

ORIGINAL ARTICLE

Impact of COVID-19 Pandemic on Suicide Rates in Vidisha: A Record and Verbal autopsy Based Mixed Method Study

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Abstract:

COVID-19 came as a challenge to the world. Several ad hoc measures were adopted by countries to control the spread of the virus. These measures involved lockdowns which encompassed the closure of workplaces, entertainment places, and schools, loss of jobs, loss of income and inability to leave the house. These led to an increase in mental health issues in the population ultimately leading to an increased incidence of suicides. This study was done to identify the prevalence of suicide cases before and during the COVID-19 pandemic in the Vidisha district and to find various reasons and perceptions behind the suicides that happened during the COVID-19 period. First-order family members of 11 deceased individuals were interviewed with a semi-structured questionnaire.

It was found that the number of suicides during-COVID period increased to more than 1.5 times the pre-COVID number. This might be due to the unavailability of poison due to the lockdown, that the number of hanging cases increased more as compared to poison. Females had a significant association between the manner of suicide and the period. Pandemic-associated lockdown closure of economic activities, isolation and increased domestic conflicts were found to be the major factors that were responsible for suicides during the pandemic. Studies also showed that suicide is perceived as a weakness and a quick escape from problems.

Keywords: Suicide; COVID-19; Verbal autopsy.

Introduction:

COVID-19 started spreading in 2019 as a small outburst in the Wuhan province of China which quickly turned into a pandemic affecting almost the entire world, bringing the world to a standstill. The COVID-19 pandemic and mitigation measures have affected the mental health of millions of people across the world.¹ To control and restrict the spread of the virus, strict quarantine was implemented; while several countries including India enforced lockdowns. Social distancing, isolation and other factors like economic constraints, closure of educational institutes, leisure and recreational activities, loss of family member(s), loss of income, etc., caused great stress which triggered a wide variety of psychological problems such as panic disorder, anxiety and depression.²

While lockdown and social isolation have been recognized and regarded as effective measures to stop the spread of the COVID-19 virus, the reduced access to family, friends, and other social support systems caused loneliness, increasing mental health issues like anxiety and depression.³⁻⁵

Vulnerable groups for increased stress and anxiety include women, younger ages, and the unemployed. The stressors recognized include fear of contracting COVID-19, inability to

execute a routine exercise schedule and worry about the future.⁶ This has caused a surge in mental health-related issues (fear of COVID-19 infection, anxiety, stress, post-traumatic stress disorder, and depression) among the general population and healthcare workers.⁷

Various experiences from past epidemics suggest that these mental health issues can lead to an increased tendency to commit suicide in an individual with or without pre-existing mental or medical illness.^{8,9} An autopsy examination is the gold standard for defining causes of death. The COVID-19 pandemic and its associated difficulties in terms of conducting autopsies have only further necessitated an alternative. One of the most interesting alternatives to the conventional autopsy is the verbal autopsy, a tool that originated in Africa and Asia in the 1950s and consists of a structured interview with the deceased's family members concerning the symptoms manifested by the person and the circumstances of death.¹⁰

Verbal autopsy is an important research tool that helps in determining the cause of death in cases where no or incomplete medical records are present or no medical attention was given to the deceased. WHO suggests that verbal autopsy can fill a critical gap in measuring the mortality from COVID-19 for deaths which occur outside of a healthcare setting.¹¹ Despite its use in different parts of India's health care delivery system, verbal autopsy remains an under-utilized and often misunderstood epidemiological tool.^{12,13} Currently, there is a gap in suicide statistics and verbal autopsy data in India which can mainly be associated with the stigma attached to the subject. To establish more unbiased trends in understanding and prevention of suicide,

