

# Analysis of the demand for care in a psychiatric emergency room and an acute inpatient unit in the context of the COVID-19 pandemic.

Luz María Solari-Heresmann<sup>1</sup>, Ana Pérez-Balaguer<sup>1</sup>, Elena Gil-Benito<sup>1</sup>, Pablo of the Sol-Calderón<sup>1</sup>, Belén Sanz-Aranguez-Ávila<sup>1</sup>, Lydia Gayubo-Moreo<sup>1</sup>, Rosario of Arce-Cordón<sup>1</sup>

**Introduction:** the objective is to analyze the impact of COVID-19 in assistance demand at the Emergency Rooms and Psychiatric admission during the first month of the pandemic. **Methods:** We performed a cross sectional retrospective observational study in patients requiring assistance at the psychiatric emergency rooms between March 11th and April 11th, 2019 and 2020, respectively. Socio demographic and clinic variables were included in the study. Chi square or Fisher's exact tests were made for comparing the hypothesis of categorical variables and the Mann–Whitney U test was made for contrasting quantitative variables. The level of statistical significance was marked at  $p < 0.05$ . the analysis was made with IBM SPSS Statistics. **Results:** A significant decrease of the median for patients assisted per day at the Emergency Rooms between both periods is observed, being this of 5.91 ( $\pm 2.53$ ) in 2019 and 2.41 ( $\pm 1.81$ ) in 2020 ( $p < 0.001$ ). A significant decrease of the average occupation in beds at the Brief Hospitalization Unit (BHU) has been observed, occupying 91.84% ( $\pm 7.72$ ) of beds in 2019 and 58.85% ( $\pm 13.81$ ) in 2020 ( $p < 0.001$ ). Regarding the proportion of patients' income requiring assistance at the emergency room, a significant increase in 2020 has been observed, compared with the previous year. **Conclusions:** The urgency demand for psychiatric patients and the average occupation beds has been reduced during the first month after pandemic outbreak. Fear to contagion may act as a modulator for psychiatric demand.

**Key words:** COVID-19, Mental Health, Psychiatric demand, emergency rooms, Hospitalization Unit

## INTRODUCTION

On December 31st, 2019, the Municipal Health/Sanitary Committee of Wuhan (Hubei Province, China) reported a clustering of cases of pneumonia of an unknown origin which started with symptoms on December 8th. On January 7th, 2020, the Chinese authorities

identified the agent causing the outbreak as a new type of virus from the family Coronaviridae, which has been named as SARS-CoV-2. The disease caused by this new virus has been named, according to international consensus as COVID-19. The Emergency Committee of the International Sanitary Regulation (IHR, 2005) has declared the current outbreak of new

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<sup>1</sup> Psychiatry Service, Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain

corona virus as a Public Health Emergency of International Concern (PHEIC) in its meeting on January 30th, 2020. After that, the WHO recognized it as a global pandemic global, on March 11th, 2020. On March 13th the State of Alarm Statement was announced by the Government of Spain<sup>(1)</sup>. On May 15th, in Spain a total of 230,698 confirmed cases of COVID-19 with PCR have been reported: 27,563 dead and 144.446 solved infections. The Community of Madrid has been the most affected in number of cases<sup>(2)</sup>.

Just like in other countries the Spanish government had to dictate strict policies of social distancing, thus affecting more than 47 million of Spanish inhabitants. Such measures include home lock in, cease of all education activities, and also provisional ease of non-essential professional activities. This has caused an increase on online work, a decrease of leisure activities and closure of public places plus restrictions on free circulation<sup>(3)</sup>. At a sanitary level, it has been necessary to reform and optimize assistance resources. In this sense, hospitals has reorganized their assistance areas and Emergency Rooms in order to execute safety measures and to prioritize assistance to patients with COVID-19. All this has caused the Psychiatric Hospitals, Rehabilitation Departments and outpatients assistance to close, making follow up by phone or online. The number of Psychiatric Hospitalization Units has been reduced more than 50% to be used for assisting patients with COVID-19, while many psychiatric patients have been referred to specialized Hospitals<sup>(4)</sup>.

There is significant evidence in previous studies on the impact in mental health of infectious diseases outbreaks such as SARS, MERS or Ebola; where it has also been necessary to adopt preventive distancing measures<sup>(5-7)</sup>. In a pandemic, fear increases levels of anxiety and stress in healthy people and increases symptoms of people with preexisting psychiatric disorders<sup>(8)</sup>. A series of negative psychological consequences in the long term has been observed, including confusion, fear and rage<sup>(9,10)</sup>. Likewise, psychiatric comorbidities, such as depression, anxiety, panic attacks, psychomotor excitement, suicidal behavior or psychotic symptoms have been observed<sup>(5,6)</sup>.

