

# Pattern of Suicidal Deaths and Most Affected Section of Society during Covid-19 Pandemic Time in Bhopal Region

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## ABSTRACT

Globally, the COVID-19 pandemic presented previously unheard-of difficulties that affected a number of aspects of daily life. This study aims to illustrate the most impacted segments of the population during the COVID-19 pandemic and investigates the suicide trend in Madhya Pradesh's central area, providing insight into the possible effects of the crisis on mental health. India is a country with a large population and a wide range of socioeconomic backgrounds, and it has been severely affected by the pandemic. People's stress levels increased as a result of the nation's widespread lockdowns, economic downturns, pressure on the healthcare system, and social unrest. These elements have added to an increased psychological pressure, as have the worries of being sick, being alone, and losing loved ones. Anecdotal data and preliminary research point to a concerning spike in suicide rates in India during the pandemic. Frontline healthcare professionals, migrants, and vulnerable people are just a few of the demographic groups that have been affected. Aside from this the groups with the highest suicide rates are married people, lower middle economic class, nuclear families, jobless people, and students. Probable reason behind that according to our study is hopelessness and guilt of not able to meet family expectations due to unemployment or loss of job during covid era. Things get worse when stigma, lack of awareness, and restricted access to mental health resources are combined.

To create successful treatments and support networks, it is essential to comprehend the complex relationships that exist between the COVID-19 pandemic and suicide rates in India. To address the mental health issues brought on by the epidemic in India and other comparable settings, more study is needed to determine the long-term effects and create focused mitigation mechanisms. This research demonstrates

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the most impacted segment of the population and the suicide trends during the COVID-19 pandemic reported to the mortuary of a tertiary care center of central region of Madhya Pradesh.

**KEYWORDS:** COVID-19; Suicide; Society; Pandemic; Post mortem.



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## INTRODUCTION

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Suicide is not a recent phenomenon in human history; in fact, its roots may be found all the way back to the beginning of human civilization. Suicide is as old as mankind itself. Any animal can get sick and die, or being killed by another animal, but only humans have the capacity to kill themselves, as far as we know. It must have come to man's attention during his evolutionary process that he could commit suicide. That is the most intimate action one can take. In India, there are many different factors that are associated with suicide: low income, low literacy, unemployment, family violence, breakdown of the joint family system, unfulfilled romantic ideals, conflicts between generations, crop failure, rising cultivation costs, heavy debt, unhappy marriages, harassment from husbands and in-laws, dowry disputes, depression, physical illness that persists over time, alcoholism/drug addiction, and easy access to guns, Anticipated anxiety about not being able to handle things and fear of doing badly in class or on tests.

Suicide is a very common occurrence in today's world. In 2015, 828,000 people died by suicide around the world.<sup>1</sup> Suicides in India surged to 230,314 in 2016, accounting for 17% of all suicides worldwide. In both the 15–29 and 15–39 years age group, suicide was the most common cause of death.<sup>2</sup>

In India, over 46,000 suicides occurred in the 15–29 and 30–44 age ranges in 2012, accounting for about 34% of all suicides. In India the National crime research Bureau (NCRB), 2010, in their annual report on Incidence and Rate of Suicides during the Decade (2000-2010) have reported that, more than one lakh persons (1,34,599) in the country lost their lives by committing suicide during the year 2010.<sup>3</sup>

At 120 deaths per million populations, the rate of deaths by suicide across India in 2021 soared to the highest level ever recorded, rising 6.1% from the previous year, new data from National Crime Records Bureau (NCRB) shows, highlighting the toll the pandemic appears to have taken on the emotional well-being of Indians. In contrast, the trend in the rates of crime as well as accidental deaths has started moving towards pre-pandemic levels. Data shows that a total of 164,033 people died from suicide in 2021, an increase of 7.2% from 2020, when 153,052 people died from suicide, data shows. In 2019, this figure was around 139,000. At 120 deaths per million population, 2021 also saw the highest rate of deaths from suicide since 1967, the earliest year for which this data is available. The second highest rate of suicide ever reported in the country was in

