Questions used in surveys to estimate adult mortality

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The Demographic and Health Survey (DHS) Program
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Methods

• Direct estimation
  – Sibling history
  – Recent household deaths

• Indirect estimation
  – Parental survivorship
  – Sibling survivorship
Sibling history

Data required:
• Sex of the sibling
• Survival status of the sibling – alive or dead
• Age of sibling for surviving siblings
• Age at death for siblings who died
• Years since death or year of death for siblings who died.

For all siblings of the respondent

Example: DHS Adult and Maternal Mortality Module
### SECTION MM. ADULT AND MATERNAL MORTALITY MODULE

**MM12** List the brothers and sisters according to the order number in MM01. Ask MM13 to MM24 for one brother or sister before asking about the next brother or sister. If there are more than 12 brothers and sisters, use an additional questionnaire.

<table>
<thead>
<tr>
<th>MM13</th>
<th>NAME OF BROTHER OR SISTER</th>
<th>(01)</th>
<th>(02)</th>
<th>(03)</th>
<th>(04)</th>
<th>(05)</th>
<th>(06)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>MM14</th>
<th>Is (NAME) male or female?</th>
<th>MALE . . . . 1</th>
<th>MALE . . . . 1</th>
<th>MALE . . . . 1</th>
<th>MALE . . . . 1</th>
<th>MALE . . . . 1</th>
<th>MALE . . . . 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FEMALE . . 2</td>
<td>FEMALE . . 2</td>
<td>FEMALE . . 2</td>
<td>FEMALE . . 2</td>
<td>FEMALE . . 2</td>
<td>FEMALE . . 2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MM15</th>
<th>Is (NAME) still alive?</th>
<th>YES ...... 1</th>
<th>YES ...... 1</th>
<th>YES ...... 1</th>
<th>YES ...... 1</th>
<th>YES ...... 1</th>
<th>YES ...... 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO ...... 2</td>
<td>NO ...... 2</td>
<td>NO ...... 2</td>
<td>NO ...... 2</td>
<td>NO ...... 2</td>
<td>NO ...... 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GO TO MM17</td>
<td>GO TO MM17</td>
<td>GO TO MM17</td>
<td>GO TO MM17</td>
<td>GO TO MM17</td>
<td>GO TO MM17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DK ...... 8</td>
<td>DK ...... 8</td>
<td>DK ...... 8</td>
<td>DK ...... 8</td>
<td>DK ...... 8</td>
<td>DK ...... 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GO TO (02)</td>
<td>GO TO (03)</td>
<td>GO TO (04)</td>
<td>GO TO (05)</td>
<td>GO TO (06)</td>
<td>GO TO (07)</td>
<td></td>
</tr>
</tbody>
</table>

| MM16 | How old is (NAME)? | | | | | | |
|------|--------------------| | | | | | |
|      | GO TO (02)         | | | | | | |

| MM17 | How many years ago did (NAME) die? | | | | | | |
|------|-----------------------------------| | | | | | |

| MM18 | How old was (NAME) when (he/she) died? | | | | | | |
|------|----------------------------------------| | | | | | |
Limitations to Sibling History

• Age range: Adult mortality rates do not apply to all ages
  – Typically, adult mortality rates are for 15-49 or 15-59

• Recency: Time periods are typically 0-6 years preceding the survey
  – Longer periods are often used if rates are disaggregated

• Under reporting:
  – Under estimation is common
  – Worse further back in time
  – Under reporting typically greater for male respondents
Recent household deaths

Data required:
• Sex of the person who died
• Age at death
• Date of death

For all deaths of household member since a specified cutoff date/year

Method often used in censuses

Example: India NFHS 2015-16
<table>
<thead>
<tr>
<th>NO.</th>
<th>QUESTIONS AND FILTERS</th>
<th>CODING CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>January 2013 में नेकर क्या दस पर के जिनकी समस्त सदस्य का मृत्यु हुआ है?</td>
<td>YES .......................... 1</td>
</tr>
<tr>
<td>71</td>
<td>कितने लोगों कि मृत्यु हुई है?</td>
<td>TOTAL DEATHS</td>
</tr>
<tr>
<td>72</td>
<td>कृपया उनका नाम दर्ज करें जिनकी मृत्यु हुई है।</td>
<td>Was (NAME) मृत्यु के दोनों उम्मीदवारों के नाम?</td>
</tr>
<tr>
<td>73</td>
<td>क्या (NAME) पुरुष या या क्ष?</td>
<td>How old was (NAME) when (he/she) died?</td>
</tr>
<tr>
<td>74</td>
<td>(NAME) कि आप नितनी भी जब (उनका/उनकी) मृत्यु हुई/इस थी?</td>
<td>In what month and year did (NAME) die?</td>
</tr>
<tr>
<td>75</td>
<td>जिज्ञासियों और साल में (NAME) कि मृत्यु हुई?</td>
<td>Was the death due to an accident, violence, poisoning, homicide or suicide?</td>
</tr>
<tr>
<td>76</td>
<td>क्या मृत्यु उद्देश्यता, दिनियों, लिंग, [महिला], हस्ताक्षर या आलोचना के सारण हुई?</td>
<td>Did (NAME) die during pregnancy, during childbirth or within two months after the end of pregnancy or childbirth?</td>
</tr>
</tbody>
</table>

If female and died when 12 years or older:

| 77  | क्या (NAME) कि मृत्यु समाजशिक्षा के दोनों, प्रस्तुत के ट्रित, या समाजशिक्षा के समाज का या बाँड़ के सारण के दो वर्ष के अवसर हुई? | YES .......................... 1 | NO .......................... 2 |
Limitations to recent household deaths

• Under-reporting:
  – As for sibling history under estimation is a key concern
  – Disintegration of households after death

• Recency:
  – Time period: keep short to provide recent estimates and reduce under-reporting. Longer periods = greater under-reporting
  – Typically 2-3 years, e.g. deaths in 2020 or later if interviewing in 2022

• Sample size:
  – Requires a large sample size for reasonable estimates
  – Typically used in censuses rather than surveys, but has been used in large surveys
Other adult mortality questions

DHS Accident and Injury Module

Designed to capture deaths due to accidents and incidents to respond to several SDG indicators:

- **Indicator 3.4.2**: Suicide mortality rate
- **Indicator 3.6.1**: Death rate due to road traffic injuries
- **Indicator 3.9.3**: Mortality rate attributed to unintentional poisoning
- **Indicator 1.5.1, 11.5.1, 13.1.1**: Number of deaths attributed to disasters per 100,000 population

Module not related to COVID
Accidents and Injuries Module

Data required:
• Survival status of person
• Sex of the person who died
• Age at death
• Type of accident/incident
  – Fire, animal bite, fall, drowning, poisoning, electrical, struck by person/object,
    cut/stabbed, gunshot
• How death occurred
  – Road traffic accident, other accident, natural disaster, violence, self-harm

For all persons involved in accidents or incidents in the past 12 months
Summary

• None of the methods is used commonly in surveys for all-age adult mortality
• Sibling history used most commonly but limited to mortality for ages 15-49 or 15-59.
• Recent household deaths used mostly in censuses, but occasionally in large surveys
• Under-reporting is common
• Indirect methods rarely used
References

• **Tools for Demographic Estimation** (IUSSP)
  – Website and PDF

• **Methods for Estimating Adult Mortality**
  – UN Population Division 2002

• **Methods for Measuring Adult Mortality in Developing Countries: A Comparative Review**
  – Kenneth Hill, Johns Hopkins University 2001

• **Manual X**
  – UN Population Division 1983

• **Mortality Estimates from Major Household Surveys**