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Demographics of Suicidal, Homicidal and Motor Vehicular Accidental Deaths in Rural Haryana, North

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Abstract

This is the cross-sectional observational study between 25th March, 2020 to 24th June, 2020 of all autopsy cases coming into the mortuary MMIMSR Mullana, Ambala, compared with three months Pre lockdown period between 25th December 2020 to 24th March 2020 and matching the corresponding period of the previous year between 25th March 2019 to 24th June 2019. Out of the total of 135 cases of death during this period of one year, we found that the implementation of lockdown has resulted in sudden changes in all major forms of unnatural death i.e., Suicidal, Homicidal and accidental. During the lockdown period of Group 1- 43 cases were studied out of which 79.06% (34) were male and 20.94% (9) female. The most common age group affected was 21–40 years in Group 1 (lockdown period), with 22 cases. In marital status, we observed that 69.96 % (30) people were married and 30.24% (13) cases were unmarried in Group 1 (lockdown period). The manner of death during the lockdown period (Group 1) was natural (4)9.30%, unnatural (accidental 22(51.16%), suicidal 16 (37.20 %) and homicidal 01 (2.24% cases.), respectively. The most common cause of death in the lockdown period (Group 1) was hanging 8(18.6%), poisoning 8(18.6%), head injury 8(18.6%) and hemorrhagic shock 8 (18.6%) cases. Death of alcoholic person was 4(9.30%), heart attack 2(4.65%), electrocution 01(2.32%) and others 04 (9.30%) cases Suicide rate got doubled and accident death rate come down by almost 50% in Lockdown Group. During the lockdown period, another factor came in the study: alcoholism-related deaths increased by four times compared to Pre lockdown group.

Keywords: Suicides, Homicide, Accident, COVID-19, Lockdown, Mental stress.

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Introduction

The COVID-19 pandemic is presenting a global challenge in terms of morbidity due to infectious disease and mental health. The first case of COVID-19, the disease caused by the novel coronavirus subsequently named SARS –Officials in Wuhan city, China, first reported CoV-2 in December 2019. The WHO declared COVID-19 a pandemic on Jan 2020. the pandemic rapidly disseminated across the world with the first reported case of 20 years old female in Kerala, India on 27th January 2020 and the first reported death in Karnataka, India, a 76-year-old man on 10th March 2020. India responded with a nationwide lockdown from 25th March 2020.[1,2]

The Increasing number of cases due to COVID-19 led to uncertainty which induced substantial fear and concern leading to stress and anxiety. lockdown restrictions, financial breakdown and lack of physical contact with family members and friends superimposed this. The consequences of pandemic and lockdown on socioeconomic, mental health, and other aspect of Indian society were immense. The alarming conditions may have exaggerated the suicide rate, which was also high in other parts of the world.[3,4]

According to WHO, every year, almost one million people die from suicide, and 20 times more people attempt suicide, a global mortality rate of 16 per lakh or one death every 40 seconds. In the last two decades, the suicide rate increased from 7.9 to 10.3 per lakh in India. The lockdown period anxiety 88.7%, job loss 76.1 %, stress 73.6%, loneliness 73% and financial insecurity 73% were the top reasons for mental distress in people seeking help, as per recent studies by June Thomas, a Bengaluru – based counselor. Anxiety level is very high in most cases. Although it is often not directly related to viruses, other issues have also been exaggerated during this time. This has led to a feeling of overwhelm and, therefore suicidal ideation. And every hour 17 people die due to road traffic accidents. The decline in road traffic accidents during the COVID-19 lockdown has been noted across the world and also in India too.[1,2,5-7]

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Aims and objectives of this research were as follows:

1. Prevalence and demographic pattern (age, sex, area and occupation, marital status, socioeconomic status) of death in the lockdown period.
2. Suicidal and self-harm tendencies during the lockdown period.
3. Time since death, manner and mode of death in lockdown period.
4. Impact on road traffic accidents during lockdown period.