2010, when it was 113.5 deaths per million population. The data also shows that those in the lowest income group (people earning less than ₹1 lakh per annum), who make up around two-thirds of deaths by suicide, registered the biggest increase in deaths by suicide in 2021. Among professions, people who are self-employed and those who are engaged as daily wagers registered the biggest increase in deaths by suicide, followed by salaried workers and students. To be sure, students had registered a much bigger increase than salaried persons in 2020. The increase in 2021 compared to 2019 is bigger among students than salaried persons. Among farmers of different kinds, deaths by suicide increased only among agricultural labourers, which was also the case in 2020.<sup>4</sup>

Recognizing the pattern of suicide in certain location not only aids in the early care of such cases, but also proposes implementing preventative actions at an earlier stage. Law enforcement officials are not the only ones responsible for preventing violence in our society; public health and other human care agencies can also help to avoid primary violence in order to minimize other main causes of illness and mortality. Death investigators must be familiar with the most typical scenario, risk factors, methodologies, and victims, as well as any potential problems.

Developing suicide prevention programs requires determining the cause(s) of suicide and the factor(s) that caused the suicidal behavior. In India, community based preventive programs must be established with an awareness of the region's economic and cultural norms, with a focus on primary and secondary prevention of factors linked to suicide risk. Help agencies in society should be enhanced to support persons in interpersonal crisis, and mechanisms to limit access to pesticides and other suicide techniques must be developed.

The view that suicide cannot be prevented is commonly held view among health professionals. In light of these facts, and the severity of the problem and the lack of recent data, the current study attempted to conduct a complete and detailed analysis of suicides in terms of many epidemiological factors.

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## MATERIALS AND METHODS

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A descriptive, observational, prospective study was conducted from January 2020 to September

2021, during the current COVID-19 Pandemic which includes first wave (March 2020 - Nov 2020) and second wave (Feb 2021 - May 2021) phase with the goal of looking into numerous epidemiological factors. Prior

approval from the ethical committee of Gandhi Medical College, Bhopal was undertaken. All established cases of suicidal deaths with prominent autopsy findings and relevant history, brought for autopsy, included in the study. Gender, age, marital status, living place, type of family, socioeconomic level, and co-morbidities problems were among the parameters included in the study. During the research period, 4478 cases were subjected to autopsy, with 686 of them being confirmed as suicidal deaths. All accompanying individuals and attendants in such situations were questioned for any relevant details that could be acquired regarding the motivation for suicide, any past medical or psychiatric history, or any prior attempts at suicide. Study aims to determine the overall number of suicides occurred throughout the time period, the sex ratio, and to know methods adopted to commit suicide. Data were collected and compiled in MS Excel 2021 and analyzed by SPSS software.

### RESULT

The study revealed that during the period from January 2020 to September 2021 (21 months) a total of 686 cases were reported as suicidal deaths which were studied. Suicidal deaths constituted 15.3% of the total autopsies 4478 conducted during the study period in the department of forensic medicine and toxicology, Bhopal. Males predominated the study with the gender ratio of 2.2:1 showing that males are more prone to suicidal deaths. The maximum incidence of cases was seen in the third decade of life closely followed by fourth decade of life mainly younger age group was affected.

Data showed that there was an increased number of incidences of suicide during the months of April (25.7%), May (24.1%), and March (18.8%). This coincides with the time period of the 1<sup>st</sup> and 2<sup>nd</sup> waves of COVID-19 in India. The fewest incidences were noted during the month of September 2021, *i.e.* 1.5%. In present study majority of people committing suicide were belongs to lower middle socio-economic class. Majority of the deceased had education up to High school followed by those who had Immediate/Diploma Least proportion of deceased were postgraduates *i.e.*, 0.9%. In present study majority of deceased who committed suicide were living in nuclear family type 501 (73.03%), followed by joint family 148 (21.57%) and least number of them were those who were living alone 37 (5%). In present study majority of the cases that committed suicide were unemployed (67.6%), followed by students (19.5%), then followed by Farmers (3.8%), who were employed by private companies (3.8%), government employees (3.1%) and least proportion were labor (2.2%) by occupation. Maximum proportion of cases were married

