



DEMOGRAPHICS OF SUICIDAL, HOMICIDAL AND MOTOR VEHICULAR ACCIDENTAL DEATHS IN RURAL HARYANA, NORTH INDIA – EFFECT OF COVID-19 LOCKDOWN

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Abstract:

This is a cross-sectional observational study comparing all the autopsy cases coming in mortuary of MMIMSR Mullana, Ambala during Covid-19 lockdown period between 25 March 2020 to 24 July 2020 (Group 1) with four months pre lock down period between 25 November 2020 to 24 March 2020 (Group 2) and matching corresponding period of previous year between 25 March 2019 to 24 July 2019 (Group 3). Out of total 135 cases of deaths during the 3 time periods, enforcement of nationwide lockdown resulted in dramatic shift in all major forms of unnatural deaths i.e. Suicidal, Homicidal and Accidental. The 43 deaths during lockdown period comprised mostly of males (79.06%) with maximum victims between ages of 21-40 years (51.16%). There was a rise in the suicidal deaths (37.20%) which was more than double compared to the other 2 study periods. In contrast the accidental deaths were almost halved. A single case of homicide was also noted during the lockdown period. Most of the suicidal deaths were attributed to hanging & poisoning (18.6% each). There was also 4-fold rise in alcoholism related deaths. This study is unique as it comprehensively analyses & compare several demographic parameters regarding deaths during COVID-19 lockdown.

Keywords: Suicide, Homicide, Accident, Covid-19, Lockdown, Mental Stress.

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Introduction:

The COVID- 19 pandemic presented a global challenge not just in terms of morbidity due to the dreadful infectious disease but also for mental health. First case of COVID -19, the disease caused by the novel corona virus subsequently named SARS – CoV-2 was reported by officials in Wuhan City, China in December 2019. The WHO declared COVID -19 as pandemic on Jan 2020.

The pandemic rapidly disseminated across the world with first case reported in India on 27th Jan 2020 of a 20 years old female from Kerala who had returned from China & first fatality happened in Kalaburgi, Karnataka of a 76 years old man on 10 March, 2020. India responded with nationwide lockdown from 25 March 2020 to contain the spread of the virus. [1, 2, 3]

Increasing number of cases due to COVID -19 led to uncertainty which induced a substantial fear and concern leading to stress and anxiety. This was further superimposed by lockdown restrictions, financial breakdown and lack of physical contact with the family members and friends. The consequences of pandemic and lockdown on socioeconomic, mental health and other aspects of Indian society were immense. The alarming conditions of pandemic may have exaggerated the suicidal rate which was also high in other parts of world. [4, 5, 6, 7, 8]

According to WHO, every year, almost one million people die from suicide, people attempting suicides is 20 times more with global mortality rate of 16 per lakh or one death occurring every 40 seconds. In last two decades suicide rate increased from 7.9 to 10.3 per lakh in India. The lockdown period anxiety (88.7%), loss of jobs (76.1%), stress (73.6%), loneliness (73%) and financial insecurity (73%) were the top reasons for mental distress in people seeking help, as mentioned in a report

published by Joel Joseph, a Bengaluru - based counsellor. Anxiety level is very high in most of the cases. Although it is often not directly related to virus, other issues have also exaggerated the anxiety during this time. This has led to the feeling of overwhelm and therefore suicidal ideation. Every hour 17 people die due to road traffic accidents. The decline in road traffic accidents during Covid-19 lockdown has been noted across the world and also in India. . [9, 10, 11, 12, 13]

Aims and Objective:

The study was undertaken to assess the:

1. Prevalence and demographic pattern (age, sex, area, marital status and religion) of deaths in lockdown period.
2. Suicidal and self-harm tendency among people during lockdown period.
3. Time since death, manner and cause of death in lock down period.
4. Impact on road traffic accident deaths during lockdown period.

Material and Method:

This is a cross-sectional observational & comparative study of all autopsy cases coming in the mortuary of MMIMSR Mullana, Ambala during period of lockdown i.e. 25th March 2020 to 24th July 2020. This data was compared with data from corresponding duration in previous year i.e. 25th March 2019 to 24th July 2019 and also with data of four months preceding the lockdown i.e. 25th Nov 2019 to 24th March 2020. Study included all forms of death, natural and unnatural deaths including hanging, impulsive self-poisoning and accidental deaths. Source of the data was Post Mortem Reports, Police Inquest papers and Post Mortem register.

Data was collected in a predesigned proforma in excel format and analysed.

