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Research Article

Psychiatric emergency care during Coronavirus 2019 (COVID 19) pandemic lockdown: results from a Department of Mental Health and Addiction of northern Italy

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ABSTRACT

Background: The current COVID-19 pandemic and the consequent containment measures are leading to increasing mental health issues both in psychiatric patients and general population.

Objective: We aimed to compare the number and characteristics of emergency psychiatric consultations during the phase 1 of lockdown with respect to the same period in 2019 in a Department of Mental Health and Addiction (DMHA) located in Lombardy region.

Methods: We conducted a cross-sectional study including subjects consecutively admitted to two psychiatric emergency rooms of DMHA in Monza, Lombardy, Italy. Sociodemographic data, clinical characteristics, referred symptoms, diagnosis and information on patients' illness course following the emergency consultations were collected. No subjects were excluded for the purposes of the study.

Results: Between February 21st and May 3rd 2020, there was a marked reduction in the number of psychiatric emergency consultations, if compared to the same period of 2019. Subjects who were living in psychiatric residential treatment facilities, had cannabis addiction and a diagnosis of obsessive-compulsive disorder were significantly more likely to present to emergency psychiatric consultations during lockdown.

Conclusions: COVID-19 epidemic may have a negative impact on more vulnerable individuals. Strategies to enhance relapse prevention and the use of alternative approaches as e-health technologies should be promoted.

1. INTRODUCTION

In mid-December the novel coronavirus disease (COVID-19) was initially detected in Wuhan, China, and then it propagated quickly across the country as well as worldwide (Cucinotta and Vanelli, 2020). Since the first documented cases on February 21st 2020, Italy was one of the most affected countries after China. Particularly, the Lombardy region in northern Italy was severely affected by this infection. As a consequence, on March 9th, the government imposed a national quarantine, restricting the movement of the population except for necessity, work, and health reasons in order to reduce the spread of coronavirus. Subsequently, on May 3rd, Italian Government ended the so-called "Phase 1" of the lockdown period, gradually resuming economic activities, easing restrictions, and slowly allowing movements inside the

Region.

Following the reorganization of the Healthcare system to manage COVID-19 emergency, Regional Health Authorities acknowledged mental health as a priority and authorized the continuation of psychiatry care services for general population (Percudani et al., 2020). In this framework important changes occurred within the Departments of Mental Health and Addiction (DMHAs). Particularly, some psychiatric wards were structurally modified for the purpose of admitting patients with COVID-19, many physicians and nurses were diverted to other clinical wards, consultations were restricted to the most severe cases, and most day hospital services and day-therapy programs for patients with psychiatric disorders were temporarily closed (Fagiolini et al., 2020). Nevertheless, patients living in psychiatric residential treatment facilities (PRTFs) had to be confined in these structures with important

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restrictions on the movement (de Girolamo et al., 2020). In addition to these changes affecting public health system and resulting in high stress levels both on general population and people with mental conditions, the fear associated with the coronavirus pandemic and the consequent lockdown had a relevant impact on psychological well-being (Naqvi, 2020). First of all, quarantine and lockdown were associated with boredom, anger, psychological unrest, uncertainty, frustration, irritability, suicidal ideation and sleep disorders, which are in turn related to poor mental health, including the occurrence of psychiatric disorders as well as the exacerbation of pre-existing conditions (Brooks et al., 2020; Courtet et al., 2020; Kelly, 2020). Some findings showed that confinement may increase addiction-related habits, including substance use (Rolland et al., 2020). Secondly, contamination fear may be accompanied by anxious and obsessional symptoms, as well as the recurrence of obsessive-compulsive disorder (OCD) symptoms (Fiorello and Gorwood, 2020; French and Lyne 2020). Finally, some studies cited the economic crisis associated with COVID-19 pandemic as potential factor of vulnerability for psychiatric disorders (Pfefferbaum and North, 2020). Despite the negative impact of pandemic on mental health, preliminary evidence showed a substantial decrease both of total number of psychiatric emergency consultations and psychiatric admission rates during lockdown (Clerici et al., 2020; Pignon et al., 2020), if compared to the same period of 2019. More precisely Pignon (2020) reported over 50 per cent of decrease of emergency psychiatry consultations in three psychiatric centers in Paris and its suburbs. The decrease was evident across all psychiatric disorders, although the rate of patients consulting for psychotic disorders was higher in 2020 than in 2019, as was the rate of compulsory hospitalizations. On the other hand the study by Clerici (2020) and collaborators, carried out in four DMHAs in the Lombardy region, reported a marked reduction in psychiatric admission rates between 2020 and the same period of 2019, except for involuntary admissions.

