

Suicidal Deaths Amid COVID-19 Pandemic: A Cross-Sectional Autopsy-Based Study

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Abstract

Background: Suicide is a global issue, with an estimated 75.5% of the cases occurring in developing countries, and India alone accounting for 26.6% of all global suicidal deaths. With an advent of COVID-19 in the early months of 2020, India observed a rapid rise in suicidal deaths. Though, various media reports predicted loneliness, mental illness and economical instabilities as the major triggering factors, there is a lack of analytical or descriptive studies confirming this hypothesis. In this context, the present cross-sectional study was planned to determine the socio-demographic profiles of the victims and the triggering factors of the suicidal deaths during the COVID-19 phase, in context to the victims of suicide from 2017 to the Pre-COVID phase.

Methods: The present cross-sectional study was conducted by analyzing the suicidal deaths from 2017 to 30th June, 2020, interviewing the deceased family members during the COVID-19 phase and studying the Inquest reports, with the documents from the Institutional Medical Record Section.

Conclusion: The authors feel that suicide is an act of moment in mind, so any decision made under excitement or incitement is the real culprit. To curb the menace of suicide, state and society should ensure education, employment and socioeconomic well-being, along with strict law enforcement.

Keywords: *Coronavirus, Mental illness, Pandemic, Suicide, Domestic violence*

Introduction

Suicide, ranked among the leading causes of death in the world,¹ is a global phenomenon, with an annual global suicide prevalence of 10.4 per 100,000 population.² Suicide is the second leading cause of death in people aged 15-29 years and an estimated 75.5% of all global suicides occur in developing countries, with India alone accounting for 26.6% of all global suicide

deaths. India's contribution to the global suicidal deaths increased from 25.3% in 1990 to 36.6% in 2016 among women, and from 18.7% to 24.3% among men.³ Because of the large population size (18% of the global population), suicides and suicidality in India have global implications towards achieving a sustainable development goals (SDGs) by 2030, with suicide mortality rate as one of the key indicators.

The coronavirus disease (COVID-19) struck India in the early months of 2020. Concerning disease models led to historic and unprecedented public health actions to curb the spread of the virus. Remarkable social distancing interventions have been implemented to fundamentally reduce human contact. While these steps are expected to reduce the rate of new infections,

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the potentiality for adverse outcomes on suicide risk is high.⁴ And in concordance to this, suicide became the leading cause for over 300 'non-coronavirus deaths' reported in India due to distress triggered by nationwide lockdown⁵ in the months of April and May, 2020. There have been a staggering number of suicides, caused by fear of infection or being tested positive for the virus, loneliness, lack of freedom of movement, and alcohol withdrawal during the lockdown.

Suicide is a multi-faceted and complex event. So, the approach to understanding suicide must be multidisciplinary, involving psychiatrists, forensic experts and physicians. Hence, this study was planned with a purpose to know the magnitude and socio-cultural factors of the problem of suicides, the trend during the nation-wide lockdown and to assess the physical and psycho-social comorbidities associated with these suicidal deaths, so that a sound prevention program could be suggested, planned and implemented for flattening the ascending curve of suicidal deaths.

Aims and Objectives

1. To compare the proportion of suicidal deaths from January, 2017 to June, 2020
2. To study the socio-demographic profiles of the victims of suicidal death
3. To analyze the events that triggered the suicidal deaths

Material and Methods

- a. Place of study: BS Medical College Police Mortuary, Bankura, West Bengal, India
- b. Period of study: 1st March, 2020 to 30th June, 2020
- c. Study population: All the patients sent for autopsy examination at BS Medical College Police Mortuary between 1st January, 2017 to 30th June, 2020
 - ü Inclusion criteria: All the victims of suicidal

deaths between 1st January, 2017 to 30th June, 2020, who attended to BS Medical College Police Mortuary for autopsy examination.