According to the WHO psychological impact of COVID-19 to date is a high rate of stress and anxiety<sup>(11)</sup>. In China, after the COVID-19 outbreak, an increase of negative emotions has been found, such as anxiety and depression, higher sensitivity to social risks, an also a decrease of positive emotions and vital satisfaction<sup>(12,13)</sup>. Similar situation is lived in Japan, where cases of social rejection, discrimination and stigmatization have been reported<sup>(14)</sup>.

People with previous psychiatric pathology have been observed to have higher vulnerability<sup>(9)</sup>. In a cross sectional study developed recently in the Chinese region of Chongqing, it was observed that psychiatric patients had, during the peak of the pandemic, higher levels of anxiety, depression, insomnia and irritability, and also symptoms of post-traumatic stress and suicidal ideation compared with healthy controls<sup>(15)</sup>. Likewise, it has been observed that people with a background of suicidal ideation, panic disorder and stress, low self-esteem, are easily susceptible to catastrophic thinking<sup>(16)</sup>.

Despite the potential impact on mental health both, in general population and also on that with prior psychiatric pathologies, there are almost not objective data about assistance demand in psychiatric emergency rooms or at hospitalization units during the initial phase of the current pandemic or other previous ones.

The main objective of this study is to analyze the initial impact of COVID-19 in assistance demand on psychiatric emergency rooms and on Hospitalization Units (BHU) for adults at a hospital in Madrid (Spain) during the first month after the pandemic was declared by the WHO (March 11th to April 11th). according to observations on assistance demand for emergency rooms of other pathologies different from COVID-19<sup>(17)</sup>, we think demand of psychiatric assistance will also decrease in this first lock in phase, as a consequence of fear to contagion.

## **MATERIAL AND METHODS**

### **Procedure and sample**

This works is a cross sectional retrospective observational study. All those patients with an age equal or older than 18 years who went for

psychiatric emergency rooms at the Hospital Universitario Puerta de Hierro de Majadahonda (HUPH) between March 11th and April 11th, 2019 and 2020 respectively, have been included. Clinical records of all patients who required assistance during the aforementioned period were reviewed. Psychiatric referrals made to hospitalized patients, being analyzed independently have been excluded from the sample.

Data retrieval was carried out by two independent researchers. In case of discrepancies an agreement was made by asking a third researcher.

The study was approved by the Ethics Committee of HUPH.

### Measures

the following socio demographic variables were included in the study: age, sex, and Hospital reference area on mental health. Several clinical variables were chosen, among them: previous follow up on mental health, reason of assistance, main diagnosis, type of consult (voluntary or involuntary) and behavior to be followed.

The total number of emergency rooms in both periods was registered, and also the occupation of the BHU.

### Statistical Analysis

A Descriptive Analysis of the categorical variables by means of absolute/relative frequencies, and numeric variables by means of the median was made (+/- standard deviation). Chi square Tests or Fisher's exact Test were used to contrast the hypothesis of categorical variables and the Mann–Whitney U test for the contrast of quantitative variables. The level of significance statistic was fixed in 0.05. The statistical pack used for management and analysis was the IBM SPSS Statistics.

### RESULTS

Figure 1 describes assistance demand at Psychiatric Emergency Room of patients assisted between March 11th and April 11th, per day in 2019 and 2020, respectively. A total of 189 patients went to the Emergency Room in 2019; and 77 patients in 2020.

