Estimating excess mortality during COVID-19 pandemic in Bangladesh—findings from a household survey in a rural sub-district
COVID-19 death in Bangladesh: official estimates

29,446
COVID-19 death in Bangladesh: official estimates

29,446

Is this official number a true reflection of all the deaths that happened due to COVID or because of the pandemic?
Deaths due to COVID-19 disease is linear to report

The overall effect of the pandemic is more complex
Excess mortality refers to the total impact of the pandemic which is the number of deaths from all causes during a crisis above and beyond what we would have expected.
Challenges in Bangladesh and LMICs

Coverage of civil registration of deaths is low and incomplete

Poor cause of death data and deaths happen without testing out of hospital
How do we measure Excess Mortality?

Direct method with both numerator (number of deaths) and denominators (population)

Indirect method with only numerator (number of deaths)

HDSS
Sentinel surveillance
Survey
Graveyard surveillance
Household Survey at Sitakundu, Chattogram
Village mapping

Member and deaths listing

Quality monitoring using social hub

Verbal autopsy
Excess mortality for all age group in Sitakundu

- 2018: 493 deaths
- 2019: 494 deaths
- 2020: 761 deaths

54% excess mortality for all age
Sitakundu, Chattogram in terms of p-score
Observed and expected deaths for aged below 40

Observed and expected deaths for aged 40 or above

P-score: 54%
IRR: 1.4

P-score: 53%
IRR: 1

P-score: 55%
IRR: 1.6
IRR using interrupted time series analysis stratified by different groups among people aged 40 years and above
What are the major causes of deaths?

Not much difference in terms of proportional distribution of causes of death between during and pre-pandemic! The true difference could be understood through Cause-specific mortality rates.
Cause-specific mortality rate for the major causes of deaths per 100,000 population

- Cardiac disease: 57 (CSMR 2018-19), 122 (CSMR 2020)
- Stroke: 34 (CSMR 2018-19), 108 (CSMR 2020)
- Acute respiratory infection: 23 (CSMR 2018-19), 61 (CSMR 2020)
### Neonate including stillbirth

- **Fresh stillbirth**: 34% (2018-19), 42% (2020)
- **Prematurity**: 27% (2018-19), 19% (2020)
- **Birth asphyxia**: 21% (2018-19), 17% (2020)

### Child

- **Diarrhoeal diseases**: 12% (2018-19), 29% (2020)
- **Accidental drowning and submersion**: 28% (2018-19), 16% (2020)
- **Unspecified infectious disease**: 4% (2018-19), 6% (2020)
## Sensitivity of COVID-19 questions

<table>
<thead>
<tr>
<th>COVID-19 response</th>
<th>All cases Yes, n(%)</th>
<th>Acute respiratory cases Yes, n(%)</th>
<th>Proportion difference</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was there any diagnosis by a health professional of COVID-19?</td>
<td>10 (0.5)</td>
<td>1 (0.6)</td>
<td></td>
<td>0.989</td>
</tr>
<tr>
<td>2. Did s(h)e have a recent test by a health professional for COVID-19?</td>
<td>89 (4.7)</td>
<td>7 (4.1)</td>
<td></td>
<td>0.942</td>
</tr>
<tr>
<td>3. Was the COVID-19 test result positive?</td>
<td>5 (0.3)</td>
<td>0 (0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Did s(h)e suffer from extreme fatigue?</td>
<td>826 (43.8)</td>
<td>76 (47.2)</td>
<td></td>
<td>0.568</td>
</tr>
<tr>
<td>5. Did (s)he experience a new loss, change or decreased sense of smell or taste?</td>
<td>307 (16.3)</td>
<td>25 (15.5)</td>
<td></td>
<td>0.917</td>
</tr>
<tr>
<td>6. In the two weeks before death, did (s)he live with, visit, or care for someone who had any COVID-19 symptoms or a positive COVID-19 test?</td>
<td>6 (0.3)</td>
<td>2 (1.2)</td>
<td></td>
<td>0.879</td>
</tr>
<tr>
<td>7. In the two weeks before death, did (s)he travel to an area where COVID-19 is known to be present?</td>
<td>58 (3.1)</td>
<td>9 (5.3)</td>
<td></td>
<td>0.735</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1888</td>
<td>169</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Other symptoms?

- Did (s)he have a fever?
  - All cases: 36%
  - Acute respiratory cases: 52%

- Did (s)he have a cough?
  - All cases: 28%
  - Acute respiratory cases: 69%

- Did (s)he have any difficulty breathing?
  - All cases: 34%
  - Acute respiratory cases: 78%

There may be issues with the construct validity of the questions??
icddr,b thanks its core donors for their on-going support