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## RESEARCH ARTICLE

# PREVALENCE OF SUICIDE IDEATION AND ITS CORRELATION WITH SOCIO-OCCUPATIONAL AND INTERPERSONAL FACTORS IN COVID-19 POSITIVE PATIENTS IN TERTIARY CARE HOSPITAL

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### ABSTRACT

**BACKGROUND:** Mental health consequences of the COVID-19 crisis may increase suicide rates during and after the pandemic. **METHODS:** This is a Cross-sectional study. 214 Patients diagnosed with COVID-19 viral infection and who fulfilled inclusion criteria were included in study. Participants were subjected to social-demographic details and semi-structured questionnaire for suicide ideation. **RESULTS:** From 214 participants, the mean age was  $18.63 \pm 2$  years, female 150 (70.09%), married 118 (55.14%) and nuclear family 196 (91.59%). 144 (67.29%) participants were studied up to primary. The majority were included in lower socioeconomic status 102 (47.67%) and reside at rural area 199 (92.99%). The prevalence rate of suicide ideation is 13.08%. In the exploration of perceived causes of SI, most of the study subjects 10 (35.71%) responded that they were fear of COVID-19 infection followed by fear for the future 5 (17.86%), difficult family dynamics 5 (17.86%), loss of loved ones 3 (10.71%), job loss 3 (10.71%), and isolation (loneliness) 2 (7.14%). **CONCLUSION:** This study indicated that Suicide risk is multi factorial and if specific strategies can be maximally implemented with COVID-19-specific threats to population mental health and suicide risk in mind, this pandemic may not only provide a sense of urgency, but a path forward to address suicide risk at hospital and community levels.

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## INTRODUCTION

The current COVID-19 pandemic is the most severe pandemic of the 21st century, on track to having a rising death toll. Beyond causing respiratory distress, COVID-19 may also cause mortality by way of suicide. The pathways by which emerging viral disease outbreaks (EVDOs) and suicide are related are complex and not entirely understood. We aimed to systematically review the evidence on the association between EVDOs and suicidal behaviors and/or ideation. The severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2), also known as the Corona Virus Disease 2019 (COVID-19), first appeared in Wuhan, China, in November 2019.

Since then, COVID-19 has spread across the world, on all continents, leading The World Health Organization to officially declare the COVID-19 outbreak a pandemic.<sup>[1]</sup> Currently, there have been more than 850,000 reported deaths from COVID-19 infection and more than 25,000,000 reported cases worldwide.<sup>[2]</sup> The COVID-19 pandemic is thus considered to be the most severe pandemic of the 21st century, on track to having a rising death toll. The COVID-19 pandemic and the resulting stay-at-home/lockdown orders have had devastating effects on the world economy and the emotional well-being of many across the globe. Not only are people afraid of catching or spreading the virus, but there is also persistent anxiety surrounding the pandemic's impact on daily living.

