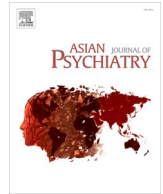




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COVID-19 and suicides in India: A pilot study of reports in the media and scientific literature

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ABSTRACT

Background: Our objective was to analyze reports of COVID-19 related suicides (CRS) to identify associated factors with a broader goal to inform management and prevention strategies.

Methods: We searched scientific literature, government websites and online newspaper reports in English and nine regional languages to identify relevant CRS reports.

Results: A total of 151 CRS reports were retrieved. CRS was more frequently reported among males (80.8%), those whose COVID status was unknown (48.0%), and those in quarantine/isolation (49.0%).

Conclusion: The above findings may assist identification of at-risk individuals for COVID-19 related suicidal behavior.

1. Introduction

The ongoing novel coronavirus pandemic has wrought in its wake economic and social devastation. As people struggle to cope with the immediate and long-term consequences of the pandemic, many of the resources traditionally used to cope with stress, such as social support, are no longer available or accessible; the result is a “perfect storm” for suicide (Brown and Schuman, 2020).

There are several isolated reports of COVID-19 related suicides (CRS) (Goyal et al., 2020; Lathabhavan and Griffiths, 2020; Mamun and Griffiths, 2020; Sahoo et al., 2020) in global literature; however, systematic studies on CRS have not been carried out to date. Though traditional psychological autopsy studies, involving interviews with family members, may be the ideal method to identify risk factors associated with CRS, such studies can be prohibitively difficult to accomplish during a pandemic situation. Given this scenario, media reports provide a reasonable starting point for investigating CRS and associated factors.

With this background, we carried out the present study with the objectives of analyzing available CRS reports from India in the media and scientific literature and to compare suicide related stressors between

lockdown and unlock phases; this would give phase specific information that may guide management, suicide prevention efforts as well as further research in this area.

2. Materials and methods

2.1. Search strategy and inclusion criteria

We searched for CRS reports published between 1st February 2020 [the 1st COVID-19 positive case in India was reported on 30th January 2020 (Reid, 2020)] to 30th September 2020 from online portals of 20 newspapers and 10 popular television news channels (Times Now, India Today, CNN News 18, NDTV India, NDTV, Aaj Tak, India TV, Zee News, ABP News and DD News); official government sites including Ministry of Health and Family Welfare, Government of India (Ministry of Health & Family Welfare, 2020) and 11 states (Andhra Pradesh, Uttar Pradesh, Karnataka, Maharashtra, Kerala, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, Delhi and Odisha); National Crime Records Bureau (NCRB) (National Crime Records Bureau, 2020), and their official twitter handles. Articles in regional languages (Hindi, Marathi, Telugu, Tamil,

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Malayalam, Urdu, Bengali, Odia and Kannada) after translation were also included.

Additionally, we performed an electronic search of MEDLINE, PsycINFO, ScienceDirect and Google scholar databases with the keywords 'corona', 'COVID-19', 'SARS-CoV-2', 'India', and 'suicide' in various combinations to identify CRS reports from India in scientific literature. Articles that reported ambiguous information and those unrelated to CRS were excluded and a final list of reports was prepared after eliminating duplicates.

2.2. Data abstraction

The following data were abstracted from every eligible report using a pre-designed proforma: date of publication, source of report, socio-demographic details of the deceased (including age, gender, religion, domicile status, state of residence, migrant status); suicide related details (location, mode, and suicide note); COVID-19 illness related details (travel history, comorbidity, presence of symptoms, visit to doctor, Quarantine/Isolation status, COVID-19 test result status); any possible diagnosis of mental illness or substance use disorder; and reasons/stressors contributory to suicide; the above categories were in keeping with the stress-diathesis model of suicide (Mann, 2002).

Because the national lockdown in India began on March 25, 2020 and because the lockdown was lifted in several phases starting from June 8, 2020, we divided the identified reports into three phases – pre-lockdown (till March 24, 2020); lockdown (March 25, 2020 to June 7, 2020) and unlock (June 8, 2020 to September 30, 2020).

2.3. Statistical analysis

Descriptive statistics such as frequency and percentages were used to depict data. Comparison of parameters between lockdown and unlock phases were done using independent *t*-test or chi-square test, with post-hoc comparisons, as appropriate.

2.4. Ethical approval

The study involved secondary data analysis of information in the public domain and hence, a formal approval from an independent ethics committee was not sought to carry out the present work.

3. Results

From a total of 1856 media articles (1632 from newspapers and 224 from television channels), 151 CRS reports were obtained for analysis. No report of CRS was obtained from government web-sites; only four case reports were documented in scientific literature (Goyal et al., 2020; Lathabhavan and Griffiths, 2020; Mamun and Griffiths, 2020; Sahoo et al., 2020). We excluded 10 reports with insufficient details and 5 reports with ambiguous relationship to COVID-19.

3.1. Socio-demographic details of deceased

Among CRS cases, only 19.2 % (n = 29) were females. The mean age of the deceased was 38.7(±14.6) years. Those who died by suicide during the lockdown were significantly younger compared to the unlock phase (35.4 ± 13.8 vs 43.5 ± 14.5, respectively; *t* = 3.34, *p* = 0.001). (Table 1)

3.2. Stressor

Presence of a stressor was documented in 94.7 % (n = 143) of the cases. Forty-seven percent (n = 71) were under stress owing to flu-like illness symptoms and 49.0 % (n = 74) due to quarantine/isolation; among the latter, 72.9 % (n = 54) were in an institutional (including health-care) set up.

Table 1

Socio-demographic and clinical characteristics of the COVID-related suicide (CRS) decedents.

