

Evidence of adult age mortality by educational attainment in India

Abstract

Educational attainment can affect adult mortality both directly and indirectly through various pathways. Hence, evidence of adult mortality by educational attainment is important for the better understanding of contemporary and future mortality transition. However, in developing countries, where the education expansion is taking place rapidly there is very little evidence on adult mortality and the information on adult mortality by educational attainment is even more scarce. Using data from two rounds of the India Human Development Surveys (IHDS) conducted in 2004–2005 and 2011–2012, we estimated the age-specific probability of death between two surveys by educational attainment. Chiang method is used to estimate the probability of death. The results clearly show gender and educational differences in probability of death. Less educated people have higher risk of death with more visible education differentials at higher age groups.

Background

Due to the limitation of data on adult mortality, there is very little evidence on adult mortality by socio-economic group of the population. Available literature from the developed countries shows that the socio-economic status of an individual, especially their educational attainment, impacts the survival status. Educational attainment can affect adult mortality both directly and indirectly. Education affects human health directly by increasing knowledge of potential health threats and enhancing cognitive skills that affect health-seeking behavior (Brinch & Galloway, 2011; Cutler & Lleras-Muney, 2010; Glymour, Kawachi, Jencks, & Berkman, 2008). Indirectly, education can affect human health through its poverty-reducing effect, better access to valuable information, and healthy lifestyles (House, 2002; Lutz, W. & Skirbekk, 2013; Marmot & Wilkinson, 2001; Rogers, Hummer, & Everett, 2013).

Using series of United States school reforms, Lleras-Muney (2005) found that in 1960, an additional year of schooling has causally been linked to 1.7 years increase in life expectancy at age 35 (Lleras-Muney, 2005). Later, Montez et al. (2012) showed that reducing the mortality risk due to education has not been leveling off with knowledge among American adults. Instead, due to technological progress that increased the demand for highly skilled labor, the negative association between educational attainment and adult mortality in the US may have increased over time (Hayward, Hummer, & Sasson, 2014). In an in-depth meta-analysis Baker et al. (2011) stated that less education had been associated consistently with a higher likelihood of premature death. The pooled education effect implied that people with below

secondary education had a 46 percent higher probability of dying than people with high school or higher education (Baker et al. 2011).

In developing countries where adult mortality remained higher, there is little information on education specific adult mortality. Even though, both males and females experience higher levels of adult mortality than the global average in India, there is no evidence on how education impacts survival status. Hence, this study aims to estimate the age specific adult mortality rate by educational attainment for males and females in India.

Data and Methods

This study used the data from the 2004–2005 and 2011–2012 India Human Development Surveys (IHDS). The IHDS was the first national representative panel survey conducted in India with a sufficiently large sample size to cover rare events like adult death. Due to its longitudinal design, it allows us to connect individual deaths directly to living conditions at the time of the first survey. In the first round of IHDS-I (2004-05), 41,554 households were surveyed across 1,503 villages and 971 urban neighborhoods all over India. IHDS-I collected data on health and other socioeconomic indicators of 215,754 individuals across 33 Indian states and union territories. The second round of the survey (IHDS-II) successfully re-interviewed about 83% of the households from IHDS-I, as well as the households which have split off from the original household but kept residing in the same locality. Using the Chiang method (Chiang, 1972), we estimated the age specific probability of death for adults by their educational attainment.

Preliminary results

Figure 1 shows the age specific mortality rates by gender in India between 2004-05 and 2011-12. The age-specific death rates are standard methods that can show the mortality pattern across the ages and demonstrate the mortality differences in the population group. Gender differences in the probability of death were observed at different levels across age groups. The mortality levels among females were higher up to 20-24 age group, whereas at 25-29 and older age groups the probability of death was higher among males. It is possible that higher mortality in this age group was observed due to higher maternal mortality.

