

Effects of lockdown on emergency room admissions for psychiatric evaluation: an observational study from 4 centres in Italy

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ABSTRACT

Objectives: An observation of the Emergency Room (ER) admissions during the lockdown.

Methods: We monitored admissions to the ER requiring psychiatric evaluation during the 2020 lockdown (March 9th-May 3rd, 2020) compared to the same period of 2019, in four sites of Northern Italy (ASST Lariana, AUSL Modena, ASU Friuli Centrale and AUSL Romagna). Number of admissions, baseline demographic and clinical variables were extracted from the clinical databases.

Results: A 20.0% reduction of psychiatric referrals was observed across the sites (24.2% in ASST Lariana, 30.5% in AUSL Modena, 12.0% in ASU Friuli Centrale and 14.5% in AUSL Romagna). This reduction peaked at 41.5% in the first month of the lockdown. Being homeless as well as with a dual diagnosis (OR 1.67, CI: 1.02–2.74), while living in a residential facility and admission for a depressive episode Being homeless (OR 2.50, CI: 1.36–4.61) and having a dual diagnosis (OR 1.67, CI: 1.02–2.74) were significantly associated with an increase in ER admission, while living in a residential facility (OR 0.48, CI: 0.31–0.74), having a depressive episode (OR 0.36, CI: 0.18–0.73) and a diagnosis of anxiety disorder (OR 0.60, CI: 0.36–0.99) were significantly associated with a decrease.

Conclusions: During lockdown, a decrease in psychiatric referrals was observed.

Introduction

Between March 9th and April 3rd 2020, at the beginning of the COVID-19 outbreak, the Italian Government imposed a national lockdown, restricting the movements of the population except for certified needs such as work and health circumstances, and temporary closure of non-essential services, productive activities and businesses in response to the growing pandemic of COVID-19 in the country. Subsequently, the lockdown was extended until May 3rd 2020.

An increased incidence of anxiety, depression and post-traumatic stress disorder symptoms during the lockdown has been claimed (Brooks et al. 2020), as well as suicide ideation/behavior (Costanza et al. 2020). Though this could have caused an increase in urgent accesses requiring psychiatric assessments, our previous study, in line with similar recent reports, documented a decrease of psychiatric emergency room (ER) visits (Alamia et al. 2020; Pignon et al. 2020; Saponaro et al., 2020; Ambrosetti et al. 2021; Balestrieri et al., 2021; Beghi et al. 2021; Gonçalves-Pinho et al. 2021; Hoyer et al. 2021; Montalbani et al. 2021) and psychiatric ward admissions (Clerici et al. 2020; Castelpietra et al. 2021).

The aim of this study was, thus, to compare the socio-demographic and clinical characteristics of patients admitted to the ER requiring psychiatric evaluation in four different Healthcare

Agencies in three Northern Italian regions (Lombardy, Emilia-Romagna and Friuli Venezia Giulia (FVG)) during the national 2020 lockdown with those of the same period of the year 2019.

Methods

Population

A retrospective longitudinal observational study of ER admissions leading to psychiatric assessment was performed. The study was based at the General Psychiatric Hospital Units (GHPUs) belonging to the following four Mental Health Departments (MHDs) in Northern Italy, which organise and provide public mental health care to the adult population:

1. Azienda Unità Sanitaria Locale della Romagna (AUSL Romagna), Emilia Romagna; catchment area: 951,080 inhabitants;
2. Azienda Unità Sanitaria Locale di Modena (AUSL Modena), Emilia Romagna; catchment area: 605,000 inhabitants;
3. Azienda Socio-Sanitaria Territoriale Lariana (ASST Lariana), Lombardy; catchment area: 499,800 inhabitants;
4. Azienda Sanitaria Universitaria Friuli Centrale (ASUFC), Friuli Venezia Giulia (FVG); catchment area: 459,100 inhabitants.

Emilia Romagna, Lombardy and FVG share a similar organisation of the GHPUs, which represent the inpatient services of the

MHDs and mostly take care of psychiatric emergencies, by providing psychiatric consultations at the ERs. During the lockdown, these MHDs' services were all normally functioning (Alamia et al. 2020; Saponaro et al. 2020; Castelpietra et al. 2021).

