

## Observational Study

## Rethinking hospital psychiatry in Italy in light of COVID-19 experience

Marco P Piccinelli, Paola Bortolaso, Greg D Wilkinson

**ORCID number:** Marco P Piccinelli 0000-0002-6668-1887; Paola Bortolaso 0000-0001-8681-0415; Greg D Wilkinson 0000-0002-9635-7770.

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**Marco P Piccinelli, Paola Bortolaso,** Psychiatric Unit Verbano, Department of Mental Health and Substance Abuse, Cittiglio 21033, Varese, Italy

**Greg D Wilkinson,** Liverpool University Hospitals NHS Trust, Liverpool University, Liverpool 2170, United Kingdom

**Corresponding author:** Marco P Piccinelli, MD, MPhil, PhD, Psychiatric Unit Verbano, Department of Mental Health and Substance Abuse, Via Marconi 40, Cittiglio 21033, Varese, Italy. [marcopiero.piccinelli@asst-settelaghi.it](mailto:marcopiero.piccinelli@asst-settelaghi.it)

## Abstract

## BACKGROUND

Italy retains a distinctive organization of mental health services according to a community-based model of care with a multidisciplinary team serving a well-defined catchment area under the coordination of the local department of mental health. The coronavirus disease 2019 (COVID-19) pandemic is forcing Italian mental health services to develop new organizational strategies at all levels of care in order to face the associated challenges.

## AIM

To explore factors associated with changes in psychiatric admissions to an inpatient psychiatric unit located in Lombardia Region, Italy.

## METHODS

All hospital admissions ( $n = 44$ ) were recorded to an inpatient psychiatric unit during a three month national lockdown in Italy in 2020 and compared with those occurring over the same time period in 2019 ( $n = 71$ ). For each admission, a 20-item checklist was completed to identify factors leading to admission. Statistical analyses were performed using Statistical Package for Social Sciences for Windows, release 11.0. Chi-square test (or Fisher's exact test) and Mann-Whitney U-test were applied, where appropriate.

## RESULTS

Hospital admissions dropped by 38% during the COVID-19 pandemic. No significant differences were found in demographics, clinical variables associated with hospital admissions and length of stay between 2019 and 2020. Compared with 2019, a significantly greater proportion of hospital admissions in 2020 were related to difficulties in organizing care programs outside the hospital (chi-square

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= 4.91, df 1, one-way  $P = 0.035$ ) and in patients' family contexts (chi-square = 3.71, df 1, one-way  $P = 0.049$ ). On the other hand, logistic and communication difficulties pertaining to residential facilities and programs were significantly more common in 2019 than in 2020 (chi-square = 4.38, df 1, one-way  $P = 0.032$ ).

### CONCLUSION

Admissions to the inpatient psychiatric unit dropped significantly during the COVID-19 pandemic in 2020, with difficulties in organizing care programs outside the hospital and in patients' family contexts occurring more frequently compared with 2019.

**Key Words:** Mental health services; COVID-19; Italy; Psychiatric; Pandemic

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**Core Tip:** During the coronavirus disease 2019 pandemic mental health services in Italy developed new organizational strategies in order to face the associated challenges. Compared with 2019, hospital admissions dropped significantly and were more frequently related to restrictions posed by the pandemic, like difficulties in organizing care programs outside the hospital and in patients' family context. On the other hand, logistic and communication difficulties pertaining to residential facilities and programs were significantly more common in 2019 than in 2020, due to the reorganization of residential facilities as close communities looking after their own patients with little reliance on hospital during the pandemic.

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### INTRODUCTION

The present organization of mental health care in Italy stems from a reform law dating back to 1978. On the assumption that individuals with mental disorder should be offered the same treatment standards as those suffering from other types of illness, a gradual dismantling of old mental hospitals occurred alongside the setting up of new community-based services within the framework of local departments of mental health, each promoting and coordinating mental health prevention, care and rehabilitation in a defined catchment area. Although the Italian experience has attracted international attention and promoted similar changes abroad, it has retained distinctiveness. In comparison with the countries belonging to the Group of 7 (G7) more advanced economies, Italy has lower population rates of mental health professionals and of beds for acute psychiatric care in general hospitals; as opposed to higher rates of beds in residential facilities devoted to rehabilitation and daily support programs[1, 2].