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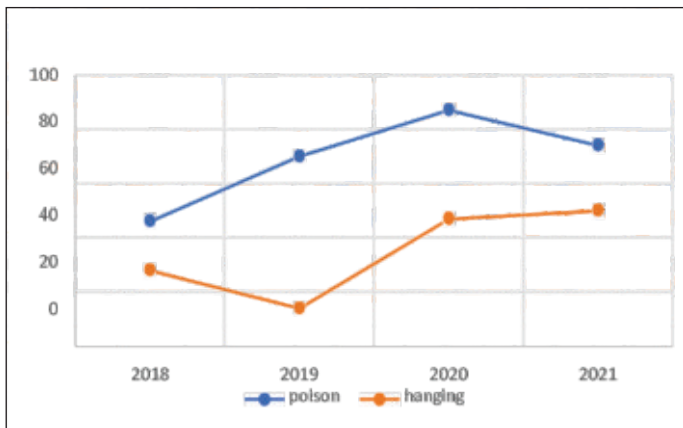


Figure 1. Year wise numbers of poisoning and hanging.

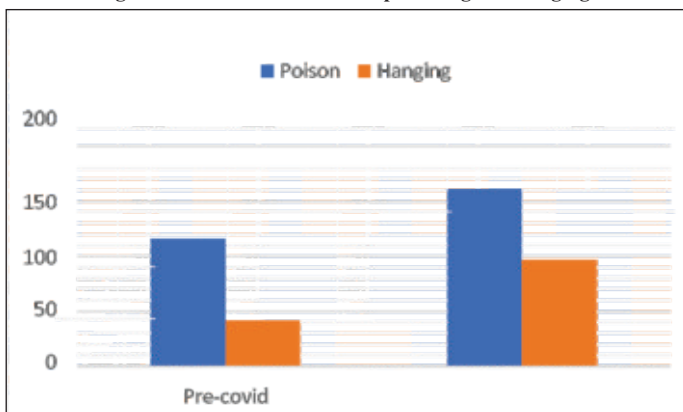


Figure 2. Manner of suicide.

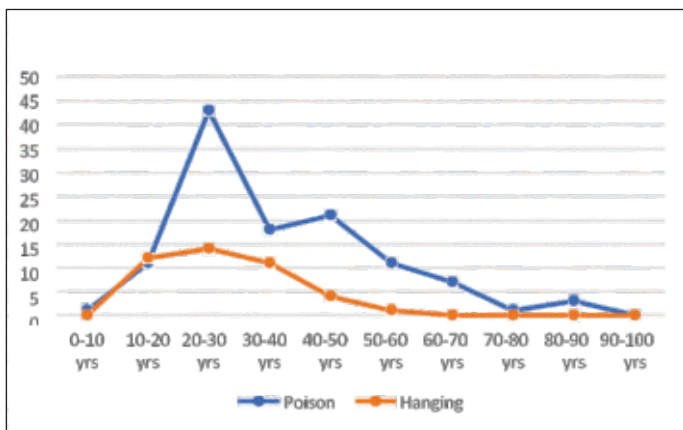


Figure 3. Pre-covid.

it is necessary to carry out research focused on number of suicides and the predisposing factors. The present study was conducted with the objectives to find the prevalence and proportion of suicide cases before and during, identifying manners of suicide deaths and finding out various reasons and perceptions behind suicide cases through verbal autopsy.

Materials and Methods:

It is a mixed-method study with both quantitative and qualitative components. The study was conducted in two parts. The first part of the study is a quantitative analysis of the suicide rates before

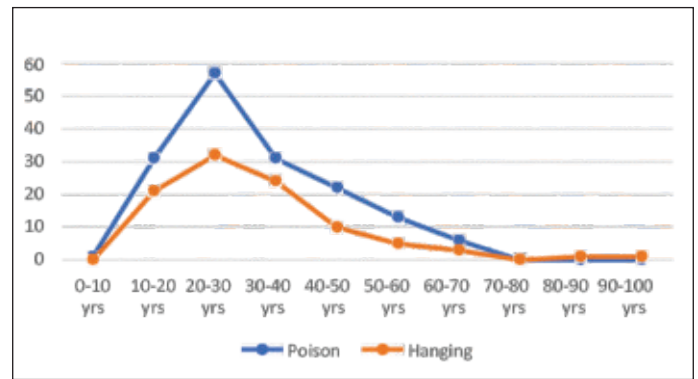


Figure 4. During covid.

