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## Adolescent Marriage in Nepal: A Subregional Level Analysis

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### ABSTRACT

This study aims to identify the distribution of marriages among adolescents, aged 10 to 19 years, throughout Nepal. Data were obtained from the 2011 Nepal Demographic and Health Survey. Chi-square tests and logistic regression analyses were used to identify the main determinants of adolescent marriages (AMs). Of a total 11,967 weighted samples, 9.3% of adolescents (95% CI, 8–10%) were found to have been married; a significantly higher percentage of these were female. The variability of AMs varied among the regions of Nepal, with a higher percentage occurring in the Western Mountain, Mid-Western Hill, and Central Terai areas. AMs were also more likely to have occurred among poorer households. The findings show a substantial differences of AMs in different geographic areas and demographic levels in Nepal.

### KEYWORDS

adolescent marriage; Nepal; subregion; survey method

### Introduction

Despite international regulation agreements and national laws, adolescent marriage (AM) remains quite prevalent in some parts of developing countries, especially in South Asia, Western Asia, Sub-Saharan Africa, and Latin America. It has been estimated that about 100 million girls would have been married before their 18th birthday by 2013 (United Nations Population Fund, 2012; World Health Organization [WHO], 2006). Early marriage denies a girl's right to health, education, choice, and a life free from violence (Girls Not Brides, 2013; Jensen & Thornton, 2003). Early marriage violates the resolutions passed by different conventions around the world related to rights by which governments are bound, such as the Convention on the Rights of the Child (1989), International Conference on Population & Development (1994), and International Conference on Population & Development (2013). Therefore, AM is considered a human rights violation (United Nations, 1948). Millions of girls unwillingly accept a marriage proposal while they are still adolescents; they have little or no sexual maturity and do not wish to change their life pattern. Usually, an adolescent bride knows little of her husband or new life, has little control over her future, and is unaware of the health risks she may face.

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According to the WHO (2007), AMs may have many dire consequences, including high-risk pregnancies that can lead to fatalities because girls' minds and bodies are not fully developed (Ababa, 2006). Furthermore, pregnancy in adolescence is more likely to result in other serious outcomes such as eclampsia and pre-eclampsia, intrauterine growth retardation, preterm delivery, low birth weight, and maternal and perinatal mortality (Sharma, Verma, Khatri, & Kannan, 2002). Because adolescent girls often become pregnant long before they are mature adults, they have little knowledge about their bodies' warning signs, and a lack of financial resources makes them less likely to engage in regular health checkups, find a skilled birth attendant, and seek obstetric care in an emergency (Verma, Sinha, & Khanna, 2013). Adolescent girls aged 15 to 19 are twice as likely and adolescent girls <15 years old are five times more likely to die during childbirth than women in their twenties. Similarly, the risk of stillbirth among adolescent girls is about 50% higher than that for women aged 20 to 29 years (Dasra India, 2014). Moreover, AM also has a negative impact on family and community levels, including domestic violence, high fertility, and unstable marriages. Girls who marry early are more likely to experience physical, sexual, and psychological violence throughout their lives (Girls Not Brides, 2013; Jensen & Thornton, 2003). Early marriage of adolescent girls limits education opportunity and reduces better employment possibilities and their dreams of economic independence. Additionally, as a result of early marriage, due to the lack of knowledge, education, and decision-making power, these adolescent girls and their families and communities face huge challenges in breaking injustice and traditional or cultural customs, including child marriage, which has been bringing misery to young girls as well as their children and families (Eshetu, 2014).

In many cultures adolescents face conflicting expectations, such as subordination to their parents while simultaneously being expected to behave as responsible adults. Many girls, particularly those in poorer households in developing countries, are obedient and follow family instruction regarding entry into the workforce and/or marriage. These girls are vulnerable because they have little knowledge about sexual behavior, because sex education in schools is limited and ineffective. Adolescents often depend on informal communication regarding sexuality from their peer groups. Because of the pressure of in-laws and society, they often choose to have babies and discontinue their education (Rabi, 2014; The ACQUIRE Project, 2008).