Result:

Table 1. Manner of Death

	Group 1 25 March 2020 to 24 July 2020		Group 2 25 Nov 2019 to 24 March 2020		Group 3 25 March 2019 to 24 July 2019	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
NATURAL						
Heart attack	04	9.30	02	4.76	02	4.00
UNNATURAL						
Accidental	22	51.16	33	78.57	40	80.00
Suicidal	16	37.21	07	16.67	08	16.00
Homicidal	01	2.32	00	--	00	--
Total	43	100.00	42	100.00	50	100.00

Table 2. Causes of Death

	Group 1 25 March 2020 to 24 July 2020		Group 2 25 Nov 2019 to 24 March 2020		Group 3 25 March 2019 to 24 July 2019	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Heart attack	02	04.65	01	02.38	02	04.00
Head Injury	08	18.60	15	35.71	27	54.00
Hemorrhage & Shock	08	18.60	12	28.57	06	12.00
Poisoning	08	18.60	06	14.28	07	14.00
Hanging	08	18.60	01	02.38	02	04.00
Septicemia	00	00.00	02	04.76	01	02.00
Electrocution	01	02.32	00	00.00	01	02.00
Drowning	00	00.00	01	02.38	01	02.00
Alcohol	04	09.30	01	02.38	00	00.00
Others	04	09.30	03	07.14	03	06.00
Total	43	100.00	42	100.00	50	100.00