A significant decrease of the median of patients

Figure 1

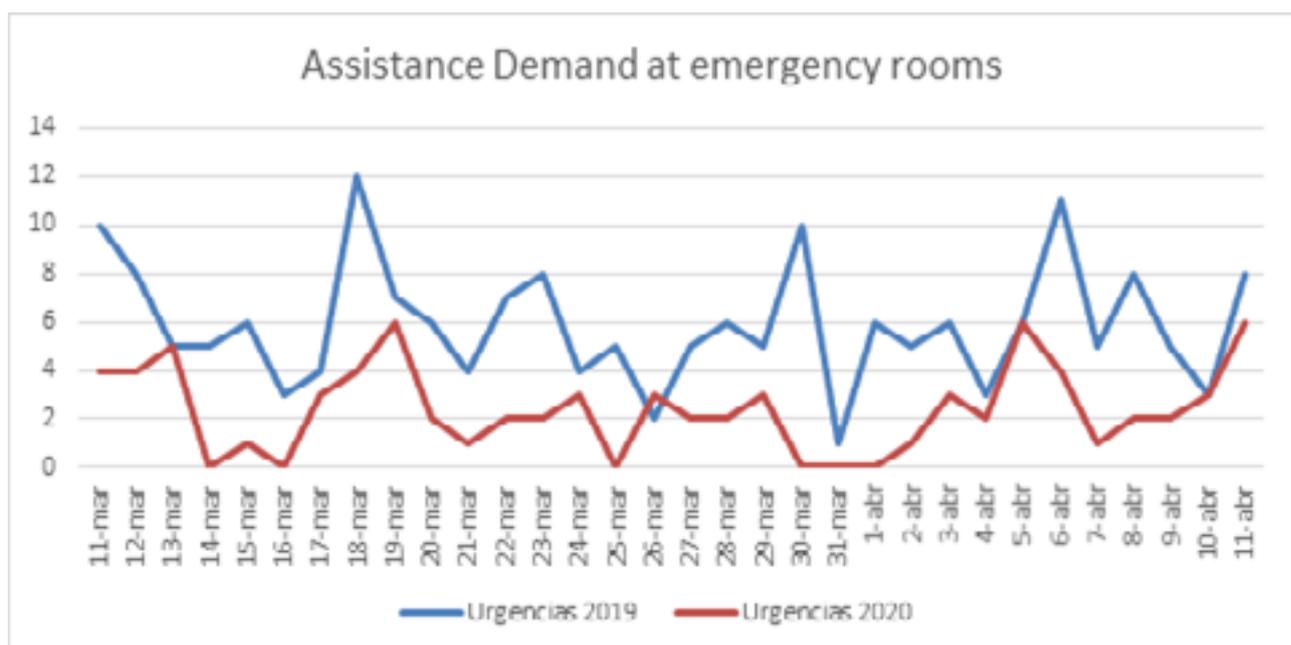
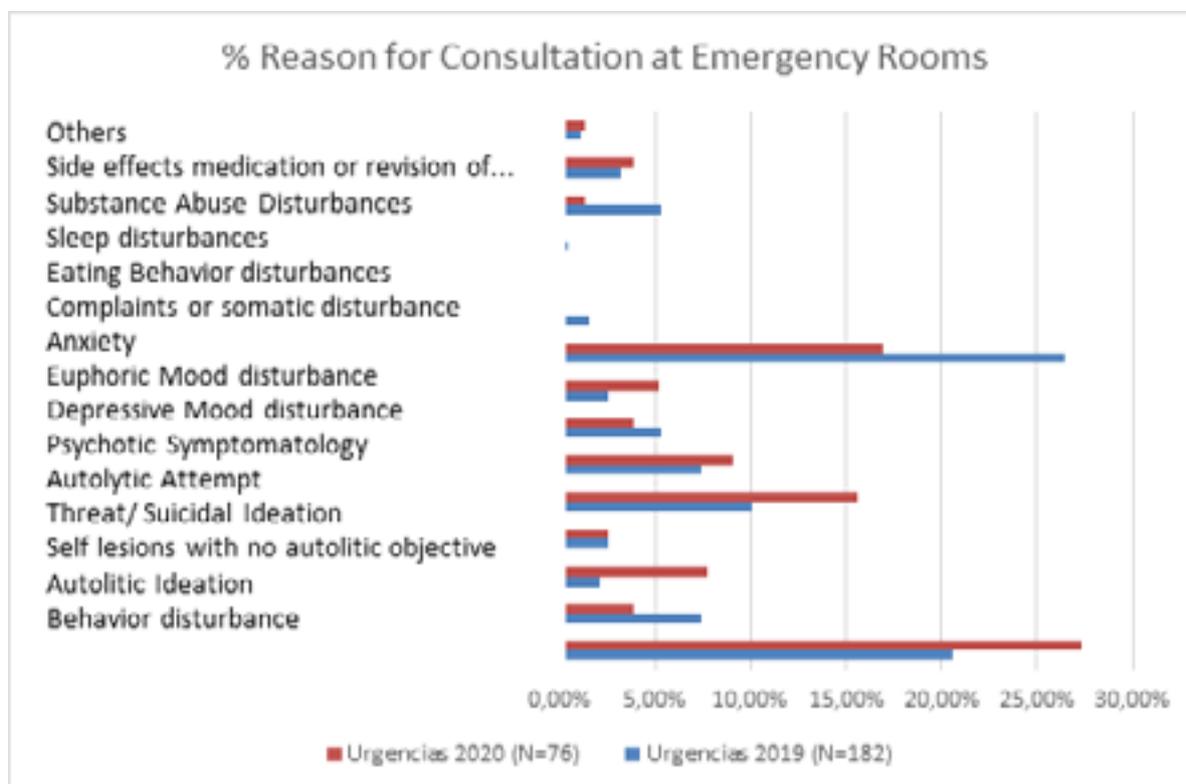


