

SUICIDALITY AND COVID-19: DATA FROM AN EMERGENCY SETTING IN ITALY

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SUMMARY

Background: Suicidality is a widespread phenomenon with a dramatic burden worldwide. The Coronavirus disease 2019 (Covid-19) pandemic determined a relevant impact on mental health, due to the infection itself and its socio-economic consequences. The present study is aimed at analyzing the prevalence of suicidality during the Covid-19 pandemic among subjects requiring a psychiatric consultation in an emergency setting.

Subjects and methods: Socio-demographic and clinical information was collected at the emergency department of the General Hospital of Perugia from June 1st, 2020 to January 31st, 2021. Data was entered into an electronic datasheet and retrospectively analysed. Pearson's bivariate correlation was performed in order to assess significant associations between suicide-related variables and specific socio-demographic and clinical features ($p < 0.05$).

Results: Among 447 subjects included in the analysis, 109 (24.4%) showed suicidality-related phenomena, particularly suicide attempts (SA) ($n=44$, 9.8%), suicidal ideation (SI) ($n=41$, 9.2%), non suicidal self-injury (NSSI) ($n=31$, 6.9%), that in some cases co-occurred. A statistically significant association was detected between NSSI and living with marital family ($p=0.024$) and between suicidality-related phenomena and adjustment disorders ($p=0.018$). None of the examined subjects reported a previous positivity for Covid-19 and neither did their relatives.

Conclusions: The present study confirms the impact of the Covid-19 pandemic on suicide-related phenomena. Consultation psychiatry fulfills a key role in the early detection and clinical management of these conditions, that require targeted intervention strategies.

Key words: pandemic - COVID-19 – suicidality - suicidal behavior - suicidal ideation - non suicidal self-injury

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INTRODUCTION

Suicidality is a multifactorial and widespread phenomenon. The World Health Organization (WHO) assessed an average global annual mortality rate for suicide of 10.7 per 100,000 individuals (Bachmann 2018), even though estimates vary significantly among different countries, as well as on the basis of socio-demographic and individual factors. Higher mortality rates due to suicide are observed in males versus females (although the latter attempt suicide more often) and in people who are unemployed, have a low income, are socially isolated, and struggle with alcohol and drug abuse (World Health Organization 2017, Crestani et al. 2019). Suicide tends to be more prevalent among adults and elderly people, even if it also represents the second leading cause of death in subjects aged 15-29 (Turecki & Brent 2016). A major risk factor for suicide is represented by psychiatric disorders, especially mood disorders. Particularly, in bipolar disorders suicide risk goes from 20 to 30 times higher than the general population, depending on the clinical phenotype of the disorder itself (Zeppego et al. 2015, McMahan et al. 2017, Plans et al. 2019, Miller & Black 2020). Other conditions associated with suicidality are chronic pain,

chronic physical illnesses, environmental stressors, traumatic events and death by suicide of a loved one, the latter potentially explained by both environmental and genetic factors (Bohnert et al. 2017, Joshi & Billick 2017, Racine 2017, Sampaio et al. 2019). When considering suicidality and suicidal behavior (SB), the following phenomena can be identified: suicide, suicide attempt (SA), both active and passive suicidal ideation (SI), non suicidal self-injury (NSSI), and deliberate self-harm (DSH), the last one including SA and NSSI (Turecki & Brent 2016). These conditions, especially SA, usually reach medical attention in hospital emergency rooms, where clinical stabilization is the priority.

Recently, the Coronavirus disease 2019 (Covid-19) pandemic determined a relevant impact on mental health due to both the illness itself and the socio-economic implications (Fiorillo et al. 2020, Holmes et al. 2020). People infected by SARS-CoV-2, especially if suffering from severe symptoms or requiring hospitalization, were reported to develop post-traumatic stress disorder (32.2%), as well as anxiety and depressive symptoms (respectively, 14.8% and 14.9%) (Moreno et al. 2020). On the other hand, an increased prevalence of stress, substance abuse, and behavioral

addiction has been demonstrated in the general population (Fiorillo et al. 2020). Comparing SI rates before and during the pandemic in Italy, Fiorillo et al. found an alarming increase, from 3.5% in 2008 to 14.5% in 2020 (Scocco et al. 2008, Fiorillo et al. 2020). In the present study, we analyze the prevalence of suicidality-related phenomena during the COVID-19 pandemic among people requiring a psychiatric consultation in an emergency setting.

