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## The response of the mental health network of the Salamanca area to the COVID-19 pandemic: The role of the telemedicine.



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### ABSTRACT

The COVID-19 pandemic reached world-wide causing a great impact on healthcare services. The aim of this work is to describe the response of the Mental Health Network of the Salamanca Area (Spain) to this crisis and the reorganization of its resources within the first 8 weeks after the state of alarm was declared. The Psychiatry Service applied a contingency plan which included the reorganization of the human resources, the closure of some of the units and the implementation of telemedicine programs along with two specific programs, namely a mental health assistance program in the context of the infection by coronavirus, and another program for homeless people. 9.038 phone interviews were carried out in the outpatients and community mental health programs. The activity in subacute and acute wards, as well as that of the day hospital programs was decreased to 50%.

Based on that this real-world response provided we concluded that the usage of telemedicine is promising in patients with any kind of disorder. Its implementation in daily practice will be considered in the future. Research must continue on COVID-19's impact on patients with mental disorders and Psychiatry's necessary adaptations and new approaches to them.

### 1. Introduction

Since December 2019, instances of acute respiratory illnesses were reported in Wuhan (China). They were found related a new coronavirus previously unknown in humans, which produces the easily transmittable, so-called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2) (European Centre for Disease Prevention and Control, 2020). Apart from affecting the respiratory system, it can also alter the central nervous system (Asadi-Pooya et al., 2020). It has spread very quickly from China to other countries in Asia, Europe, Australia, Africa, and the Americas. As this article is being written, the illness has been declared in more than 224.390 people in Spain, of which 26,621 have died (Ministry of Health, 2020).

The infection can produce mental alterations among the general population (Liu et al., 2020) and in patients with previous mental disorders (Liu et al., 2020; Yahya et al., 2020; Xiang et al., 2020; Druss et al., 2020). These patients are in higher risk of being infected due to their lesser capacity to protect themselves, since in some cases they are less capable of self-control. Furthermore, the presence of

previous medical pathologies, so common among them, raises their risk of committing suicide and suffering from negative affect. On the other side, homeless patients present higher odds associated to their older age, concomitant physical illnesses, difficulties to access preventive healthcare systems and social isolation, even manifesting symptoms (Lima et al., 2020).

The pandemic in Spain has forced the country to a reorganization of its healthcare services, including its mental health network (MHN), as it was suggested in China (Xiang et al., 2020; Li et al., 2020), demanding a coordinated response with the sociosanitary system (Mediavilla et al., 2020). The Salamanca Psychiatry Department (PS), belongs to the University of Salamanca Healthcare Complex (USHC), which includes 45 medical departments and more than 900 beds. The PC contains two reference units for the whole Castilla y Leon region and assists 330.000 inhabitants. In addition to this population, there are roughly 30.000 university students coming from other Spanish provinces or from other countries (Martin et al., 2019) living in the city without being censused, and who present a higher risk of mental illness, drug abuse and first psychotic episodes, given the possibility that, due to the state of alarm,

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**Table 1**  
Staff assigned to each of the resources.

Resources	Beds/Seats	Psychiatrist	Other doctors	Psychologist	Nursery	Auxiliary Nurse	Social Workers	Occupational Therapist	Social Educator	Administrative Assistant	Sports Monitor	Wardens
Short-term hospitalization unit	24	3(1)		1(1)	8	8	1(1)	1(1)		1(1)		5(3)
Convalescence Unit	16	1		1	6	6	1(1)	1(1)		1(1)		1(1)
Rehabilitation Unit	26	1*		1(1)	5**	8	1	1(1)		1(1)		1(1)
Community Psychiatry	Community Flats 13 Rest N/A	2(1)*		1(1)	2	2	1(1)		2(2)			
Psychosocial Rehabilitation Center	40			1	2	2	1(1)					
Day Hospital	15	1		1	1	1	1(1)	1(1)				
Eating Disorders Unit	Day Hospital 12 Ambulatory N/A	1	2	1	2	2	1(1)	1(1)		1(1)		
Community Mental Health Teams	N/A	13(1)		7(3)	6*	1	3(1)		2(2)	3		
Child and Adolescence Mental Health Team	N/A	2		3	1	1(1)	1(1)					
Inpatient Addiction and Dual Disorder Unit	Hospitalization 14 Ambulatory NA	4(1)		4(3)	8(1)	8(1)	1(1)	1	2(2)	1(1)	1	
Liaison Psychiatry	N/A	3(1)		3(3)	1	1	2(2)			1(1)		
Residents	N/A	9		2								
Investigation	N/A	2		2	1							
TOTAL	165	38***	2	23	39**	39	8	3	2	7	1	5

The total number of professionals assigned to each resource is indicated, in brackets the number who works part-time, often incorporated into various resources\*. The community psychiatry program is supervised by the psychology and the psychiatry of the RU and with nursing support from the CMHTs. \*\*\*: Includes the Head of Nursing Area without affiliation to any unit, and a Head of Nursing Unit attached to the Rehabilitation Unit \*\*\*: Includes the Head of Service, without affiliation to any Unit.

