

Determinants and causes of death of elderly people in Matlab, Bangladesh

By

Golam Mostafa and Abdur Razzaque

ICDDR,B: Centre for Health and Population Research

Health & Demographic Surveillance Unit, PHSD

GPO Box- 128, Dhaka-1000, Bangladesh

Dhaka, Bangladesh, September 2002

Fax : 880-2-8826050

E-Mail: mostafa@icddr.org

Abstract

Bangladesh has clearly entered into demographic transition even with its relatively poor socioeconomic conditions. Total fertility rate (TFR) has declined from 7.0 in the early 1970s to about 3.5 in 2000 and under-five mortality has declined from about 250 in the early 1970s to nearly 75 in the 2000. There is some evidence of moderate decline of adult mortality, particularly of women of child-bearing age probably related to reduced burden of child-bearing.

Very little is known about socio-economic differentials and causes of death of elderly population (60 years or over) of the country. It is important to know the survival of old-age people because of many reasons. Bangladesh society is experiencing ideational changes of family formation, family relationship, kinship structure, and many others. Old people depend on their adult children, particularly sons for old-age support and security, as there is no public system of social security. Increased migration of work force, changes in family structure, increased small family-size, and other socioeconomic changes may adversely affect the old-age support system in the village

We analyze data of the Health and Demographic Surveillance System (HDSS) of Matlab, a rural area of Bangladesh. Matlab is a traditional agricultural society with relatively poor socioeconomic conditions. In Matlab, the HDSS has been maintained since 1966 to collect information on births, deaths, marital events, and migrations. HDSS also collects socio-economic information through periodic censuses. The present study utilizes mortality data of persons of 60 years and older. A longitudinal data file was created with the records of over 13,433 persons aged 60 years and over during the 1993 census of Matlab HDSS. Subsequent mortality, changes in family structure, marital status, and number of sons and daughter co-residing with the aged person were recorded for each individual. This was done for the period 1993-98. Through linkage of database files, such number of sons and daughters living with each person at the end of December of 1994, 1995, 1996, 1997, and 1998 were determined.

Causes of death are based on lay-reporting of Health Assistant(HA) who registers demographic events of the HDSS through a routine monthly household visitation. The HA describes the signs and symptoms prior to death reported by the family members and/or relatives. A trained paramedic makes a crude diagnosis of the causes of death. The paramedic is supervised by a physician. The classification of causes of deaths is based on ICD proposed by the World Health Organization.

Mortality differential among elderly has been studied considering variables such as age, sex, marital status, religion, position in the household, living with son and daughter, family size; economic variables like education, dwelling sizes, cultivated land, drinking water and religiosity. Hazards regression model was used to examine how the different demographic, socio-economic and health variables influence the elderly mortality. Life table method is also used to estimate the survival analysis (survival function, probability density function and hazard function). Cause of death of elderly people has been analyzed by simple cross tabulation.

The male mortality is higher than that of the females in 60-64. As age increases the gap narrows and eventually the female mortality becomes higher than that of the males in the oldest age group of 75 and above. It is also obvious that the survival chances are much higher among married men and women compared to those who were not married. It is also observed that elderly male staying with 'only spouse and others' shows less chance of surviving compared to those who were staying with 'children'. However, such a simple measure is not enough to come to such a conclusion. It is necessary to make the comparison by controlling few other variables, which have relevance in the study of the mortality. For example, it is possible that widows are older or are more likely to stay alone, compared to married ones, which could influence their mortality. Such detailed analysis has been carried out later. However, the survival chances improve consistently with the education of the elderly and also with their economic condition.