Measures

The electronic databases of the four services were searched for the following data: sociodemographic variables (age, gender, ethnicity, marital status, housing status), positive history for any medical comorbidities, reason for ER admission, psychiatric diagnosis at discharge based on clinical evaluation and measures taken by the consultant psychiatrist (hospitalization in psychiatric ward, other), extracted from open text in the electronic record. The study was approved by the local ethical committees.

Statistical analysis

All variables selected for this study were included in a general database and analysed by means of the SPSS software, version 16.0. Basic descriptive statistics were performed, with continuous variables presented as absolute numbers (N), mean, standard deviation (SD) and categorical variables as frequencies and percentages.

The sample was divided into two groups: variables related to the lockdown period (March 9th – May 3rd 2020) and variables related to the control period (March 9th – May 3rd 2019). The variables related to the first half of the lockdown period (March 9th – April 3rd 2020) were compared to those of the second half (April 4th – May 3rd 2020). A Poisson distribution was assumed for the total number of visits/patients. The total number of visits/patients was compared between periods using a z-test (normal approximation for the Poisson distribution).

The association between each variable and the period was tested using the chi-square or the Fisher's exact test. All variables found to be statistically significant in univariate analyses, and with a missing rate <20%, were included in a multivariable binary logistic regression model. Results are reported as odds ratios (OR) with 95% confidence intervals (95% CI). The significance level was set at 5%.

Results

When considering the whole duration of lockdown, a decrease of 20.0% of psychiatric assessments ($p < 0.001$) was observed. The decrease was statistically significant at AUSL Romagna (14.5%), ASST Lariana (24.2%) and AUSL Modena (30.5%), but not at the ASUFC (12.0%). The difference was more pronounced in the first half of the lockdown, with a 41.5% decrease ($p < 0.001$) (Table 1).

COMPARISON BETWEEN WHOLE LOCKDOWN PERIOD (March 9th – May 3rd 2020) AND CORRESPONDING ANTECEDENT PERIOD (March 9th – May 3rd 2019).

Table 2 shows the comparison of variables referring to the two periods. Gender, housing status, ER admission reason, psychiatric diagnoses and outcome had a differing distribution in the two study periods and were included in the multivariate analysis model. Having a homeless status was significantly associated with an increase in ER admissions (OR 2.50, CI: 1.36–4.61) as well as with a dual diagnosis (OR 1.67, CI: 1.02–2.74), while living in a residential facility (OR 0.48, CI: 0.31–0.74) and admission for a depressive episode (OR 0.36, CI: 0.18–0.73) and a diagnosis of anxiety disorder (OR 0.60, CI: 0.36–0.99) were significantly associated with a decrease.

Table 1. Number of psychiatric assessments and individuals assessed during the lockdown vs. control period.

Centre	First half of lockdown (March 9 th – April 3 rd 2020)		Control period (March 9 th – April 3 rd 2019)		Sign (p value)	% variation	Second half of lockdown (April 4 th – May 3 rd 2020)		Control period (April 4 th – May 3 rd 2019)		Sign (p value)	% variation	Whole lockdown (March 9 th – May 3 rd 2020)		Whole control period (March 9 th – May 3 rd 2019)		Sign (p Value)	% variation
	April 3 rd 2020	March 9 th – April 3 rd 2020	April 3 rd 2019	March 9 th – April 3 rd 2019			May 3 rd 2020	April 4 th – May 3 rd 2020	May 3 rd 2019	April 4 th – May 3 rd 2019			May 3 rd 2020	March 9 th – May 3 rd 2019				
AUSL Romagna	164	217	217	238	0.55	-5.5	225	238	238	455	0.02	-14.5	389	455	0.02	-14.5		
ASST Lariana	43	106	106	142	<0.001	-24.4	145	142	142	188	0.86	2.1	188	248	<0.001	-24.2		
ASUFC	5	27	27	23	<0.001	-59.4	39	23	23	44	0.04	69.6	44	50	0.54	-12.0		
AUSL Modena	38	77	77	97	<0.001	-81.5	83	97	97	121	0.30	-14.4	121	174	0.002	-30.5		
Total	250	427	427	500	<0.001	-41.5	492	500	500	742	0.80	-1.6	742	927	<0.001	-20.0		

Table 2. Comparison of features of patients' visits assessed during the whole lockdown and the whole control period.