Job losses are approaching levels not seen since the Great Depression, and with the extended period of social isolation and physical distancing, there are concerns of a looming mental health crisis that may have long-lasting consequences for millions of people. Beyond causing respiratory symptoms and distress that lead to death, COVID-19 may also cause direct and indirect mortality by way of suicide.<sup>[3,4,5]</sup> On March and April 2020, the first cases of COVID-19-related suicides were reported in India and Bangladesh when two men who feared having contracted the disease took their own lives.<sup>[6,7,8]</sup> Moreover, recent editorials hypothesized an increased suicide risk associated with the COVID-19 pandemic.<sup>[4,9]</sup> and previous studies informed the putative association between viral infectious diseases and deaths by suicide.<sup>[10,11]</sup> A nationwide Danish study for example reported a significant and strong association between viral infection during hospitalization and deaths by suicide, with the number of days treated for infection being associated with elevated risk for suicide in a dose-response fashion.<sup>[11]</sup> However, the pathways by which emerging viral disease outbreaks (EVDs) and suicide may be related are complex and not entirely understood. Mental health experts predict that COVID-19 crisis may increase suicide rates during and after the pandemic. Mental health consequences of the COVID-19 crisis including suicidal behavior are likely to be present for a long time and peak later than the actual pandemic. Studies have shown that both objective social isolation (e.g. living alone) and subjective sense of being alone are associated with suicidal ideation and behavior. There has been an increase in self-harm and suicidal ideation among people since the COVID-19 pandemic. According to World Health Organization, 800,000 people die due to suicide every year, which is one person every 40 seconds and many more attempted suicides. It is predicted that by 2020 the rate of death will increase to one every 20seconds. Over 10-20 million attempt suicide and one million people die as a result of suicide every year worldwide, which surpasses the total deaths due to armed conflicts around the world. Attempted suicide rates have been on an increase world over. This has been significant especially among adolescents and young adults. Suicide is one of the 10 major causes of death in India. Suicide is the second leading cause of death among 15-29-yearold globally and the third leading cause of death among those aged 15-44 years in some countries. Suicide accounted for 1.4% of all deaths worldwide, making it the 17<sup>th</sup> leading cause of death among all ages in 2015. The suicide mortality rate in India was 15.7 per 100,000 according to WHO in 2015.

The number of suicide cases had tripled in the past three decades reflecting the seriousness of the problem and highlighting the need to prevent it. Research studies have shown that there are some warning signs which a person may exhibit prior to attempting suicide that are observed by or reported to another, and indicate risk for suicide within minutes, hours or days. Identified by expert consensus, widely accepted suicide signs include hopelessness, anger, recklessness, feeling trapped, social withdrawal, sleep problems, agitation, and mood changes. Such behavioral changes and signs if identified can be modified by prompt interventions and the suicidal act may be prevented. Suicide is a major preventable cause of mortality. Suicidal behaviors being complex occurs as a result of psychological, psychosocial, environmental and genetic risk factors. Based on our understanding of suicide, there are several risk factors linked to the pandemic and ensuing public health measures, which suicide expert consensus views as threats that could

increase population suicide risk without significant efforts to mitigate these risks. These threats to population suicide risk include the pandemic's potential to lead to deterioration in mental and/or physical health; social disconnectedness, loneliness, or diminished social support; fears about or realized job or financial losses; remote work or school and the related disruption in social, academic, and basic structure to daily life; loss of loved ones or anticipated milestones; increased alcohol consumption in some regions of the world<sup>[12]</sup>; and increased availability of lethal means such as firearms, opioid, and other toxic substances, especially with more time spent at home sheltering in place.

## AIMS AND OBJECTIVES

- To identify the prevalence of suicidal ideation among COVID-19 positive patients
- To identify the correlation of suicidal ideation with socio-demographic factors
- To identify the prevalence of suicidal ideation in socio-occupational-interpersonal factors

## MATERIALS AND METHODOLOGY

This is a Cross-sectional study. The study was conducted on patients of COVID-19 isolation ward, at tertiary care hospital. Patients diagnosed with COVID-19 viral infection were included in present study. They were explained about study and written informed consent was taken.

- **Inclusion criteria:** Admitted adult patients in isolation ward for COVID-19 at tertiary care hospital.
- **Exclusion criteria:** Patients which known mental health problems, mental retardation and who was taking any type of anxiolytics and antidepressants.

The Data collection was carried out at a time when patient was admitted in isolation ward of COVID-19, between April and September 2020. Participants were explained about the procedure, written consent was taken and then they were subjected to self-administered survey forms which included socio-demographic data and using a pre-designed and pre-tested questionnaire developed to assess suicidal ideations. The questionnaire was developed by contextual modification of SI scale.<sup>[13]</sup> SI question was rated on the Likert scale for 1–5 where 1 – being never, 2 – almost never, 3 – sometimes, 4 – fairly often, and 5 – very often. For labeling the presence of SI, 3 (sometimes), 4 (fairly often), and 5 (very often) were clubbed, and for the absence of SI, 1 (never) and 2 (almost never) were clubbed. SI was defined as a continuum of thoughts about death ranging from mild to severe, hurting oneself or planning, conduct, and outcome of one's own suicide.<sup>[14]</sup> The pattern of individual suicidal ideation in terms of frequency, self-ability to control SIs, perceived causes of SIs, and ways of attempting suicide were explored. The data was analyzed by statistical methods using SPSS version 20. The study was conducted after obtaining prior approval from Ethics Committee of the Health Sciences Research Unit of institution. All ethical issues inherent in research involving human subjects were followed.