**Table 2**  
Human resources and COVID.

Professional category	Total	Sick leaves COVID*	Total leaves**	Integration in COVID teams.
Doctors***	38	9	11	9
Psychologists***	23	1	2	0
Nursery	37	2	7	13
Auxiliary Nurse	39	12	14	14
Social Workers	8	0	1	3
Occupational therapist	3	1	1	2
Social Educators	2	0	0	0
Administrative staff	7	0	0	0
Sports Monitor	1	0	0	0
Wardens	5	0	0	5
Total	163	25	36	46

\*Sick leaves due to COVID, either confirmed or suspected because of compatible clinical symptoms. After sick leave the professionals rejoined the activities of the psychiatry service or entered the COVID teams.

\*\*Total sick leaves, including all causes.

\*\*\*Includes senior professionals and residents, doesn't include those linked to the SP, but assigned to a different service.

they weren't able to return to their homes.

The PS includes most of the resources from the MHN, including a portion of the drug dependence care network divided in outpatient services, hospitals, and community flats (see Table 1). It also counts on a psychiatric emergency service allocated in the University Hospital (UH) and located on-call doctors for the Los Montalvos Hospital (LMH). Additionally, transversal programs for suicide prevention and attention to resistant mental disorders exist. Community outpatient programs are located within primary care buildings (15), in the former provincial hospital (3), and in both general hospitals (University Hospital and Virgen de la Vega Hospital) (2) and within the third hospital in the area (LMH) 10 km away from the city. There are 165 professionals linked to the SUHC, working either full or part-time (Table 1). The aim of this work describes the response of the PS and the reorganization of the MHN in Salamanca within the first 8 weeks after the declaration of the state of alarm on 14 May 2020<sup>1</sup> because of the COVID 19 pandemic.

## 2. Material and method

We developed an observational study, comparing the organization and medical activities with the same period (the same 8 week period from March to April) of the 2019 year. All the interviews in the medical wards, emergency rooms, and inpatient units that remained opened of the Salamanca Mental Health Network were recorded. All the outpatient units staff reported their activities (phone call, face to face interview, interventions, pharmacological administration, etc.).

## 3. Results

The SP adapted quickly to the declaration of the state of alarm by applying a contingency plan on the week of March the 16th. A reorganization of the professionals was necessary due to the incorporation of 46 professionals of the PS to the COVID teams, doctors, nurses and auxiliary nurses coordinated by specialists in Internal Medicine. Social workers and occupational therapists worked as case managers. Up to 36 professionals were off-work during this period -because of

<sup>1</sup> Spain. 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. [Royal Decree 463/2020, of 14 March 2020, which declares the state of alarm for the management of the health crisis caused by COVID-19]. BOE A-2020-3692, nr. 67, 14 March 2020. Available in: <https://www.boe.es/buscar/pdf/2020/BOE-A-2020-3692-consolidado.pdf>

**Table 3**  
Variations in the care activity of the SP of USHC at 8 weeks after the start of the Alarm State.

UNIT	2019		2020		Activity compared with 2019 (%)**
	INPATIENTS	OUTPATIENTS	INPATIENTS	OUTPATIENTS	
STHU	69	–	34	–	49%
Convalescence Unit	10	–	11	–	110%
Rehabilitation Unit	10	–	–	–	NA
IADDU	21	–	0	–	NA
Day Hospital*	9*	32	3*	6	33%
Liaison Psychiatry	65	–	56	–	86%
Psychiatric Emergencies Room	–	133	–	48	36%
PSRC*	20	–	0	–	NA
ADU	–	601	–	79	13%
ODDP	–	–	–	1	NA
EDU	9	0	113	0	NA
CA-MHT	–	659	–	12	0.3%
CMHTs	–	4735	–	448	9.4%
SMI Program	–	64	–	4	6.25%

NA: not applicable STHU: Short-term Hospitalization Unit IADDU: Inpatient Addiction and Dual Disorder Unit. PSRC: Psychosocial Rehabilitation Center ADU: Addictive Disorders Unit ODDP: Outpatient Dual Disorder Program EDU: Eating Disorder Unit CA-MHT: Child and Adolescence Mental Health Team CMHTs: Community Mental Health Teams SMI Program: Severe Mental Illness Program.

