Reasons for Suicide Attempts in South India during the COVID-19 Pandemic

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Objective: By increasing the risk of isolation, fear, stigma, abuse, and economic fallout, COVID-19 has led to an increase in the risk of psychiatric disorders, chronic trauma, and stress. These factors eventually increase suicidality and suicidal behavior. This study intends to evaluate the reasons for suicide attempts due to the COVID-19 pandemic in the south Indian population.

Design: Cross-sectional study

Setting: The study was conducted in R. L. Jalappa Hospital and Research Centre, Kolar.

Participants: This study was conducted on 91 patients admitted to the general medicine department for a suicide attempt because of the COVID 19 pandemic.

Methods: A single examiner conducted a structured interview with a pretested questionnaire with each participant. Participants were asked to indicate the primary reason or motivation for their suicide attempt. Patients answered a set of questions regarding personal and family concerns (marginalization, fear and uncertainty, domestic abuse, loneliness, grief over loss of loved one) and work-related concerns (economic fallout, high-risk environment, shortage of personnel and personal protective equipment [PPE]). We employed mean and standard deviation to descriptively analyze quantitative variables. Categorical variables were expressed in terms of frequency and proportion. For non-normally-distributed quantitative parameters, medians and interquartile range (IQR) were compared across study groups using the Kruskal-Wallis test (> 2 groups). Data was analyzed using coGuide software, V.1.03.

Results: The mean age of participants was 29.47 ± 11.06 years, the majority (43.63%) of which were aged between 21 to 40 years of age. The majority (72.53%) of participants reported personal and family concerns as reasons/motivation for suicide, whereas only 17.58% reported work-related concerns. There was a statistically significant difference across reason or motivation for suicide with age (in years) and gender (P value < 0.001).

Conclusion: The study concluded that more than half of the patients indicated personal and family concerns as the major reason for suicide attempts during the pandemic. It is vital to emphasize the mental health well-being of the population and take proactive steps to minimize its detrimental effects during the COVID-19 pandemic.

Keywords: COVID-19; Depression; Mental Health; Social Distancing; Suicide

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The coronavirus disease 2019 (COVID-19) started in China at the end of 2019 and has quickly spread globally. In March 2020, The World Health Organization declared the virus outbreak a pandemic. Although medical professionals and public health specialists focus on treating sick individuals and containing the spread of the virus in the general population, less attention is given to the psychiatric consequences of the COVID-19 disease.1 Issues like social distancing, isolation, and quarantine, as well as the social and economic crises, may trigger psychological mediators like worry, fear, sadness, anger, annoyance, frustration, guilt, helplessness, loneliness, and nervousness, common features of mental health suffering.^{2,3} Such mental health issues may lead to various suicidal behaviors like suicidal ideation, suicide attempts, and actual suicide. Studies have reported that around 90% of global suicides are due to mental health conditions, like depression, in individuals.4 Similar situations were reported during previous pandemic crises: In Hong Kong, an increase in the suicide rate among the geriatric population was observed both during and after the SARS (Severe Acute Respiratory Syndrome) pandemic of $2003.^{3}$

Suicide is the ultimate form of human sacrifice for individuals who cannot bear mental suffering. The World Health Organization (WHO) has estimated there are approximately 800,000 deaths by suicide each year, with a rate of 10.5 per 100,000 people (males: 13.7 per 100,000; females 7.5 per 100,000). The second leading cause of death among people aged 15-24 across the whole world is suicide, and for each suicidal death, around 10 to 20 suicide attempts are estimated. 5,6 Suicide rates in India are among the highest in the world.⁷ The National Mental Health Survey in India reports a prevalence rate of 6.4% of suicide risk in its population sample.8 Fear of getting COVID, the fear of passing the disease onto others, mental instability (eg, depression, anxiety and/or stress) due to quarantine, isolation, economic hardship, death of close family member due to COVID-19, and the shortage of food and alcohol were the reasons for suicide during this pandemic, based on published reports. 9,10 There were reports of suicide in India as early as February 12, 2020, due to excessive fear of contracting COVID-19, though the infection had not spread across the country at that time. A retrospective study from national newspaper reports from India showed 69 cases of suicide due to various reasons surrounding COVID-19 from March 2020 to May 2020.9 Furthermore, newspapers/bulletins reported isolated suicide cases from different parts of India due to the alcohol ban during the lockdown period. 11,12