SUBJECTS AND METHODS

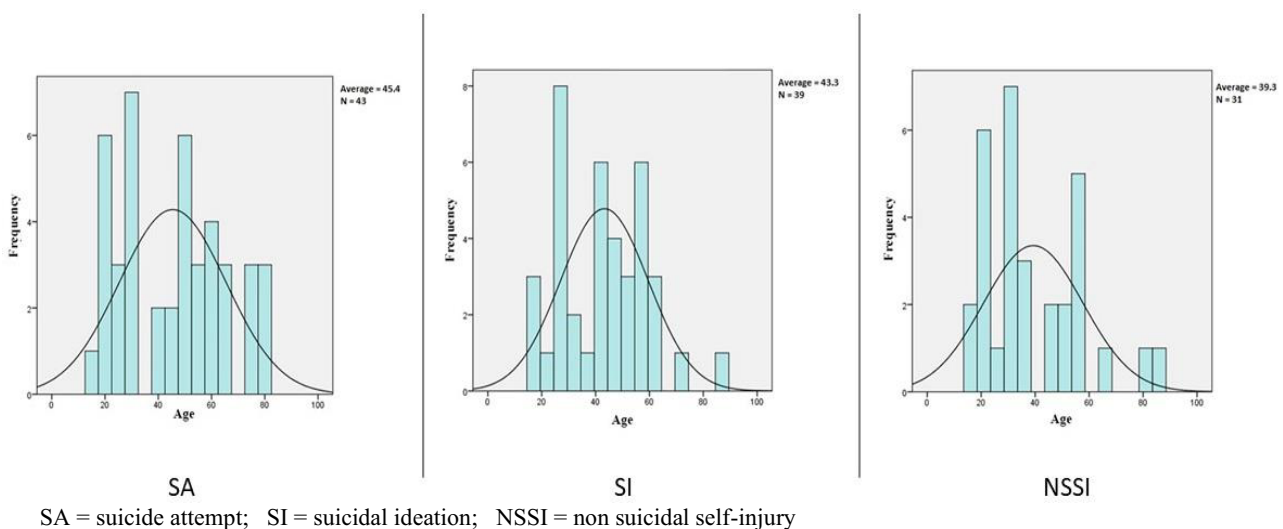
This study represents a retrospective analysis of data concerning psychiatric consultations carried out at the emergency department of the General Hospital of Perugia (Umbria, Italy) during the period June 1st, 2020 - January 31st, 2021. Subjects who access the emergency department due to psychiatric reasons are referred to the psychiatrist after a triage and a first visit carried out by the nursing staff and the emergency room doctor. During the psychiatric visit, the following information was collected by means of a specific form: gender; age; nationality; marital and living status; scholarship; working status; reason for requesting the consultation; in the case of SA, means through which the SA was performed; recent/past psychiatric and medical history, including treatment features; diagnostic features; program at discharge. As for suicidality, data concerning SA, SI, and NSSI was registered. The information gathered through the structured forms was inserted into an electronic dataset. Statistical and descriptive analyses were carried out to evaluate the distribution of the variables within the sample, with particular interest in the variables relating to suicide and related phenomena. Bivariate correlations (Pearson's R) were carried out in order to assess significant association with suicide-related variables and specific socio-

demographic and clinical features. All the analyses were performed with the Statistical Package for Social Sciences (SPSS), v. 21.

RESULTS

This retrospective analysis involved data from 464 psychiatric emergency consultations. These were provided to a total of 447 subjects, with a higher prevalence of females (n=268, 60%) and a mean age of 42.44±16.42. When assessing suicidality in our sample, this occurred in 109 (24.4%) cases. Particularly, SA represented the reason for requesting the psychiatric consultation in 44 (9.8%) cases, whilst SI and NSSI occurred respectively in 41 (9.2%) and 31 (6.9%) cases. More than one suicide-related phenomenon occurred in 7 (6.42%) cases. Suicidality was particularly prevalent among younger subjects. Indeed, in the population aged 18-29, 40.6% accessed the psychiatry emergency service due to SA, 34.4% due to SI, and 31.3% due to NSSI. The distribution of suicide-related phenomena among different ages is showed in Figure 1.

Subjects accessing the emergency service due to suicidality were mainly females (n=63, 57.8%) and the mean age was 45.42±20.36 for SA, 43.28±16.27 for SI, and 39.29±18.45 for NSSI. When considering SA, most subjects in the sample attempted suicide by drug overdose (n=26, 23.9%). At the moment of accessing the psychiatric emergency service, 61 subjects (56%) were already receiving psychiatric assistance, whilst 49 (45%) reported to have had at least a previous contact with community mental health or addiction services. As for diagnostic features, the most prevalent psychiatric conditions were mood disorders (n=23, 21.1%) and schizophrenia spectrum disorders (n=15, 13.8%). For detailed socio-demographic and diagnostic features see Table 1.