In our knowledge, no Italian studies were performed to explore the characteristics of emergency psychiatric consultations during the weeks of lockdown and comparing them to the same period in 2019. Thus, we aimed to assess sociodemographic and clinical characteristics of patients receiving psychiatric consultations during the whole lockdown in two psychiatric emergency services of DMHA of ASST Monza (Lombardy region) and to compare them to the same period in 2019. We hope that findings of the present study might contribute to focus on the subjects who were deeply affected by COVID-19 pandemic in order to offer targeted assistance.

2. METHODS

This study was drawn up following the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) Statement items (von Elm et al., 2008). The research project complied with the principles of the Declaration of Helsinki regarding medical research in humans and it satisfied local research ethical requirements.

2.1. Setting and study design

We conducted a cross-sectional study including subjects consecutively admitted to two psychiatric emergency rooms of DMHA of Monza, one in Monza and the other in Desio. Monza and Desio University hospitals cover the health demands of almost 850.000 inhabitants, offer psychiatric emergency care 24 hours a day and provide treatment for a range of psychiatric conditions. We compared consultation rates between the first confirmed case of COVID-19 in Italy and the end of "Phase 1" of the lockdown period. Therefore, the period includes from Friday 22nd February to Sunday 5th May 2019 (period A) and from Friday 21st February to Sunday 3rd May 2020 (period B). No subjects were excluded from the study.

2.2. Data collection

The data of the present study were extracted anonymously from hospital registers. For subjects with multiple admissions the most recent clinical data were used. Information included sociodemographic data, housing status (home or PRTF), current use of outpatient mental health services, ongoing psychopharmacological treatments, co-occurring alcohol and substance use disorders. Data on both alcohol and substance use disorders were obtained using ICD-10 codes along with urine drug toxicology where available. We also extracted data concerning the presence of multiple consultations during the period A and period B. For each patient, referred psychiatric symptoms as well as clinical information on ICD-10 mental disorders were retrieved. Finally, type of management after the emergency consultation was also taken into account: admission at inpatient clinic, compulsory hospitalization, hospital discharge with follow-up in outpatient clinics, only acute medication, prescription of a new pharmacotherapy to be taken at home.

2.3. Data analysis

Descriptive analyses of included variables was performed for period A and period B: mean and standard deviation (SD) for quantitative variables, and frequency and percentage for qualitative ones. Then, we carried out univariate analysis in order to detect statistically significant differences in these two periods. The normal distribution of quantitative variables was verified by using Shapiro-Wilk's test. According to this assumption, Student's *t* test was used (adopting the Welch's *t* test in case of inequality of variances) or, in alternative, non-parametric Wilcoxon-Mann-Whitney test. The categorical variables were analysed via the chi-square or Fisher's Exact tests. Finally, all variables from the univariate analysis with $p < 0.05$, together with age and gender, were entered as independent variables into a logistic regression model with period B as dependent variable. Adjusted odds ratios (aOR) together with their 95% confidence intervals (CI) were reported.

Analysis were conducted using Stata Version 13.1 SE.

3. RESULTS

During the lockdown, 225 emergency psychiatric consultations were carried out, representing just over half (58%) of the corresponding period in 2019 (388 emergency room accesses) (Table 1).

No statistical differences were observed between the two periods with regard to sociodemographic variables. However, the number of consultations of subjects from PRTFs as well as of subjects with cannabis misuse was statistically higher in 2020 than in 2019. No differences of rate of multiple consultations were observed between two periods. As regards as referred symptoms, mood disturbances were less reported during the lockdown than in the previous year, differently from self-harm or suicide attempts. With regard to the diagnosis of discharge from emergency room, depressive and adjustment disorders were less identified in 2020 than in 2019, differently from OCD that was more diagnosed during the lockdown than in previous year. The rate of hospitalizations after emergency consultation was higher during the lockdown than in the previous year.

The multivariate logistic regression (Table 2), controlled for age and gender, showed that living in PRTFs (aOR = 1.78, $p = 0.031$), cannabis addiction (aOR = 1.76, $p = 0.028$) and diagnosis of OCD (aOR = 10.94, $p = 0.003$) were all statistically significant predictors of emergency psychiatric consultation during the quarantine.