ü Exclusion criteria:

- i. *Victims with doubtful manners of death*
- ii. *Cases with incomplete or inadequate history*
- iii. *Unknown cases*

d. Sample size: All the victims of suicidal deaths, attended to BS Medical College Police Mortuary for autopsy examination between 1st January, 2017 to 30th June, 2020.

e. Study design: Cross-sectional descriptive study

f. Source of data:

- i. Police or Magistrate inquests
- ii. Statements of the family members of the deceased
- iii. Postmortem register, Bankura Sammilani Medical College

g. Statistical analysis: All the data were manually checked and edited for completeness in a pre-determined format and were then coded for computer entry. Collected data was recorded and analyzed in Microsoft Excel worksheet and SPSS IBM 19.

Results

In the present study, the study population have been divided into five groups, namely subjects from the years 2017, 2018, 2019 and Pre-COVID Phase (1st January, 2020 – 29th February, 2020) with the COVID-19 Phase (1st March, 2020 – 30th June, 2020).

1. Proportion of suicidal deaths

Table 1: Proportion of suicidal deaths

Years	Total Post-mortems	Total Suicidal Deaths	Percentage of Suicidal deaths
2017	1330	347	26.09
2018	1450	389	26.83
2019	1540	421	27.34
Pre-COVID Phase	267	66	24.7
COVID-19 Phase	456	207	45.39

2. Age-distribution

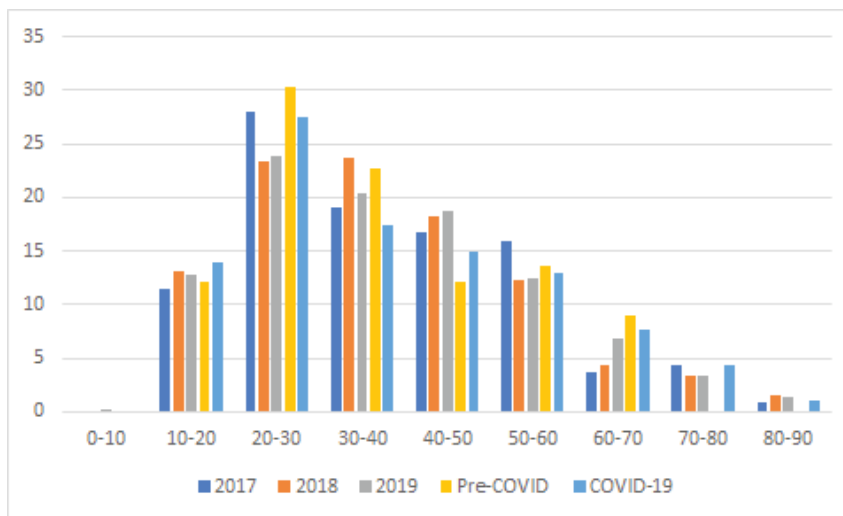


Figure 1 Age-distribution (in percentage)

3. Gender distribution

The Male: Female ratios for the years 2017, 2018, 2019, Pre-COVID phase (January,2020- February, 2020) and COVID-19 phase (March, 2020 – June, 2020) were 1.6:1, 1.2:1, 1.4:1, 1.5:1 and 0.9:1 respectively.

4. Monthly variation

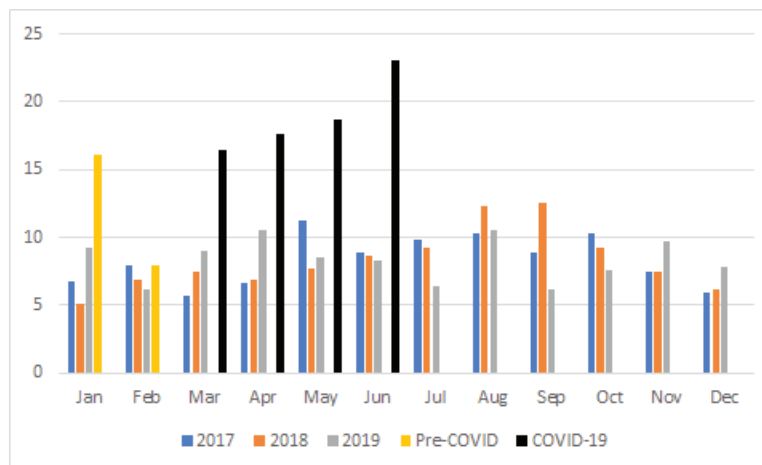


Figure 2 Monthly distribution (in percentage)

