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IP International Journal of Forensic Medicine and Toxicological Sciences

Journal homepage: <http://www.ijfmts.com/>

Original Research Article

Trends of suicide during the COVID-19 pandemic: An autopsy-based study

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ARTICLE INFO

Article history:

Received 02-09-2021

Accepted 16-09-2021

Available online 21-01-2022

Keywords:

Covid19

Pandemic

suicide

hanging

psychiatric illness

ABSTRACT

Background: Suicide is a preventable but major public health problem and it has received greater attention during current corona pandemic.**Aim:** The aim of present autopsy-based study is to analyse the trends of suicide and to provide baseline data so as preventive measures can be implemented to prevent such premature deaths**Material and Methods:** This is a postmortem examination based retrospective study conducted at Department of Forensic Medicine, Government Medical College and Hospital. The study was conducted through March 2020 to March 2021. Total 387 post-mortem examinations were conducted during this period and out of which 126 suicidal deaths were included in the study.**Results:** 126 cases were studied and amongst them 76.19% were male and 23.80% were female. The mean age was 39.97 years. Hanging was preferred method for committing suicide followed by poisoning and drowning.**Conclusion:** Higher risk for suicide was observed among male. Increase in the number of suicidal deaths during Covid-19 pandemic is of great concern and needs immediate short term and long-term intervention to prevent these deaths.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: reprint@ipinnovative.com

1. Introduction

Suicide is a preventable but major public health problem and it has received greater attention during current corona pandemic. Apart from health issues; the ongoing corona pandemic had created economic, familial and social damage. This is reflected in form of increased rate of suicide.¹ The Coronavirus disease (COVID-19) has impacted every sector of life like commercial establishment, education, economy, religion, transport, tourism, employment, entertainment, food security, sports, etc. The COVID-19 pandemic has led to a dramatic loss of human life worldwide. The economic and social disruption caused by the pandemic is devastating. Because of lockdowns, many people are unable to earn and

feed themselves or their families. Many people are migrating to their villages because of absence of work and wages in the cities. With any pandemic or any situation which impact the society at large; faces the problem of psychological trauma.² The lockdown has proved that “man is a social and without society he feels non-existent”. Because of continuous lockdown, it had impacted people psychologically. In many families, women and children are victims of domestic violence.³ People are struggling with the pandemic situation and without social support and help from each other, it becomes difficult to face the situation. The aim of present autopsy-based study is to analyse the trends of suicide during corona pandemic and to provide baseline data so as preventive measures can be implemented to prevent such premature deaths.

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Table 1: Age and sex-wise descriptive data of study population

Sex	Number of cases (%)	Age in years			P Value
		Minimum	Maximum	Mean (\pm SE)	
Male	96 (76.19%)	13	82	93.46 \pm 1.633	< 0.0000001
Female	30 (24.59%)	17	93	41.6 \pm 3.599	
Total	126	13	93		

Table 2: Showing identity status of the study population

Male	Male (%)	Female (%)	Total	P value
Known	92 (75.40%)	30 (24.59%)	122 (96.82%)	0.1284
Unknown	04 (100%)	00 (00.00%)	04 (03.17%)	

Table 3: Marital status of the study population

Marital status	Male (%)	Female (%)	Total (%)	P value
Married	62 (73.80%)	22 (26.19%)	84 (66.66%)	0.02296
Unmarried	28 (80.00%)	07 (20.00%)	35 (27.77%)	
Widow	00 (00.00%)	01 (100%)	01 (0.79%)	
Widower	02 (100%)	00 (00.00%)	02 (1.58%)	
Not known	04 (100%)	00 (00.00%)	04 (3.17%)	

Table 4: Place of suicidal death of the study population

Place	No. of cases (%)
Home	87 (69.04%)
River	24 (19.04%)
Farm	09 (7.14%)
Railway	04 (3.17%)
Toilet	01 (0.79%)
Forest	01 (0.79%)

Table 5: Showing cause of death of the study population

Cause of death	Male (%)	Female (%)	Total (%)	P value
Hanging	52 (80.00%)	13 (20.00%)	65 (51.58%)	0.02439
Poisoning	22 (70.96%)	09 (29.03%)	31 (24.60%)	
Drowning	17 (80.95%)	04 (19.04%)	21 (16.66%)	
Burns	01 (20.00%)	04 (80.00%)	05 (3.96%)	
Railway cutting	04 (100%)	00 (00.00%)	04 (3.17%)	

Table 6: Showing comorbidity status of the study population

Presence of comorbidities	Male (%)	Female (%)	Total (%)	P value
Present	08 (8.33%)	04 (13.33%)	12 (9.52%)	0.4154
Absent	88 (91.66%)	26 (86.66%)	114 (90.47%)	

