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Original Research Article

A retrospective observational study of poisoning and hanging cases during lockdown as a marker of emotional tide of COVID-19 pandemic in a tertiary care center in Northwestern India

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ABSTRACT

Background: In January 2020, WHO declared the outbreak of a new coronavirus disease COVID-19 to be a public health emergency of international concern. Worldwide lockdown led to panic, mass unemployment, poverty and domestic violence. The present study was designed to observe the impact of lockdown on the spectrum of medico-legal cases being admitted with drastic events of poisoning and hanging.
Methods: In this retrospective, observational and comparative study, around 131 patients were recruited from the admitted patients in the medicine wards in SMS medical college and hospital during COVID-19 lockdown period from 23 March 2020 to 31 May 2020 after applying inclusion and exclusion criterias. Their clinical profile were noted and comparatively assessed with patients admitted in medicine wards during adjoining pre-lockdown period, that is, from 12 January 2020 to 22 March 2020.
Results: Out of 131 cases recruited during lockdown period, hanging cases were 10 (8%) while it was 10 cases out of 213 (5%)during pre-lockdown period. Organophosphorus poisoning was 4.5% and 1.4%, celphos poisoning was 3.8% and 2.3%, rat killer poisoning was 3.05% and 1.4% during lockdown and pre-lockdown period respectively. Cases due to ingestion of other than the major group of poisoning were lower (3.8%) during lockdown period while it was 10.3% during pre-lockdown period.
Conclusions: Extreme negative behavioral changes precipitated by corona and this might be aggravated further by complete lockdown, to which people resorted to the means which were easily available to them at home like hanging and common poisonings.

Keywords: COVID-19 pandemic, Complete lockdown, Hanging and poisoning

INTRODUCTION

Outbreak of a cluster of cases in Wuhan, China in December 2019 which eventually identified as novel coronavirus (SARS-CoV-2) has wreaked havoc all over world. This has put tremendous pressure on the mental status of general population which was aggravated further with each passing day by watching news channels and online videos. On January 2020 the WHO declared the outbreak of this novel coronavirus disease to be a public health emergency and on 11 March 2020 WHO characterized COVID-19 as a pandemic.[1] The COVID-19 pandemic is affecting almost all aspects of life including physical and mental health which could be due to social isolation, anxiety, depression and stress related to financial crisis. Inaccessibility to healthcare facility caused

immense distress to the chronically ill patients who required regular medical attention. As a part of COVID-19 pandemic, India also got affected by it. First case of COVID-19 was reported in India on 30 January 2020.[2] As on 15 August 2020 a total of laboratory confirmed cases documented in India is 2.53 million and 21.2 million globally.[3,4] To prevent the fast spread of the infection among the masses, lockdown was imposed on 23 March to 31 May 2020 in India. Lockdown is a state used for a prison protocol that usually prevent informations or objects from having an area of spread. A full lockdown usually means that people must stay where they are and may not enter or exit a building or room or given area.[5]

Worldwide lockdown created economic recession leading to panic, mass unemployment, poverty and domestic violence, anxiety, fear and depression. People haven't had experienced this type of event before during their lifetime. They got retained inside their houses or wherever they were with limited resources. Although the lockdown along with social distancing was necessary to prevent the spread of COVID-19 in the community, people felt isolated and lonely and experienced immense stress and anxiety.

A person's response to stress during any critical situation like the present COVID-19 pandemic depend on his internal milieu, social support system and the community he lives in. Disturbed routines and the risk of contracting the infection might precipitate the subtle underlying mental illnesses or substance abuse. Simultaneously, discrimination of COVID-19 positive patients and their family, social boycott along with physical distancing have endangered the mental health of covid positive patients as well as the general population. The first case of suicide in India was reported from South India on 12 February 2020 when a 50 year old man wrongly assumed his common viral infection as COVID-19.[6] The result could be a perfect storm when it comes to risk of suicide, says Mark Reger. With the ongoing COVID-19 pandemic, its impact on mental health is still needs to be evaluated and speculated that there will be more death due to lockdown than COVID-19 itself because of the recession.[7]

We conducted this study in one of the largest hospital in Rajasthan, India to explore the psychological and social impact of coronavirus pandemic and analyze the medico-legal cases being admitted during complete lockdown period and compared it with pre-lockdown period after equalizing the number of days.