Among the services which are part of departments of mental health, inpatient psychiatric units are located in general hospitals with an emergency department and provide crisis interventions on a short-term basis, with patients being referred back to outpatient care or other types of interventions as soon as possible. Most admissions take place on a voluntary basis and only a minority are compulsory. According to the national mental health information system, mental health service utilization varies considerably across Italian regions[2]. This is due to the substantial autonomy that each region retains in organization of health care within its territory, according to the general principles and recommendations set out by the national government. Moreover, psychiatric admissions were found to be influenced by a wide array of different factors, such as demographics, illness and treatment variables, mental health service organisation and practice, interaction between inpatient psychiatric units and other health services and/or social agencies, and the role of patients' families, leading to significant variation in pathways to care, typologies of admissions, length of

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hospital stay and the care process itself[3-6].

The coronavirus disease 2019 (COVID-19) pandemic is posing huge challenges to the health care system in general, as well as mental health services, driving the implementation of novel strategies and interventions. However, accounts of changes in mental health service organization and activities in Italy during the pandemic have been mainly narrative, indicating the need for a quantitative approach to the effects of COVID-19 pandemic[7].

The aim of this study was to explore changes in number of psychiatric admissions to an inpatient psychiatric unit located in the Italian region most severely affected by the first peak of COVID-19 pandemic in 2020, and to identify relevant factors associated with the detected changes in comparison with the same time period of 2019.

## MATERIALS AND METHODS

### Study design

All admissions were recorded to a locked, inpatient psychiatric unit within a general hospital in Cittiglio, a small town located in Lombardia Region, North-western Italy, between February 24<sup>th</sup> and May 24<sup>th</sup>, 2020 and compared with those occurring over the same time period in 2019.

Although relatively short, the study interval was chosen because it corresponded to a strict lockdown imposed on the country, which marked a definite and profound difference compared to the previous period. Indeed, a Legislative Decree signed by the Italian Prime Minister on February 23<sup>rd</sup>, 2020, ordered that: people were not allowed to leave home except for work, health needs or urgent reasons; remote working was promoted whenever possible; commercial activities were suspended unless they supplied essential goods or basic necessities; all types of schools were shut down and distance learning education was offered to students; access to public places and social settings favoring crowding and close contacts among individuals was forbidden, including, among the others, pubs, restaurants, cinemas, theatres, museums, concert halls, public gardens, cultural places, swimming pools, fitness centers, gyms; public events of any type were cancelled and civil and religious ceremonies were strictly limited; access of patients' relatives and caregivers to health services and residential facilities was discouraged or forbidden. A subsequent Legislative Decree on May 13<sup>th</sup>, 2020, allowed a gradual lessening of the strict limitations listed above, which became noticeable by May 24<sup>th</sup>.

From the very beginning, mental health services continued to pursue their activities as part of essential health care and reimbursement of their interventions was left unchanged. However, at the outset of the pandemic inpatient units reduced their usual number of beds to pursue isolation requirements and interpersonal distancing and to devote staff to treatment of individuals suffering from COVID-19 illness and its complications. Moreover, psychiatric contacts with the emergency department and hospital admissions were discouraged and limited to urgent cases which could not receive adequate treatment outside the hospital and whose admission could not be postponed.

Data included in the paper were collected as part of routine clinical practice not requiring ethical approval, with patients giving their written informed consent at data collection at the time of hospital admission.

For patients admitted to the inpatient unit a 20-item checklist was completed to identify relevant factors leading to admission and including: (1) Clinical variables (illness severity; difficulties in instigating treatment; diagnostic difficulties; co-morbid physical illness); (2) Negative factors affecting quality of care during hospital stay (insufficient patient's evaluation; negative doctor-patient relationship; defensive psychiatry); (3) Difficulties in the care process (unclear reason for admission; insufficient communication between the inpatient unit and the outpatient clinic; difficulties in planning care programs outside the hospital); (4) Logistic variables within the hospital (delay in specialist consultations or diagnostic tests; organizational problems); (5) Logistic and communication difficulties between the mental health department and other agencies (social agencies, rehabilitation facilities, elderly care facilities, legal system); (6) Variables related to the patients' family context (objective difficulties in the family; insufficient or negative relationship between the mental health staff and family members); (7) Legal acts; and (8) Exceptional personal, familial or social events.