Figure 1: Age & Sex wise distribution of Cases

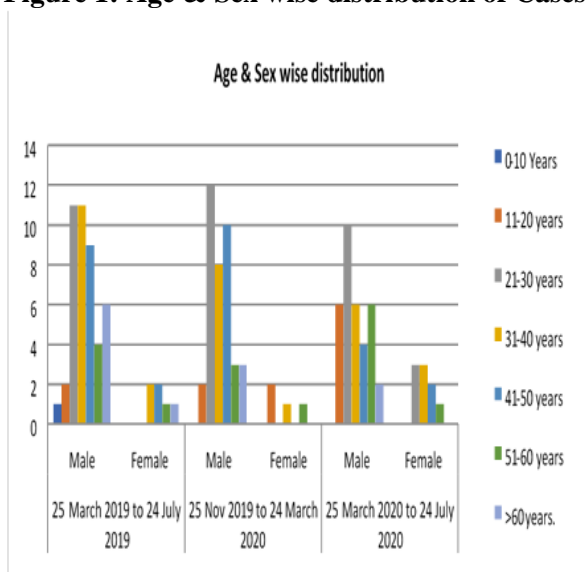


Figure 3: Distribution of Cases according to Marital status

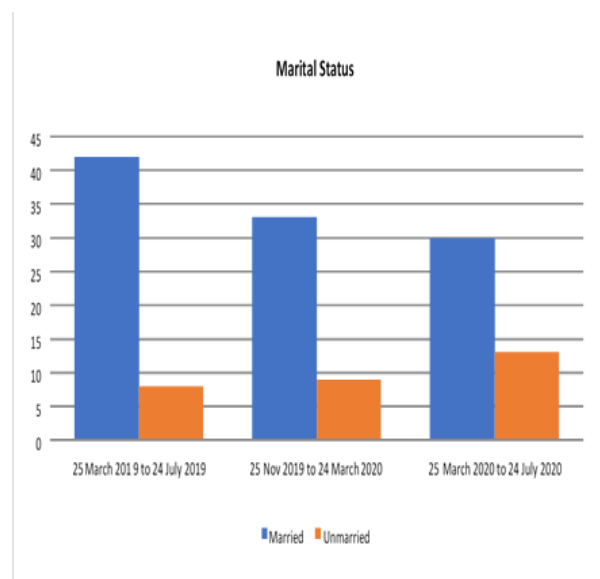


Figure 2: Geographical area wise distribution of Cases

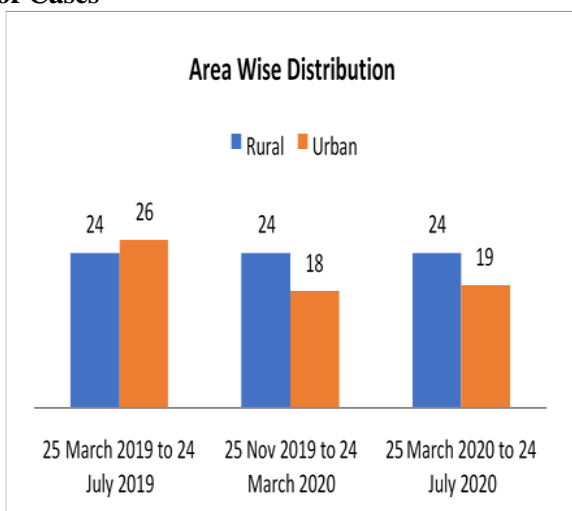


Figure 4: Distribution of Cases according to Religion

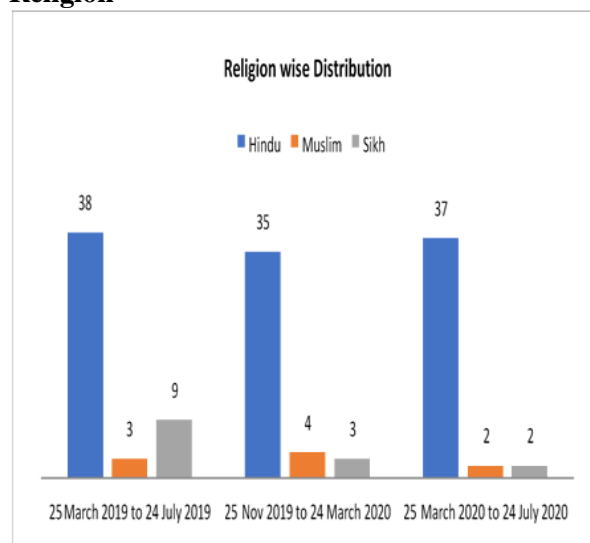
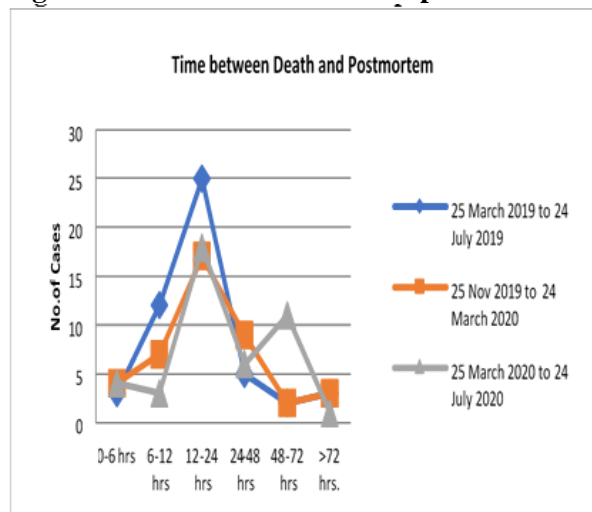


Figure 5: Time between death & postmortem



Discussion:

This study comprised of 135 deaths belonging to 3 different study durations i.e.

1. The lockdown period i.e. 25th March to 24th July 2020 (n=43) – Group 1
2. Pre lockdown period i.e. 25th Nov 2019 to 24th March 2020 (n=42) – Group 2
3. Corresponding period of lockdown in 2019 i.e. 25th March to 24th July 2019 (n=50) – Group 3

During the period of lockdown (Group 1) 43 cases were autopsied, out of which 79.06% (34) were male and 20.94% (9) female. In Group 2 (Pre lockdown period), out of total 42 deaths, 90% (34) were male and 9.60% (4) were female. In Group 3 (corresponding period of lockdown in 2019), 50 cases reported for autopsy included 88% (44) male and 12% (6) female. (Depicted in Figure 1) Similar trends were reported from Peru, Nepal and Bangladesh. Almost half of the victims were aged between 21-40 years across the group similar to findings published from Bangladesh, Australia and Japan. [13, 14, 15, 16, 17].

In comparison of urban-rural division of cases, the maximum victims belonged to rural area in Group 1 and Group 2. However reverse trend was seen in the corresponding previous year of lock down with preponderance of cases from urban belt. (Shown in Figure 2). These findings are contrary to research published by Renzo J.C et al, Roshana Shrestha et al & Mohammed A Mamun et al. These contrary findings can be attributed to the location of the study region which mostly caters to the rural area of the district of Ambala in the state of Haryana. [13, 14, 15]

We also observed higher incidence of deaths in married individuals across all the three groups (Depicted in Figure 3) which is in concurrence with studies by authors from Peru, Nepal and Bangladesh. [13, 14, 15]

In analysis of victim's religion, the victim practicing Hinduism far exceeded other religions i.e. Muslims and Sikhs. This great disparity is due to Hindu dominated jurisdiction of the autopsy center. (Shown in Figure 4) The interval between death and post mortem examination for about 40-50% cases was between 12 – 24 hrs. Lockdown period saw few cases (25%) delayed till 48 – 72 hrs which was due to wait for the COVID - 19 test reports of the victims. (Depicted in Figure 5)

Across all groups, the incidence of natural deaths was well below 10%. Among unnatural deaths, accidental deaths were far more common compared to suicides. However, the lockdown period witnessed a rise in number of suicides to almost double of pre-lockdown and corresponding time in previous year at the cost of accidental deaths which were halved. (Shown in Table 1) This spike in suicidal cases during the lockdown has also been reported by Renzo J.C. et al, Stuart Leske et al and Gunnell et al. Most of the victims of suicides were male in contrast to observations of Mohammed A Mamun et al and John et al. The reasons for this rise in suicidal tendency have been discussed in detail in this paper. The drop in accidental deaths is due to restriction on movement of people because roads were deserted of any means of transport, thus limiting the number of accidents on road. Only one case of homicide during the entire study period was brought for postmortem during the lockdown period. Homicidal deaths were also reported in Bangladesh & Mexico [13, 15, 16, 18, 19, 20].