490 (71.4%), followed by cases who were unmarried *i.e.*, 187 (27.3%). Least proportion was comprised by cases that were separated *i.e.*, 1(0.1%). Most common mode of committing suicide was hanging 306 (44.61%), followed by poisoning 283 (41.25%). Least proportion *i.e.*, 1 (0.15%) of deceased chooses firearms as mode of committing suicide. April was the month with a greater number of mortality cases. Majority of the deceased did not leave suicide note *i.e.*, 646 (94.16%). Majority proportion (80.6%) did not have any history of long-term illness. Main risk factors for committing suicide in males were unemployment followed by poverty/debt, exam pressure. Main risk factors for committing suicide in females were family problem, abuse, dowry issues. Love affair was equally seen in both genders.

Substance abuse, hopelessness, guilt, despair of life, panic attacks were most common symptoms associated with males which also shows statistical significance. The most common symptoms associated with females were emotional instability and regret to be born.

### DISCUSSION

Suicide is a serious public health concern, despite varying trends of increases or declines in suicide rates throughout the world. The present study was conducted over a period of 21 months from January 2020 to September 2021 to assess the load of suicide related deaths. Suicide has a wide range of reasons and conditions that are difficult to classify and categories. The common methods used in India include poisoning, hanging, and drowning. Others include leaping from a great height, jumping in front of a moving train, etc. Suicide trends vary greatly depending on period, place, age group, sex, and race.

In present study, the age group which is affected

**Table 1:** Distribution of cases according to age

Age (in years)	Frequency	Percentage
<10	7	1.0
11-20	134	19.5
21-30	243	35.3
31-40	160	23.3
41-50	68	9.9
51-60	50	7.3
61-70	13	1.9
71-80	10	1.5
81-90	3	0.4
<b>TOTAL</b>	<b>686</b>	<b>100.0</b>

Meanage ±SD of the cases instudy 32 ± 13.9

is mainly 21 to 30 years of age group and Mean age  $\pm$  SD of the cases in study  $32 \pm 13.9$ . Highest proportions of cases 243 (35.3%) were in their third decade of life, implying that suicide is most common in younger age group, followed by people in their fourth decade of life 160 (23.3%). which is similar to other studies like Rastogi and kocher *et al.*,<sup>5</sup> SC Gupta<sup>6</sup> (Table 1) (Fig. 1).

In our study majority of cases were Male 472

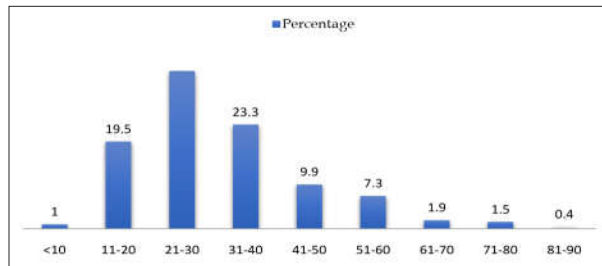


Fig. 1: Distribution of cases according to age

(68.6%) implying male have higher tendency to commit suicide. Female proportion was comparatively less *i.e.*, 214 (31.1%). This is similar to studies of Suneet *et al.*, P.N. Suresh *et al.*<sup>8</sup> From the present study the highest proportion of deceased belong to lower middle socio economic class *i.e.*, 536 (78.13%), followed by Lower class 98 (14.29%) including both Lower class and Upper Lower class (Table 2) (Fig. 2).

Least proportion of deceased was from Upper-middle

Table 2: Distribution of deceased according to their Socio-economic status

SES	Frequency	Percentage
Lower class	50	7.29
Upper Lower	48	7.00
Lower middle	536	78.13
Upper Middle	23	3.35
High Class	29	4.23
<b>Total</b>	<b>686</b>	<b>100</b>