4. DISCUSSION

Our data, collected in a DMHA of Lombardy region, provide clear evidence of a decrease in the number of psychiatric emergency consultations during the lockdown period due the COVID-19 pandemic, compared to the same period of 2019. This finding is consistent with

Table 1
Number of emergency psychiatric consultations and characteristics of individuals presenting for emergency psychiatric evaluation during period A and B: univariate data analysis comparison.

| Variables | Period A N = 388 | Period B N = 225 | p-value |
|---|---------------------|---------------------|---------------------------|
| Sociodemographic | | | |
| Age (years) <i>mean (SD)</i> | 43.9 (16.5) | 44.2 (18.1) | 0.828 ^a |
| Female gender | 197 (50.8%) | 109 (48.4%) | 0.578 ^b |
| Non-Italian nationality | 54 (13.9%) | 29 (12.9%) | 0.720 ^b |
| Partner/married* | 96 (28.4%) | 63 (31.3%) | 0.470 ^b |
| Unemployed* | 217 (66.4%) | 136 (68.0%) | 0.700 ^b |
| Clinical characteristics | | | |
| PRTFs | 34 (8.8%) | 35 (15.6%) | 0.010 ^b |
| Outpatient mental health services | 265 (68.3%) | 157 (69.8%) | 0.703 ^b |
| Psychotropic medications | 248 (63.9%) | 151 (67.1%) | 0.424 ^b |
| Alcohol | 75 (19.3%) | 47 (20.9%) | 0.641 ^b |
| Cannabis | 49 (12.6%) | 44 (19.6%) | 0.021 ^b |
| Cocaine | 47 (12.1%) | 38 (16.9%) | 0.099 ^b |
| Opioids | 8 (2.1%) | 4 (1.8%) | 1.000 ^c |
| Other substances | 19 (4.9%) | 9 (4.0%) | 0.691 ^c |
| Two or more consultations# | 67 (17.3%) | 33 (14.7%) | 0.401 ^b |
| Referred symptoms | | | |
| Psychosis | 53 (13.7%) | 35 (15.6%) | 0.519 ^b |
| Depression or mood | 91 (23.4%) | 35 (15.6%) | 0.020 ^b |
| Anxiety or panic | 78 (20.1%) | 33 (14.7%) | 0.092 ^b |
| Self harm or suicide attempt | 68 (17.5%) | 59 (26.2%) | 0.010 ^b |
| Psychomotor agitation | 53 (13.7%) | 40 (17.8%) | 0.171 ^b |
| Other | 45 (11.6%) | 23 (10.2%) | 0.601 ^b |
| Diagnosis | | | |
| Psychotic disorders | 67 (17.3%) | 52 (23.1%) | 0.078 ^b |
| Bipolar disorder | 36 (9.3%) | 21 (9.3%) | 0.982 ^b |
| Depressive and adjustment disorder | 72 (18.6%) | 25 (11.1%) | 0.015 ^b |
| Personality disorders | 113 (29.1%) | 63 (28.0%) | 0.767 ^b |
| Anxiety disorders | 46 (11.9%) | 18 (8.0%) | 0.132 ^b |
| OCD | 2 (0.5%) | 9 (4.0%) | 0.003 ^c |
| Substance use disorders | 17 (4.4%) | 6 (2.7%) | 0.379 ^c |
| Intellectual disability | 7 (1.8%) | 9 (4.0%) | 0.118 ^c |
| Non psychiatric disorders | 28 (7.2%) | 22 (9.8%) | 0.264 ^b |
| Outcome | | | |
| Acute medication | 184 (47.4%) | 116 (51.6%) | 0.324 ^b |
| Hospitalization | 165 (42.5%) | 120 (53.3%) | 0.010 ^b |
| Compulsory admission | 16 (9.9%) | 16 (14.4%) | 0.260 ^b |
| Discharge prescription | 177 (79.7%) | 92 (87.6%) | 0.081 ^b |
| Outpatient mental health services following discharge | 163 (73.4%) | 66 (62.9%) | 0.051 ^b |

Notes: Period A = Friday 22nd February-Sunday 5th May 2019; Period B = Friday 21st February-Sunday 3rd May 2020

SD = standard deviation; PRTFs = psychiatric residential treatment facilities; OCD = obsessive compulsive disorder

Values are numbers (%), unless stated.