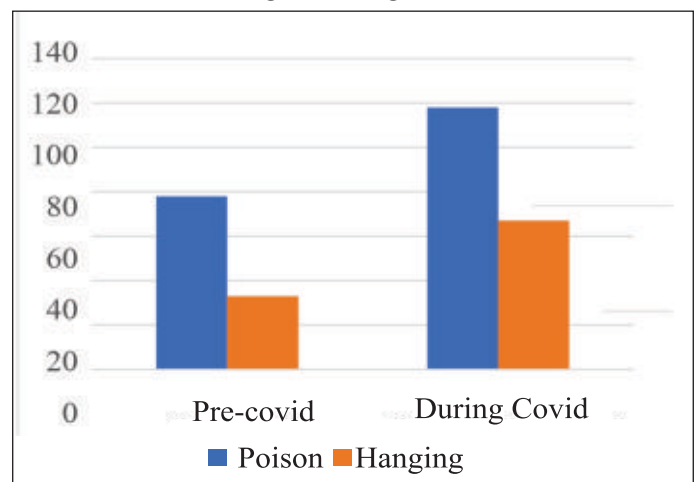


Figure 5. Manner of suicide in males.

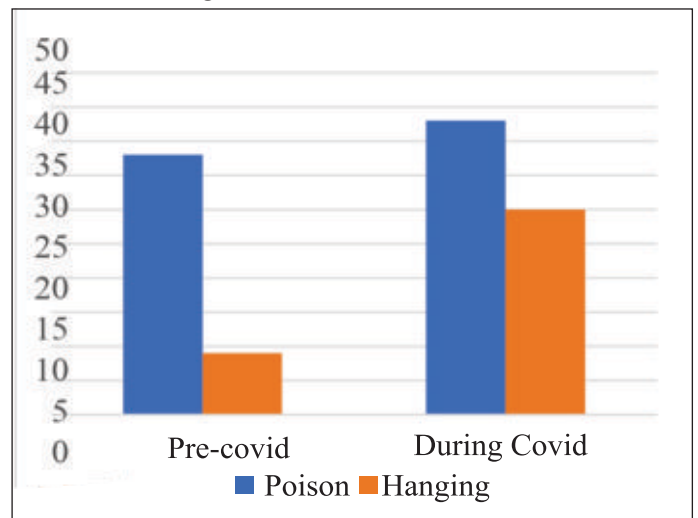


Figure 6. Manner of suicide in females.

and during the pandemic. The second part of the study is the qualitative research where various reasons and perceptions behind suicide cases were gathered through verbal autopsy, by in-depth interviews of the first-order family relatives of the deceased. The study was conducted in the month of July 2022, at medical college hospital and the district hospital of Vidisha, after receiving approval from the Institutional Ethics and Institutional

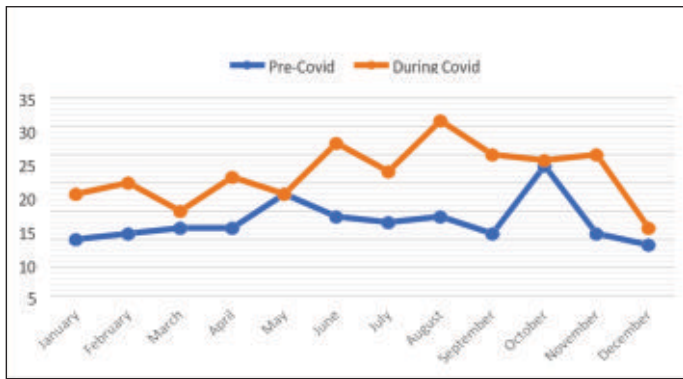


Figure 7. Month wise suicide trends.

Table 1. Age-wise distribution.