Up to mid-April, patients were admitted to the inpatient unit provided that they had no temperature or other COVID-related symptoms, but did not perform a COVID test; from mid-April onwards patients were tested on a COVID test at the emergency

department and only those negative were admitted to the inpatient unit.

### Statistical analyses

Statistical analyses were performed using the Statistical Package for Social Sciences for Windows, release 11.0[8].

Chi-square test (or Fisher's exact test) and Mann-Whitney U-test were applied, where appropriate, to investigate differences between admissions in 2019 and those in 2020 according to sex, age, diagnosis (grouping ICD-10 diagnoses into four categories: schizophrenia and related psychoses; affective disorders; personality disorders; other diagnoses, mainly including substance use disorders or organic conditions), type of admission (voluntary *vs* compulsory), occurrence of mechanical restraints, length of stay, and reasons for admission.

## RESULTS

Hospital admissions dropped by 38% during the pandemic, being 44 in 2020 as opposed to 71 during the corresponding period of 2019.

In 2020, admissions by males were 28 and accounted for 63.6% of the sample. Median age (and interquartile range) of admitted patients was 38.5 (29.25-54.75) years. Diagnoses of schizophrenia and related psychoses, affective disorder and personality disorder were evenly distributed in the sample and overall accounted for 82% of the total. Ten (22.7%) individuals reported substance abuse and 8 (18.2%) carried suicidal risk. Only one (2.3%) patient underwent compulsory admission and 4 (9.1%) were restrained to bed. No significant differences were found on the demographic and clinical variables mentioned above according to study year.

In 2020, length of stay ranged between one and 34 d, with a median (and interquartile range) of 10 (4.25-17) d, and did not differ significantly compared to 2019. The effect of diagnosis on length of stay was explored among patients residing in the service catchment area, since they completed their hospitalization at the inpatient unit under study, whereas non-resident patients were transferred to their local psychiatric services within a few days after admission. A significant difference in length of stay was found according to diagnosis (Kruskal-Wallis Chi-square = 19.88; d.f. 3,  $P < 0.0001$ ), with shorter admissions for personality disorder compared with other diagnoses. However, diagnoses accounted for only approximately 6% of the variance in length of stay.

In 2020, no non-resident patients were under compulsory admission or restraint; whereas in 2019, 29.6% of non-resident patients as opposed to 6.8% of resident ones were so restrained, and the difference was statistically significant (Chi-square = 6.65; d.f. 1;  $P = 0.01$ ). A higher percentage of non-resident patients in 2019 were under compulsory admission, but the difference was not statistically significant.

The **Table 1** shows the factors associated with hospital admission, derived from the 20-item checklist mentioned above and ranked according to frequency in 2020. Illness severity was far more common, being rated in about two-thirds of patients, and was followed by other clinical factors such as difficulties in instigating treatment and presence of organic co-morbidity, each occurring in 20.5% of hospital admissions. Among non-clinical factors, impaired relationship with patients' family members (20.5%) and difficulties in planning care programs outside the hospital (11.4%) were more common. Illness severity was significantly more common among the factors associated with hospital admission in 2019 compared to 2020, whereas difficulties in planning care outside the hospital occurred more frequently in 2020.

Overall, in 2020 sole clinical factors were reported in 28 (63.6%) of hospital admissions, sole non-clinical factors (*i.e.*, logistic, communication and family factors) in 8 (18.2%), with a combination of the two in the remaining 8 admissions (18.2%). No significant difference was found compared to 2019.

For further analyses, reasons associated with hospital admission were grouped into five broad categories. Findings were in the expected direction. No significant differences were found between 2019 and 2020 in clinical factors and in the care process. Compared to 2019, during the pandemic a significantly greater proportion of hospital admissions were related to difficulties in organizing care programs outside the hospital (chi-square = 4.91, df 1, one-way  $P = 0.035$ ) and in patients' family contexts (chi-square = 3.71, df 1, one-way  $P = 0.049$ ). On the other hand, logistic and communication difficulties pertaining to residential facilities and programs were significantly more common in 2019 than in 2020 (chi-square = 4.38, df 1, one-way  $P = 0.032$ ).