Significant findings appear in bold.

*There are missing values for some variables

It refers to period A and B

^at test

^bPearson's χ^2 test

^cFisher's exact test.

what was recently reported in another paper (Pignon et al., 2020), albeit other studies found that this decrease may not be merely specific of psychiatry (Thornton, 2020). In addition, three findings regarding patients' clinical features should be highlighted. First of all, we observed that subjects living in PRTFs were more likely to seek emergency psychiatric care than individuals staying at home. As a consequence of COVID-19 pandemic, residential facilities faced unique challenges in controlling the spread of COVID-19. Patients with serious mental disorders, who were used to spending some hour a day outside of PRTFs, were forced to strict confinement (de Girolamo et al., 2020). The containment measures represent a stressful life event associated with poor mental health especially in vulnerable populations such as subjects with a chronic mental condition (Perrin et al., 2009). Of note, as reported in different studies on past outbreaks, some factors such as prolonged

quarantine, infection fears, boredom, frustration, inadequate supplies and information, financial loss, and stigma can lead to many mental health sequelae which in turn were related to the need of additional psychiatric support for people with pre-existing mental disorders (Brooks et al., 2020). Moreover, and similarly to our two PRTFs of DMHA of ASST Monza, the activities involving the patients' family members were reduced and have been replaced by virtual or audio communication. In our knowledge, no observational studies concerning the effects of COVID-19 pandemic on patients living in PRTFs are currently available.

Second, we found that individuals with cannabis misuse were more likely to have emergency department presentation during lockdown than in the corresponding weeks of 2019. Some studies pointed out that the COVID-19 lockdown and the related isolation, stress, depression, anxiety, phobia would have fostered some addiction-related habits, such as internet overuse, exaggerated caloric intake and substance misuse (Dubey et al., 2020). Specifically, a large online survey involving over 10000 individuals living in France showed an increase in cannabis use during the COVID-19 containment phase together with low level of education (Rolland et al., 2020). In contrast, a recent survey of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) reported mixed results with respect to cannabis abuse. Occasional users resulted to have stopped consumption or at least have reduced their use during the lockdown, while strong users appeared to have increased the consumption of cannabis seen as a relief for anxiety and boredom (EMCDDA, 2020). Although the cannabidiol, a cannabinoid compound, seem to have anxiolytic properties (Kayser et al., 2019), a number of articles reported that the use of cannabis as a whole exacerbates many psychiatric disorders like schizophrenia, mood, personality and anxiety disorders, leading to an increased number of visits at the emergency rooms (Hall et al., 2018).

Third, a diagnosis of OCD was significantly associated with higher rates of psychiatric emergency visits during the lockdown compared with the previous year. Many studies reported that OCD affect up to 3% of the general population, although subthreshold OCD symptoms may be largely spread in general population (Ruscio et al., 2010). Although clinical picture of OCD is highly heterogeneous, fear of contamination by dirt and germs is the most frequently reported obsession in OCD (Murphy et al., 2010). Individuals with OCD may experience a significant impairment in social functioning in the light of the frequent chronic course of the disorder (Dell'Osso et al., 2010; Fineberg et al., 2019). Moreover, stressful live events may precipitate clinical symptoms or be trigger of the development of OCD symptoms in predisposed subjects (Fineberg et al., 2019). It is not therefore surprising that, among published data on mental health impact of COVID-19, different studies reported the frequent onset or worsening of OCD symptoms (Tian et al., 2020). Although so far there are no studies showing an increase in psychiatric emergency admissions for OCD during the period of lockdown in comparison with 2019, some authors highlighted an important increase in obsession and compulsion severity after the onset of the current pandemic (Abba-Aji et al., 2020; French and Lyne, 2020; Prestia et al., 2020). Specifically, the worsening of OCD symptoms interested especially the fear of contamination (Prestia et al., 2020). It has to be highlighted that not only pandemic in itself but also the persistent news on TV, social media and radio may have contributed to the exacerbation of OCD symptoms, particularly for individuals with pre-existing contamination symptoms (Gao et al., 2020). However, according to our results, we cannot entirely rule out that cannabis may act as a confounder. Different studies reported that both delta-9-tetrahydrocannabinol and cannabidiol might have some anxiolytic, anti-obsessional and anticompulsive properties (Kaiser et al., 2019). Nevertheless, some studies reported that many individuals with OCD use cannabis to control their symptoms although other research reported a worsening of symptoms induced by cannabinoids (Spradlin et al., 2017).