In Nepal, AM is an important public health issue and social problem, especially for young women. The Government of Nepal has signed many international declarations and passed several bylaws to address the related challenges of AM. However, marriage and therefore pregnancy among adolescents continue to prevail because of the weak enforcement of these laws, a low level of awareness of the laws, and deep-rooted social tendencies toward marriage at an early age. In South Asia, adolescences, especially girls, are significantly more

likely (30%) to be married between 15 and 19 years compared with only 5% of boys of the same age groups. AM is prevalent, especially among uneducated, indigenous ethnic underprivileged communities in Nepal (Maharjan, Karki, Shakya, & Aryal, 2012; Verma et al., 2013). Furthermore, there are various levels of geographic and administrative divisions in Nepal. The cross-section between three ecological zones (Mountain, Hill, and Terai) and five development regions (Eastern, Central, Western, Mid-Western, and Far-Western) make up the 15 subregions. In this study the Mid-Western and Far-Western Mountain subregions were combined into the Western Mountain subregion to create 13 subregions (Ministry of Health and Population [Nepal], New ERA, & ICF International Inc., 2012). These subregions vary a lot in literacy rate, poverty, availability of food, health services, and cultural practices. The percentage of women who cannot read at all is highest in the Central Terai (65.3%), Far-Western Hills (65.0%), and Western Mountains (64.9%) regions (Central Bureau of Statistics, 2011). According to the World Food Programme (2009), the highest prevalence of poverty and hunger, which is an extremely alarming situation (Global Hunger Index (GHI)  $\geq 30$ ), was found in the Far- and Mid-Western Hills and Mountain regions. Dowry is most common in the Terai regions of Nepal (Yadav, 2008).

Because subregions vary greatly, it is assumed that the prevalence of AM may also vary by subregion. Therefore, this study focused on subregional level analysis. Numerous studies have been conducted on AMs, surveying married women aged 20 to 24 and older, to identify trends of age at first marriage. These studies have concluded that age at first marriage is increasing in developing countries like Nepal. However, we wanted to identify the distribution of AMs by sampling adolescents aged 10 to 19 years. That is, our results show percentages of AMs among all adolescents rather than among married women.

The aims of this study are twofold. First, we identify the areas of high prevalence of AM and, second, explore the possible demographic and geographic determinants of AM. Hence, the objective of this study is to investigate the distribution of AMs in the different geographic areas in Nepal by age and sex. It is expected that the result of this scientific study will provide a useful resource for formulating appropriate policies and designing different activities and programs to address the problems associated with AM, especially in the subregions with higher proportions of AMs. Furthermore, the information will be an important catalyst to investigate the other determinants of AM and to prepare appropriate interventions.

## Methods

### *Data source*

In this study we analyzed the latest data retrieved from the 2011 Demographic and Health Survey. To select nationally representative samples of households

in Nepal, a two-stage stratified cluster sampling method was adopted. Most people in Nepal live in rural areas, so in the first stage 289 Enumeration Areas (95 urban and 194 rural) were selected using a probability proportional to size strategy. In the second stage 35 households from each of the urban Enumeration Areas and 40 households from each rural Enumeration Area were randomly selected (Ministry of Health and Population [Nepal], New ERA, & ICF International Inc., 2012). There were 49,791 individuals in 10,826 surveyed households. Because this study focused on adolescents aged 10 to 19 years, only households with adolescents were included in this study. Therefore, 11,967 adolescents (24.18% of total individuals) from 6,545 households were considered as the sample for this study.

### **Variables under study**

The outcome variable was defined as “adolescence marriage.” This study adopted the WHO definition of adolescents as a person between 10 and 19 years of age (WHO, 2006). All respondents aged  $\geq 10$  years from surveyed households were asked their current marital status with three alternative answers: “never married,” “currently married,” and “formerly or ever married” (Ministry of Health and Population [Nepal], New ERA, & ICF International Inc., 2012). We combined “currently married” and “formerly or ever married” into a category named “ever married.” We then created a binary outcome variable coded as “0” for “never married” and “1” for “ever married.” The variation in the distribution of ever-married adolescents was assessed in different regional and subregional geographic areas and for different ages and sex of adolescents. Wealth index and type of place of residence (urban/rural) were also considered.

### **Statistical methods**

This study used the Survey Package from R (R Core Team, 2012) to analyze the data obtained from the multistage surveys (Lumley, 2004, 2012). Chi-square tests were used to explore the factors associated with AM. Because the outcome variable is binary, a logistic regression model was used to investigate the geographic variation in AM. Individual level characteristics of age, sex, and household level characteristics wealth index were also included in the model. The interaction was found to be significant between the age and sex of an adolescent, and therefore the analysis was stratified by sex. This model formulates the logit of the probability  $P$  of an AM as an additive linear function of four determinant factors as follows:

$$\ln \left[ \frac{P_{ijkl}}{1 - P_{ijkl}} \right] = \mu + \alpha_i + \beta_j + \gamma_k + \delta_l \quad (1)$$

where  $P_{ijkl}$  is the probability of an AM;  $\mu$  is a constant;  $\alpha_i$ ,  $\beta_j$ ,  $\gamma_k$ , and  $\delta_l$  are, respectively, age, wealth index, urban/rural residence, and subregion; and  $i = 1-3$  age groups,  $j = 1-5$  wealth groups,  $k = 1-2$  sex groups, and  $l = 13$  subregions.