Age Group		Poison	Hanging	Total
0-10 years	Pre-COVID	1	0	1
	During COVID	1	0	1
	Difference	0	0	0
10-20 years	Pre-COVID	11	12	23
	During COVID	31	21	52
	Difference	20	9	29
20-30 years	Pre-COVID	43	14	57
	During COVID	57	32	89
	Difference	15	18	33
30-40 years	Pre-COVID	18	11	29
	During COVID	31	24	55
	Difference	13	13	26
40-50 years	Pre-COVID	21	4	25
	During COVID	22	10	32
	Difference	1	6	7
50-60 years	Pre-COVID	11	1	12
	During COVID	13	5	18
	Difference	2	4	6
60-70 years	Pre-COVID	7	0	7
	During COVID	6	3	9
	Difference	-1	3	2
70-80 years	Pre-COVID	1	0	1
	During COVID	0	0	0
	Difference	-1	0	-1
80-90 years	Pre-COVID	3	0	3
	During COVID	0	1	1
	Difference	-3	1	-2
90-100 years	Pre-COVID	0	0	0
	During COVID	0	1	1
	Difference	0	1	1

Research Committee.

The data was collected after the subject expert gave the research team formal training. Informed, written consent was taken from the interviewee before the interview. Full confidentiality and anonymity were assured for the family members and the deceased. For the quantitative part of the study, hospital records were accessed from the MRD section of the hospitals with prior permission from the concerned authorities.

For verbal autopsy, only the cases that fulfilled the following inclusion criteria were included-

1. The deceased were the resident of the Vidisha district.

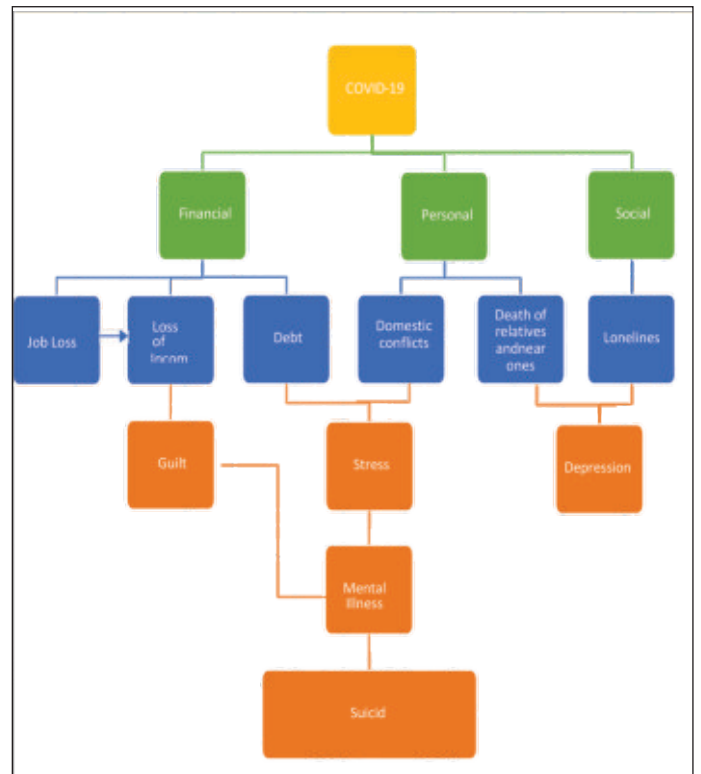


Figure 8. Thematic analysis of the reasons for suicides during Covid period.

2. The death occurred unnaturally and was labelled under various causes of suicide.
3. The subject agreed to participate in the study voluntarily and consent was obtained.

The following cases were excluded from the study-

1. Deceased is a resident outside the Vidisha district.
2. The family of the deceased is unwilling to participate in verbal autopsy or is unwilling to give consent.
3. Cases with insufficient or doubtful data were excluded.

For the quantitative part, retrospective data of all the suicides that have occurred over the period of 2 years before the COVID-19 pandemic in Vidisha (i.e., between January 2018 and December 2019) and 2 years during the pandemic (i.e., between January 2020 and December 2021) were accessed from the MRD section of the hospitals. From these records, 416 confirmed suicide cases were identified. These were confirmed by the history, findings and opinions mentioned in the post-mortem reports. The manner of suicide in these cases were either poison consumption or hanging. Though there were some other manners of suicide as well like drowning, falling from heights and train accidents, it could not be confirmed if they were suicidal or accidental deaths. Therefore, these cases were excluded from the study. The data was then tabulated for further analysis.

