Estimating Excess Mortality during the COVID-19 pandemic in Bangladesh



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Trend in COVID-19 cases in Bangladesh (# of cases) **Cumulative cases: 1,861,532** Cumulative deaths: 28,589 μ^{2} μ^{2

"Know your epidemic; Know your response"





01 Demographic Surveillance

Challenges in Bangladesh

- Coverage of civil registration of deaths is low
- Hospitals, as the main source of cause-of-death data, are not all integrated into the CRVS and often of poor quality data
- Deaths happen without testing



Matlab-Demographic Surveillance Data

- Matlab HDSS data from January-April from 2015 to 2020 was used
- Compared the mortality in 2020 with the historical trend of 2015–2019
- 276,868 people were followed until migration or death, whichever occurred first

Hanifi and colleagues Frontiers in Public Health, 2021 Insights Into Excess Mortality During the First Months of the COVID-19 Pandemic From a Rural, Demographic Surveillance Site in Bangladesh

Syed Manzoor Ahmed Hanlli*, Sayed Saldul Alam, Sanjida Siddiqua Shuma and Daniel D. Reidpath

Health Systems and Population Studies Distaice, Lodgt, D. Dhales, Elenglacitech

Background: Coronavirus disease 2019 (DOVID-19) has spread globally, and the government of each affected country is publishing the number of deaths every day. This official figure is an underestimate as it excludes anybody who did not die in a hospital, who did not test positive, who had a false result, or those who recovered on their own without a test.

Objective: This study aimed to measure the community level excess mortality using health and demographic surveillance in a rural area of Bangladesh.





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Edited by: 2ton Koulaioth Mortality per 1,000 person-years according to age and year





We used p-score as the primary approach to measure excess mortality

$$P \ score = \frac{Deaths_{\#2020} - Average \ Deaths_{\#2018-2019}}{Average \ Deaths_{\#2018-2019}} * 100$$

For example, if a country had a P-score of 100% in a given week in 2020, that would mean the death count for that week was 100% higher than – that is, double – the average death count in the same week over the previous five years.

Deaths by age from Sitakundu Household Survey



Other analysis approaches (ongoing)

- Survival Analysis:
 - Kaplan Meier Curve
 - Cox Proportional Hazards Model
- Interrupted Time Series Analysis
- Structural break analysis



Cox proportional hazards model for age more than 40 years (Hazard Ratio)



Burial grounds records

- Explored the basic characteristics, burial practices and record keeping system of the six burial grounds of DNCC
- Extracted death records from registers
- Reported the excess mortality during 2020





P-score (red circles) from burial site data (comparing 2020 with 2019) in different graveyards at Dhaka North? How to interpret?



Burials by year without Rayer Bazar graveyard (n=8,350)



Assumptions and issues with data analysis and interpretations

- The household information obtained from living people
- Migration of population may have occurred in both directions. We assumed that the proportion of this migration is constant over the period
- Lack of data from crematorium and cemeteries
- Lack of good cause of death information from burial site
- Attribution to COVID-19 is difficult





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