limit their exposure to early marriages. School and community health programs must target adolescent girls and boys and their parents regarding awareness about sexual and reproductive health services and the disadvantages of early marriages. Education at the rural community level should be promoted. Policymakers should focus on interventions that ensure the enrolment of girls in schools in rural areas, provide opportunities for them to be able to attend school and promote continued enrolment and attendance as young girls become teenagers. In addition to this, support services should be offered to teenage mothers who have dropped out of school so that they can re-enroll and gain a higher education. This could expand their future financial and career opportunities. Social and health services need to identify the population that is vulnerable to early marriage; the role of nurses and community midwives is crucial in identifying these cases and generating referrals according to their needs. Furthermore, the involvement of males should not be ignored at any level. Their education about these issues should also be prioritized, and frontline health care providers such as community midwives and female health workers need to consider their involvement to sensitize them to these issues. Finally, all these competencies must be included in lady health worker (LHW) and community midwife (CM) curricula to enhance the role of LHWs/CMs in preventing adolescent pregnancies and in supporting adolescent parents in their healthy transition to parenthood. Efforts should also be directed to develop strategies to address poverty, promoting gender equality and the empowerment of women/girls to improve the ability of girls to remain in school and become economically independent members of society.

### References

1. Sayem AM, Nury ATMS. Factors associated with teenage marital pregnancy among Bangladeshi women. Reprod Health. 2011;8(1):16.
2. Raj AD, Rabi B, Amudha P, et al. Factors associated with teenage pregnancy in South Asia: a systematic review. Heal Sci J. 2010;4(1):3–14.
3. World Health Organization. Adolescent pregnancy. Factsheets, 2014. Available at: http://www.who.int/mediacentre/factsheets/fs364/en/ [accessed December 15, 2020].
4 Ganchimeg T, Ota E, Morisaki N, et al. Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. BJOG. 2014;121 Suppl:40–8.

5 Islam MM, Islam MK, Hasan MS, et al. Adolescent motherhood in Bangladesh: Trends and determinants. PLoS One. 2017;12(11):1–14.

6 Pradhan R, Wynter K, Fisher J. Factors associated with pregnancy among married adolescents in Nepal: secondary analysis of the National Demographic and Health Surveys from 2001 to 2011. Int J Environ Res Public Health. 2018;15(229):12.

7 Poudel S, Upadhyaya N, Khatri RB, et al. Trends and factors associated with pregnancies among adolescent women in Nepal: pooled analysis of Nepal Demographic and Health Surveys (2006, 2011 and 2016). PLoS One. 2018;13(8):1–13.

8 Mns ST, Thato R. Original study obstetric and perinatal outcomes of teenage pregnancies in Thailand. J Pediatr Adolesc Gynecol. 2011;24(6):342–6.

9 Mukhopadhyay P, Chaudhuri RN, Paul B. Hospital-based perinatal outcomes and complications in teenage pregnancy in India. J Heal Popul Nutr. 2010;28(5):494–500.

10 United Nations. The Millennium Development Goals Report. Transforming our world: The 2030 agenda for sustainable development. New York, NY: United Nations; 2015.

11 Habito CM, Vaughan C, Morgan A. Adolescent sexual initiation and pregnancy: What more can be learned through further analysis of the demographic and health surveys in the Philippines? BMC Public Health. 2019;19(1):1–13.

12 Kennedy E, Gray N, Azzopardi P, et al. Adolescent fertility and family planning in East Asia and the Pacific: a review of DHS reports. Reprod Health. 2011;8:11.

13 Brahmbhatt H, Kagesten A, Emerson M, et al. Prevalence and determinants of adolescent pregnancy in urban disadvantaged settings across five cities. Adolesc Health. 2014;55(6):548–57.

14 UNICEF. Pakistan Statistics. 2012. Available at: https://www.unicef.org/inbycountry/pakistan_pakistan_statistics.html [accessed December 15, 2020].

15 Mubeen K, Baig M. Adolescent pregnancies: the case of Pakistan. JAM. 2016;3(2):69–78.

16 The World Bank. Data: Health Indicators - Pakistan. 2020. Available at: https://data.worldbank.org/indicator?tab=all [accessed December 15, 2020].

17 National Institute of Population Studies, ICF International. Pakistan Demographic Health Survey 2017-18. Islamabad, Pakistan and Calverton, Maryland, USA; 2019. Available at: https://dhisp2program.com/pubs/pdf/FR354/FR354.pdf [accessed December 15, 2020].