Each determinant did not have an obvious control or reference groups. Consequently, this study used sum contrasts. This approach measures the difference in each level of the determinants from the overall mean of the outcome. The estimated proportions of ever married adolescents, including 95% confidence intervals (CIs) for each parameter, were calculated using the coefficients and standard errors obtained from the models.

## Results

### *Background characteristics and geographic location of the study sample*

From the 49,791 weighted sampled individuals, only 11,967 individuals (24.18%) were adolescents aged 10 to 19 years. The first column of [Tables 1 and 2](#) present the background characteristics and geographic locations of the adolescents from the sample. There were similar numbers of males and females and similar percentages (7–12%) of adolescents in each age year, 10 to 19. There were similar proportions (18–21%) of adolescents in households from five different economic rankings. The distribution of the adolescents varied by development region. The Central development region had the highest

**Table 1.** Proportion distribution of ever-married adolescent by personal and economic factors.

Descriptions	<i>N</i> (%) <sup>a</sup>	Percent <sup>b</sup> of married (95% CI)	<i>F</i> statistic ( <i>df</i> 1, <i>df</i> 2)	<i>p</i>
Personal characteristics				
Sex			290.68 (1, 264)	<.001
Male	5,725 (47.8)	3.7 (3–4.4)		
Female	6,242 (52.2)	14.5 (13–16)		
Age			166.91 (7, 1971)	<.001
10 years	1,329 (11.1)	.4 (–.04 to .8)		
11 years	1,275 (10.7)	.5 (.1–.9)		
12 years	1,390 (11.6)	.7 (.3–1.2)		
13 years	1,419 (11.9)	1.6 (.8–2.4)		
14 years	1,212 (10.1)	1.1 (.4–1.7)		
15 years	1,144 (9.6)	4.2 (2.3–6.1)		
16 years	1,056 (8.8)	10.9 (8.5–13.4)		
17 years	1,113 (9.3)	17.8 (14.9–20.8)		
18 years	1,153 (9.6)	33.0 (28.9–37.1)		
19 years	876 (7.3)	36.3 (31.5–41.1)		
Economic factors				
Wealth index			12.57 (4, 977)	<.001
Poorest	2,428 (20.3)	9.8 (7.7–11.8)		
Poorer	2,469 (20.6)	11.0 (9.2–12.9)		
Middle	2,484 (20.8)	13.0 (10.6–15.4)		
Richer	2,438 (20.4)	7.9 (6.3–9.5)		
Richest	2,148 (18.0)	4.3 (3.1–5.5)		

<sup>a</sup>Column percentage.

<sup>b</sup>Row percentage.

**Table 2.** Proportion distribution of ever-married adolescent by geographic variables.

	<i>N</i> (%) <sup>a</sup>	Percent <sup>b</sup> of married (95% CI)	<i>F</i> statistic ( <i>df</i> <sub>1</sub> , <i>df</i> <sub>2</sub> )	<i>p</i>
Development regions			1.23 (3, 824)	0.2942
Eastern	2,794 (23.3)	8.6 (6.7–10.5)		
Central	3,923 (32.8)	10.1 (7.7–12.5)		
Western	2,519 (21.1)	8.2 (6.6–9.8)		
Mid-Western	1,494 (12.5)	11.1 (9.5–12.6)		
Far-Western	1,237 (10.3)	8.8 (6.7–10.9)		
Ecological zone			2.30 (2, 402)	.1149
Mountain	835 (7.0)	10.5 (8.6–12.3)		
Hill	4,851 (40.5)	8.3 (7.2–9.5)		
Terai	6,281 (52.5)	10.0 (8.3–11.7)		
Subregions			2.19 (7, 1856)	.03214
Eastern Mountain	232 (1.9)	7.9 (6.2–9.6)		
Central Mountain	251 (2.1)	6.8 (4.5–9.2)		
Western Mountain	352 (2.9)	14.7 (10.7–18.7)		
Eastern Hill	943 (7.9)	8.8 (6.5–11.1)		
Central Hill	1,343 (11.2)	7.0 (4.8–9.3)		
Western Hill	1,448 (12.1)	7.7 (5.1–10.4)		
Mid-Western Hill	647 (5.4)	11.2 (9.2–13.1)		
Far-Western Hill	470 (3.9)	8.7 (5.7–11.8)		
Eastern Terai	1,619 (13.5)	8.6 (5.7–11.6)		
Central Terai	2,329 (19.5)	12.2 (8.5–15.9)		
Western Terai	1,071 (9.0)	8.8 (7.2–10.4)		
Mid-Western Terai	671 (5.6)	9.1 (6.7–11.4)		
Far-Western Terai	591 (4.9)	8.1 (4.8–11.5)		
Urban–rural			20.38 (1, 264)	<.001
Urban	1,507 (12.6)	5.8 (4.6–7.0)		
Rural	10,461 (87.4)	9.8 (8.7–11.0)		