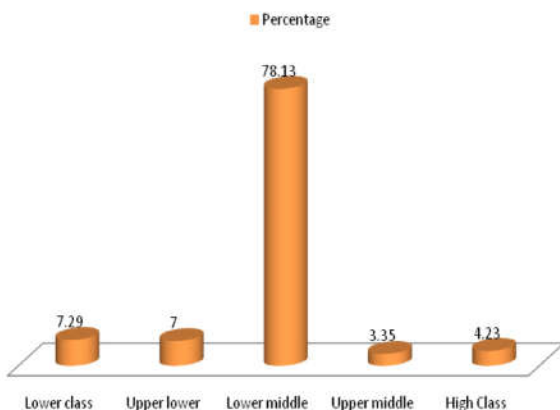


Fig. 2: Distribution of deceased according to their Socio-economic status

class *i.e.*, 23 (3.35%). The findings are different from studies like, Anil Rane *et al.*<sup>9</sup>, Sachidananda Mohanty *et al.*<sup>3</sup> were highest proportion of deceased belong to lower socio-economic status. The socioeconomic disadvantage includes low income, unmanageable debt, lack of good housing conditions, lack of educational qualifications, unemployment, and living in a socioeconomically deprived area. In present study majority *i.e.*, 36.9% of the deceased had education up to High school followed by those who had Immediate/Diploma (24.1%). Least proportion of deceased were post graduates *i.e.*, 0.9%. The findings was identical with the studies done by Ashish Srivastava *et al.*<sup>10</sup> and Sachidananda Mohanty *et al.*<sup>3</sup> Majority of deceased who committed suicide were living in nuclear family type 501 (73.03%), followed by joint family 148 (21.57%) and least number of them were those who were living alone 37 (5%) (Table 3) (Fig. 3).

Table 3: Distribution of cases according to the family type

Type of family	Frequency	Percentage
Joint	148	21.57
Nuclear	501	73.03
Single	37	5.39
<b>Total</b>	<b>686</b>	<b>100.00</b>

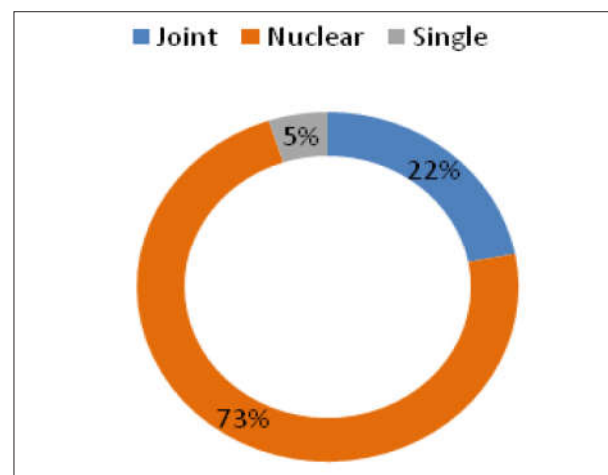
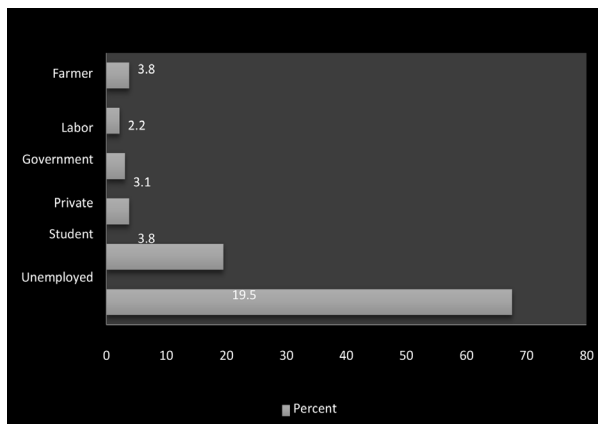


Fig. 3: Distribution of cases according to the family type

Majority of the cases that committed suicide were unemployed (67.6%), followed by students (19.5%), then followed by Farmers (3.8%), who were employed by private companies (3.8%), government employees (3.1%) and least proportion were labor (2.2%) by occupation (Table 4) (Fig 4).