Finally, even though with statistical significance only in univariate

Table 2
Logistic regression analysis for odds of emergency psychiatric evaluation during period B

| | Variables | aOR | 95% CI | p-value |
|--------------------------|------------------------------------|-------|------------|--------------|
| Sociodemographic | Age | 1.01 | 1.00-1.02 | 0.074 |
| | Female gender | 0.96 | 0.67-1.37 | 0.821 |
| Clinical characteristics | PRTFs | 1.78 | 1.05-3.01 | 0.031 |
| | Cannabis | 1.76 | 1.06-2.90 | 0.028 |
| Referred symptoms | Depression or mood | 0.71 | 0.42-1.19 | 0.192 |
| | Self harm or suicide attempt | 1.48 | 0.97-2.28 | 0.072 |
| Diagnosis | Depressive and adjustment disorder | 0.81 | 0.46-1.43 | 0.466 |
| | OCD | 10.94 | 2.29-52.27 | 0.003 |
| Outcome | Hospitalization | 1.32 | 0.92-1.88 | 0.126 |

Period B = Friday 21st February-Sunday 3rd May 2020

aOR = adjusted odds ratios and their 95% confidence interval (CI)

PRTFs = psychiatric residential treatment facilities; OCD = obsessive compulsive disorder

Significant findings appear in bold.

analyses, our results showed a rate of self-harm and hospitalizations higher during period B (lockdown) than period A. Conversely the proportion of mood symptomatology and diagnosis of depressive or adjustment disorder decreased in comparison to 2019. To date, few studies published data about this specific topic (Clerici et al., 2020; Pignon et al., 2020). One explanation could be that patients with a mood disorder limited emergency room consultation for the fear of contamination of themselves and their relatives (Forte et al., 2020). Further studies are needed to better clarify which factors prevented or favored the access to emergency rooms in subjects with psychiatric disorders.

Caution is required in interpreting our findings and some important methodological limitations should be acknowledged. First of all, as this study was a cross-sectional one, we cannot evaluate the changes over the time as regards the severity of symptoms. Furthermore, the analyzed data include the early phase of pandemic and it is likely that some findings may reflect short-term worsening related to COVID-19 outbreak. Second, our study could be affected by information bias. The diagnosis of the different mental disorders was made by a team of different psychiatrists with a possible interviewer bias. Nevertheless, important information concerning age at illness onset, illness duration, time on treatment, frequency of substance abuse, severity of mental disorder, type of obsessions and comorbid psychiatric disorders are lacking. Third, our study was conducted in a single DMHA, which limits the generalization of our results to other institutions or other Italian regions. Particularly, the district of Monza and Desio within Lombardy region was one of the most heavily affected areas by the epidemic in Europe. Finally, the sample size of the present study may limit the generalizability of our results.

In sum, despite some limitations, the current study shows that the numbers of patients seeking emergency psychiatric consultations decreased during the lockdown. However, individuals affected by OCD and resident in PRTFs were more likely to present to psychiatric emergency services during the phase 1 of COVID-19 lockdown, if compared with the same period of 2019. Thus, COVID-19 epidemic may have represented an important stressful live event, leading to poor mental health in some vulnerable subjects. Moreover, according to our findings, we cannot completely exclude that the most distressed patients may have taken refuge in addictive substances as cannabis, which is readily available to mitigate their negative feelings (Dubey et al., 2020). The rapid implementation of measures to face the epidemic could therefore reduce the negative effects of this stressful event on vulnerable individuals with complex social and psychological needs. In this framework, the use of e-health technologies to improve resilience, coping strategies and the identification of early warning signs of exacerbation should be encouraged (de Girolamo et al., 2020).

Author's contribution

Enrico Capuzzi: Conceptualization, Investigation, Methodology, Writing - original draft, Data curation.

Carmen Di Brita: Conceptualization, Formal analysis, Methodology

Alice Caldiroli: Conceptualization, Writing - review & editing.

Fabrizia Colmegna: Writing - review & editing.

Roberto Nava: Writing - review & editing.

Massimiliano Buoli: Writing - review & editing, Supervision.

Massimo Clerici: Supervision.

Declaration of Competing Interest

None.

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