For the qualitative part, the address and/or contact details of the family member were retrieved from the post-mortem report and from the respective police station records. A verbal autopsy was done by visiting the family of the deceased door-to-door, by

means of in-depth interviews of the family member of the deceased. A home-based interview was adopted to make the subject feel comfortable and relaxed in the setting of his/her home. A pre-tested piloted, semi-structured questionnaire was used for the interview, which was developed in close association with the experts and it was peer-reviewed and pre-tested. The questionnaire was developed from a semi-structured interview guide that was published in 2020, for Indian settings.¹⁴ Though very elaborate, the interview guide was lacking in the component of COVID-19. Therefore, relevant questions were added to the same after discussion with subject experts. The questionnaire was then pre-tested. The subjects were also provided with a Participant Information Sheet in the vernacular language and Informed Written Consent was taken. Training and sensitization sessions for empathy, privacy and confidentiality were conducted under the guidance of a guide and co-guide as the subject is related to sensitive matters of death and suicide.

Of all the cases during COVID-19 pandemic, that were identified and shortlisted for the qualitative study, 11 subjects agreed to participate and gave their consent. The appointment was sought from the participants beforehand for the interview. A detailed informed written consent form was provided to the participants. All of the contents were explained in an easy and comprehensive language. All of their queries were answered. Participants were given Investigator's contact details for future use.

Hospital records were accessed and analyzed for suicide rate data. This record was present with the hospital administration. Post Mortem reports were checked to ascertain the manner of suicide. Quantitative data was entered and analyzed using Microsoft excel. The chi-square test was applied to find the association between the manner of suicide and the number of suicides pre-COVID and during-COVID periods in males and females. A qualitative assessment was done by thematic analysis.

Results:

A record of a total 416 suicide deaths between 2018 and 2021 was found in the associated hospitals. Out of these, 296 (71.15%) were males and 120 (28.84%) were females. Before the COVID pandemic (i.e., 2018 and 2019), 111 males and 47 females committed suicide. The mean age for males was 34.96 years whereas the mean age for females was 35.13 years. During the COVID pandemic, 185 males and 73 females committed suicide. The mean age for males was 32.79 years whereas the mean age for females was 32.87 years.

In the pre-COVID pandemic period, out of the total 158 suicides that occurred in the Vidisha region, 116 occurred by poisoning whereas 42 occurred by hanging. During the COVID pandemic period, a total of 258 suicides occurred in the region, out of which 161 were by poisoning and 97 were by hanging. Figure 1 shows the year-wise numbers of poisoning and hanging. Over the course of 4 years, the number of deaths by poisoning increased till 2020 and it decreased in 2021. In contrast to this, the number of deaths by hanging declined till 2019, after which it saw a sharp rise in 2020 (the first year of the COVID-19 pandemic) and a slight increase in 2021.

Age group distribution with a range of 10 years shows the

unimodal distribution in both periods as shown in the figure 3 and 4. From Table 1 the age group of 20 to 30 years saw the highest number of suicides in both pre-COVID period and during-COVID period, But the number was more during COVID period.

The number of poisoning deaths increased by 15 whereas the number of hanging deaths increased by 18 for the age group. While age group of 20 to 30 years had the highest number of suicides (57 and 89), the second highest number of suicides (29 and 55) were recorded in the age group 30 to 40 years followed by age group of 10 to 20 years (23 and 53).

Chi square test was applied to find association between the manner of suicide and the time period (table 3 & 4). The p value for males was more than 0.05 (statistically non-significant) but the p value for females was less than 0.05 showing that the data for females is statistically significant.

For the month wise distribution of number of suicide deaths (figure 7), unpaired T-test was applied. The p value was found to be less than 0.001 ($p=0.0002$) and was statistically highly significant. The pre-COVID period had the highest peak at October followed by the second highest peak in May. During-COVID period, these were August and June respectively.