The pandemic may cause a significant degree of mental health crisis across the globe. Therefore, brief messages related to mental health and psychological considerations during the COVID-19 outbreak had been published by the WHO. The importance of psychological first aid had been highlighted.¹³ Even though there are many theories associated

with suicidal tendencies, there is limited data on the exact reason for suicide attempts in the literature in the COVID-19 pandemic period. Thus, the present study intends to explore the reasons for attempting suicide due to the COVID-19 pandemic in the south Indian population. The study hypothesis sought any existing association between the demographic variable and reasons for attempting suicide to describe the reason for attempting suicide due to COVID-19 pandemic and estimate the outcome of suicide attempts in this period.

Methods

Study population and study site: Patients admitted to the department of general medicine of R. L. Jalappa Hospital and Research Centre, Kolar, due to suicide attempts because of the COVID-19 pandemic.

Inclusion criteria: Patients aged above 18 years.

Exclusion criteria: Patients who were not willing to participate in the study, individuals with prior history of mental illness.

Study design: Cross-sectional study.

Sample size and sampling method: All 91 patients who were admitted due to attempted suicide because of the COVID-19 pandemic during the study period were selected by universal sampling.

Study duration: Four months from April 2020 to August 2020.

Ethical considerations: The study was approved by the institutional review board and the ethics committee of the hospital. Informed consent was obtained from each participant.

Data collection tools and clinical examination: "An attempted suicide" was defined as an act with the non-fatal outcome in which an individual deliberately initiates a non-habitual behavior that without intervention from others will cause self-harm or deliberately ingests a substance in excess of the prescribed or generally recognized therapeutic dosage, and which is aimed at realizing changes, which the subject desired via the actual or expected physical consequences.¹⁴

The main instrument for data collection was a pretested questionnaire containing the reason for suicide. Following emergency medical care, the study interview was scheduled during the standard psychiatric care given to every attempted suicide patient. Close relatives of two patients who died of suicide during the pandemic indicated the reason for the patients' suicide was related to the COVID-19 pandemic. For this reason, the close relatives were asked to complete the study questionnaire, and their responses were included in our analyses. The first question asked if the "uncertainty due to COVID-19 was the primary reason for your suicide [attempt]"? The respondents who replied yes were included in the study. A structured interview was used and preferred here on the assumption that respondents may not comply with the self-administered questionnaire.

The assessment questionnaire was designed to tap into the particular reason for suicide attempts, and asked participants to indicate which reason was the primary motivation for their suicide attempt. A total of 10 questions were made from the reasons presented by Banerjee et al,15 and were pretested and applied in the structured interview. A panel of experts involving clinical psychologists, physicians, and epidemiologists made face validation (content). Expert opinion on whether to include a question/ statement in the survey tool was placed on four-point Likert scale: strongly agree=4, agree=3, disagree=2, and strongly disagree=1. Finally, the scale-level content validity index (S-CVI) average was calculated for a reason for a suicide attempt (average 0.9). A value of 0.8 or more for S-CVI was considered the threshold point for acceptance of the content in the questionnaire of the survey.¹⁶

Statistical Analysis

Reason or motivation for suicide was considered the primary outcome variable. The mode of infliction and outcome of suicide were considered secondary outcome variables. Age and gender were considered explanatory variables. Quantitative variables were descriptively analyzed by mean and standard deviation. Categorical variables were analyzed by frequency and proportion. All quantitative variables were checked for normal distribution. For non-normally-distributed quantitative parameters, medians and interquartile range (IQR) were compared across study groups using the Kruskal-Wallis test (> 2 groups). Categorical outcomes were compared across study groups using the chi-square test. P value < 0.05 was considered statistically significant. Data was analyzed using coGuide software, V.1.03. 17

Results

A total of 91 participants were included in the final analysis. Mean age of participants was 29.47±11.06 years with the majority (43.63%) aged between 21 to 40 years. Females outnumbered males (64.8%). Marital status was reported as single (47.3%) or married (44%). The majority of participants (72.53%) reported personal and family concerns as reasons/ motivation for suicide, whereas only 17.58% reported workrelated concerns. True suicide attempts (when a patient communicates they had suicidal ideation) and hidden suicide attempts (when a patient hides or denies having suicidal ideation) were most common, at 45.1% and 38.5%, respectively. Manipulative suicide attempts (those arousing hostility in an attempt to control another person's behavior) were less common at 16.5%. The most common mode of suicide infliction was by poisoning (93.41%), followed distantly by hanging (4.4%). Death was reported for only 2 (2.20%) participants, and 89 (97.80%) were discharged (Table 1).