Table 1

	2019 (N=182)	2020 (N=76)	Statistical Significance
<b>Males</b>	45.1%	38.2%	NS
<b>Females</b>	54.9%	61.8%	NS
<b>Age</b>	40.31 (±14.94)	40.35 (±15.61)	NS
<b>Referenced Sanitary Area</b>	84.6%	71.1%	<b>0.011</b>
<b>Current follow up on mental health</b>	69.8%	72.4%	NS
<b>Involuntary consultation</b>	29.7%	48.7%	<b>0.003</b>
<b>Hospital worker</b>	3.3%	7.9%	NS
<b>Positive substances in urine</b>	18.7%	16.4%	NS
<b>Admission</b>	20.6%	35.1%	<b>0.011</b>

Figure 2



assisted per day at Emergency Room between both periods was observed, being this of 5.91 ( $\pm 2.53$ ) in 2019; 2.41 ( $\pm 1.81$ ) in 2020, with a  $p < 0.001$ .

Table 1 depicts socio demographic and clinic characteristics of the patients treated at the psychiatric urgency in the described periods. 182 patients out of the 189 who required assistance were treated in 2019, as 7 of them left voluntarily without communicating their decision. In 2020, 76 out of the 77 patients were treated, for the same reason. A significant increase was observed in the percentage of patients treated from other sanitary areas, in 2020 against 2019. On the other hand, an increase of involuntary consultations being this 48.7% in 2020 was observed, with respect to 29.7% in 2019 with a  $p < 0.01$ .

Figure 2 depicts the reason for consultation of the patients who went to the emergency room during the periods studied. No significant differences were observed between both years. regarding the proportion of patients' income requiring assistance at the emergency room, a significant increase in 2020 has been observed, against the previous year (Table 1). Figure 3 depicts the BHU occupation during the same periods. A decrease of the average occupation beds in the BHU was observed, occupying 91.84% ( $\pm 7.72$ ) of beds in 2019 and 58.85% ( $\pm 13.81$ ) in 2020 with a  $p < 0.001$ .

Figure 4 depicts the main diagnosis of patients who were admitted in the BHU in both periods. Finally, there is an increase of the psychiatry interconsultation at emergency rooms in 2020 compared with 2019. A total of 9 patients in 2019 and 23 patients in 2020 were treated. An increase of 60.87% of the demand was observed.

## DISCUSSION

COVID-19 is a new disease; therefore, it is understandable that its outbreak may cause anguish, anxiety and fear in the population<sup>(10)</sup>. Some people say that the wide scope and broadcasting this COVID infection has had may cause mental health crisis, mainly in countries with many cases<sup>(18)</sup>. Among the results, a significant decrease both, in assistance demand at emergency rooms and in the daily

occupation rate at the BHU is observed. In 2019 at emergency rooms a total of 182 patients (54.9% women), were treated in 2020 it was only 76 (61.8% women), a decrease of 58.25% of the demand was observed. From the patients treated at emergency rooms, a significant increase of the involuntary referrals to the hospital for psychiatric evaluation has been observed. The main reason for consultation is still behavior disturbances; however, there is a significant decrease in patients who went to emergency rooms, due to anxious symptomatology (26.5% in 2019 with respect to 16.9% in 2020). Temporary closure of some Psychiatric BHU in Madrid has influenced on the results as there was an increase of the patients treated at emergency rooms, but belonging to other sanitary areas. However, this has not caused an increase in assistance demand. Regarding hospitalization, a decrease was also observed in the daily occupation rate, being this 91.84% ( $\pm 7.72$ ) in 2019 and 58.85% ( $\pm 13.81$ ) in 2020. Despite a decrease in absolute numbers of admissions, a significant increase of the proportion of admissions against the total of patients who went to emergency rooms has been observed.