**Table 1** Factors associated with hospital admission, derived from the 20-item checklist described in the study design and ranked according to frequency in the year 2020, *n* (%)

Reasons	2019		2020		P value
	No	Yes	No	Yes	
Illness severity	12 (16.9)	59 (83.1)	16 (36.4)	28 (63.6)	0.02
Difficulties in instigating treatment	64 (90.1)	7 (9.9)	35 (79.5)	9 (20.5)	0.11
Organic co-morbidity	64 (90.1)	7 (9.9)	35 (79.5)	9 (20.5)	0.11
Negative relationship with patients' relatives	64 (90.1)	7 (9.9)	35 (79.5)	9 (20.5)	0.11
Difficulties in planning care outside the hospital	70 (98.6)	1 (1.4)	39 (88.6)	5 (11.4)	0.02
Insufficient relationship with social agencies	70 (98.6)	1 (1.4)	41 (93.2)	3 (6.8)	0.12
Objective difficulties in the family system	70 (98.6)	1 (1.4)	42 (95.5)	2 (4.5)	0.31
Insufficient relationship with elderly care facilities	69 (97.2)	2 (2.8)	43 (97.7)	1 (2.3)	0.86
Unclear reason for admission	69 (97.2)	2 (2.8)	43 (97.7)	1 (2.3)	0.86
Insufficient communication with outpatient clinic	70 (98.6)	1 (1.4)	43 (97.7)	1 (2.3)	0.73
Negative doctor-patient relationship	70 (98.6)	1 (1.4)	43 (97.7)	1 (2.3)	0.73
Legal acts	71 (100.0)	0 (0.0)	43 (97.7)	1 (2.3)	0.20
Insufficient relationship with rehabilitation facilities	66 (93.0)	5 (7.0%)	44 (100.0)	0 (0.0)	0.07
Insufficient relationship with legal system	68 (95.8)	3 (4.2)	44 (100.0)	0 (0.0)	0.17
Diagnostic difficulties	70 (98.6)	1 (1.4)	44 (100.0)	0 (0.0)	0.43
Insufficient patient's evaluation	70 (98.6)	1 (1.4)	44 (100.0)	0 (0.0)	0.43

Four items out of 20 (defensive psychiatry; delay in specialist consultations and diagnostic tests; hospital organizational problems; exceptional personal, familial and social events) were null in both 2019 and 2020. More than one factor might be operating on each admission.

## DISCUSSION

During the first peak of COVID-19 pandemic, hospital admissions dropped by 38% compared to the previous year. This was the result of strict selection criteria limiting hospital admissions to urgent cases with no alternative options as well as of new organizational strategies involving all levels of mental health care, that were quickly implemented under the coordination of the local department of mental health. Specifically, the outpatient clinic serving the same area of the inpatient unit under study increased contacts with patients combining face-to-face and domiciliary visits with remote consultations: overall contacts were 2727 in 2020 *vs* 2495 in 2019 (+9.3%), with greater increases in contacts by psychiatric rehabilitation professionals (+267.7%), social workers (+117.7%) and nurses (+44.2%). Increased emotional support was also provided to patients' family members and contacts doubled during the pandemic. At the same time, residential facilities were organized as close communities, looking after their own patients with little reliance on the hospital. Indeed, during the pandemic hospital admissions due to difficulties pertaining to residential facilities and programs were found to be significantly lower compared with the previous year.

In other words, team working acquired special relevance in order both to provide emotional support to patients and to cater to their practical needs. The team also ensured a first-line support to health professionals, allowing them to express fears, uncertainties and emotional discomfort, to receive mutual support and devise new interventions in patients' interest, where psychiatrists and psychologists could rely on the indispensable help by those health providers working closer to patients, like nurses, social workers or psychiatric rehabilitation professionals. Remote consultations offered a sort of presence in the absence, but introduced a radically new way of working, with a change from a physical to a digital kind of space, a variation in the subjective experience of the time spent during consultations and difficulties of

different nature (*e.g.*, distraction on behalf of the patient and/or the therapist; external and disturbing factors; greater tiredness during on-line consultations; dehumanization)[9-11].