SA = suicide attempt; SI = suicidal ideation; NSSI = non suicidal self-injury

Figure 1. Distribution of suicide-related phenomena through different ages

Table 1. Socio-demographic characteristics and diagnostic features of the 109 subjects assessed for suicidality

	Subjects (%)
Socio-demographic variables	
Female gender	63 (57.8)
Italian nationality	78 (71.6)
Scholarity >13 years	21 (19.3)
Married/cohabitant	31 (28.4)
Living status: alone	17 (15.6)
Employed/student	35 (32.1)
Diagnostic features	
Affective Disorders	23 (21.1)
Schizophrenia Spectrum Disorders	15 (13.8)
Anxiety Disorders	8 (7.3)
Sleep-Wake Disorders	0 (0)
Adjustment Disorders	6 (5.5)
Substance-Related and Addictive Disorders	9 (8.3)
Trauma-Related Disorders	1 (0.9)
Obsessive-Compulsive and Related Disorders	2 (1.8)
Personality Disorders	24 (22)
Medical Comorbidities	19 (17.4)

Table 2. Program at discharge from the emergency department

	Subjects (%)
Treatment at discharge	
Pharmacological treatment	57 (52.3)
Antipsychotics	20 (18.3)
Antidepressants	4 (3.7)
Mood Stabilizers	3 (2.8)
Benzodiazepines	44 (44.4)
Program at Discharge	
Discharge to local mental health/addiction services	36 (33)
Voluntary Psychiatric Commitment	25 (22.9)
Involuntary Psychiatric Commitment	3 (2.8)
Medical Hospitalization	18 (16.5)

A comorbid medical condition was detected in 19 (17.4%) subjects presenting with suicidality. When evaluating treatment-related features, 64 (58.7%) subjects had taken psychopharmacological agents lifetime. Particularly, 46 (42%) had been treated with benzodiazepines, 44 (40.4%) with antipsychotics, 24 (22%) with antidepressants, and 9 (8.3%) with mood stabilizers. Finally, among the considered population, no one reported having been infected with SARS-CoV-2 or subjected to quarantine measures. Similarly, none of the evaluated subjects lost their relatives due to Covid-19 and no severe cases of infection were described among their loved ones. In more than a half cases a pharmacological treatment was recommended (n=57, 52.3%), with higher rates of benzodiazepines and antipsychotics, respectively prescribed in 40.4% and 18.3% subjects. At discharge from the emergency service, 36 (33%)

subjects were referred to community mental health services or addiction services, whilst psychiatric hospitalization on voluntary basis was required in 22% cases. In a minority of cases (n=3, 2.8%) hospitalization in a psychiatric inpatient unit was carried out by means of compulsory treatment (see Table 2).

When performing the Pearson's correlation for assessing variables associated with suicidality, a positive association was detected among NSSI and living status (particularly, living with marital family, Pearson's $r=0.116$, $p=0.024$). Furthermore, suicidality-related phenomena were associated with the presence of an adjustment disorder (Pearson's $r=0.113$, $p=0.018$).

DISCUSSION

In the present study, we found that almost one-quarter (24.4%) of psychiatry emergency consultations in a general hospital setting during the Covid-19 pandemic were due to suicidality, with 9.8% of the consultations requested for a SA. This data does not significantly differ from those detected in the general population during the pre-pandemic era, since a prevalence of about 10% was described for SA in European countries (Bachmann 2018). On the contrary, previous literature described rates of SI around 3.5% (Scocco et al. 2008), which are one-third lower than those detected in our population. Studies focusing on the impact of Covid-19 on mental health confirmed higher rates of SA and SI immediately following the settlement of lockdown measures (Holmes et al. 2020; Fiorillo et al. 2020), but also during the immediate post-lockdown period (Balestrieri et al. 2021). These results are significant even when considering that during the last year a decrease in emergency accesses was registered, possibly due to the fear of contracting Covid-19 (Ojetti et al. 2020).

Specific epidemiological features of suicide-related phenomena were confirmed by our results, with a higher prevalence among young and elderly subjects, that may thus be identified as vulnerable populations (Crestani et al. 2019, Mattei & Pistoressi 2019) to whom specific interventions should be targeted in the post-pandemic era. The possible influence of environmental factors on the development of suicidality (Racine 2017) was also confirmed in the present sample, where unemployment represented a frequent condition, described in almost one-third of subjects presenting with suicidality. This may become even more relevant when considering that the pandemic led to serious socio-economic consequences, with significant changes in the working routine and higher unemployment rates, that may increase feelings of loneliness and discouragement (Moreno et al. 2020). According to the International Labour Organization, unemployment rates are expected to increase of a 0.5% per year worldwide, which may account for a

progressive increase of suicide rates (Kawohl & Nordt 2020). Furthermore, a positive association was detected between living with marital family and NSSI. Despite during the lockdown subjects reported that their familiar relationships were better than usual (Every-Palmer et al. 2020), previous studies also underlined the increase in domestic violence phenomena (Kofmann & Garfin 2020), that could represent one possible cause of our finding. Furthermore, the deterioration of family mental health during the pandemic was confirmed by previous research (Patrick et al. 2020) identifying new at-risk groups, such as parents of children aged < 18 (Gadermann et al. 2021).