Figure 1. Age specific mortality rate by male-female in India

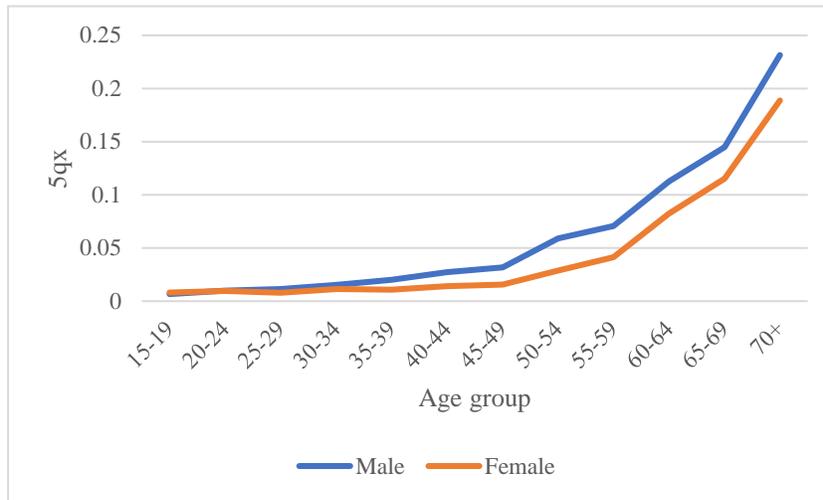
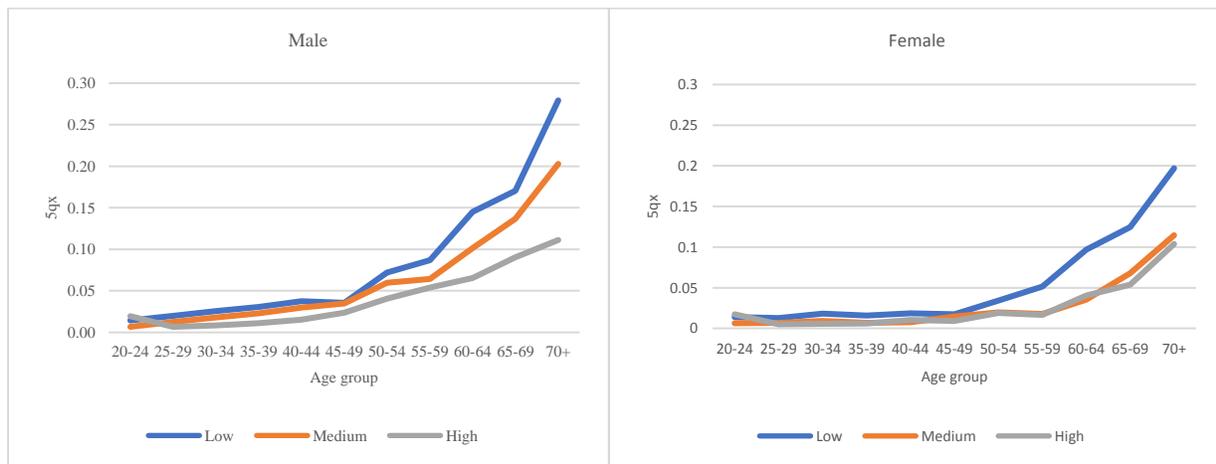


Figure 2 shows the age pattern of mortality by educational attainment of the individual for males-females separately between 2004-05 to 2011-12. The figure clearly shows mortality differences by the educational attainment of the individual. The probability of death across the age group is higher among the less educated individuals and risk of death reduces with increasing education level. Higher educated males have lower risk of death across all ages. Similarly, females with lower level of education have higher probability of death compared to medium and higher educated women. However, the education differences were not visible clearly between medium and higher educated women, it may be because of the small number of observations in the higher education group. Moreover, the figure clearly shows that the education differences are more visible with increasing ages for both males and females. Interestingly, compared to women's, education differences were more visible in case of males in the adult age group.

Summary and conclusion

Evidence of adult mortality trends by educational attainment is crucial for the better understanding of contemporary mortality transition where the education expansion taking place rapidly. However, the educational attainment is differing largely between male and female in India. Understanding the role of education on the survival status will help to under the future mortality translon among the developing countries. The results clearly show the gender differences in the probability of death, its increased with age group. The survival status of the individual affected by their educational attainment, the differences in more visible with increasing the age group, compared.

Figure 2. Age specific mortality by educational attainment for male-female, India



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