<sup>a</sup>Column percentage.<sup>b</sup>Row percentage.

percentage (32.8%), whereas the Far-Western development region had the lowest percentage (10.3%) of adolescents. Similarly, there was significant variation in distribution of adolescents in ecological zones. The Terai ecological zone had the highest (52.5%) and Mountain ecological zones the lowest (7.0%) proportion of adolescents. Variation was observed in the distribution of adolescents in the subregions. The Eastern Mountain subregion had the lowest (1.9%) and Central Terai the highest (19.5%) percentage of adolescents. Most adolescents (87%) were from rural areas of the country.

### ***Exploring the association between AM and geo-demographic determinants using chi-square analysis***

Of the 11,967 adolescents aged 10 to 19 included in the study, 1,117 (9.3%) were found to have ever been married (AM = 1). Tables 1 and 2 show the results of chi-square tests of association between AM and possible demographic, economic, and geographic determinants. According to this initial analysis, each of the factors sex and age of adolescents and wealth index of their families had statistically significant associations ( $p < .001$ ) with AM. Subregions and place of residence (urban/rural) were also found to be associated

( $p < .05$ ) with the outcome (AM). However, development and ecological regions were not associated ( $p > .05$ ).

### Results from multivariate analysis

The association that was explored in the chi-square analyses (Tables 1 and 2) was further examined using a logistic regression model. Because there was such a large difference in the percentage of married male and female adolescents with an interaction ( $p < .001$ ) between age and sex, we further stratified this analysis by sex.

### Subregional differences in the percentages of ever-married adolescents

Figure 1 presents the differences in percentages of ever-married adolescents in the various subregions of Nepal. The thematic map in the first row of Figure 1 shows the combined result, whereas the thematic maps in the second row of Figure 1 shows the stratified results by sex. The percentage of married male adolescents was found to be significantly higher (7.4% [95% CI, 4.9–11.5]) in the Western Mountain subregion compared with the overall percentage (3.7%) of male adolescents who had ever been married. It was found significantly higher for female adolescents in the Western Mountain (27.0% [95% CI, 19.6–35.9]), Central Terai (22.8% [95% CI, 16.5–30.8]), and Mid-Western Hill (20.6% [95% CI, 16.7–25.2]) subregions and significantly lower for female adolescents in the Eastern Mountain (10.2% [95% CI, 7.8–13.2]) and Central Mountain (7.9% [95% CI, 5.3–11.5]) subregions compared with the overall percentage (14.5%) of female adolescents who had ever been married.

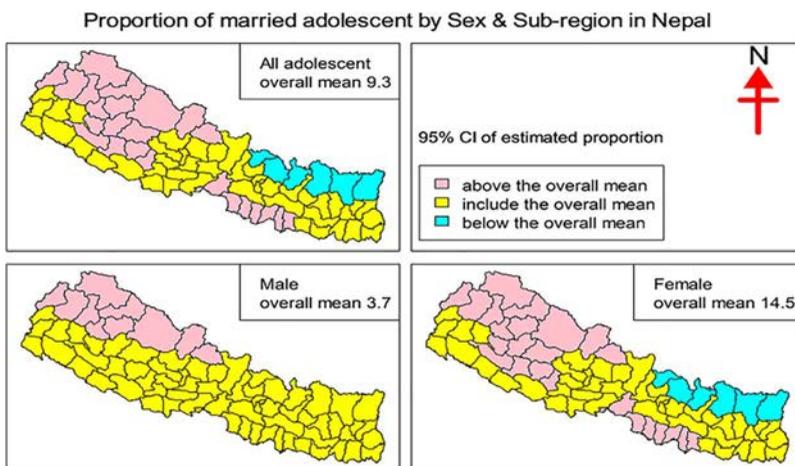


Figure 1. Thematic map of Nepal shows the proportion of married adolescent stratified by sex.