As for diagnostic features, mood disorders showed a prevalence of 21.1% in our sample. These conditions represent a well-known risk factor for the development of SB, especially when specific clinical features, such as mixed symptoms, occur (Popovic et al. 2015, McMahon et al. 2017). Furthermore, adjustment disorders were also significantly associated with suicide-related phenomena in this study. This is not surprising since adjustment disorders may occur as a result of being exposed to specific causes of distress, such as the pandemic emergency, possibly worsening mental health outcomes of the general population. Since adjustment disorders are usually not associated with the presence of serious mental illnesses, their relationship with suicide risk suggests that specific preventive strategies should also be targeted for subjects not considered at risk for developing psychiatric symptoms before the pandemic (Ben-Ezra et al. 2021).

To note, more than one-third of the sample did not report neither previous psychiatric history nor psychopharmacological treatment. This suggests that a percentage of cases was related to the new onset of suicidality, which is contrasting with previous findings that demonstrated how suicide-related phenomena mainly emerge in subjects affected by serious psychiatric disorders (Vismara et al. 2018, Zaheer et al. 2018), but may be explained by the unprecedented emergency situation caused by the pandemic. Interestingly, none of the included subjects reported previous SARS-CoV-2 infection and neither did their loved ones. This may be consistent with the fact that Umbria region registered an increase of contagions during 2021, whilst during the first pandemic wave the prevalence of Covid-19 was relatively low when compared to other Italian regions (coronavirus.regione.umbria.it). The finding may be partially unexpected since previous studies pointed out at being infected with Covid-19 or having their loved ones infected as the most severe cause of distress during the pandemic (Ferrando et al. 2021). Despite this, our preliminary data suggest that the pandemic emergency may represent an independent risk factor for suicidality, possibly acting indirectly on specific determinants of mental health, such as social factors and access to

adequate care, as well as higher access to suicide methods (Wasserman et al. 2021).

As for treatment features, main evidence concerning suicide prevention was attributed to lithium (Börjesson & Gøtzsche 2019, Smith & Cipriani 2017). Despite this, less than 10% subjects in the sample were treated with mood stabilizers, with a higher prevalence of benzodiazepines, antidepressants, and antipsychotics prescription. This may be partially explained by the lower likelihood of subjects treated with lithium to access psychiatric emergency settings (Felber et al. 2018). The lack of an adequate treatment for subjects with high suicide risk in the emergency department may contribute to major difficulties in the crisis management, due to major issues concerning treatment adjustments in this setting, e.g., possible complications following antidepressant discontinuation. Specific difficulties in managing suicidality in an emergency setting are also confirmed by the high rate of inpatient admissions following the psychiatric consultation. Furthermore, hospitalization in medical settings was required in 20% cases, this data confirming that the clinical management of suicidality is often complicated by the emergence of medical conditions that should be treated in an adequate environment (Ryan et al. 2015). A multidisciplinary evaluation of suicide-related phenomena, as well as of medical complications related to SB is thus required (Boland et al. 2017).

This study presents limitations. First, the retrospective design that may have led to bias during the collection process. Second, suicide was assessed by trained clinicians in a real-world setting by means of a clinical interview, but without the use of validated psychometric tools. Moreover, data from this study do not cover the whole pandemic period and should thus be considered preliminary.

CONCLUSIONS

The present study confirms the impact of the Covid-19 pandemic on mental health and particularly on suicide-related phenomena. Consultation psychiatry fulfills a key role in the early detection and clinical management of these conditions, that require targeted intervention strategies possibly carried out by a multidisciplinary equipe. Future studies should add knowledge to the impact of the pandemic on suicide-related phenomena, both in the short and in the long term, and suicide prevention should be considered as a priority in the current pandemic era.

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Contribution of individual authors:

Giulia Menculini & Patrizia Moretti conceived and designed the study;
Luigi Maria Pandolfi, Sara Bianchi, Eleonora Valentini & Kety Amantini collected the data;
Giulia Menculini, Luigi Maria Pandolfi & Mattia Gatto extracted data in the electronic database;
Giulia Menculini & Luigi Maria Pandolfi performed the statistical analysis;
Giulia Menculini, Luigi Maria Pandolfi, Sara Bianchi, Eleonora Valentini & Mattia Gatto wrote the first draft of the manuscript;
Patrizia Moretti revised the first draft of the manuscript;
Alfonso Tortorella supervised all phases of the study design and writing of the manuscript.

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