Aims and objectives

The primary objective was to collect and analysis data of poisoning and hanging cases during lockdown period and to compare it with pre-lockdown period. The secondary objective was to popularize the requirement of developing an emergency call system for tackling the psychological catastrophe during a crisis.

METHODS

Study design

This retrospectively observational project was designed as an analytical and comparative study. Around 131 patients who presented with hanging and poisoning, were recruited among all the patients admitted in the medicine wards of SMS medical college and hospital, Jaipur, Rajasthan during COVID-19 lockdown period, after applying inclusion and exclusion criteria with strict maintenance of confidentiality and secrecy. All the patients were of Indian ethnicity. It was then comparatively assessed with the cases of hanging and poisoning admitted in medicine wards during immediate pre-lockdown period. The study was approved by institute ethics committee.

Inclusion criteria

All patients above 16 years with hanging and poisoning were included in the study.

Exclusion criteria

All patients below 16 years, suspected cases of homicide, snakebite, burn injury, electrocution, road traffic accidents, drowning and sexual assault were excluded from the study.

Data collection

Pre-lockdown period (12 January 2020 to 22 March 2020) data of medico legal cases (hanging and poisoning) were collected from the forensic department of SMS hospital after obtaining due permission. Data during lockdown period (23 March 2020 to 31 May 2020) were collected from the medicine wards. A total duration of 70 days each for both period were taken as the study period. Their clinical profile were noted after applying inclusion and exclusion criteria.

Statistical analysis

Statistical analysis was done by Epi-info statistical tool. Qualitative data is presented as percentage and proportion and use Chi square test for analysis, while t test was used for quantitative data analysis. $P<0.05$ was taken as significant.

RESULTS

During pre-lockdown period, out of total number of 8082 cases admitted in medicine wards, 213 cases were of hanging and poisoning, making it 2.6% of the total. Among all the poisoning cases, maximum cases were under the category of unknown poisoning (N=170). There were 10 cases of hanging which is 0.12% of the total admitted cases. It was observed that during pre-lockdown period male poisoning cases (N=121) were more than females (N=92), while hanging and rat killer poisoning

cases were more in females (N=6) and (N=3) as compared to males (N=4) and (N=0) respectively (Table 1).

The percentage wise distribution of poisoning and hanging cases during both the study period are shown in Figure 1.

Looking at the age wise distribution, maximum number of cases of poisoning cases (N=142) belong to age group 16-30 years while minimum cases occurred in above 50 years of age group (N=14). Out of total cases of hanging (10), 7 cases belong to younger age group, that is, 16-30 years while there was none in elderly age group of over 50 years. Maximum number of poisoning and hanging cases occurred in the age group of 16-30 years, except rat killer poisoning where all the 3 cases were in 31-50 years of age group (Figure 2).

During lockdown, total number of admitted cases were 4621. Out of these number of poisoning and hanging were 131 constituting 2.8% of the total admissions. There were 10 cases of hanging which is 0.21% of the total admissions and 8% of the medico legal cases (Figure 1). Maximum number of poisoning cases belong to unknown poisoning category (N=121). It was observed that female poisoning cases (N=67) were more than males (N=64), while hanging cases were more in males (N=6) than females (N=4) (p=0.112).