Material and Method

This is the cross-sectional observational study between 25th March 2020 to 24th June 2020 of all autopsy cases coming into the mortuary MMIMSR Mullana, Ambala. Matching the corresponding period of the previous year between 25th March 2019 to 24th June 2019 and Three months period before the state of lockdown between 25th December 2020 to 24th March 2020 was also compared. In this study, all forms of death, natural and unnatural death, including hanging, impulsive self-poisoning and accidental death, were included. Data were collected from PMR Report, Police Inquest papers and post-mortem Register Microsoft Excel 2007 sheet in predesigned proforma and then analyzed.

Result and Observation

Result and Observationas shown in Tables 1-9

Discussion

In this study, a total of 135 cases of death were divided into three Groups

1. During the lockdown period from 25th March 24th July 2020.
2. Pre lockdown period i.e. 25 Nov 2019 to 24 March 2020.
3. Corresponding period of 2019 to lockdown i.e., 25th March 2019 to 24th July 2019.

During this period of one year, we found that the implementation of lockdown has resulted in sudden changes in all major forms of unnatural death i.e., Suicidal, Homicidal, and accidental.[8,9]

There was a dramatic rise in mental health issues due to the COVID-19 pandemic, which led to strong restrictive measures like curfews and the closure of all establishments in the country, bringing the life of people to a standstill. All types of means of transport, air, rail, road and sea route were closed, putting the whole world in a condition never expected by people earlier at large. This led to stressful conditions like loneliness, domestic violence and relationship breakdown disorders. Loss of jobs resulted in the breakdown of industry, loss of access to health, entertainment and social gathering etc.[5-7,9]

Such type of large-scale stoppage of life activities created conditions in which people felt like putting their life imprisoned in a large size detention camp even in their own country where they lived.[5,9,10]

Following are the observations of this study which are depicted in Tables 1 to 8

As per Table 1, during the lockdown period of group 1-43 cases were studied, of which 79.06% (34) were male and 20.94% (9) female. In group 2 (Pre-lockdown) out of a total of 42 cases, 90% (34) were male and 9.60% (4) were female. In group 3 (corresponding period of 2019), 50 cases were reported for autopsy which included 88% (44) male and 12% (6) female. Such type of trend of cases was also reported by authors from Renzo J.C Calderon-Anyosa - Peru (Canada), Roshana Shrestha, MD –Nepal and Mohammed A and Mamun et all -Bangladesh.[2,3,4,8]

According to Table 2, the most common age group affected was 21 to 40 years in group 1 (lockdown period), with 22 cases. There was a marginal decrease in cases in group 2 was

Table 1: Sex-wise Distribution

	Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2020*		*Mar 25 2020 to Jul 24 2020*	
	Cases	*Percentage*	*Cases*	*Percentage*	*Cases*	*Percentage*
Male	44	88.00	38	90.40	34	79.06
Female	6	12.00	4	9.60	9	20.94
Total	50	100.00	42	100.00	43	100.00

Table 2: Age-wise Distribution

	Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2019*		*Mar 25 2020 to Jul 24 2020*	
	Total cases	*Percentage*	*Total cases*	*Percentage*	*Total cases*	*Percentage*
0-10	01	02.00	00	00.00	00	00.00
11-20	02	04.00	04	09.52	06	13.95
21-30	11	22.00	12	28.57	13	30.22
31-40	13	26.00	09	21.42	09	20.90
41-50	11	22.00	10	23.80	06	13.95
51-60	05	10.00	04	09.52	07	16.26
>60	07	14.00	03	07.14	02	04.64
Total	50	100.00	42	100.00	43	100.00

21 cases and a marginal increase in 24 cases. Which have also been seen by authors in Japan, Australia and Bangladesh.[5,6,9]

As per Table 3, during the lockdown period in group 1 rural and urban population affected was 55.81% (24) cases and 44.18% (19) cases. In group 2 it was 57.14% (24) cases and 42.85% (18) cases and in group 3, 48% (24) and 52% (26) cases were examined, respectively. So this trend got reversed from group 3 (corresponding period of 2019) urban population was 52% (26) and rural 48% (24) cases.[3,4]