## RESULTS

A total of 214 COVID-19 positive consented to participate in the study. The mean age of respondents was  $18.63 \pm 2$  years. Most of the respondents were female 150 (70.09%), married 118 (55.14%) and nuclear family 196 (91.59%). 144 (67.29%) participants were studied up to primary. Most of the participants were included in lower socioeconomic status 102 (47.67%) and reside at rural area 199 (92.99%). [Table-1]. For suicidal thoughts, ten questions were asked to the subjects. The prevalence of SI was roughly ranging from 3.74% to 13.08%. The rating for question number five had the highest number of subjects, i.e., 28 (13.08%) who felt that life is not just worth living, followed by question number one, 24 (11.21%) subjects have been thinking of ways to kill themselves. As indicated by question number eight, 23 (10.75%) subjects felt that “it would be better for everyone involved I was to die” [Table-2]. When asked about the frequency of suicidal ideation, majority, i.e., 13 (46.43%) of the subjects responded that they had SI at least once a month; however, 6 (21.43%) had SI once a week followed by 5 (17.86%) who thought of suicide more than once a week. There were 3 (10.71%) who had SI once a day and 1 (3.57%) had SI more than once a day [Figure-1].

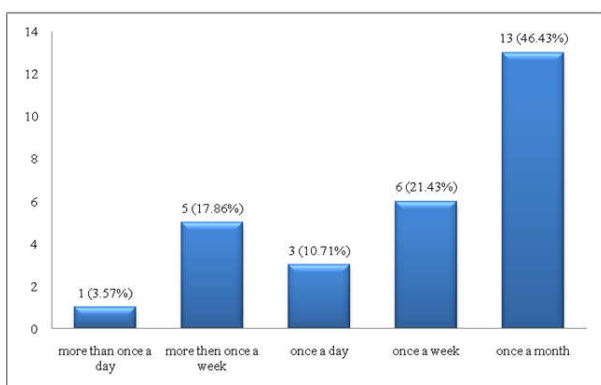
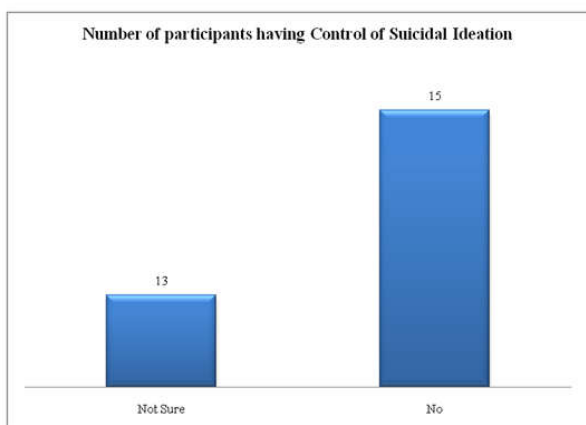
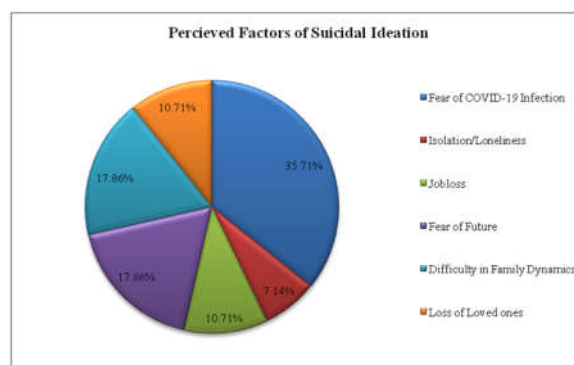


Figure 1. Frequency of suicide ideation

Among the respondents, who had suicidal ideations, 15 (53.57%) and 13 (46.43%) of participants had no control or were not sure if they had control over SI, respectively [Figure-2].