**Table 4:** Proportional distribution according to Occupation.

Occupation	Frequency	Percentage
Unemployed	464	67.6
Student	134	19.5
Private	26	3.8
Government	21	3.1
Labor	15	2.2
Farmer	26	3.8
<b>Total</b>	<b>686</b>	<b>100.0</b>



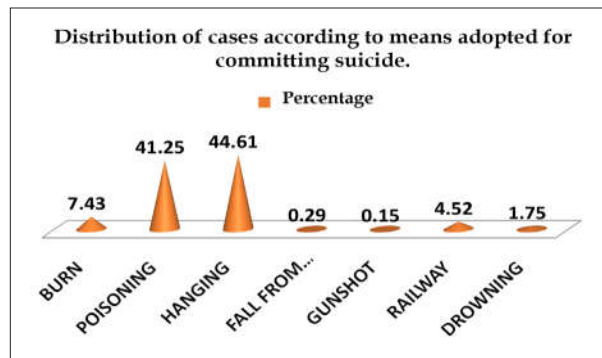
**Fig. 4:** Proportional distribution according to Occupation

My results are consistent with the studies done by Suneet *et al*<sup>7</sup>, P.N. Suresh *et al*<sup>8</sup>, Binaya K Bastia *et al*<sup>11</sup> in which unemployed males and students mainly commits suicide. Students mainly because of the stress of competitive exams nowadays and due to the rat race.

In my study maximum proportion of cases were married 490 (71.4%), followed by cases who were unmarried *i.e.*, 187 (27.3%). Least proportion was comprised by cases that were separated *i.e.*, 1 (0.1%). 490 cases out of 686 cases were married that is similar to studies conducted in other parts of India.<sup>18,23,24</sup> In Fatal deliberate self-harm married people outnumbered unmarried people in studies done by Rastogi *et al*<sup>5</sup>, Suneet *et al*<sup>7</sup>, P.N. Suresh *et al*<sup>8</sup> Charan K Shetty *et al*.<sup>12</sup> According to study done by Binaya K Bastia *et al*<sup>11</sup> married females and unmarried males are more prone for suicide. The two main reasons for this are marital disharmony and financial burden. In western studies there is high incidence of suicide in unmarried people. According to our study highest proportion comprised of people who choose mode of committing suicide as hanging 306 (44.61%), which was closely followed by people who committed suicide by poisoning 283 (41.25%). Least proportion *i.e.*, 1 (0.15%) of deceased chooses firearms as mode of committing suicide (Table 5) (Fig. 5).

**Table 5:** Distribution of cases according to means adopted for committing suicide

Means adopted for committing suicide	Frequency	Percentage
Burn	51	7.43
Poisoning	283	41.25
Hanging	306	44.61
Fall from Height	2	0.29
Firearm	1	0.15
Railway	31	4.52
Drowning	12	1.75
<b>Total</b>	<b>686</b>	<b>100.00</b>



**Fig. 5:** Distribution of cases according to means adopted for committing suicide

J Prasad *et al*<sup>13</sup>, Anil Rane *et al*<sup>9</sup>, Sachidananda Mohanty *et al*.<sup>3</sup> According to our study there was increased number of incidences of suicide during months of April (25.7%), May (24.1%) and March (18.8%) this coincides with the time period of 1st and 2nd wave of Covid-19 in India. Least incidences were noted during the month of September *i.e.*, 1.5%. The COVID-19 epidemic has resulted in the imposition of severe restrictions that are having a significant impact on the global economy, including a rise in the global unemployment rate, and isolation. The month of April and May are post harvesting period and make it more prone for farmers and also exams in India are mainly held in these months. In our study cause of death due to unemployment (66.7% among males and 3.7% in females), poverty/debt (65.2% among males and 10.2% in females) and exam pressure (13.3% among males and 20.5% in females) were mainly seen in the males which shows statistically significant association. Family problems (14.6% among males and 44.8% in females), Victim of abuse (1.2% in males and 33.1% among females) and Dowry issues (0% males and 21.0% Females) were mainly the risk factors of suicide in Females that shows statistically significant association. (Table 6)

**Table 6:** Correlation between Gender and causes of suicide.

Cause of attempting suicide		Male	Female	Total	Chi-square	p-value
Unemployment	No	157	206	363	234.551a	.000*
	Yes	315	8	323		
Poverty/Debt	No	164	192	356	178.250a	.000*
	Yes	308	22	330		
Love affairs	No	431	192	623	.449a	.503
	Yes	41	22	63		
Family problems	No	403	118	521	73.715a	.000*
	Yes	69	96	165		
Victim of violence/abuse	NO	466	143	609	150.427a	.000*
	Yes	6	71	77		
Exam pressure	No	409	170	579	5.819a	.016*
	Yes	63	44	107		
Dowry issues	No	472	169	641	106.220a	.000*
	Yes	0	45	45		

\*p-value<0.05 shows statistical significance.