### Age differences in the percentages of ever-married adolescents

There were vast differences in the proportions of married adolescents in the different age groups, for both males and females. Only about 1% of adolescents under 15 years of age in both sexes were found to have ever been married, significantly lower than the overall percentage. About 4% (95% CI, 3.01–5.11) of male adolescent but 18.7% (95% CI, 16.86–20.64) of female adolescent aged 15 to 17 had ever been married. Similarly, although only 13.5% (95% CI, 10.7–16.8) of males were found to have ever been married, 39% (95% CI, 36.15–42.52) of female adolescents aged 18 to 19 years were found to have ever been married, and these percentages were significantly higher compared with the overall percentages of 3.7% for males and 14.5% for females (Figure 2).

### Differences in the wealth indexes of the families of ever-married adolescents

Figure 2 shows that a significantly higher percentage 5.0% (95% CI, 3.84–5.87) of adolescent males who had ever been married occurred in the poorest households, whereas notably lower percentages (1.7% [95% CI, 1.11–2.56]) of married male adolescents were found in the richest household quintile compared with the overall percentage of 3.7% of all male AMs. Whereas the overall percentage of females adolescents who had ever been married was 14.5%, a significantly higher percentage of female adolescents found to have ever been married occurred in the in the poorest (16.3% [95% CI, 15.24–17.49]), poorer (16.0% [95% CI, 15.01–16.95]), and middle (16.2% [95% CI, 15.25–17.22]) economic households quintiles and a significantly lower percentage of female adolescents were found ever married in the richest (5.6% [95% CI, 4.12–7.50]) households quintiles.

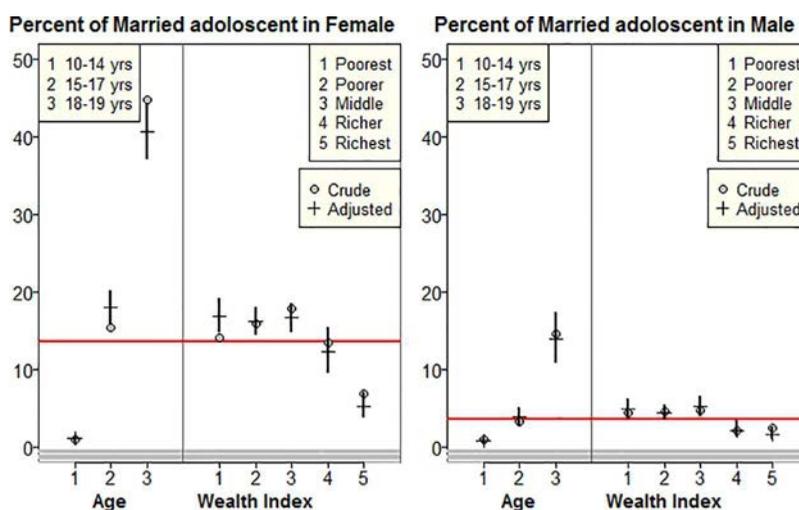


Figure 2. Percent distribution of ever married adolescent by sex and wealth index.

## Discussion

The current study found that about 1 in 10 adolescents aged 10 to 19 years had ever been married in Nepal. This finding is substantially lower than other previous studies have suggested (AFPPD, AusAid, ICRW & UNFPA, 2012; United Nations Population Fund [UNICEF], 2012; Verma et al., 2013) and in comparison with the neighboring countries of Bangladesh and India (Girls Not Brides, 2013). The samples from these previous studies were taken from all married women aged 20 to 24 who had first been married before reaching 18 years, whereas the sample investigated in this study was obtained from the population of all adolescents aged 10 to 19 in 2011. It is possible that our estimates of the proportions of AMs differ from those of previous studies because we considered a broader and more contemporary population.

The results of this study are fully corroborated by the findings of other recent studies discussed below. The proportion of AMs remains comparatively high, despite the fact that age at first marriage is rising in developing countries, including Bangladesh, India, and Nepal (Central Bureau of Statistics, 2012; Mensch, Singh, & Casterline, 2005; WHO, 2006). The current study found that a significantly higher proportion of adolescent girls (14.5%) married before 19 years of age as compared with boys (3.7%). About 4% of male adolescents and 18.7% of female adolescents aged 15 to 17 were ever married. Similarly, 13.5% of male and 39% of female adolescents aged 18 to 19 years were found to be ever married, which was significantly higher in different age group and vastly different between male and female. Several researchers have shown similar gender discrepancies in other parts of the developing world (WHO, 2013).