Our study is contrary to the study of authors (Renzo J.C Calderon-Anyosa) in Peru (Canada), Roshana Shrestha, MD (Nepal), and Mohammed An Mamun *et al*. (Bangladesh), who noticed a higher incidence of death in urban areas as compared to rural area.[2,4,8]

In Table 4, marital status, we observed that 69.96% (30) people were married and 30.24% (13) cases were unmarried in group 1 (lockdown period) and a similar trend was seen in group 2 and group 3 with 78.58% (33), 21.42% (9) cases and 84% (42) and 16% (8) cases, respectively. Our study is homologous to various studies by authors from Peru, Nepal and Bangladesh.[2,4,8]

According to Table 5, in group 1 (lockdown period), Hindus were 37 cases 86%, Muslims 4.65% (02) and Sikhs 4.65% (02) cases studied, respectively. A similar trend was also noticed in group 2 (Pre lockdown) and group 3 (corresponding period of 2019). Hindus were affected more than Muslims and Sikhs with figures of 35 (83.33%), 4 (9.52%) and 3 (7.42%) and 38 (76%), 3 (6%) and 9 (18.1%), respectively.[1,2]

As per Table 6, In the manner of death during the lockdown period (Group 1) was natural (4) 9.30%, unnatural, (accidental 22 (51.16%), suicidal 16 (37.20%) and homicidal 1 (2.24% cases), respectively. In pre lockdown period (Group 2), natural was 2 (4.76%) and unnatural (accident 33 (78.58%), suicidal 7 (16.66%), homicidal 0% cases). In the corresponding period of 2019 (Group 3), natural was 2 (4%) and unnatural (accidental 40 (80%, suicidal 8 (16%), homicidal 0% cases). Our study is consistent with Renzo J.C. Canada, Stuart Leske *et al*. (Australia) that the Increase in suicide during the lockdown period was due to isolation and quarantine.

The suicide rate got doubled as compared to groups 2 and 3. The accident death rate come down by almost 50% in lockdown group 1 as compared to groups 2 and 3, although suicide committed by males was more than by females. While in the study of M Mohammed A Mamun *et al*. of Bangladesh higher incidence of death due to suicide in females as compared to males. The first case of homicide in women by an intimate partner during a lockdown period was reported in Bangladesh by M Mohammed A Mamun et al . Similar trend of homicide was also noticed in Mexico and this is contrary to the study of Renzo J.C Calderon-Anyosa in Peru, Canada.

A fall in death due to accidents during the lockdown period due to limited outside side activities and a fall in mobility had a natural impact on road traffic accidents since people staying at home were at no risk of such events.[4,8,9]

In the Table, the 7 most common cause of death in the lockdown period (Group 1) was hanging 8 (18.6%), poisoning 8 (18.6%), head injury 8 (18.6%) and hemorrhagic shock 8 (18.6%) cases each. Death of alcoholic person was 4 (9.30%), heart attack 2 (4.65%), electrocution 1 (2.32%) and others 4 (9.30%) cases. Pre-lockdown period (Group 2) death due to

Table 3: Area-wise Distribution

	Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2020*		*Mar 25 2020 to Jul 24 2020*	
	Cases	*Percentage*	*Cases*	*Percentage*	*Cases*	*Percentage*
Rural	24	48.00	24	57.14	24	55.81
Urban	26	52.00	18	42.85	19	44.18
Total	50	100.00	42	100.00	43	100.00

Table 4: Marital status

	Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2020*		*Mar 25 2020 to Jul 24 2020*	
	Cases	*Percentage*	*Cases*	*Percentage*	*Cases*	*Percentage*
Married	42	84.00	33	78.58	30	69.96
Unmarried	08	16.00	09	21.42	13	30.24
Total	50	100.00	42	100.00	43	100.00