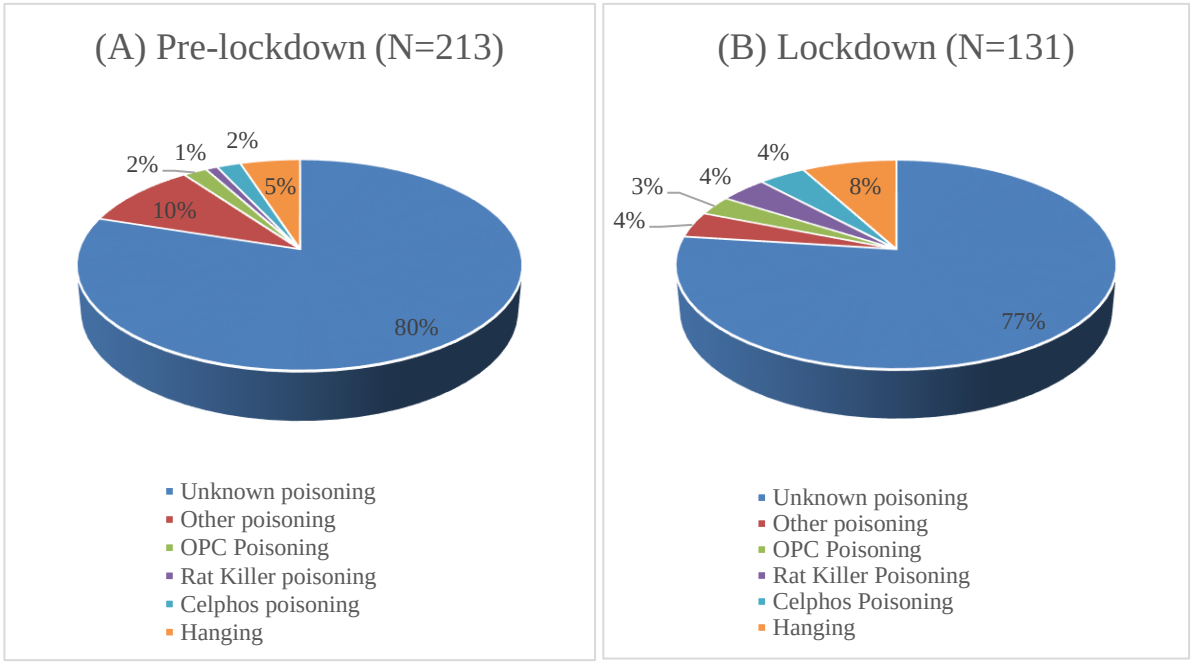

Figure 1: Percentage wise case sharing of hanging and poisoning; (A) pre-lockdown (N=213); (B) lockdown (N=131).

