Extending the reference period for data collection for COVID impact assessment: Evidence from India

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Outline of the Talk

Current status of measuring adult mortality in India
Quality of mortality data in National Family Health Surveys
Effect of reference period on coverage of deaths
Future strategies
### Population wide mortality data sources in India

<table>
<thead>
<tr>
<th>Data source</th>
<th>Coverage</th>
<th>Recording method</th>
<th>Mortality Outputs</th>
<th>Reported deaths</th>
<th>Cause of death</th>
<th>Sources of bias</th>
<th>Time reference</th>
</tr>
</thead>
</table>
| Civil Registration System (CRS)   | Total national population (1365 million) 2019 | Continuous       | • States/UTs: deaths by age, sex  
• Districts: total deaths by sex                                                  | 7.64 million    | Medical certification 22%  
Rest lay reported cause                                                            | Completeness    | 1.5 years       |
| Sample Registration System (SRS)  | Sample (8.1m) representative to measure IMR at natural division within 15%RSE | Dual Record Systems (Continuous & periodic with 6 month recall of household deaths) | • India /larger states: age-specific death rates by sex | ≈ 50,000        | Verbal autopsy                      | Sampling error  
Completeness          | 1 year                                      |
| National Family Health Survey 5  
NFHS 5 (2019-20)                   | Sample (640k HH ≈ 2.8 m) representative to measure ‘indicators’ at district level (not specified) | Periodic         | • District level under-five mortality rates  
• 3 year recall of HH deaths by age/ sex                                             | ≈ 75,000 (over a 3 year recall) | Nil                                 | Sampling error  
Completeness (recall bias) | 3-4 years                                   |
Current challenges in measuring adult mortality in India in CRS & SRS

• Civil registration System is not complete, may vary from 100% in Goa to less than 60% in Bihar or Jharkhand; far lower in some Northeastern states

• SRS data is of good quality, but does not provide district data, no SES information and no individual/unit level data
Current challenges in measuring adult mortality in India in Census

• Census does not have any questions on deaths.

• Some indirect demographic methods can be used to estimate adult mortality: the most popular is the widowhood method and intercensal survival.

• Can be calculated at the district level.

• However, the indirect method estimates a more extended or older reference period. No connection can be established with SES.
Current challenges in measuring adult mortality in India in NFHS

- No district-level data from current surveys (NFHS or LASI)
- Education of dead person is not available. SES is available as a proxy
- Some age groups may be underreported
- Limited information on risk factors
- COD in NFHS 1 and 2 were available. Not precise.
- Causes of death among adults are limited & more problematic in a particular region
Contribution of Survey data to understand adult mortality

- Yet, NFHS (National Family Health Survey) or LASI (Longitudinal ageing study in India) has addressed a vast data gap in collecting HH death data with some limitations
  - Produces acceptable level of mortality estimates
  - Allows connecting with SES
  - Can also show a regional pattern
What is NFHS data?

• The National Family Health Survey (NFHS) is a large-scale, multi-round survey conducted in a representative sample of households throughout India.


• NFHS is comparable with Demographic Health Surveys (DHS) Program with comparable data across 90 countries - a global standard, in all respects

• The NFHS-5 covered over 6.36 lakh sample households to provide estimates for 707 districts (as on March, 2017), making it the largest in the world
**Death Data on NFHS**

- Out of total five rounds, only one round does not give

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTIONS AND FILTERS</th>
<th>CODING CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>कोणी 2016 मध्ये कसोटी हा नाव दिला म्हणून किंमत मुंडू आहे? Did any usual member of this household die since January 2016?</td>
<td>YES __________________________ 1 NO __________________________ 2 → 96</td>
</tr>
<tr>
<td>88</td>
<td>त्याच्याच वराच्या व त्याच्याच वराच्या बालांच्या वराच्या विविधता हून हून?</td>
<td>How many persons died?</td>
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<tr>
<th>IF FEMALE AND DIED WHEN 12 YEARS OR OLDER:</th>
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<tbody>
<tr>
<td>89</td>
</tr>
<tr>
<td>90</td>
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<th>Death Data collected from</th>
<th>Reference period</th>
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<tbody>
<tr>
<td>NFHS 1992-93</td>
<td>January 1990</td>
</tr>
<tr>
<td>NFHS 1998-99</td>
<td>January 1996</td>
</tr>
<tr>
<td>NFHS 2015-2016</td>
<td>January 2013</td>
</tr>
<tr>
<td>NFHS 2019-21</td>
<td>January 2016</td>
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</tbody>
</table>
Comparison of age-specific dearth rate between NFHS-1998-99 and SRS for India.
Comparison of age-specific death rate between NFHS-2015-2016 and SRS for India
Effect of reference period

NFHS 2015-16

Percent share of deaths

Year


NFHS 2019-21

Percent share of deaths

Year

Monthly share of deaths from NFHS 2019-21
Some inferences

• Possibility of underreporting compared to (complete) CRS or SRS.
• Issue of seasonality in mortality and morbidity
• Unpredictable state level disaster: Recurrent floods in Kerala and adverse weather condition, land slides and blockage of roads in Sikkim might have hampered utilization of MCH services, especially ANC in NFHS 5.
• Tested and diagnosed Covid not tested and Undiagnosed.
Future strategy

• Continue asking household death questions
• Inclusion of Indian Months, if not years
• Ask whether there is COVID deaths? Was it tested? Do they have certificates? (If possible), did they get any schemes under COVID deaths?
• Community level assessment of COVID deaths and comparing with reported deaths at household level
Thank you! Questions and comments

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