This study analyzed the risk of getting married at an early age at the subregional level. As mentioned above, these subregions vary in different possible risk factors for early marriage. The multivariate analysis also found evidence of significant disparity in subregions in the prevalence of AM in Nepal (Figure 1). Of 13 subregions, 3 had a higher proportion and 2 a lower proportion of female AMs compared with the overall proportion. It has been found that although poverty, dowry, traditional-cultural factors, and uneducated communities are the major influencing factors in all subregions, dowry is the most common factor in the Terai regions of Nepal (The ACQUIRE Project, 2008; World Food Programme, 2009; Yadav, 2008). This study also found that Central Terai had a higher proportion (23%) of AMs compared with the overall proportion (14.5%), suggesting the dowry custom may have a strong influence on AM. In contrast, UNICEF (2005) emphasized that ethnicity is a most influential risk factor for AM (Thapa, 1996). In addition, for the reasons listed above, UNICEF (1996) highlights a mixture of tradition, culture, and religious practices as strong determinants of early marriage. Families perceive that girls are an economic burden, and, consequently, members arrange for daughters to marry as early as possible to minimize investment in the daughters' well-being and

education (Nanda, Verma, & Abrahamson, 2012). Maharjan et al. (2012) unveiled the reasons that boys and girls married before 18 due to parental pressure for boys (52.7%) and girls (67.1%), followed by 45.2% of boys and only 1.2% of girls were married to support household chores. For example, 45.2% of males married to be supported with households chores, whereas only 1.2% of females married for this reason. This evidence therefore suggests that the primary purpose of marriage, especially among young women, is to carry out household jobs. This result substantiates findings in the neighboring country of India, where the prevalence of female AM also showed geographic disparities. Higher percentages were found in the poorest households in Bihar (68%), followed by Rajasthan (57%), Jharkhanda (55%), and Uttar Pradesh (54%), and lower percentages of AMs were found in Himanchal (9%), followed by Kerala and Panjab (15%) (Hindustan Times, 2012; UNICEF, 2011). A study conducted in Bangladesh (Mustafa Kamal, 2010) also found similar results, concluding that early marriage is associated with cultural, religious, and traditional factors. Parents do not ask for their daughters' consent concerning marriage; they decide age of the marriage and the marriage partner for their daughter. As a result early marriage continues to exist, particularly in rural areas, and a significantly large percentage of girls enter into marriage, even though they would prefer to marry at a later age.

Similar to the findings of several other studies (Central Bureau of Statistics, 2012; Girls Not Brides, 2013; Thapa, 1996; Verma et al., 2013), this research found an inverse relationship between the economic status of the households and the occurrence of AM. The highest proportion of female adolescents (16.3%) from the poorest household quintiles had been married compared with only 5.6% of female adolescents from the richest households. A study conducted in Vietnam also highlighted that the economic status of the family has a significant role in AM (Vu, 2009).

As mentioned earlier, it was not a focus of this study to examine the underlying determinants of AM; however, further study could focus on the specific regions that have a higher proportion of AM. It would be of interest to learn if there were any other possible risk factors for AM such as dowry, ethnicity, or religion. This study was limited only to the proportion of AMs among various economic and demographic levels and geographic regions. As mentioned in Methods, this study was restricted to household surveys and did not include adolescents who reside in institutions or the homeless. Hence, the findings of this study may vary from other studies, which may include the entire adolescent population.

## Conclusion and recommendations

In conclusion, the prevalence of AMs in Nepal varied by subregion, age, sex, and wealth index. Female AMs were found to be significantly higher, especially in the age groups 15 to 17 and 18 to 19; in poorer households

quintiles; and in the Western Mountain, Mid-Western Hill, and Central Terai subregions. Therefore, it would be advantageous for policymakers and programmers to focus their efforts of controlling and preventing early marriage on those specific groups and areas where the prevalence was found to be high. As a result of this study, we would suggest the following measures:

- Introduce health education intervention to parents and unmarried adolescents to reduce the prevalence of AM, focusing on its adverse effects to the individual, family, and community.
- Use mass media to make communities aware that marriage before age 20 is illegal and against the human rights.
- Introduce programs to the married adolescents to continue their education, postpone childbearing, and, in cases of adolescent pregnancy, to seek medical advice to prevent adverse effects of early pregnancy.

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