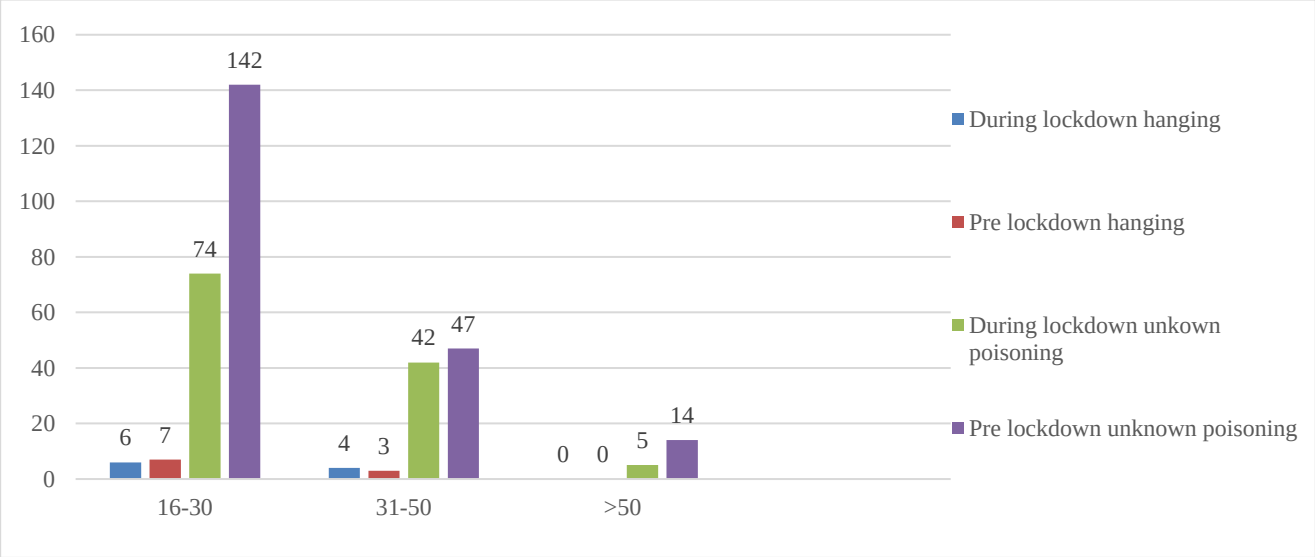

Figure 2: Age wise distribution of poisoning and hanging cases.

Table 1: Comparison of types of poisoning and hanging cases during pre-lockdown and lockdown period with gender distribution.

Period	Pre-lockdown total=8082			During lockdown total=4621		
Cases	N=213	Male	Female	N=131	Male	Female
Unknown poisoning	170	98	72	101	51	50
***Other poisoning**	22	14	8	5	1	4
+OPC poisoning	3	1	2	6	4	2
Celphos poisoning	5	4	1	5	0	5
Rat killer poisoning	3	0	3	4	2	2
Hanging	10	4	6	10	6	4

P=0.112 (Chi-square test); *camphor, sedative and other drugs overdose, cypermethrin (Laxmanrekha), kerosene; +organophosphate compounds.

Lockdown period observed maximum number of cases of poisoning cases (N=74) in the age group 16-30 years and minimum cases in >50 years of age group (N=5). Out of total cases of hanging (10), 6 cases belong to younger age group, that is, 16-30 years while there was none in elderly age group of over 50 years.

Overall most vulnerable age group was of 16-30 years where maximum number of poisoning (216/324) and hanging cases (13/20) occurred during the study period. The least vulnerable age group was of over 50 years where total poisoning cases were 19. Interestingly, there was no hanging cases in this age group.

DISCUSSION

SARS-CoV-2 belongs to the β-coronaviruses, with incubation period of 2 days to 2 weeks after being exposed to the virus.[8] The mode of transmission is from human to human with a low fatality rate.[9] Many countries around the world have imposed lockdowns to stop the spread of COVID-19 in the form of mass quarantine or stay at home order. Lockdowns have proved to be an effective measures for tackling those pandemics where human to human transmission through droplets or physical touch is a major mode of spreading the infection among the masses, but simultaneously it triggers major chaos and panic leading to disruption of the social fabric and financial crisis. The fear of isolation and quarantine associated stigma was so intense that many people around the globe committed suicide causing a global psychological pandemic.

As per a news published, the rate of suicide in Ludhiana during pre-lockdown period was one death in two days which rose to one death every day during four months period from 1 April to 31 July 2020.[10] In our study also, the number of poisoning and hanging cases increased from 2.6% during pre-lockdown period to 2.8% during lockdown period while the total number of cases admitted in medicine ward had come down to 4621 from 8082.

Another news published from the same area described 11% jump in the suicides during COVID-19 lockdown with domestic violence and depression as the leading cause. In Ludhiana police investigation, out of total 137 suicides during 2020, 61 (males-46, females-15) were reported between 12 January to 31 March 2020 pre-lockdown period, while 76 suicides (males-54, females-22) occurred during lockdown period.[11] In our study, out of total number of 344 cases of poisoning and hanging during 2020, 213 (males- 121, females- 92) were reported during pre-lockdown period, while 131 (males-64, females-67) cases were reported during lockdown period. Notably, the total number of general patients had reduced to almost half during lockdown period (from 8082 to 4621) as our institute was designated as dedicated COVID-19 hospital and only one female and two male medical wards were assigned for the non-covid patients. Fear of corona was so intense that only serious patients were coming to the hospital, that too from the nearby area as no transportation means were available.