Age formed a statistically significant difference across reason or motivation for suicide (P value < 0.001). The difference in gender across the reason or motivation for suicide was found to be significant as well, with a P value of

| Table 1: | n (%) | |
|-----------------------|---|------------------|
| | ge (in years) | 29.47 ± 11.06 |
| | , (,) , | (range 18 to 76) |
| Gender | | |
| Male | | 32 (35.2%) |
| Female | | 59 (64.8%) |
| Marital s | status | |
| Single | | 43 (47.3%) |
| Married | | 40 (44%) |
| Widower | | 8 98.8%) |
| Reason | or motivation for suicide | |
| (1) | Personal and family concerns | 66 (72.53%) |
| | Marginalization | 22 (33.33%) |
| | Fear and uncertainty | 14 (21.21%) |
| | Domestic abuse | 13 (19.70%) |
| | Loneliness | 10 (15.15%) |
| | Grief over loss of loved one | 7 (10.61%) |
| (2) | Work related concerns | 16 (17.58%) |
| | Economic fallout | 11 (68.75%) |
| | High risk environment | 4 (25.00%) |
| | Shortage of personnel and PPE | 1 (6.25%) |
| (3) | Others | 9 (9.89%) |
| Mode O | f Infliction | |
| Hanging | | 4 (4.40%) |
| Poisoning | | 85 (93.41%) |
| Self-inflicted injury | | 2 (2.20%) |
| Type Of | Suicidal Attempts | |
| Hidden | | 35 (38.46%) |
| Manipulative | | 15 (16.48%) |
| True | | 41 (45.05%) |
| Outcome | e | |
| Death | | 2 (2.20%) |
| Dis | 89 (97.80%) | |

< 0.001, with personal and family concerns as the major reason for suicide in females. Personal and family concerns were predominate for all single, married and widowed as 65.1%, 77.5% and 87.5% respectively (Table 2).

Discussion

A total of 91 subjects were included in the study. The mean age of the participants was 29.47 ± 11.06 years, and the majority of them were females (64.8%).Personal and family concerns (72.53%) were the most common reason for suicide, followed by work-related concerns (17.58%). Poisoning (93.41%) was the major mode of suicide infliction, followed by hanging (4.4%). The majority survived, while two individuals succumbed to death.

Table 2: Association of reason or motivation for suicide with demographic parameters (N=91)

| | Reason or motivation for suicide | | | | |
|--------------------------|---|-------------------------|----------------------------|---------|--|
| Parameter | Personal and family concerns | Work-related concerns | Others | P value | |
| | 25 (IQR 22 to 32.25) | 30 (IQR 26 to 32.50) | 20 (IQR 19.50 to 23.50) | <0.001* | |
| Age (N=91) | Personal and family concerns Vs Work-related concerns | | | 0.046 | |
| . , | Personal and family concerns Vs Others | | | 0.007 | |
| | Work-related concern | ns Vs Others | | <0.001 | |
| Age groups (in years) | | | | | |
| Up to 20 years (n=14) | 8 (57.14%) | 0 (0%) | 6 (42.86%) | ‡ | |
| 21 to 40 years (n=67) | 50 (74.63%) | 14 (20.9%) | 3 (4.48%) | | |
| 41 to 60 years (n=8) | 6 (75%) | 2 (25%) | 0 (0%) | * | |
| 61 years and above (n=2) | 2 (100%) | 0 (0%) | 0 (0%) | | |
| Gender | | | | | |
| Male(n=32) | 16 (50%) | 12 (37.5%) | 4 (12.5%) | 0.0044 | |
| Female(n=59) | 50 (84.75%) | 4 (6.78%) | 5 (8.47%) | <0.001† | |
| Marital status | | | | | |
| Single (n=43) | 28 (65.12%) | 8 (18.6%) | 7 (16.28%) | | |
| Married (n=40) | 31 (77.5%) | 7 (17.5%) | 2 (5%) | ‡ | |
| Widowed (n=8) | 7 (87.5%) | 1 (12.5%) | 0 (0%) | | |

IQR, interquartile range; *Kruskal Wallis test; †Chi square test; †No statistical test was applied due to 0 subjects in some cells