The cause of death during lock down period was mostly hanging, poisoning, head injury & hemorrhagic shock, accounting for 8 cases each. Whereas in non-lockdown periods (Group 2 & 3), cause of death was maximum due to head injury followed by hemorrhagic shock & poisoning. (Shown in Table 2) All the cases of hanging & poisoning across all the groups were suicidal and the cases of hanging & poisoning were more during lock down period. Another interesting factor noted during this study is 4-fold rise in alcoholism related deaths during lock down period compared to non-lockdown period. Concerns regarding increased suicide rate due to COVID-19 have been raised by studies from neighboring countries like China and Bangladesh [12, 15].

The rapid spread of COVID-19 pandemic, forced the world countries barring a few to enforce strong restrictive measures like lockdown (prohibition of movement of peoples) and closure of all non-essential establishments bringing the world to a standstill. All forms of transport including air, sea routes, rail and road were closed putting whole

world into a pause which was never expected and witnessed previously by people earlier at large. Such type of large-scale stoppage of life activities created condition in which peoples felt like being imprisoned in a large size detention camp even in their own country where they lived. There was dramatic rise in mental health issues due to loss of jobs, owing to breakdown of industry, loss of access to healthcare, entertainment and social gatherings. This led to stressful conditions like loneliness, domestic violence and relationship breakdown disorders. [7, 21]

Lockdown enforced due to COVID-19 pandemic saw a sudden changes in all major forms of unnatural death i.e. Suicidal, Homicidal and Accidental. It is evident from the data presented in this study and similar studies published across the world that there is sudden & astonishing rise in the suicide rate during the COVID-19 pandemic especially during the period of lockdown. Gunnell et al had categorized COVID -19 related suicide risk factors as to financial stressors, domestic violence, alcohol consumption, isolation, irresponsible media reporting and public lack of quick access to healthcare. [4, 5, 18, 21, 22, 23, 24]

Conclusion:

Although the sample size is smaller in this study but still such studies reflect the ground level scenario. Increase in suicides during COVID-19 lockdown period observed by this study is a reflection of an increased prevalence of mental illness in community. The associated decrease in accidental deaths, was due to low outdoor activity and decreased vehicular traffic on the roads. A 4-fold rise in death due to alcohol intoxication was witnessed in COVID-19 lockdown period. The main triggers for increased in number of suicides were loneliness due to social isolation & restricted access to friends & family, financial stress due to loss of jobs, limited earnings, debt traps, recurring expenses etc. and regulated access to proper health care except for COVID-19 patients. We hope the results of this study will help to enlighten all mental health care stakeholders to start screening for vulnerable population during such period of crisis. It is also anticipated that present findings will be help Governments to formulate & develop national level health strategies for people at large especially at the time of pandemics. The World leaders and global health agencies should learn from this pandemic and start building the proper medical infrastructures at all levels especially in developing economies to brace up for the future challenges.

Further Suggestions:

Suicide Risk and Prevention measures during COVID-19:

- 1. Mental illness:** Government should make strategies to improve health care system. Suicide preventive care delivery system with improved access and adequate resources for zero suicide frameworks should be established.
- 2. Isolation, loneliness, and bereavement for peoples in communities to prevent Suicidal crisis:** Support for those living alone should be provided by mobilizing community services, contact with friends and family and regular check-ups in mental health services. Ensure access and availability of doctors and paramedics to the vulnerable population. NGO's should be encouraged to start services that help to maintain, support, and increase workforce to reduce suicidal crisis.
- 3. Alcohol consumption:** Government should monitor intake of alcohol and messages regarding safe drinking should be promoted. Sale and purchase of alcohol to only adult population should be made strict.
- 4. Financial stressors:** Government should ensure short term financial safety and long-term measures should be put in place for financial security to elderly and vulnerable population.
- 5. Domestic violence:** Government should ensure access, support and non-traceable call/texting services to the victims of domestic violence.
- 6. Irresponsible media reporting:** Media professionals should be encouraged to do safe reporting in line with existing suicide and mental health messaging guidelines. During COVID-19, it is important for the media to avoid any unintended consequences of reporting on suicide. Mass media should circulate awareness messages focused on suicide as a preventable cause of death, and promote resources for help and support.

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