Volume : 2 | Issue : 2 | Feb 2013 • ISSN No 2277 - 8160

Research Paper | Sociology

Estimates of Mortality Indicators: An Over view

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ABSTRACT

Apart from the all India scenario, this Paper presents data on mortality Indicators for bigger States by sex, residence and broad age groups. Besides Under-five Mortality rate, it includes data on infant mortality and its component viz., neo-natal mortality and post neo-natal, peril-natal mortality and their changes over the last decade. It also includes data on medical attention before death. Apart from the mortality indicators at State and National levels, this report also includes estimates of death rates at sub-State, viz. NSS Natural Division Level in rural areas. The Table in the annexure to this report contains data on death rate and infant mortality rate besides birth rate for 56 Natural Divisions of 16 bigger States. The Table 11 also contains data on death rate and infant mortality rate besides birth rate for four metro cities viz. Chennai, Delhi, Kolkata and Mumbai. Mortality is one of the basic components of population change and related data is essential for demographic studies and public health administration. It is the principal ingredient for population projections and life tables. Information on death events recorded in SRS is used to estimate mortality indicators

KEYWORDS:

Mortality is one of the basic components of population change and related data is essential for demographic studies and public health administration. It is the principal ingredient for population projections and life tables. Information on death events recorded in SRS is used to estimate mortality indicators. The various measures of mortality published under SRS(Sample Registration System)are Crude Death Rate (CDR), Under-five Mortality Rate (U5MR),Infant Mortality Rate (IMR) and its components, Age Specific Mortality Rates (ASMR), Still Birth Rate (SBR) and Peri-Natal Mortality Rate (PMR).

Sample Registration System has continued to provide data for estimating various mortality measures since its inception. The crude death rate at all India level has declined significantly from 14.9 to 12.5 during 1971 to 1981 and thereafter from 9.8 to 7.2 during 1991 to 2010. The decline has been steeper in rural areas as compared to urban areas. The infant mortality rate, which plays an important role in health planning, has shown a considerable decline from 129 per 1000 live births in 1971 to 110 in 1981 and from 80 in 1991 to 47 in 2011-12. The child mortality rate has depicted a perceptible decline from 51.9 in 1971 to 41.2 in 1981 and from 26.5 in 1991 to 13.3 in 2011. In 2011, about 34 percent of the deaths were institutional and 66 percent received medical attention other than institution.

Apart from the all India scenario, this Paper presents data on mortality indicators for bigger States by sex, residence and broad age groups. Besides Under-five mortality rate, it includes data on infant mortality and its component viz., neo-natal It also includes data on medical attention before death.

Apart from the mortality indicators at State and National levels, this report also includes estimates of death rates at sub-State, viz. NSS Natural Division Level in rural areas. The Table 11 in the annexure to this report contains data on death rate and infant mortality rate besides birth rate for 56 Natural Divisions of 16 bigger States. The Table 11 also contains data on death rate and infant mortality rate besides birth rate for four metro cities viz. Chennai, Delhi, Kolkata and Mumbai.

Crude Death Rate In India

Crude Death Rate at the National level for 2011-12 is 7.2 per thousand population and it varies from 7.7 in rural areas to 5.8 in urban areas. Among the bigger States, it varies from 4.2 in Delhi to 8.6 in Odisha. The States having death rate higher than or equal to the National level are Andhra Pradesh (7.6), Assam (8.2), Chhattisgarh (8.0), Madhya Pradesh (8.3), Odisha (8.6), Uttar Pradesh (8.1), and Tamil Nadu (7.6). Distribution of bigger States by level of CDR in rural and urban areas is shown in Chart 19. The estimated age-specific death rate by sex and residence for India and bigger States has been detailed in Table -1

CDR (Crude death rates) by residence, India and bigger States, 2011-12

India and bigger States	Total	Rural	Urban
India	7.2	7.7	5.8
Andhra Pradesh	7.6	8.6	5.4
Assam	8.2	8.6	5.8
Bihar	6.8	7.0	5.6
Chhattisgarh	8.0	8.4	6.2
Delhi	4.2	4.6	4.1
Gujarat	6.7	7.5	5.5
Haryana	6.6	7.0	5.6
Himachal Pradesh	6.9	7.2	4.2
Jammu & Kashmir	5.7	5.9	4.7
Jharkhand	7.0	7.4	5.4
Karnataka	7.1	8.1	5.4
Kerala	7.0	7.1	6.7
Madhya Pradesh	8.3	9.0	6.0
Maharashtra	6.5	7.5	5.3
Odisha	8.6	9.0	6.6
Punjab	7.0	7.7	5.8
Rajasthan	6.7	6.9	6.0
Tamil Nadu	7.6	8.2	6.9
Uttar Pradesh	8.1	8.5	6.3
West Bengal	6.0	6.0	6.3

Source: N.S.S Rounding-2010-11

Given below shows the percentage change in the level of Crude Death Rate between the period 1998-00 and 2008-10 for India and bigger States. During this period CDR in India has declined by 16.1 per cent. Among the bigger States, decline in CDR varies from 23.9 per cent in Madhya Pradesh to 2.7 per cent in Himachal Pradesh.In Kerala, average CDR have shown marginal increase during 1998-00 to 2008-11-12. period, which could be possibly due to the changes in age structure of the population.