Table 7: Showing domicile status of the study population

Locality	No. of cases	Total (%)
Urban	46	36.50 %
Rural	76	60.31 %
Not known	04	3.17 %

2. Material and Methods

This is a postmortem examination based retrospective study conducted at Department of Forensic Medicine, Government Medical College and Hospital. We examined all available files of inquest papers, autopsy reports, and toxicological analysis reports, through March 2020 to March 2021. Total 387 post-mortem examinations were conducted during this period and out of which 126 suicidal deaths were included in the study. A standard proforma was designed to collect the information to ensure consistency for the whole sample. Information collected included age, sex, place of residence/migration, place of death/incident, medical attention received, past attempt of suicide, presence of any associated disease, history of any psychiatric illness, substance abuse and cause of death. Student t test and Chi square test were used to analyse the data. As per the prevailing mandatory standard procedures of the Institute, the prior permission cum no objection certificate to carry out the study was obtained from Institutional Ethical Committee.

3. Results

126 cases were studied and amongst them 76.19% were male and 23.80% were female. The mean age was 39.97 years (table 1). Amongst them 96.82% were known and 3.17% were unknown (table 2). Marital status revealed that 66.66% were married and 27.77% were not-married (table 3). Majority of deaths were recorded at home (n = 87, 69.04%) (table 4). Hanging (n = 65, 51.58%) was preferred method for committing suicide followed by poisoning (n = 31, 24.60%) and drowning (n = 21, 16.66%) (table 5). About 9.52% individuals had comorbidity (table 6). Figure 1 shows domicile status of individuals. It was observed that majority of death (n = 76, 69.53%) were from rural area. In the present study, one deceased was migrant, one deceased had psychiatric illness and one deceased had attempted suicide in the past.

4. Discussion

Mental illness is a strong predictor of suicide.^{4,5} Most suicides worldwide are related to psychiatric diseases and depression constitutes one of the most significant risk factors.^{6,7} In past major infectious outbreaks were associated with severe mental health illness and include suicide. There is evidence that deaths by suicide increased in the USA during the 1918–19 influenza pandemic⁸ and among older people in Hong Kong during the 2003 severe acute respiratory syndrome (SARS) epidemic.⁹ Additionally, during the 2003 SARS outbreak in Singapore, almost one-quarter of medical workers reported psychiatric symptoms of depression, anxiety, and post traumatic morbidity.¹⁰ Likewise, in 2015, Lee et al. showed that medical staff who performed tasks related to the Middle

East Respiratory Syndrome (MERS) in Korea exhibited symptoms of post-traumatic stress disorder (PTSD)¹¹

It can be hypothesized, in line with reports from previous respiratory outbreaks, that the current COVID-19 outbreak might cause a significant and global surge of mental health problems. Recent studies described emotional distress and psychiatric symptoms of depression and anxiety during the COVID-19 outbreak.^{12,13} Some cases of suicidal acts related to the COVID-19 quarantine have also been reported.¹⁴ It is acknowledged that mental health deterioration during pandemics can stem from numerous factors. These include the constant fear of contracting the virus, losing loved ones to the illness, as well as the impact of being quarantined. These factors can go on to precipitate mental illness in those without prior psychiatric history or can exacerbate the symptoms in those with a pre-existing mental illness.¹⁴

It will take longer time to know the exact effect of COVID-19. However, few patients may suffer from long term complications post COVID-19 in form of loss of smell or taste, depression or anxiety, stroke or myocardial infarction.

In the present study, amongst 387 autopsies, 32.55% were deaths due to suicide. Majority of suicides were in male (76.19%) in comparison with females (23.80%). The findings are consistent with studies of Panigrahi et.al and Pathare et.al.^{2,15} The mean age of individual at death was 39.97 years. Hanging remained the preferred method for suicide (51.58%) followed by poisoning (24.60%). These findings are in agreement with studies of Mamun et.al and Goyal et. Al.^{16,17} Majority of deaths were at home (69.04%). Co-morbidity was recorded in only 9.52% of cases. The findings are in accordance with Panigrahi et.al.² One case was of a migrant.

The limitations of present study are 1) retrospective nature of study, 2) small sample size and 3) non-availability of social and economic background. However, it has advantage that it is an autopsy-based study and individuals were included in the study after police investigation.

5. Conclusion

Majority of suicide was observed in male gender. Hanging and poisoning were preferred method for suicide. In the concluding note, it can be added that increase in the number of suicidal deaths during Covid-19 pandemic is of great concern and needs attention. Vulnerable people should be identified and should be provided with social and psychological support. A short term and long-term intervention to prevent these deaths should be initiated.

6. Source of Funding

None.

7. Conflict of Interest

None.

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Cite this article: Jiwane AS, Bardale RV. Trends of suicide during the COVID-19 pandemic: An autopsy-based study. *IP Int J Forensic Med Toxicol Sci* 2021;6(4):127-130.