Pandemics/epidemics may cause collective fear and impose changes on life style, not only for those directly impacted by the contagion<sup>(19)</sup>. Studies made on previous outbreaks show that there are cognitive and mental health effects in the long term on population<sup>(10)</sup>. Consequently, an increase of the demand of psychiatric assistance could be expected, because of the current situation, which contrasts with the results obtained in this study where a significant decrease of the demand both at emergency rooms and at hospitalization units has been observed. One of the main reasons is related with protection behavior adopted in response to situations impacting on health, as it is isolation<sup>(20)</sup>. Unlike huge human disasters from the past, COVID-19 is deemed to provide a totally new context, as a pandemic of such magnitude and impact had not been experienced in modern times<sup>(21)</sup>. At least one third of the world population has been subject to some social restrictions and the effects of the adopted policies is spread to nearly all areas of the society<sup>(22)</sup>. COVID-19 pandemic

Figure 3

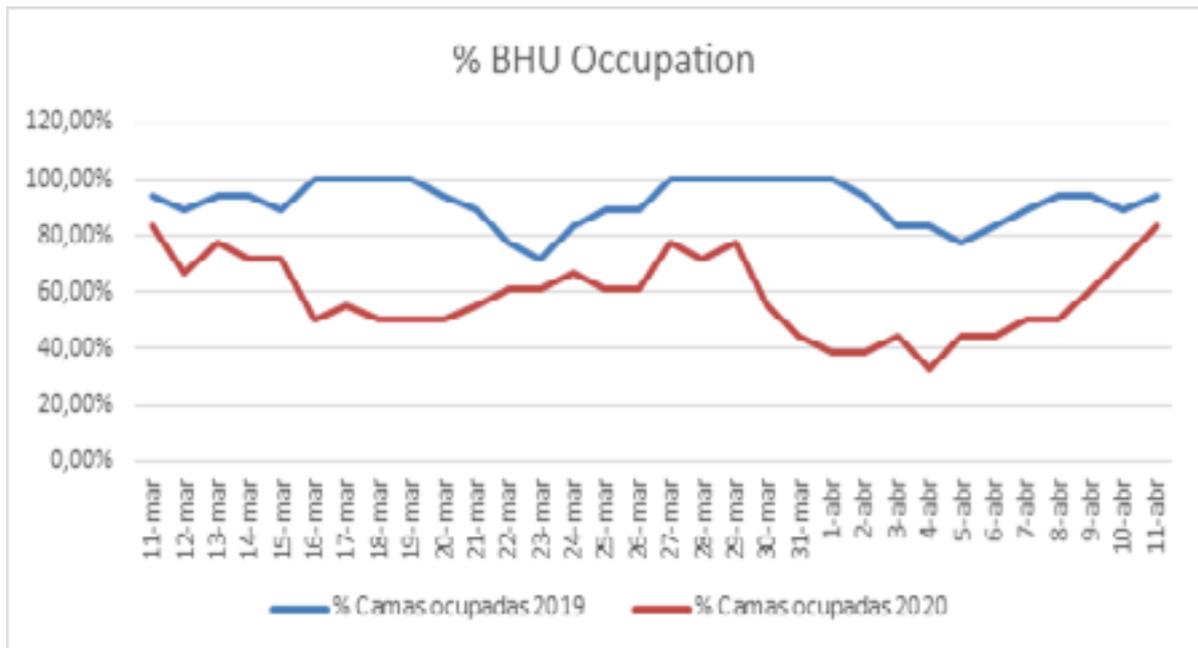
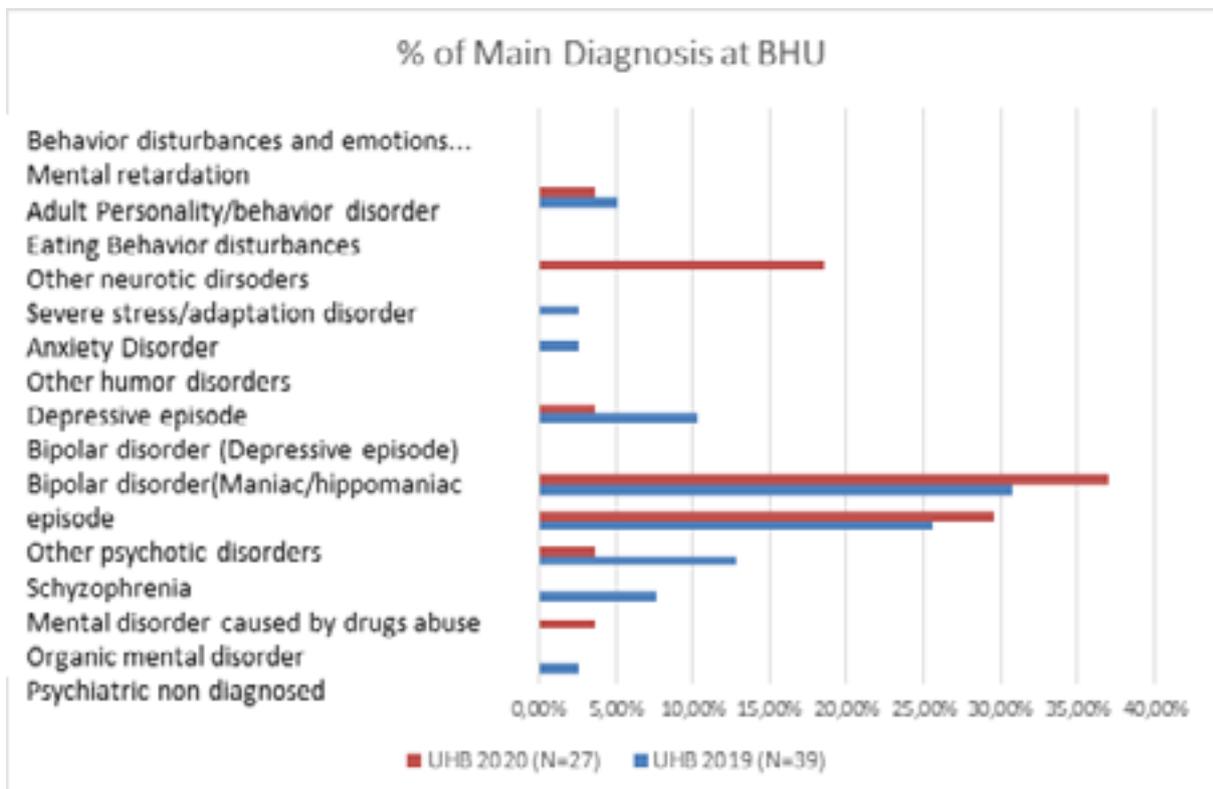