In the exploration of perceived causes of SI, most of the study subjects 10 (35.71%) responded that they were fear of COVID-19 infection followed by fear for the future 5 (17.86%), difficult family dynamics 5 (17.86%), loss of loved ones 3 (10.71%), job loss 3 (10.71%), and isolation (loneliness) 2 (7.14%) [Figure-3].



Out of the participants having SIs, 5 (17.87%) have made attempts to suicide in the past 12 months. They were also asked about the frequency of suicide attempts. Out of the five participants, one subject had made an attempt to suicide more than once. These subjects were also asked about the way of attempting suicide of which majority responded they have done self-harm by slitting the wrists. Participants were also asked “what do they do to control SI?” For which majority of people responded that they motivate themselves by watching various inspirational videos online, by reading positive and inspiring books, by learning about the hardships their idol had to face while going through life. They also mentioned that talking to the people going through the same situation as they have helped them a lot. Indulging in praying and diverting mind temporarily from problems by listening to music, doing exercise has been reported to be of great benefit. Participants have also mentioned that when they have the urge to end themselves, they think about their parents or their dear ones and that prevents them from doing the act. Talking to people who understand them, their problems, and care about them has also helped the subjects to control suicidal thoughts.

## DISCUSSION

We studied correlation between suicidal ideation and COVID-19 positive participants. First, we found the literature on the topic to be scarce, but we found some weak evidence to suggest a significant increase in deaths by suicide during EVDOs. Second, older adults were reported to be particularly vulnerable to death by suicide during the 2003 SARS outbreak.

Third, psychosocial factors such as the fear of being infected by the virus or social isolation related to quarantine measures were the most prominent factors associated with death by suicide during EVDOs. Fourth, on the contrary, we found only weak evidence to support the hypothesis that the neuropsychiatric symptoms induced by infection may explain the increased rates of suicidal behaviors during EVDOs. Studies indicate that social isolation, anxiety, fear of contagion, uncertainty, chronic stress and economic difficulties may lead to the development or exacerbation of depression, anxiety, substance use and psychiatric disorders in vulnerable populations including individuals with pre-existing psychiatric disorder. Psychosocial effects of EVDOs may be regarded as the main risk factors for an increase in suicidal ideation according to our results. The fear of being infected by the virus was indeed reported in our review to be the most salient reason for suicide attempt during EVDOs,<sup>[6,15,16]</sup> especially among older adults.<sup>[15,16]</sup>

Table 1. Socio demographic Background of Participants

Socio demographic factors	n	%	95% CI
Age	18-25	39	18.22
	26-35	50	23.36
	36-45	104	48.60
	>45	21	9.82
Gender	Male	64	29.91
	Female	150	70.09
Family Type	Nuclear family	196	91.59
	Joint family	18	8.41
Education	Illiterate	86	40.19
	Primary	58	27.10
	Secondary	41	19.16
	Graduate	29	13.55
Marital Status	Married	118	55.14
	Unmarried	81	37.85
	Others	15	7.01
Socio-economical status	Lower	102	47.66
	Middle	61	28.50
	Higher	51	23.83
Residence	Rural	199	92.99
	Urban	15	7.01

Table 2. Suicidal ideation among participants

Questions	SI present		
	Number	%	95% CI
I have been thinking of ways to kill myself	24	11.21	6.98-15.44
I have told someone I want to kill myself	12	5.61	2.53-8.69
I believe my life will end in suicide	9	4.21	1.52-6.9
I have made attempts to kill myself	8	3.74	1.2-6.28
I feel life is not just worth living	28	13.08	8.56-17.60
Life is so bad I feel like giving up	22	10.28	6.21-14.35
I just wish my life would end	20	9.35	5.45-13.25
It would be better for everyone involved I were to die	23	10.75	6.60-14.90
I feel there is no solution to my problems other than taking my own life	14	6.54	3.23-9.85
I have come close to taking my own life	13	6.07	2.87-9.27