Methods of suicide

Table 2 Distribution according to methods of suicide (in percentage)

Sl.	Methods	2017	2018	2019	Pre-COVID	COVID-19
1	Hanging	53	56.3	53.2	60.6	58.4
2	Poisoning	39.2	38.3	39.4	37.9	33.3
3	Burn	4	3	5.2	1.5	8.2
4	Drowning	1.7	1	0.7	-	-
5	Railway runover	1.4	1.3	1.4	-	-
6	Cut throat	0.3	-	-	-	-
7	Wrist slash	0.3	-	-	-	-

6. Victims of COVID-19 Phase

6a. Occupation

42.5% victims of suicide were farmers, followed by the unemployed persons (23.7%) and homemakers (21.9%), and the rest of the population were students, retired person or salaried Government servants.

6b. Marital status

Majority of our subjects (55.5%) were married, followed by persons yet to marry (32.9%) and 10.1% of the subjects were either widow or widowers. 3 male subjects in the present study were divorced.

6c. Per Capita Income

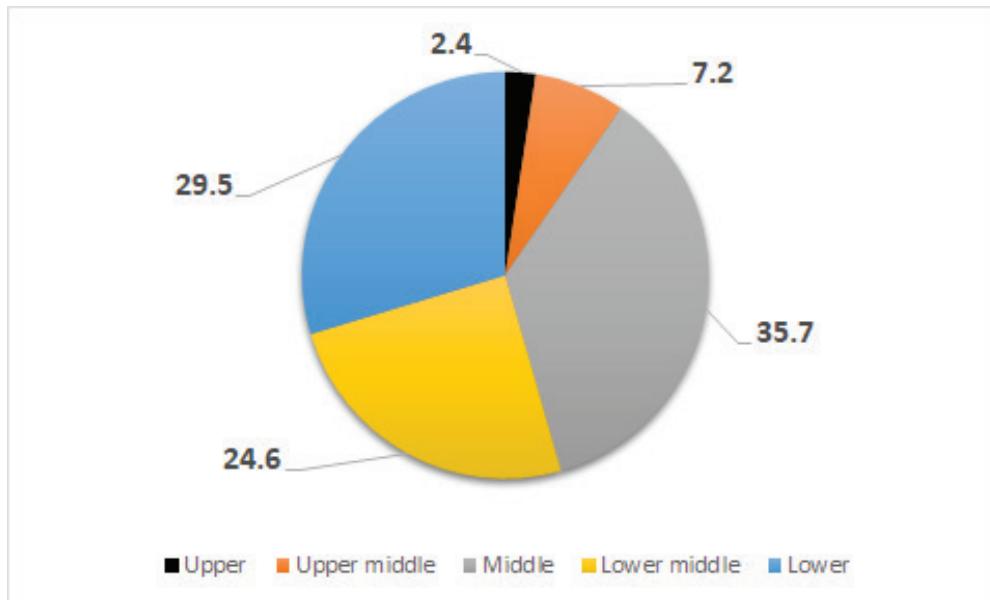


Figure 3 Distribution according to Per Capita Income (B.G. Prasad Scale)

6d. Mental illness

13.04% of the victims were either suffering from mental illness or had a past history of mental illness, of which 37.03% of the subjects had a family history of mental illness. Considering all the victims of COVID-19

Phase, 23.67% of the victims had at least one member in their families with mental ill-health.

6e. Educational status

Table 3 Distribution according to Education status

(percentage)

Sl.	Status	Number (n)	Percentage
1.	Illiterate	103	49.8
2.	Non-formal literate	39	18.8
3.	Primary	33	15.9
4.	Secondary	15	7.2
5.	Higher secondary	07	3.4
6.	Graduation and above	10	4.8

6f. Previous suicidal attempts

27 victims (13.04%) had a history of previous suicidal attempts. There was one woman in our study, who tried to commit suicide by slashing her wrists and received medical attention. That very night, she committed suicide by partial hanging.