Variable	2020 lockdown period		2019 control period		Pearson's chi square	Statistical Analysis (p)
	N	%	N	%		
Age range (years)					6.825	0.234
<18	24	3.2	43	4.6		
18–30	199	26.9	226	24.4		
31–45	182	24.6	244	26.3		
46–65	224	30.3	301	32.5		
66–80	88	11.9	86	9.3		
>80	22	3.0	27	2.9		
Gender					5.436	0.020
Male	394	53.1	439	47.4		
Female	348	46.9	488	52.6		
Marital status					1.696	0.792
Single	357	57.6	448	58.9		
Married/cohabitant	188	30.3	216	28.4		
Divorced	58	9.4	77	10.1		
Widowed	17	2.7	19	2.5		
Ethnicity					1.365	0.243
Italian	619	84.9	764	82.8		
Foreign	110	15.1	159	17.2		
Occupation					6.510	0.089
Currently employed	127	23.0	155	24.1		
Economically inactive	119	21.5	173	26.9		
Retired	92	16.6	100	15.6		
Unemployed	215	38.9	214	33.3		
Housing status					32.155	<0.001
Alone	117	17.8	92	11.8		
Family of origin	229	34.7	304	39.0		
Acquired family	199	30.2	247	31.7		
Residential facility	47	7.1	90	11.5		
Homeless	42	6.4	18	2.3		
Other	25	3.8	29	3.7		
Comorbidity					1.140	0.286
No	443	67.5	600	70.1		
Yes	213	32.5	256	29.9		
In psychiatric care					3.826	0.148
Current	512	70.2	617	66.8		
Past	48	6.6	83	9.0		
Never	169	23.2	223	24.2		
Er admission reason					29.875	<0.001
Suicide ideation/self-harm/ suicide attempt	125	16.8	133	14.3		
Psychomotor agitation	165	22.2	177	19.1		
Confusion	44	5.9	36	3.9		
Intoxication	92	12.4	90	9.7		
Manic episode	23	3.1	37	4.0		
Psychotic episode	48	6.5	78	8.4		
Depression	35	4.7	95	10.2		
Anxiety symptoms	172	23.2	234	25.2		
Other	34	5.1	46	5.1		
Psychiatric diagnosis					36.036	<0.001
None	31	4.2	59	6.4		
Psycho-organic disorder	47	6.4	40	4.4		
Psychotic disorder	80	10.9	125	13.6		
Mood disorder	112	15.3	161	17.6		
Anxiety disorder	63	8.6	123	13.4		
Personality disorder	128	17.5	128	14.0		
Intellectual disability	26	3.6	27	2.9		
Addiction disorder	58	7.9	88	9.6		
Adjustment disorder	68	9.3	71	7.7		
Comorbid axis I/axis II diagnosis	34	4.6	29	3.2		
Dual diagnosis	85	11.6	66	7.2		
Outcome					12.308	0.031
No prescription	79	10.7	97	10.5		
Referred to an outpatient community mental health care service	269	36.4	313	33.8		
Adjustment of psychotropic medication	61	8.3	78	8.4		
Referred to an outpatient community mental health care service + adjustment of medication	82	11.1	156	16.9		
Psychiatric ward admission	173	23.4	187	20.2		
Admission to non psychiatric ward	74	10.0	94	10.2		

Discussion

In line with our previous study (Beghi et al. 2021) and consistently with similar recent research (Alamia et al. 2020; Pignon et al. 2020; Ambrosetti et al. 2021; Balestrieri et al., 2021; Gonçalves-Pinho et al. 2021; Hoyer et al. 2021; Montalbani et al. 2021), we found a significant reduction in the number of psychiatric assessments performed. The decrease was more pronounced in the first half of the lockdown in all sites, while numbers tended to re-align with those of the previous year in the second half.

This finding, though apparently contrasting with the expected increase in psychiatric urgent needs of the population in the pandemic circumstances, may be explained by the Government's indications to limit outgoings of citizens unless for very necessary reasons. This, along with the fear of COVID-19 contagion, might have led to a "different perception" of emergency, although urgent health needs were among the few reasons to allow leaving home. Moreover, people may have found alternative coping strategies (Clerici et al. 2020). This figure is paralleled by the extent of COVID-19 contagion in the areas where we observed a greater reduction in numbers of psychiatric assessments. AUSL Modena, for instance, had 0.55% of the population infected by COVID-19 during the period considered and had a reduction of 30.5% of the assessments, while in ASUFC only 0.16% of the population was infected and the reduction of assessments was not significant.