Figure 4



is becoming a massive global event, being one of the most important from the Second World War<sup>(23)</sup>. Along history an exaggerated fear has been observed related with the infection compared with other situations, as it has unique characteristics: it spreads quite easily, it is imminent and invisible<sup>(24)</sup>. Fear experience is magnified when collective and individual traditional sociocultural references, as the traditional approach of control and diseases treatment, collapse or become invalid<sup>(25)</sup>. It has been proved the crucial factor leading to protection motivation is that perceived threat<sup>(26)</sup> severity. In this sense, fear of contagion would act as a modulator of psychiatric demand, as both, patients and relatives may perceive hospitals as threat spots to catch the virus. Compared with the previous world pandemic, “Spanish Flu”, now the world has changed significantly: world commerce, trips, global movement and the speed information is shared on the internet has increased significantly. As a support to the previous explanation, a recent study has described use of social media causes a positive impact on people’s motivation to take preventive measures, such as lock in, due to the increasing perception of threat and infection experience<sup>(21)</sup>.

Some authors speculate there may be a higher risk of recurrence on people who have a preexisting psychiatric condition, whether because free movement to Primary Care Units is restricted or because of delayed access thereof<sup>(27)</sup>. Although a decrease has been observed on the rate of daily occupation at the BHU, there is an increasing rate of admissions against the total number of consultations at the emergency rooms and an increase in involuntary referral to the hospitals. Therefore, it is inferred that patients who were treated and admitted during 2020 is highly severe compared with the previous year. For instance, regarding total patients treated at the emergency rooms during 2020, 16.9% of them were diagnosed with bipolar disorder, against only 7.4% during the previous year. Likewise, 5 patients who went to the emergency rooms in 2020 with diagnosis of other secondary neurotic disorders caused by stressful and somatoform situations required admission, compared with 2019 with the same diagnosis who were discharged.