This result is consistent with previous studies on emerging infectious diseases, such as HIV<sup>[17,18,19]</sup> or syphilis for which the fear of being infected was also found to be correlated with suicide ideation or attempts. Recently, deaths by suicide associated with the fear of being infected with the virus were reported during the current COVID-19 pandemic.<sup>[6,7,8]</sup> Social isolation was also found in our review to be significant risk factors for deaths by suicide during the 2003 SARS outbreak. Although none of the included articles directly assessed the impact of lockdown measures on suicidal behaviors, social isolation and loneliness may foster suicidal ideation and attempts in the general population. In a recent one study reported that objective social isolation and subjective feelings of loneliness are associated with higher suicidal ideation and behaviors. Some studies reported that quarantine and lockdown measures are associated with poorer mental health status in the general population.

However, the effects of social isolation observed in previous EVDOs may be different than the effects of the current pandemic<sup>[20,21]</sup> With a rising number of deaths from COVID-19 infection and negative effects of the pandemic on key factors that are associated with suicide, including social isolation, unemployment, and financial problems, there is understandable concern that suicide rates might increase. When discussing mental health consequences of the pandemic, automatically conflating declining mental health with suicide and suicide risk should be avoided. Importantly, stigmatizing mental illness and suicide also needs to be avoided because it might discourage people from seeking help. We acknowledge that striking a balance in this area can be difficult to achieve.

This study has also highlighted whether the subjects have control over suicidal thoughts or not. It was found that the majority of subject had no control or did not sure if they have control over SI. Having no control over suicidal thoughts can pose to be a major problem as it can lead to the progression of suicidal thoughts into attempts which will further lead to committing suicide.<sup>[22]</sup> In this study, efforts were given to know what helps in controlling SI and having friends to share problems with have been reported to control SI. A study conducted among American adolescents have shown that being part of social groups and high density of friendship ties have been associated with decrease in suicidal thoughts and attempts.<sup>[23]</sup> According to one study concern shown by others has been considered as a factor that decreases the risk of SI.<sup>[24]</sup>

## CONCLUSION

The present study was done in a tertiary care hospital; hence the result cannot be generalized to the population at large. The study has been primarily cross sectional in nature. The sample population was small. A larger sample size is needed to comment more accurately on the prevalence. There is no control group in our study. So, we can't compare psychiatric morbidity and quality of life in COVID-19 positive patients with normal population. Suicide risk is multi factorial with well-established risk factors and a growing body of evidence for effective suicide prevention strategies, outcomes related to suicide will be greatly influenced by investments and actions taken now and in the coming months on the part of policy makers, health care and community leaders, and citizens.

This is a moment in history when suicide prevention must be prioritized as a serious public health concern. If specific strategies can be maximally implemented with COVID-19-specific threats to population mental health and suicide risk in mind, this pandemic may not only provide a sense of urgency, but a path forward to address suicide risk at hospital and community levels.<sup>[25,26]</sup> The results of this study provided an opportunity to reflect on our practices and behavior as health care professionals. They should be considered as a contribution to understanding the complex phenomenon that concerns the identification of emotional symptoms associated with the COVID-19 positive patients by health care professionals, thus preventing their progression to pathological situations. Some suggestions arose from these results, such as: promoting suicidal prevention; establishing a consultation together with the remaining multi-professional team which included an interview with a structured script, where emotional states of depression and anxiety could be conceptualized through attitudes, behavior, moral support, motivation enhancement and words aiming at an autonomous and interdependent intervention to target the problem; and intervening interdependently like, Pharmacotherapy, Supportive psychotherapy, Interpersonal psychotherapy and Motivational enhancement therapy(MET).

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