A reduction in admission rates was reported by other inpatient services across Italy as a consequence of fear of hospitals, seen as potential sites of contagion, and a heightening in the severity threshold of psychiatric symptoms leading to hospital admission upon request by patients' family members or referral by treating clinicians. In most mental health services, outpatient contacts tended to decline during the pandemic though, in some services, they were preserved and, in the catchment area of the inpatient unit under study, increased, as a consequence of different choices in the application of restriction criteria and in service activity[12-14]. These findings suggest that the distinctive organization of mental health services in Lombardia Region, each established according to a community-based model of care with a multidisciplinary team serving a well-defined catchment area under the coordination of the local department of mental health, had the potential: (1) To face and overcome the limitations imposed by the pandemic by changing allocation of human resources and remodeling interventions in order to meet patients' new and different needs; and (2) To implement a shared recommendation that all patients, and especially so those with severe mental disorder, were not left alone and forgotten during the COVID-19 crisis and received regular assessment, emotional support and treatment (*e.g.*, long-acting antipsychotics) by telephone consultations, face-to-face interviews or, in selected cases, domiciliary visits[15,16].

During the pandemic non-resident patients, who were transferred for hospital admission, were likely to be less severely ill and did not require compulsory interventions or restraint. This was probably due to the fact that the Police members were more involved in other tasks of public order during the pandemic and could not provide routine support to health personnel on patients' transfer. Data on admissions in 2019 under standard care showed that non-resident patients were more likely to be restrained, pointing to a delicate ethical issue. In order to promote an efficient use of health resources, Lombardia Region does not pose any limitation on patients' referral to inpatient units other than the local facility, challenging the longstanding practice of a well-defined catchment area pertaining to each department of mental health. However, the lack of reciprocal enduring knowledge by both patients and the health staff-continuity of care-is likely to affect negatively the quality of care and a consequence may be the increased risk for non-resident patients to be restrained at the outset of their hospital admissions.

Although a strong emphasis was placed on trying to shorten hospital admissions during the pandemic in order to ensure ongoing bed availability, avoid patients' transfer and keep interpersonal distancing during hospital stay, no significant difference was found compared to care under standard conditions in 2019. Length of stay varied widely and meaningful variations occurred within each diagnostic group, though individuals with personality disorders tended to have shorter admissions. About one-third of admissions lasted longer than the threshold of 14 d recommended by local health authorities on the basis of regional standards and reimbursement considerations.

These observations suggest that about one-third of patients need longer time periods to achieve clinical improvement and be discharged from hospital, in keeping with the reported limited clinical effectiveness of short hospital admissions that was suggested in patients with severe mental disorders[17] and undermining claims of systematic early onset of action of psychotropics, namely antidepressants and antipsychotics[18-20]. As a result, prediction of resource use in hospital psychiatry can hardly rely on diagnosis and the derived diagnosis-related groups (DRGs), which are inaccurate and explain a very limited proportion of variance in psychiatric length of stay. For this reason, prognosis, rather than diagnosis, has been suggested to provide a better estimate of prospective reimbursement for psychiatry[21-23]. Indeed, among prognostic factors, illness severity was found to be the main reason for psychiatric admissions lasting longer than two weeks, irrespective of diagnosis, which no longer retained any statistically significant effect[6]. Other factors, like those listed in the present paper and related to the care process, logistic and communication aspects of the institutional network, or the patients' social and familial context, could also prove useful as additional variables alongside illness severity to reach a better prediction of hospital length of stay and associated costs. Indeed, in the present investigation non-clinical factors occurred together with clinical ones in 18% of admissions during pandemic; and, in a further 18% of admissions, were the sole reasons, suggesting their specific relevance, even more because psychiatrists during pandemic were invited to give definite priority to clinical factors in deciding hospital admissions. It follows that

imposing strict limitations in length of stay in order to contain costs contradicts findings from everyday clinical practice and carries the risk of increasing inappropriate discharge of patients and/or exposing to financial risks the inpatient care units treating more severe cases. In order to reach a more accurate prediction of the economic impact of psychiatric admissions it would be useful to move from mere length of stay to consider also severity and complexity of clinical picture as well as other context-related factors.