In Kolkata, between April and June 2020, around 113 cases of suicide were reported which were more than double the number of suicides for the corresponding period in 2018 (49) and 2019 (55).[10]

According to data compiled by a group of researchers, suicide was the leading cause of over 300 lockdown-related deaths that occurred in the country from 19 March to 2 May. The study showed that suicides and deaths due to lockdown may kill almost as many people as coronavirus.[12] We also observed that death due to hanging and poisoning during lockdown period was over 47, while it was over 29 due to COVID-19. We didn't use the terms suicide or suicidal death as the history given by patients or attendants was considered to be unreliable in the medicine ward. Secondarily, final decision about the nature and cause of death was deciphered only after forensic reports and police investigation.

A 65 year old lady committed suicide over the fear of COVID-19 and isolation, a 19 year old girl out of fear of isolation committed suicide just by the announcement of the lockdown, another student jumped from the hospital who was isolated on the suspicion of being infected with coronavirus.[13-15] In our study, maximum number of cases were found in the younger age group (16-30 years) and minimum in elderly people of over 50 years (Figure 2).

Mamun et al reported the first COVID-19 suicide case in Bangladesh, where a 36 year old man committed suicide due to social boycott by his neighbours.[16] In our study, there were three such cases where the patients experienced loneliness and felt left out because of social avoidance in view of suspicion of COVID-19 infection, although they were COVID-19 negative.

The dilemma related to duration of lockdown and social isolation, daily updates on TV channels and horrifying videos on COVID-19 death demoralized not only the general public like our study subjects, but also the elite people all over the world like German Hesse state finance minister Thomas Schaefer who committed suicide out of hopelessness.[17] It was also observed that majority of the cases in our study appeared to be lower and lower middle class and the commonest causes of poisoning and hanging were alleged family dispute and domestic violence, financial crisis due to loss of daily wages, alcohol related abuse. Other being fear of getting infected from corona.

In a tragic incidence in Iran, around 700 people died after ingesting toxic spirit believing it as a cure of COVID-19.[18] In India too, many poisoning cases due to ingestion of sanitizer ingestion were reported. Some took it as a substitute of alcohol, while few ingested it as a preventive measure for corona. In our study, there were 3 such cases of suspected sanitizer ingestion as a substitute of alcohol. We have included alcohol related cases in unknown poisoning group as the number of such cases during pre-lockdown and lockdown period were without any clear history and clinical evidence.

Pre-lockdown and lockdown might have equal number of hanging cases during the study period, but percentage wise there is a definite rise in the hanging cases during lockdown, that is, 8% of the total MLC patients, while it was 5% during pre-lockdown (p=0.409). Hanging cases during pre-lockdown period constitute around 0.12% which rose to 0.21% during lockdown out of total admitted patients in the medicine wards. In poisoning cases also the number was 203 out of 8082 admissions (2.5%) during pre-lockdown period and 121 cases out of 4621 cases (6.5%) during lockdown period(p=0.112).

So to summarize, we can say that statistically it might not have appeared significant but on analysing the percentage, there was a definite rise in the hanging and poisoning cases during lockdown. Disproportionate counter-reaction to the fear of coronavirus led to exaggerated behavioural response such as excessive personal hygiene, misuse of cleaning products for edibles, suspicious behaviour toward everyone regarding corona infection and domestic violence. In such circumstances, people resorted to those extreme steps which was easily accessible like hanging.

Limitations

This study was done at a single centre and due to complete lockdown, many poisoning and hanging cases might not be able to reach to this tertiary care centre. The actual number of cases might be more than this. We had to rely on the history given by the attendants and the patients regarding type of poison ingested, cause of ingestion, cause of hanging, economic status.

Unknown poisoning (as found in records) means history not given by the attendants or patients about the type of poison. Clinically, majority appeared to be organo-phosphosphophates poisoning followed by celphos poisoning.