Within the personal and family concerns (72.53%) reason for suicide attempts, marginalization (33.33%) was the most common reason, followed by fear and uncertainty, domestic abuse, loneliness, and grief over the loss of a loved one. A study done by Dsouza et al9, from the data published in the national newspaper showed that fear or anticipation of COVID-19 infection was the most prominent suicide causality, although most of the victims were later diagnosed as COVID-19 negative in their autopsy. Family and interpersonal relationships might affect health in ways that might result in suicide.¹⁸ The interpersonal theory has two components: thwarted belongingness and perceived burdensomeness, considered the main reasons for suicide.¹⁹ Prejudice, social stigma, blame and xenophobia, and communal sentiments were considered contributing factors for marginalization.¹⁵ Hopelessness and emotional pain may lead to loneliness and ultimately suicidal behavior.²⁰ Social isolation and lack of social support may cause loneliness, thus leaving the need for belonging unfulfilled. Loneliness has been considered a risk factor for suicide attempts and suicidal ideation.²¹ Apart from these vulnerabilities, trauma from interpersonal violence especially intimate partner violence, has risen during the COVID-19 pandemic.22 Women are the ones at the receiving end of such violence, which challenges their need for belonging and is associated with increased dysphoria and suicide risk.23 It was presumed that economic

fallout and substance use might have perpetuated aggressive reactions in men against their partners.²⁴

The second major reason for suicide in our study was work-related concerns. Restrictions implemented due to COVID-19 had a significant impact on the global economy. In the US, around 2.5 million people lost their jobs, and unemployment has increased.²⁵ Many industries like entertainment, tourism, travel, etc, have been affected in the lockdown period, with uncertainty shadowing their futures. The International Labor Organization (ILO) has predicted unemployment for about 25 million people during the COVID-19 pandemic period alone, which may lead to prolonged economic challenges.²⁶

The age range was 18 to 76 years in our present study, with the mean age of the attempt survivors being 29.47 ± 11.06 years. The mean age was closer to the age group (ie, 15–29 years) reported by WHO as the highest risk group for suicidal behavior and death. Suicide attempts were observed more in females than males. A nationwide study conducted in Japan reported a higher prevalence of suicide due to COVID-19 in females. Suicide results in death in 8.5% of cases within such group and is the second major cause of death worldwide. Consistent with previous studies, there were significant gender differences in the precipitating stressors among the suicide attempters.

Poisoning was the main mode of suicide infliction in the present study, which is consistent with the report of WHO, in which the use of poisonous substances like pesticides is included under conventional methods for suicide. Similar results were observed in other studies.^{28,32,20}

The WHO has reported that individuals with a prior history of suicide attempt are at higher risk for suicide, with about 40 to 100 times elevated risk compared to the general population. Thus, the attempt survivors must be considered as high-risk individuals and need support from those around them, including their families.^{28,33} The fear of discrimination, stigma, legal hassles, and avoidance of the healthcare system due to pandemic fear can be potent barriers to health care access. Thus, early identification of the at-risk population, especially those suffering from mental disorders, who are quarantined, frontline workers, infected with COVID-19 or relatives of the infected, might be helpful. Traditional and social media campaigns can promote mental health and reduce distress. The public must be encouraged to stay connected and maintain relationships via telephone or video and promote healthy habits like eating healthy food, exercise, and adequate sleep. Screenings for anxiety, depression, and suicidal feelings should be employed. Suicide prevention in the COVID-19 era is an important and difficult issue. It is to be hoped that the efforts of clinicians, researchers, and policymakers will reduce COVID-19 related suicides^{-28,33,34}

Limitations

Our sample included only the suicide attempters admitted to the emergency department of the hospital. Many suicide attempts will not be fatal and may not have contact with professional health services leaving a significant number of suicide attempts unnoticed. Also this study did not collect the data on psychiatric diagnosis, severity of depressive and anxiety symptoms, whether the patients were provided with psychiatric treatment prior to and after suicidal attempts

Conclusion

Globally, the psychological impact of the COVID-19 pandemic is of concern. While existing health facilities prioritize the medical treatment of individuals with COVID-19, the resources to treat the subsequent and related psychological effects are arguably insufficient. Our study concluded that personal and family concerns were the major reason for suicide attempts. Relevant public mental health strategies are, therefore, needed and should be adopted as soon as possible to minimize further suicides.

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