During the pandemic a significantly greater number of hospital admissions were related to difficulties in organizing care programs outside the hospital and in patients' family contexts. The reduction of community-based interventions, the absence or strong limitations of interpersonal relationship and social experiences and the exacerbation of conflicts within families may be responsible for psychiatric crises and reveal that an effective functioning of the mental health system cannot rely on clinical settings only[24]. In this regard, Pelizza&Pupo[25] brought attention to the crucial role of patients' caring communities, mainly represented by family members and local social agencies, and suggested the actual need of a transition from an institutional context, centered on mental health services, to a so-called post-institutional system, where individuals and communities are connected through a rich and articulated set of social ties and patients' settings are not distant and isolated, but connected to mental health services *via* innovative clinical interventions based on new technologies.

Since the COVID-19 pandemic is not decreasing and continues to provide ever-growing and alarming figures over time, the changes mentioned above are likely to last and might even turn into the usual way of working for mental health professionals to come, with the pandemic marking a definite difference between a before and an after[26]. The essential role assigned to mental health services at the outset of the pandemic according to national guidelines and local protocols and their well-established attitude to deliver comprehensive interventions to individuals with mental disorder, covering subjective well-being, daily living, material needs, and social activities, contributed to support mental health professionals' motivation, energy and creativity in planning and implementing interventions during the pandemic. However, if the current situation is lasting for long, a critical evaluation of mental health service organization and requirements (especially, in terms of personnel and technical equipments for online consultations) is mandatory in order to sustain actual efforts.

Some limitations of this study should be acknowledged. Firstly, data were collected in a single inpatient psychiatric unit and this may reduce generalization of findings. However, gender and diagnostic distributions and age at admission in our sample closely resembled those recorded across other inpatient psychiatric units located in Lombardia Region[27] as well as those detected in a representative national sample of inpatient psychiatric units[28], suggesting that the inpatient unit under study was comparable to similar units operating in Italy.

Moreover, the check-list of factors associated to each hospital admission was filled in by a psychiatrist who was also caring for patients, allowing a detailed recording of all the factors involved, though this might reduce objectivity in the estimate of those factors more related to the care process.

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## CONCLUSION

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In conclusion, the COVID-19 pandemic in 2020 forced a re-organization of mental health service activities at all levels of care. Hospital admissions dropped significantly and were more likely to be related to restrictions posed by the pandemic, like difficulties in organizing care programs outside the hospital and in patients' family contexts.

At the same time, community contacts with both patients and their relatives increased through a combination of face-to-face and domiciliary visits with remote consultations.

Finally, residential facilities turned into close communities looking after their own patients with limited reliance on the hospital.

It follows that an accurate evaluation of the effects of the pandemic on psychiatric admissions (with the associated economic impact) should devote concomitant attention to other treatment settings as well (*i.e.*, outpatient services and residential facilities) and include context-related factors alongside severity and complexity of clinical picture.

## ARTICLE HIGHLIGHTS

### Research background

The coronavirus disease 2019 (COVID-19) pandemic forced a re-organization of mental health services at all levels of care. However, most accounts of changes occurring in Italy during the pandemic have been mainly narrative with little reliance on data.

### Research motivation

The present study was based on a quantitative data-driven approach to the effects of COVID-19 pandemic on admissions to an inpatient psychiatric unit in Italy.

### Research objectives

To explore changes in number of psychiatric admissions to an inpatient psychiatric unit during the COVID-19 pandemic in 2020 and to identify relevant factors associated with the detected changes in comparison with the same time period of 2019.

### Research methods

All admissions were recorded to an inpatient psychiatric unit between February 24 and May 24, 2020 and compared with those occurring over the same time period in 2019. A 20-item checklist was completed to identify relevant factors leading to hospital admission.

### Research results

During the COVID-19 pandemic hospital admissions dropped significantly compared to 2019 and were more likely to be related to difficulties in organizing care outside the hospital and in patients' family context. On the other hand, admissions related to logistic and communication difficulties pertaining to residential facilities were more common in 2019, due to the re-organization of these facilities as close communities looking after their own patients during the pandemic.

### Research conclusions

Mental health services in general, and hospital psychiatry in particular, were forced to face new and different challenges during the COVID-19 pandemic. The Italian community-based model of care with a multidisciplinary team serving a well-defined catchment area had the potential to ensure a proper and rapid re-organization of mental health service activities.

### Research perspectives

Since the COVID-19 pandemic is slowly decreasing and the associated limitations persist, the detected changes are expected to last and turn into the usual way of working. Therefore, an ongoing evaluation of mental health service organization, activities and requirements is mandatory to sustain and improve actual efforts.

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