There is a possibility of an increase in the suicide rate, as a consequence of corona virus effects on population’s mental health<sup>(28)</sup>. Appearance of depressive symptoms, anxiety and post-traumatic stress<sup>(28)</sup>, social isolation, distancing from beloved people or caretakers, and unemployment are all suicide risk factors<sup>(29,30)</sup>. Some suicide cases in a pandemic context due to COVID-19<sup>(31,32)</sup> have been published. Despite the foregoing, interestingly enough in the analysis made, decrease of consultations at emergency rooms due to autolytic ideation and absence of a significant increase in autolytic attempts during the first month, after the pandemic was declared (10.1%, in 2019 against 15.6%, in 2020).

To date, this is the first study aimed to analyze assistance demand on adult population during the beginning of COVID-19 pandemic. It is important to highlight that the main limitation is the small size of the sample as we could only evaluate the first month after the pandemic was declared. This has limited statistical significance of results, mainly on prevalence of various mental disorders. On the other hand, it is not possible to analyze negative consequences in the long term and repercussion on psychiatric disorders evolution or worsening of preexisting ones. It is necessary to perform more studies encompassing a longer time for demand analysis during the months after the first month of the pandemic, in order to deepen impact thereof.

## CONCLUSIONS

Urgency demand of psychiatric patients and average occupation of beds has decreased during the first month, after pandemic outbreak. This matches restructuring and optimization of assistance resources aimed to prioritize assistance for patients with COVID-19.

Fear to contagion may act as a modulator for psychiatric demand. Before an infection threat, patients and relatives may adopt a protective behavior, as isolation.

An increase in percentage of admissions regarding total of patients who go to emergency rooms has been observed. We infer these patients have a more severe diagnosis. Steady fear increases depression, anxiety and stress,

therefore if we continue with the study for a longer period of time, we could see this feature reflected in a further analysis.

## **BIBLIOGRAPHY**

1. COVID-19 E. Informe sobre la situación de COVID-19 en España. 2020;1–15.
2. Secretaría General de Sanidad. Actualización no 107. Enfermedad por el coronavirus (COVID-19). 15.05.2020. 2020;
3. Ministerio de la Presidencia relaciones con las cortes y memoria democrática. Real Decreto 463/2020, de 14 de marzo, por el que se declara el estado de alarma para la gestión de la situación de crisis sanitaria ocasionada por el COVID-19. BOE no 67 de 14 de marzo de 2020. Boletín Of del Estado. 2020;67(I):25390–400.
4. De la Puente M. Director General del proceso integrado de Salud. Unidades de Hospitalización Psiquiátrica Breve (UHB) en Hospitales Generales. Comunidad de Madrid; 2020. [www.madrid.org/csv](http://www.madrid.org/csv). Código de verificación 0926026267649570653251
5. Maunder R, Hunter J, Vincent L, Bennett J, Peladeau N, Leszcz M, et al. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *Cmaj*. 2003;168(10):1245–51.
6. Cheung YT, Chau PH, Yip PSF. A revisit on older adults suicides and Severe Acute Respiratory Syndrome (SARS) epidemic in Hong Kong. *Int J Geriatr Psychiatry*. 2008 Dec;23(12):1231–8.
7. Person B, Sy F, Holton K, Govert B, Liang A, Garza B, et al. Fear and Stigma: The Epidemic within the SARS Outbreak. Vol. 10, *Emerging Infectious Diseases*. Centers for Disease Control and Prevention (CDC); 2004. p. 358–63.
8. Ornell F, Schuch JB, Sordi AO, Kessler FHP. “Pandemic fear” and COVID-19: mental health burden and strategies. *Rev Bras Psiquiatr*. 2020;00(00):1–5.
9. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Vol. 395, *The Lancet*. Lancet Publishing Group; 2020. p. 912–20.
10. Shah K, Kamrai D, Mekala H, Mann B, Desai K, Patel RS. Focus on Mental Health During the Coronavirus (COVID-19) Pandemic: Applying Learnings from the Past Outbreaks. *Cureus*. 2020;12(3).
11. Krešimir Cosic, Siniša Popovic MŠ&IK. IMPACT OF HUMAN DISASTERS AND COVID-19 PANDEMIC ON MENTAL HEALTH: POTENTIAL OF DIGITAL PSYCHIATRY. *Psychiatr Danub*. 2020;32(1):25.
12. Li S, Wang Y, Xue J, Zhao N, Zhu T. The impact of covid-19 epidemic declaration on psychological consequences: A study on active weibo users. *Int J Environ Res Public Health*. 2020 Mar 2;17(6).
13. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health*. 2020 Mar 1;17(5).
14. Shigemura J, Ursano RJ, Morganstein JC, Kurosawa M, Benedek DM. Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations. Vol. 74, *Psychiatry and Clinical Neurosciences*. Blackwell Publishing; 2020. p. 281–2.
15. Hao F, Tan W, Jiang L, Zhang L, Zhao X, Zou Y, et al. Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. *Brain Behav Immun*. 2020 Apr 27;