6g. Events leading to the suicidal deaths

Table 4: Distribution of events leading to suicidal deaths

Sl.	Events	Number (n)	Percentage
1.	Domestic violence	60	28.9
2.	Dowry deaths*	29	14
3.	Economic crisis	27	13
4.	Depression	24	11.6
5.	Chronic debilitating diseases	23	11.1
6.	Love and breakups	15	7.2
7.	Unfulfilled demands**	13	6.3
8.	Withdrawal***	9	4.3
9.	Corona phobia	5	2.4
10.	Sudden demise of Bollywood actor	2	1

* All the suicidal deaths in married women within 7 years of marriage, irrespective of the events leading to death.

** Included the victims who committed suicide due to unfulfilled demands for smartphones, musical instruments, dining out and outdoor sports

*** Withdrawal from lack of availability of alcohol and other substances of abuse

Discussion

The COVID-19 pandemic began in December 2019 at Wuhan, China,⁶ and has quickly spread globally affecting more than 16.5 million people. India reported her first confirmed case on 30th January 2020 in Kerala.⁷ However, with an affection of more than 1.4 million people and a death toll of 33,000, India is ranked third in the world in terms of infection, immediately next to the United States of America and Brazil. Understandably, medical professionals and public health specialists are focused on the treatment and containing the spread of the disease in the general population, with less attention to the psychological and social consequences of the Covid-19 crisis. New research warns that the rapid rise in unemployment, coupled to the prevailing mental health problems amid this pandemic can raise the suicide rates.⁸

Though there is a paucity of literature on the trends of suicidal deaths amid COVID-19 crisis, multiple lines of evidence suggest that, this crisis may increase the prevalence of psychiatric disorders and suicide rates during and after the pandemic.⁶ This speculation is further amplified by the reports of 54 cases of suicidal deaths in the state of Punjab during the lockdown months of April and May in India.⁹ Reports from Nagpur claimed a decline in the suicidal deaths in the months of March and April, with an increase in incidence of suicidal deaths in May and a sudden spike in the month of June.¹⁰ The present study reflects a significant rise in the incidence of suicidal rates by more than 20%, as compared to the previous three years. Suicide, with an average prevalence rate of 25-30% among all the medicolegal autopsies, is

uniformly distributed throughout the year in Bankura, West Bengal. However, a rise in the suicide rates is noticed from the early days of January 2020, with rapid developments from the months of March, reaching its peak by June. This explains the growing instabilities and uncertainties among the general people in a region, where more than one-third of the population is living below poverty lines.¹¹

Globally, suicide is a leading cause of death among teenagers and adults under 35 years of age,¹ with a Male: Female ratio of 1.8 in age-standardized suicide rates, as per Global Health Observatory (GHO) data.⁴ Studies report that the age group of 20-63 years is most vulnerable, followed by the age group of 30-64 years. In our study, people of age group of 20-30 years were mostly affected, followed by the individuals of 30-40 years, with a gender distribution in continuity with the Global Health Observatory data from 2017 to 2019. But during March to June 2020, an altered ratio of 0.9:1 was seen, indicating more incidence of suicides in females, as compared to males. Women's greater vulnerability to suicidal behaviour is likely to be due to gender related psychopathological and psychosocial stressors, coupled to the lower number of reasons for living during the COVID-19 days. The availability of specific means for suicide in one particular region depends upon various factors like age, sex, availability and access of methods, the socio-economic condition, as well as prevailing culture and religious customs.¹² As the United States of America reports firearms as the most common method of suicide,¹³ China and South Korea, catering large rural populations, exhibits self-poisoning with pesticides as the usual method.¹⁴ However, in contrast, the National Crime Records Bureau in India reported that suicide by poisoning has gone down, with hanging becoming the preferred method.¹⁵ In concordance, our study reflects hanging as the most preferred method, followed by poisoning, with a fewer number of suicidal deaths attributable to self-immolation, drowning and railway runover. A systemic review on suicide in India found hanging as the most frequently reported method of suicide (10-72%), followed by self-poisoning (16-

49%), drowning (3-39%) and self-immolation (6-57%).¹⁶ Though poisoning and hanging are the two most preferred means of suicide over the decade in India, the gap between the two decreasing over time.^{17,18}