**Table 7:** correlation between Gender and symptoms of deceased before committing suicide

Symptoms		Male	Female	Total	Chi square	p-value
Substance abuse	No	332	214	546	79.750a	.000*
	Yes	140	0	140		
Hopelessness	No	93	212	305	375.561a	.000*
	Yes	379	2	381		
Emotional instability	No	472	98	570	307.918a	.000*
	Yes	0	116	116		
Guilt	No	124	212	336	312.224a	.000*
	Yes	348	2	350		
Panic attacks	No	438	214	652	16.219a	.000*
	Yes	34	0	34		
Isolation	No	262	130	392	1.650a	0.199
	Yes	210	84	294		
Talking about dying	No	424	196	620	.524a	0.469
	Yes	48	18	66		
Despair with life	No	253	148	401	14.674a	.000*
	Yes	219	66	285		
Self-criticism	No	417	183	600	1.078a	0.299
	Yes	55	31	86		
Regret about being born	No	419	157	576	25.959a	.000*
	Yes	53	57	110		

Whereas, love affair was equally seen in both genders hence do not show any statistical significance. Unemployment is main reason in males for suicide this is similar to study done by Binya K Bastia *et al.*<sup>11</sup> Intense competition among school children, high expectation from parents and teachers, and inability to attain their goals are the main reasons for such suicides.<sup>14</sup> It may be due to ignorance of parents related to the problems of their child or may be due to lack of good communication with their children.

According to our study we found there is substance abuse (29.6% among males and 0% in females), hopelessness (80.2% among males and 0.9% in females), guilt (73.7% among males and 0.9% in females), panic attack (7.2% among males and 0% in females) and despair with life (46.3% among males and 30.8% in females) was the most common symptoms associated with males which also shows statistical significance. The most common symptoms associated with females were emotional instability (0% males and 54.2% among females) and regret to be born (11.2% among males and 26.6% in females). Whereas symptoms like isolation, self-criticism and talking about dying was equally seen in both the genders (Table 7).

Substance abuse is a slow methods and chronic method of self-intoxication and suicide. Substance abusers want to escape the reality. Drug abuse and drinking is more in males mainly because it is considered as male masculinity in our society. It is looked like a masculine role coping mechanism.

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### CONCLUSION

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A significant percentage of the population in developing countries like ours works as a daily wage worker or farmers. This group of people is particularly affected by the pandemic, and living in a nuclear family

without family support is even worse. Unemployed people, married people, farmers, and students are the groups that commit suicide at higher rates. In the hypothetical case scenario, these factors are all connected.

Unemployed (No earning source)/Farmers---> Married people (Burden of responsibility)---> Nuclear Family (No side support of other family members)---> Leads to hopelessness and guilt.

Reducing the number of such tragic deaths would be a major step towards a healthy society, as would having a sense of social responsibility and empathy towards understanding the mental makeup of such people, especially those who are known to the family, close friends, and society at large to be struggling from such a disease. Suicide is regarded as a public health concern that needs to be addressed right away in terms of prevention and more research into the psychological and social elements. Suicide prevention multisite intervention research on suicidal behavior (SUPRE-MISS) conducted by the World Health Organization (WHO) has shown that it is possible to prevent suicidal behavior and reduce the number of suicide deaths by utilizing a rapid, low-cost intervention in developing countries. Suicide prevention initiatives ought to be complex, given the complexity of the suicide problem. Collaboration, coordination, cooperation, and commitment are needed to create and carry out a national plan that is affordable, appropriate, and pertinent to community needs. In India, preventing suicide is not so much a mental health norm as it is a social and public health objective.

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**Conflict of interest:** None declared

**Ethical approval:** The study was approved by the Institutional Ethics Committee

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