16. Thakur V, Jain A. COVID 2019-suicides: A global psychological pandemic. *Brain, Behavior, and Immunity*. Academic Press Inc.; 2020.
17. Arango C. Lessons learned from the coronavirus health crisis in Madrid, Spain: How COVID-19 has changed our lives in the last two weeks. *Biol Psychiatry*. 2020 Apr;
18. Rajkumar RP. COVID-19 and mental health: A review of the existing literature. *Asian J Psychiatr*. 2020 Aug 1;52:102066.
19. Shalev D, Shapiro PA. Epidemic psychiatry: The opportunities and challenges of COVID-19. Vol. 64, *General Hospital Psychiatry*. Elsevier Inc.; 2020. p. 68–71.
20. Rogers, R. W., & Prentice-Dunn S. Handbook of Health Behavior Research 1: Personal and Social Determinants. In: DS G, editor. New York: NY: Plenum Press; 1997. p. 113–132.
21. Farooq A, Laato S, Islam AKMN. Impact of Online Information on Self-Isolation Intention During the COVID-19 Pandemic: Cross-Sectional Study. *J Med Internet Res* [Internet]. 2020 May 6;22(5):e19128. Available from: <http://www.jmir.org/2020/5/e19128/>
22. Weible CM, Nohrstedt D, Cairney P, Carter DP, Crow DA, Durnová AP, et al. COVID-19 and the policy sciences: initial reactions and perspectives. *Policy Sci* [Internet]. 2020; Available from: <https://doi.org/10.1007/s11077-020-09381-4>
23. Chadda R, Bennegadi R, Di Nicola V, Molodynski A, Kallivayalil R, Moussaoui D. WASP Position Statement on the Coronavirus Disease ( COVID-19 ) Pandemic. 2020;2019:2019–20.
24. Pappas G, Kiriaze IJ, Giannakis P, Falagas ME. Psychosocial consequences of infectious diseases. *Clin Microbiol Infect* [Internet]. 2009 Aug;15(8):743–7. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S1198743X14604614>
25. Shultz JM, Cooper JL, Baingana F, Oquendo MA, Espinel Z, Althouse BM, et al. The Role of Fear-Related Behaviors in the 2013–2016 West Africa Ebola Virus Disease Outbreak. *Curr Psychiatry Rep* [Internet]. 2016;18(11). Available from: <http://dx.doi.org/10.1007/s11920-016-0741-y>
26. Bish A, Michie S. Demographic and attitudinal determinants of protective behaviours during a pandemic: A review. *Br J Health Psychol* [Internet]. 2010 Nov;15(4):797–824. Available from: <http://doi.wiley.com/10.1348/135910710X485826>
27. Yahya AS, Khawaja S, Chukwuma J. The Impact of COVID-19 in Psychiatry. *Prim Care Companion CNS Disord*. 2020 Apr 16;22(2):0–0.
28. Gunnell D, Appleby L, Arensman E, Hawton K, John A, Kapur N, et al. Comment Suicide risk and prevention during the COVID-19 pandemic. *Lancet Psychiatry*. 2020;2019(20):1–3.
29. Courtet P, Olié E, Debien C, Vaiva G. Keep Socially (but Not Physically) Connected and Carry on. *J Clin Psychiatry*. 2020 Apr 14;81(3):0–0.
30. Kawohl W, Nordt C. COVID-19, unemployment, and suicide [Internet]. Vol. 7, *The Lancet Psychiatry*. Elsevier Ltd; 2020 [cited 2020 May 11]. p. 389–90. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/32353269>

31. Goyal K, Chauhan P, Chhikara K, Gupta P, Singh MP. Fear of COVID 2019: First suicidal case in India ! Vol. 49, Asian Journal of Psychiatry. Elsevier B.V.; 2020. p. 101989.

32. Mamun MA, Griffiths MD. First COVID-19 suicide case in Bangladesh due to fear of COVID-19 and xenophobia: Possible suicide prevention strategies. Asian J Psychiatr. 2020 Jun 1;51:102073.

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Correspondence to:  
Luz María Solari Heresmann  
Calle Montserrat 4, 2ºA, Madrid, España.  
(CP: 28015), +346371180  
Lmsolarih@gmail.com