Table 5: Religion-wise Distribution

	Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2020*		*Mar 25 2020 to Jul 24 2020*	
	Cases	*Percentage*	*Cases*	*Percentage*	*Cases*	*Percentage*
Hindu	38	76.00	35	83.33	37	86.00
Muslim	03	06.00	04	09.52	02	04.65
Sikh	09	18.00	03	71.42	02	04.65
Total	50	100.00	42	100.00	43	100.00

head injury 15 (35.71%), hemorrhagic shock 12 (28.57%), poisoning 6 (14.28%), hanging 1 (2.38%), drowning 1 (2.38%), septicemia 2 (4.76%), and others 3 (7.14%), respectively. But in the corresponding year period 2019 (Group 3) causes of death due to head injury 27 (54.00%), hemorrhagic shock 6 (12.00%), poisoning 07 (14%), hanging 2 (4%), drowning 1 (2%), septicemia 1 (2%), and others 3 (6%), respectively.

During the lockdown group 1 period, suicide deaths were 8 each due to hanging and poisoning. In the pre-lockdown period group 2, although suicide by poisoning, had 6 cases. However, due to hanging, only 1 case was reported. In the corresponding period of 2019 group 3, poisoning were 7 cases and 2 cases were hanging. This shows clearly that the lockdown period had an immense effect on the mental health of people leading to commit suicide by hanging and poisoning, whereas poisoning was a common cause of suicide in all three groups. i.e., 8,6 and 7 cases, respectively.

During the lockdown period, another factor came in the study that alcoholism-related deaths increased by four times as compared to pre-lockdown group 2 and the corresponding period of last year. When 4, 1 and 0 cases were studied in groups 1, 2 and 3. Studies from neighboring countries, China, Bangladesh and Pakistan also raised concerns about increased suicide rates related to COVID-19. Gunnel *et al*. categorized COVID-19-related suicide risk factors as financial stressors, domestic violence, alcohol consummation, isolation, irresponsible media reporting and public lack of quick health.[10]

As per Table 8, the maximum number of deaths occurred during the 0–6 hours period in all three groups lockdown (Group -1), pre-lockdown (Group 2) and the corresponding period of last year 2019 (Group 3), 20 (46.52%), 18 (42.85%) and 29 (58%), respectively and minimum deaths occurred in 48 to 72 hours period in all three (Group1), (Group 2) and (Group 3) i.e., 01(2.32%), 01(2.38%) and 01(2%) cases, respectively.

In Table 9, we established the time between death and post-mortem in cases during the lockdown period (Group 1) maximum post-mortem cases as 12 to 24 hours 18 (41.86%) cases and the least number of cases in between >72 hours of death 1 (2.32%) cases. (Group 2) in pre-lockdown, maximum post-mortem cases were done during 12 to 24 hours of death 17 (40.47%) cases and the least cases done between 48 to 72 hrs of injuries 02 (4.76%) cases. (Group 3) of the corresponding period of 2019, the maximum post-mortem cases were done during 12 to 24 hours of death 25 (50%) cases and least cases of death done between 48 to 72 hours of death 02 (4%) cases. This is the first type of study all over the world done to date in which these parameters regarding COVID-19 lockdown were studied. None of the authors discussed this parameter in their study.

Table 6: Manner of Death

		Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2020*		*Mar 25 2020 to Jul 24 2020*	
		Cases	*Percentage*	*Cases*	*Percentage*	*Cases*	*Percentage*
Natural	Heart attack	02	76.00	02	83.33	04	86.00
Unnatural	Accidental	40	06.00	33	09.52	22	04.65
	Suicidal	08	18.00	07	71.42	16	04.65
	Homicidal	00		00		01	
Total		50	100.00	42	100.00	43	100.00

Table 7: Causes of death

	Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2020*		*Mar 25 2020 to Jul 24 2020*	
	Cases	*Percentage*	*Cases*	*Percentage*	*Cases*	*Percentage*
Heart attack	02	04.00	01	02.38	02	04.65
Head Injury	27	54.00	15	35.71	08	18.60
Hemorrhage and Shock	06	12.00	12	28.57	08	18.60
Poisoning	07	14.00	06	14.28	08	18.60
Hanging	02	04.00	01	02.38	08	18.60
Septicemia	01	02.00	02	04.76	00	00.00
Electrocution	01	02.00	00	00.00	01	02.32
Drowning	01	02.00	01	02.38	00	00.00
Alcohol	00	00.00	01	02.38	04	09.30
Others	03	06.00	03	07.14	04	09.30
Total	50	100.00	42	100.00	43	100.00