Psychiatric emergencies seem to occur more often in relation to social interactions, that may be associated to alcohol and drugs consumption: therefore, isolation may have reduced this phenomenon (Clerici et al. 2020). Consistently, diagnoses of addiction alone were found to be less frequent during the lockdown (though not significantly), while admission of patients with dual diagnosis increased. This might reflect the higher discomfort and increased emotional efforts suffered by patients with cluster-B personality disorders during the pandemics, considering for example their presumed difficulty in following rules and impositions (American Psychiatry Association, 2013).

The attenuation of decrease in ER admissions in the second part of the lockdown could be associated to the spreading of avoidance of daily life activities and the worsening of the economic situation (Brooks et al. 2020; Beghi et al. 2021). There was a significant reduction in people referring with a depressed mood. Our results are in contrast with findings from a large Italian survey (Fiorillo et al. 2020) whose authors found that 12.4% of respondents reported severe levels of depressive symptoms, and that the containment measures were significantly associated with worsening of depressive symptoms. The uncertainties about the pandemic progression, the "hypochondriac concerns" and the fear that the epidemic was (and is) difficult to control represent possible triggering factors for the development of mental health problems, as they can be deterrents for ER admissions; this could also justify the significant reduction in people with a diagnosis of anxiety disorders. Moreover, we did not find an increase of suicidal behaviours. The international evidence on this issue is mixed. Previous studies from Switzerland and Italy, for instance, demonstrated an increased number of admissions for self-harm, but they were based only on one hospital (Ambrosetti et al. 2021; Montalbani et al. 2021). In contrast, a recent national study from France (Jollant et al. 2021) indicated a 8.5% decrease of hospitalisations for self-harm during the pandemic. We agree that it is unclear whether this can reflect a real lower number of suicide attempts, or it is due to the lower number of psychiatric consultations and hospitalisations, as we observed. In addition, severe suffering, leading to increase in suicidality, may need more time

to emerge, and may be affected by the evolution of the socio-economic crisis related to the pandemics. Finally, we found a decrease, even though non-significant, in diagnoses of psychosis. The lockdown regime might have had, in the short term, an attenuating effect on the experience of marginalisation of these patients (Gabbard 2000).

During the lockdown period, we found a greater decrease in the number of contacts with the ER services among people living in residential facilities, but an increase among homeless people. The lockdown policy has had both a direct and indirect impact on Homeless Persons with Mental Illness (HPMI), concerning shelter, basic needs and access to health care, besides the transmission of Sars-Cov-2 infection (Gowda et al. 2020). They may have had greater difficulty in recognising and responding to the threat of the infection (Lima et al. 2020). Furthermore, HPMI have less access to dedicated health care providers (e.g., primary care physician) and they basically refer to the ER. In contrast, the significant reduction of admission in people living in residential facilities could have several explanations, which are partially discussed above, but particularly the lower availability of alcohol and drugs.

A number of limitations need to be acknowledged. Firstly, the retrospective design could have led to biases in the collection of data. Secondly, we have not a follow-up period to evaluate to which extent admission rates vary further, especially in relation with the duration of the pandemic and its expected long-term consequences. A third one was that only descriptive clinical psychiatric diagnoses formulated by the consultant were used, not supported by standardised diagnostic systems: nevertheless, this is partially attenuated by the discussion of psychiatric diagnoses as aggregated into broader categories. This choice, though, may also represent a further limitation: still, we thought it was necessary, considering the dimension of the sample. Also, the limited sample size may have prevented the identification of significant changes, especially for smaller subgroups, and the detection of other possible associations. Finally, detailed information about medication or triggering events are lacking, though they may have been significant to allow proper interpretation of findings.

Despite these limitations, still we could identify significant patterns describing the phenomenon under exam, specifically a significant reduction of ER psychiatric visits during the lockdown period, compared to 2019, more evident in the first lockdown period. The reduction peaked among patients living in residential facilities and when related to depression, while there was an increase among homeless patients. Longitudinal, prospective studies are needed to investigate the expected "long wave" of the Covid-19 pandemic on mental health. Moreover, larger multi-centre studies are warranted to verify whether these trends can be confirmed in other clinical realities.

Key-points

- During the lockdown, a 20% reduction of psychiatric visits in the ER was observed
- In the first four weeks of the lockdown, a 41.5% reduction of visits was observed
- Being homeless was significantly associated with an increase in ER admissions leading to psychiatric assessment, while living in a residential facility or having a depressive episode were significantly associated with a decrease

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