Crude death rate by sex

Given below Table presents the estimated Crude Death Rate for India by residence separately for males and females. It is observed that female death rate is lower than male death rate both in rural and urban areas.

Crude death rate by sex and residence, India, 2010

Residence,	Total	Males	Females
Total	7.2	7.7	6.7
Rural	7.7	8.3	7.2
Urban	5.8	6.2	5.3

Crude death rates for males and females in the bigger States are shown below in Statement 44. It is observed that male death rate exceeds female death rate in all bigger States except Jammu & Kashmir.

Crude death rate by sex, India and bigger States, 2011-12

India and bigger States	Total	Males	Female
India	7.2	7.7	6.7
Andhra Pradesh	7.6	8.3	7.0
Assam	8.2	8.7	7.7
Bihar	6.8	7.1	6.6
Chhattisgarh	8.0	8.2	7.8
Delhi	4.2	4.5	3.9
Gujarat	6.7	7.1	6.3
Haryana	6.6	7.1	6.0
Himachal Pradesh	6.9	7.8	6.1
Jammu & Kashmir	5.7	5.6	5.7
Jharkhand	7.0	7.2	6.9
Karnataka	7.1	7.7	6.6
Kerala	7.0	7.7	6.3
Madhya Pradesh	8.3	9.1	7.6
Maharashtra	6.5	7.0	6.0
Odisha	8.6	9.3	8.0
Punjab	7.0	7.6	6.4
Rajasthan	6.7	7.2	6.2
Tamil Nadu	7.6	8.4	6.8
Uttar Pradesh	8.1	8.6	7.5
West Bengal	6.0	6.5	5.6

Source: N.S.S Rounding-2010-11

The per cent distribution of deaths by broad age groups for India and bigger States. At the National level, 14.5 per cent of the deaths are of infant deaths (0-1 year) whereas 48.0 percent of the deaths pertain to persons aged 60 years and above. Toddlers (1-4 years) accounts for 3.9 per cent of the deaths. The percentage of infant deaths to total deaths varies from a low 2.8 per cent in Kerala to a high of 21.8 per cent in Rajasthan. Percentage contribution of deaths from person's 60 years and above varies from 37.5 in Assam to 71.2 in Kerala. The percentage distribution of deaths to total deaths, by residence, sex and age group at the National level and for the bigger States in India. 4.10 The percentage share of infant deaths to total deaths by residence is shown below India and bigger States. At the National level, such share in the year 2011-12 is 14.5 per cent and varies from 15.8 per cent in rural areas to 9.7 per cent in urban areas. In rural areas, Kerala registered 3.0, the lowest percent share of infant deaths as compared to 24.5 in Rajasthan. In urban areas, the variation is from 2.3 per cent in Kerala to 17.1 per cent in Uttar Pradesh.

Percentage of Infant deaths to total deaths by residence

India and bigger States	Total	Rural	Urban
India	14.5	15.8	9.7
Andhra Pradesh	10.6	10.8	10.1
Assam	16.4	17.1	19.9
Bihar	16.4	17.1	19.9
Chhattisgarh	16.1	16.6	13.0
Delhi	14.3	15.9	10.6
Gujarat	14.3	15.9	10.6
Haryana	14.3	15.9	10.6
Himachal Pradesh	7.4	7.6	3.5
Jammu & Kashmir	7.4	7.6	3.5
Jharkhand	15.1	15.9	10.6
Karnataka	10.4	10.9	9.1
Kerala	10.4	10.9	9.1
Madhya Pradesh	20.4	21.6	14.1
Maharashtra	7.4	8.0	6.2
Odisha	14.4	14.9	9.8
Punjab	14.4	14.9	9.8
Rajasthan	21.8	8.24	11.9
Tamil Nadu	21.8	8.24	11.9
Uttar Pradesh	21.2	20.9	17.1
West Bengal	21.2	20.9	17.1

Source: N.S.S Rounding-2010-11

Medical attention before death

The type of medical attention received before death is also collected in the SRS. In the new sample from 2004, the options on types of medical attention received before death have been modified to capture the deaths occurred specifically at private hospital/nursing homes. The options include 'Government Hospital', 'Private Hospital', 'Qualified professional', 'Untrained functionary' and 'others'.

Challenges A number of challenges had to be addressed when attempting to provide a comprehensive set of mortality estimates for all countries of the world.

The first was related to deficient data on mortality, data that did not achieve full coverage of relevant events or that were plagued by inaccuracies.

The second was the need to improve or update existing methodology and develop updated models for use in countries lacking relevant information.

The third was the need to adjudicate among different estimates, each poten-tially subject to bias. The fourth was the challenge of deriving estimates in populations highly affected by HIV/AIDS but lacking direct information on mortality due to AIDS.

Lastly, there was the issue of quantifying and communicating the level of uncertainty to which the estimates derived might be subject. There were also the logistical challenges of obtaining, organizing and maintaining the increasing variety of basic data that shed light on mortality, and of making the data available to those interested in exploring their quality and reliability.

Conclusion

With regard to the specific objectives of the meeting, t it would first review the activities relevant to the estimation of mortality of the different entities participating in the meet-ing. Second, it would consider two approaches to the generation of life tables from partial information:

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