Since no previous data was available, we had to rely upon the news available on internet and newspapers.

CONCLUSION

The world is watching this ongoing unprecedented event of COVID-19 pandemic with much fear and uncertainty. Cases due to coronavirus are much more apparent and disturbing due to global interest and media attention, but mortality and morbidity due non-covid causes during lockdown period remains a silent volcano which might explode in the coming time if people remain socially isolated for too long without income or support systems.

There is an urgent need to realize the gravity of this problem. To tackle this emerging emotional tide, a helpline for the psychological and social support is warranted in the form of phone calls to the lonely peoples and sympathetic attitude towards the COVID-19 positive patients, food for the hungry, salary for the labourers/workers and professional counselling to the target groups to inculcate help-seeking behaviour through relevant means.

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REFERENCES

1. WHO. Fact sheet: WHO Director-General's opening remarks at the media briefing on COVID-19, 2020. Available at: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020. Accessed on 2 March 2021.
2. Kerala confirmed first novel coronavirus case in India: pib.gov.in, 30 January 2020

3. Ministry of Health and Family Welfare. Fact sheet: Latest Updates, 2021. Available at: https://mohfw.gov.in. Accessed on 2 March 2021.
4. WHO. Fact sheet: Coronavirus disease (OVID-19) pandemic, 2021. Available at: www.who.int/emergencies/diseases/novel-coronavirus-2019. Accessed on 2 March 2021.
5. Businessinsider.in : BI India Bureau, March 26,2020.18.32 IST
6. Goyal K, Chauhan P, Chhikara K, Gupta P, Singh MP. Fear of COVID 2019: first suicidal case in India! Asian J Psychiatr. 2020;49:101989.
7. Reger MA, Stanley IH, Joiner TE. Suicide mortality and coronavirus disease 2019: a perfect storm? JAMA Psychiatry. 2020;77(11):1093-4.
8. CDC. Fact sheet: 2019 Novel Coronavirus, Wuhan, China: Symptoms. Available at: https://www.cdc.gov/coronavirus/2019-ncov/about/symptoms.html. Accessed on 2 March 2021.
9. Lau YL, Peiris JS. Pathogenesis of severe acute respiratory syndrome. Curr Opin Immunol. 2005;17(4):404-10.
10. Dainik Tribune. Fact sheet: Coronavirus update, 2020. Available at: https://www.tribuneindia.com/news/Ludhiana/. Accessed on 2 March 2021.
11. Tarsem Singh Deogan: Hindustan times, Ludhiana, June 28, 2020.
12. Life News. Fact sheet: Study: suicides and deaths due to lockdown may kill almost as many people as coronavirus, 2020. Available at: https://www.lifenews.com/.../study-suicides-because-of-lockdown-fallout-may-kill-almost-as-many-people-as-coronavirus/. Accessed on 2 March 2021.
13. The Tribune News. Fact sheet: Punjab/anxiety-over-covid-19-leads-to-phagwara womans-suicide-https://www.tribuneindia.com/news/66466. Accessed on 2 March 2021.
14. Observations/covid-19-is-likely-to-lead-to-an-increase-in-suicides/ https://blogs,scientificamerican.com/
15. Chinese-student-commits-suicide-in-saudi-after-being-quarantined-for-coronavirus, https://www.middleeastmonitor.com/20200217.
16. Mamun MA, Griffths MD. First COVID-19 case in Bangladesh due to fear of COVID-19 and xenophobia: possible suicide prevention strategies. Asian J Psychiatr. 2020;51:102073.
17. Suicideriskduringpandemic-https://www.wzzm13.com/article/news/local/morning-features/suicide-risks-grow-during-pandemic/69-05657859-d404-44ad-bf87-c70dad3c6671.
18. Iran alcohol poisoning tragedy. https://mumbaimirror.indiatimes.com/coronavirus/news/over-700-die-in-iran-due-to-alcohol-poisoning-believed-to-be-cure-for-coronavirus/articleshow/75447209

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