Variables		n	%
Gender	Male	122	80.8
	Female	29	19.2
	<25 years	21	13.9
Age	25 to 60 years	119	78.8
	> 60 years	10	6.6
	Migrant	64	42.3
Migrant Status	Non-migrant	87	57.6
	Not Mentioned	86	56.9
	Rural	50	33
Domicile	Urban non metro	80	53
	Urban Metro	21	14
	Married	58	38.4
Marital Status	Unmarried	25	16.5
	Separated/Widow	2	1.2
	Not Mentioned	66	43.7
Medical Comorbidity	Yes	17	11.2
	No	134	88.8
Psychiatric Illness type	Depression	7	4.6
	ADS	6	3.9
	Absent	138	91.3
Suicide note	Yes	26	17.2
	No	125	82.8

ADS – Alcohol Dependence Syndrome.

Other stressors reported were being advised a COVID-19 test (33.7 %, n = 51), having a COVID-19 positive test result (27.1 %, n = 41), stigma and discrimination (15.8 %, n = 24), financial loss 28 (18.5 %), and unavailability of alcohol due to lock down (3.9 %, n = 6).

We observed maximum CRS in the lockdown phase (50.3 %, n = 76) followed by unlock phase (41.1 %, n = 62), and least in the pre-lockdown (8.6 %, n = 13). Comparison of suicide related patterns between lockdown and unlock phases revealed that during the unlock phase, there were more suicides among COVID positive patients compared to lockdown (34, 79.1 % vs 9, 20.9 %, respectively; $\chi^2 = 40.62$, *p* < 0.001). Other stressors were not significantly different between the two phases.

3.3. Suicide related details

Of all suicides, 35.7 % (n = 54) occurred in institutional settings, 13.9 % (n = 21) occurred in their homes, 9.9 % (n = 15) at places near their homes and 40.3 % (n = 61) in other places like hotel, railway tract and wells. Suicide note was found in 17.2 % (n = 26) of the cases.

The two most common modes of death by suicide were hanging (n = 72, 47.6 %) and jumping from height (n = 29, 19.2 %) followed by jumping in front of the train (n = 8, 5.3 %), poisoning (n = 8, 5.3%), burning self (n = 5, 3.3 %), jumping into well (n = 3, 1.9 %), gun-shot (n = 3, 1.9 %) and slitting throat (n = 2, 1.3 %).

3.4. COVID status and physician contact

Among those who died by suicide related to fear of COVID (n = 74), 41 (55.4 %) had tested positive for COVID-19 and three (4.0%) were negative, but for the rest (40.5 %; n = 30), the COVID status was unknown at the time of suicide. Of all COVID suspects (n = 51, 68.9 %), 30 (58.8 %) did not know their COVID test status.

More than half of the deceased COVID suspects (64.7 %, n = 33) had a physician contact within the last 2 weeks before committing suicide.

3.5. Co-morbidity

Among the deceased, majority (89.4 %, n = 135), had no comorbid physical/mental illness or substance use; 17 (11.2 %) had physical comorbidity, 6 (3.9 %) reported substance dependence (five alcohol, one

poly-substance use) and seven had a pre-existing psychiatric illness (Table 1).

4. Discussion

The present study suggests that socio-demographic factors, stigma related to a diagnosis of COVID-19, being in quarantine/isolation and recent physician contact are markers of CRS. Synthesizing our findings together, a typical case and course of events culminating in CRS can be described as follows: a young healthy man during lockdown develops fever and cold symptoms, visits the doctor, is advised some medications or COVID-19 test or isolation/quarantine, faces avoidance, stigma and discrimination around him, undergoes acute stress and commits suicide due to a feeling of helplessness or in order to save his loved ones from infection.

Most of the reported stressors were operational during both the lockdown and unlock phases. Our findings concur with the only previous study of CRS in India (Rajkumar, 2020) and underscore the need to disseminate accurate and adequate information which can mitigate fear, stigma and misconceptions associated with COVID-19, both at an individual as well as population level. This assumes further significance given the propensity of novel viruses to infect humans in multiple waves; hence there is good reason to invest in these steps for the future.

Majority (64 %) had a contact with a physician before committing suicide. Adequate physician sensitivity towards identifying and addressing psychological concerns of COVID-19 suspected patients may help in early identification and prevention of at least some CRS. Our findings suggest that quarantine facilities (including health-care set-up) may be high risk areas for suicide. Close supervision, environmental modification (Navin et al., 2019; Sakinofsky, 2014) including minimizing fixtures, avoiding ligature points, and reducing breakable and pointed objects are suggested.

The present study had certain limitations. We have collected data entirely from online sources and news portals owing to resource constraints during the lockdown. Further, media suicide patterns may not be accurately reflective of community suicides. Hence, there is an urgent need for governmental surveillance and release of data on COVID suicides to inform suicide prevention strategies. Nevertheless, we have improved upon the only previous study from India (Rajkumar, 2020) on CRS by studying a larger sample drawn from a longer time period of evaluation; additionally, we have also examined differences in patterns between the lockdown and unlock phases of the pandemic.

5. Conclusion

Our findings, though subject to limitations, provide preliminary information about factors associated with CRS. Depending on setting, either a complete mental health evaluation and suicide risk assessment

or screening with Patient Health Questionnaire (PHQ)-9 item for suicidality is suggested in tandem with COVID-19 testing/quarantine advice with provision for appropriate referral for those at risk. The Indian Council of Medical Research (ICMR) COVID-19 screening questionnaire (Indian Council of Medical Research, 2020), should include one item on suicidal thoughts.

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Declaration of Competing Interest

The authors declare no conflicts of interest relevant to the contents of the manuscript.

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