As expected, age shows significant influence on the survival chances of the elderly. The odds of dying, that is, the ratio of number of elderly dying and number surviving, increases by 9 percent with every additional year lived beyond age 60. Male elderly face a much higher risk of dying than female elderly. The odds of dying is two times higher among the male elderly compared to that of females. The risk of dying is much lower among married elderly than the widows/ widowers. Compared to the latter, the odds of dying is 34 percent lower among the former. With regard to the decreased mortality of elderly men with spouses present, a plausible explanation consistent with the results is that elderly married men may to some extent be selected into the married state because of better health. This hypothesis is consistent with the low proportion of elderly men who are not married, and evidence from other studies in the Matlab study population shows high rates of remarriage for elderly men and a higher incidence of disability among non-currently married than among currently married men. Regarding the influence of living arrangements on the survival chances of the elderly, the analysis shows that the elderly who were not staying with children experienced a

significantly higher risk of dying, in comparison to those who were staying with children. Owing to inadequate institutional sources of support (pensions, insurance) either through the government or the private sector, the elderly in Bangladesh are for the most part completely dependent on kin (spouse, adult children and siblings) for aid. Moreover, there is some evidence from small cross-sectional studies that elderly women without a son may be vulnerable.

Aside from changes in economic status, the social integration theory would suggest that improved social status of the elderly in rural Bangladesh (in this case associated with having surviving spouse and children) leads to improved survival prospects through decreased social isolation, improved instrumental support, better information networks, better access to health care, and healthier habits. The effects of the other independent variables are in the expected direction. For example, the chance of survival is higher among the literate elderly, elderly having land and elderly living in households with drinking water facility, compared to those who were illiterate, not having any land, and staying in household with no drinking water facility.

Sex differentials in cause-specific mortality rate of elderly peoples are not much. However, it is significant to note that less death occur among females than males for all causes except senility. For example, death due to senility was 14 per cent for males and it was 17 per cent for females respectively. On the other hand, for males, death due to ARI was 9 per cent while for females it was 6 per cent. Death due to cardio-vascular disease and diarrhoeal disease was almost same for both sexes.

The second major cause of death in the case of both males and females was other causes which are not classified elsewhere (NEC). Apparently, from the above discussion, it is clear that there exists a distinct pattern of death by cause among males and females, which needs to be further explored. Cause of sex differential in old age mortality is not easy to establish or study because behavioural and environmental factors experienced during the whole life have to be considered not just those at older ages. Reviewing the effects of early-life condition of mortality at later ages of life, have found a linkage between them. Although they did not study sex differentials in particular, one may hypothesize that the causal mechanisms that link childhood conditions to mortality at older ages also contribute to sex differentials in mortality among the elderly.

Elderly who had higher level of education had experienced lower mortality (9) than the elderly with no education (10). But if we look at the cause-specific death rates, death due to most causes decreased with an increase of educational level except cardio-vascular/

malignant disease. It may be because higher educated persons are more conscious about disease and they belong to higher socio-economic groups.

Mortality rate was higher among the widowed (11) than the elderly who were married (9). But if we look at age adjusted cause-specific death rates, mortality in all the cause categories were higher among the married than the widowed except senility and diarrhoeal disease. This may be because of better reporting of causes of death.

Individuals who were household heads had experienced lower mortality rate (9) than others (11). Death rates of most of the cause categories were almost the same. Only noticeable difference was ARI, where mortality rate was higher for heads (8) than others (7).

In the study population 87 percent elderly are Muslims and 13 percent are Hindus. Though most of the elderly are Muslim, the cultural differences between Hindu and Muslim are not very much. So difference in causes of death among Hindus and Muslims may not be vary much. In all categories of causes of death, mortality rate was higher for elderly Hindus than the Muslims. This may be due to the poor socio-economic condition of the elderly Hindus.

We have documented the socioeconomic differentials and causes of death of elderly population in Bangladesh, a poor country where remarkable changes in family information and structure are taking place. Elderly who had higher level of education had experienced lower mortality than the elderly with no education and individuals who were household heads had experienced a lower mortality rate than others. The presence of children prove to be more beneficial for the survival of the elderly people. Those who were married had a lower risk of dying than those were widowed. We find that death rates due to all causes, as expected, greatly increase with age, and senility was the major cause followed by Cardiovascular/ malignant diseases, ARI and diarrhoeal deaths.