Virtually all mental disorders carry an increased risk of suicidal ideation, suicidal attempt, and suicide.¹⁹ About 90% of individuals who attempt or commit suicide suffer from mood disorders, psychoses, and personality disorders. However, the prevalence of depression or other diagnostic mental disorders recorded by psychological autopsy for the suicidal victims in Asian countries is lower than non-Asian high-income countries.²⁰ Depression is a public health issue in the South-East Asia region, with a prevalence ranging from 6.9% to 51.7%, among people who committed suicide.²¹ Identical results are reflected in the present study, which is also in concordance to a study in Indonesia, where major depressive episode was diagnosed in more than half of the people who died by suicide.²² And according to another report from the United States of America, suicide rates are largely unrelated to antecedent physical activity and alcohol consumption, and substantially higher among men reporting personality traits as insomnia, exhaustion, cyclothymia and self-consciousness.²³

The transition from suicidal ideation to actual suicide occurs impulsively as a reaction to acute psychosocial stressors.²⁴ Numerous studies have examined the precipitating factors influencing suicidal behaviours, that include suicidal ideation, plan, attempts and completed suicides. Being unemployed,²⁵ unmarried,²⁶ low education and income were reported to be associated with suicidal behaviours. Additionally, family history of mental disorders, chronic debilitating diseases, depression, loneliness, and illicit drug use have been documented to predict suicidal behaviours.²⁷ Contrastively, this study portrayed that the farmers and unemployed persons constituted majority of the victims, with married persons being more vulnerable to suicidal behaviours. This deviation in findings can be attributed to the COVID-19 pandemic, which struck India in the month of March 2020. The realization of the non-availability of vaccine and/or effective antiviral

drug against SARS-CoV-2 virus, and understanding that social distancing and quarantine or self-isolation is the only available remedy, forced governments of most of the countries to declare the nationwide lockdown which had substantial effects on the global economy and the socio-cultural environment.²⁸ Social isolation, anxiety, fear of contagion, uncertainty, chronic stress and economic difficulties may lead to the development or exacerbation of stress-related disorders and suicidality in vulnerable populations including individuals with pre-existing psychiatric disorders, low-resilient persons, individuals who reside in high COVID-19 prevalent areas and people who have a family member or friend who has died of COVID-19.²⁹ Domestic violence alone accounted for almost 30% of all the cases in our study, followed by economic unrest. Fuelled by mandatory stay-at-home, physical distancing, economic uncertainties, and anxieties caused by the pandemic, domestic violence has increased globally.³⁰ The National Commission of Women (NCW) noted a rise in the number domestic violence complaints in India. However, the number of cases reported are most likely not proportional to the actual rise in domestic violence, as most avenues to seek help or to physically remove themselves from their situations are impaired.

Conclusion

Suicide is a vast varied and intricate topic, yet our study is a tangible attempt of exploring the socio-demographic profiles of victims and the triggering events leading to suicides. Our study reported a suicidal incidence of 45.39% in the COVID-19 phase, as compared to a mean value of just over 26% from 2017 to Pre-COVID era. Majority of the victims belong to 20-30 years of age, with an overall male predominance, except during the COVID-19 phase, reflecting an unusual female dominance. Though the proportion of suicides is fairly distributed across the year, the months of pandemic reported a spike, with hanging and poisoning as the most preferred methods. Analysis during the pandemic revealed that farmers, unemployed and homemakers constituted the burden, with married persons from low-middle and low income groups. Victims with

low education and with a history of previous suicidal attempts were found to be most vulnerable. 13.04% of the victims were either suffering from mental illness or had a past history of mental illness, of which 37.03% of the subjects had a family history of mental illness. Considering all the victims of COVID-19 Phase, 23.67% of the victims had at least one member in their families with mental ill-health. However, domestic violence was depicted as the single most culprit behind these suicidal deaths.

To curb the menace of suicide, state and society should ensure education, employment and socioeconomic well-being, along with strict law enforcement. But authors feel that suicide is an act of moment in mind, so any decision made under excitement or incitement is the real culprit. Therefore, we would like to wrap up this by suggesting to improve the ability to think over any problem, with a balanced and reasonable tolerance.

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Ethical Clearance: Taken

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