

A Study of Life Expectancy in an Urban Set up of North-Eastern India under Dynamic Consideration Incorporating Cause Specific Mortality

Authors : Mompi Sharma, Labananda Choudhury, Anjana M. Saikia

Abstract : Background: The period life table is entirely based on the assumption that the mortality patterns of the population existing in the given period will persist throughout their lives. However, it has been observed that the mortality rate continues to decline. As such, if the rates of change of probabilities of death are considered in a life table then we get a dynamic life table. Although, mortality has been declining in all parts of India, one may be interested to know whether these declines had appeared more in an urban area of underdeveloped regions like North-Eastern India. So, attempt has been made to know the mortality pattern and the life expectancy under dynamic scenario in Guwahati, the biggest city of North Eastern India. Further, if the probabilities of death changes then there is a possibility that its different constituent probabilities will also change. Since cardiovascular disease (CVD) is the leading cause of death in Guwahati. Therefore, an attempt has also been made to formulate dynamic cause specific death ratio and probabilities of death due to CVD. Objectives: To construct dynamic life table for Guwahati for the year 2011 based on the rates of change of probabilities of death over the previous 10 and 25 years (i.e., 2001 and 1986) and to compute corresponding dynamic cause specific death ratio and probabilities of death due to CVD. Methodology and Data: The study uses the method proposed by Denton and Spencer (2011) to construct dynamic life table for Guwahati. So, the data from the Office of the Birth and Death, Guwahati Municipal Corporation for the years 1986, 2001 and 2011 are taken. The population based data are taken from 2001 and 2011 census (India). However, the population data for 1986 has been estimated. Also, the cause of death ratio and probabilities of death due to CVD are computed for the aforementioned years and then extended to dynamic set up for the year 2011 by considering the rates of change of those probabilities over the previous 10 and 25 years. Findings: The dynamic life expectancy at birth (LEB) for Guwahati is found to be higher than the corresponding values in the period table by 3.28 (5.65) years for males and 8.30 (6.37) years for females during the period of 10 (25) years. The life expectancies under dynamic consideration in all the other age groups are also seen higher than the usual life expectancies, which may be possible due to gradual decline in probabilities of death since 1986-2011. Further, a continuous decline has also been observed in death ratio due to CVD along with cause specific probabilities of death for both sexes. As a consequence, dynamic cause of death probability due to CVD is found to be less in comparison to usual procedure. Conclusion: Since incorporation of changing mortality rates in period life table for Guwahati resulted in higher life expectancies and lower probabilities of death due to CVD, this would possibly bring out the real situation of deaths prevailing in the city.

Keywords : cause specific death ratio, cause specific probabilities of death, dynamic, life expectancy

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