Table 8: Time between injuries and death

	Mar 25 2019 to Jul 24 2019		*Nov 25 2019 to Mar 24 2020*		*Mar 25 2020 to Jul 24 2020*	
Hours	*Cases*	*Percentage*	*cases*	*Percentage*	*Cases*	*Percentage*
0–6 hours	29	58.00	18	42.85	20	46.52
6–12 hours	02	04.00	04	09.92	01	02.32
12–24 hours	06	12.00	03	07.14	02	04.66
24–48 hours	01	02.00	01	02.38	02	04.66
48–72 hours	01	02.00	01	02.38	01	02.32
>72 hours	01	02.00	06	14.28	01	02.32
Not Applicable	10	20.00	09	21.42	16	37.20
Total	50	100.00	42	100.00	43	100.00

Table 9: Time between death and post-mortem

	25th March 2019 to 24 July 2019		*Nov 25 2019 to Mar 24 2020*		*25th March 2020 to 24th July 2020*	
Hours	*cases*	*Percentage*	*Cases*	*Percentage*	*Cases*	*Percentage*
0–6 hours	03	06.00	04	09.52	04	09.30
6–12 hours	12	24.00	07	16.66	03	06.98
12–24 hours	25	50.00	17	40.47	18	41.86
24–48 hours	05	10.00	09	21.42	06	13.96
48–72 hours	02	04.00	02	04.76	11	25.58
>72 hours	03	06.00	03	07.50	01	02.32
Total	50	100.00	42	100.00	43	100.00

Suicide Risk and Prevention Measures during COVID-19

Mental illness

Government should make strategies to improve the health care system. Suicide preventive care delivery system with improved access and adequate resources for zero suicide frameworks.

Isolation, loneliness, and grief for people in communities to prevent Suicidal crisis

Support for those living alone, Mobilizing community services, Friends and family, and Regular check-ups in mental health services. Ensure access and availability of doctors and paramedics to people. NGOs should be asked to start services help to maintain, support, and increase the workforce to reduce suicidal crisis.[7,10,11]

Alcohol consumption

Government should monitor the intake of alcohol, provide messages regarding safe drinking, and increase access to health services. Message regarding safe drinking and crisis management campaign. The sale and purchase of alcohol to only the adult population be made strict.

Financial stressors

Government should ensure short-term financial safety and long-term measures in place for the financial security of the elderly population.

Domestic violence

Government should ensure access, support and non-traceable call/texting services to the public.

Irresponsible media reporting

Media professionals, Safe reporting in line with existing suicide and mental health messaging guidelines. During COVID-19, the media need to avoid any unintended consequences of reporting on suicide, keeping messages focused on suicide as a preventable cause of death, and promoting resources for help and support. Encourage reporters' use of safe reporting guidelines on suicide. Promote entertainment content creators' use of safe messaging guidelines on suicide.[12,13,14]

Conclusion

We found an increase in suicides and homicides during the COVID-19 lockdown period, likely reflecting an increased prevalence of mental illness in the community. There is a decrease in the number of accidental death during the COVID-19 lockdown period due to low outdoor activity and decreased vehicular traffic on the road. The present study reported no child death associated with suicidal tendencies. In the present study increased death due to alcohol intoxication drastically in the COVID-19 lockdown period. The main stressors for increased suicide deaths were loneliness, financial stress, job loss, access to relatives and friends, and decreased access to proper health care except for COVID-19 patients. We hope that the results will require all mental health care stakeholders

to start screening vulnerable populations during this period of crisis. Hence it is now anticipated that the present findings will be helpful for the development of national-level health strategies for people at large. WHO has again warned world leaders to prepare for another pandemic shortly. Online psychiatric services are suggested to be established through hotlines to cope with the immensely pressurizing lockdown anxiety and panic contagion in the general population.

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