For the qualitative part, 21 subjects were interviewed. Thematic analysis was done for the qualitative data of the study (figure 8). Various financial reasons like job loss, income loss and debt; personal reasons like domestic conflicts and death of relatives and near ones; social reasons like loneliness were found to be the major reasons that led to feelings of stress, guilt and depression which ultimately led to mental illness and ended in suicide. Reasons like losing money in gambling are included under 'loss of income', whereas isolation comes under loneliness. During interview, various perceptions of family members regarding suicide were observed. Family members perceived suicide as a quick escape from crisis and thought that it did not merit any sympathy for the deceased. Family members had some anger towards the deceased. In case of suicide of young adults (between 18 to 25 years), family members also had regret that the deceased did not try to share their problems and were dealing with them alone.

Discussion:

The study concluded that poisoning was the most popular method of committing suicide in Vidisha in the pre-COVID period. This is in agreement to a study conducted in Bhopal by Singh et al.,¹⁵ to study the manner of suicide in the city. During- COVID period, although poisoning was still the most common method of committing suicide, the number of deaths by hanging increased more than number of deaths by poisoning. The reason can be attributed to the fact that during most of the year, lockdown was imposed and hence it became difficult to gain access to poison

In both pre-COVID period and during-COVID period, highest number of suicides were recorded in the age groups of 10 to 20 years and 20 to 30 years. The results are consistent with a similar study conducted in Cooch Behar Government Medical College and Hospital, Cooch Behar by Sengupta et al.,¹⁶ where it was found that most cases of suicide were in age group of 10 to 20 years and 20 to 30 years. In both pre-COVID period and during-

COVID period, a male dominance in the number of suicides is observed. Similar results were obtained in the study mentioned above.

In both pre-COVID period and during-COVID period, the highest number of suicides were recorded in October and May. Contrast to this, during-COVID period, highest number of suicides were recorded in June and August. The result is consistent with the study from Nepal by Acharya et al.,¹⁷ which found that the highest number of suicides were recorded in June, July and August, during-COVID period. Overall, in both pre-COVID period and during-COVID period, higher number of suicides were recorded in the 2nd half of the year, i.e., July to December, as compared to the 1st half (January to June) of the year. A possible reason for this difference could be that the 2nd half of the year in India has major festivals and these festivals can lead to financial crisis and increased stress.

In Vidisha region, people whose income was impacted due to COVID were at a greater risk of committing suicide. Other factors are unemployment, domestic conflicts and fear of COVID. Financial crisis and isolation were 2 major factors that led to suicide. Closure of economic and entertainment activities during the lockdown affected the mental health of people. On one hand it led to increased domestic conflicts while on the other hand it led to an increased feeling of loneliness and isolation. These led to stress and depression which ultimately led to suicide. Young population is at the greater risk of being affected by these factors as shown by the increase in number of suicides in age group 20 to 30 years and 10 to 20 years. Menon et al.,¹⁸ have talked about various precipitating causes behind suicide deaths during COVID period in their study. Fear of COVID-19 infection was the dominant reason behind suicide, followed by financial crisis, loneliness, social boycott and pressure to be quarantine, COVID-19 positive, COVID-19 work-related stress, unable to come back home due to lockdown.

Conclusion:

This study concluded that due to COVID-19 pandemic and associated lockdown, the overall number of suicide deaths have increased. For the two-year period before the pandemic (2018, 2019), the number of suicides were 158 which increased to 258 in the similar period after the start of pandemic (2020, 2021).

While the most common method of suicide remained poison consumption, the number of deaths by hanging increased much more as compared to poisoning during-COVID period. Using verbal autopsy, the various reasons found behind suicides during-COVID period were financial crisis, death of a relative or a near one, isolation, domestic conflicts, and increased stress. Financial crisis was a major factor for the earning member of the family whereas isolation, loneliness and stress were a major factor in younger population. The various perceptions found behind suicide were that suicide is a quick escape from problems and the deceased was not strong enough to fight with the problems. In case of suicide of young person, it is also perceived that suicide could have been prevented if the deceased shared their problems with the family members. However, these results should not be generalized. More research is needed by the use of Verbal autopsy

tool to identify various reasons of suicide in different age groups.

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