\* Partial hospitalization \*\*comparison of the period of the alarm state with the same period in 2019.

**Table 4**  
Telemedicine activity.

Unit	N° of phonecalls made (successful)	N° interv.	Types of interventions					
			Referral to emergency	Adjustmen psychopharm	Face to face	Psychoterapy	Discharge	
Convalescence Unit	78 (78)	–	–	–	–	–	–	7
Day Hospital	82 (82)	141	0	73	NA	104	–	0
PSRC	309 (229)	89	0	0	0	0	0	0
ADU	440 (416)	439	1	69	2	0	0	2
ODDP	100 (99)	101	1	1	0	0	0	0
EDU	293 (289)	289	2	2	0	0	0	0
CA-MHT	758 (704)	751	8	10	6	8	–	4
CMHTs	4749 (4241)	3821	3	215	33	221	–	88
SMI Program	462 (462)	63	2	21	2	42	–	0

PSRC: Psychosocial Rehabilitation Center ADU: Addictive Disorders Unit ODDU: Outpatient Dual Disorder Program.

EDU: Eating Disorder Unit CA-MHT: Child and Adolescence Mental Health Team.

CMHTs: Community Mental Health Teams SMI Program: Severe Mental Illness Program.

COVID 19 infections mainly-(Table 2). The professionals previously attached to the now closed in- and outpatient units who did not join the COVID teams gave support to the resources which remained active. Tele-medicine (consultation by telephone) intensified notably within daily health-care while presential activity decreased (Table 3 and 4) and new security measures were implemented (Table 5). A system of regular communication with all the specialists in the PS was established in all resources and units.

Beside the reorganization of human resources, other intense re-adaptations occurred, such as the transfer (short-term hospitalization unit) or shutdown (addiction and dual diagnosis unit) of different inpatient units, as well as some of the outpatient ones, and the implementation of tele-medicine programs in the units which remained operative. Simultaneously, two new healthcare programs were initiated: one aimed at mental health care for professionals and patients (PASMICOR) and another program for homeless people (HP).

Regarding the inpatient units, all patients with sufficient clinical stability were discharged. The short-term hospitalization unit (STHU) was closed and reconverted into a COVID ward for Internal Medicine. Prior to its shutdown, three patients were transferred from the STHU to the LMH (outside the capital), enabling a new thirteen-bed ward and keeping one room for isolation. A rotational turn-over was initiated with four groups consisting of 3 psychiatrists and one psychologist each, coming from the other units. The number of hospital admissions was 65% lower during the first 4 weeks, and 37% lower during the following 4 weeks, only two of the admitted patients being suspected to be infected with COVID. The convalescence unit, located in the LHM,

has a semi-open, half-stay hospitalization scheme for subacute phases (Green et al., 2019). Eight patients were discharged to their homes and 2 remained hospitalized because of their clinical situation. After the state of alarm was declared, 11 admissions were accepted from the STHU, with which a close coordination was maintained to keep it from overburden. A team of 4 psychiatrists and 3 psychologists from different resources in the network was generated, who worked in this unit on a rotating basis. The aim of this schedule was to avoid contagion, due to the patients presenting a greater risk of infection related to their decreased capability of realizing their likelihood of getting infected and the consequences linked to it, among others. In the rehabilitation unit, also placed in the LMH, with an open care plan, was shut down on March the 16th. Previously 14 patients were discharged by March the 9th and other 2 patients, were transferred to the Convalescence Unit. The patients received a telematic follow-up by the team. Until this date the patients remained stable and locked down, with no cases of infection. Only one patient needed hospital admission for a lithium intoxication and a psychopathological decompensation after it. Supervision of the flats, which are managed by the rehabilitation unit, has been maintained via tele-medicine and in person. The resistant mental disorder program assisted 66 patients with 465 telephone calls, requiring only 3 patients to be hospitalized.

In the University Hospital liaison psychiatry's five specific programs were closed. The team was reorganized increasing its numbers by 6 doctors from other resources, all of them appropriately trained in the usage of IPE (Individual Protection Equipment), to attend the referrals of COVID inpatients. Rotational teams of at least two people were

**Table 5**  
Measures adopted in inpatient and outpatient units.

Measure	Inpatient			Outpatient				Community flats	SMIP
	STHU	CU	DH	PSRC	CMHT	CAMHT	ADU/ODDU		
Handwashing (Ma et al., 2020)	yes	yes	yes	no	yes	yes	yes	yes	no
Use of the masks(Ma et al., 2020)	yes	yes	yes	no	yes	yes	yes	yes	no
Distance (Ma et al., 2020)	yes	yes	yes	no	yes	yes	yes	yes	no
Safety gloves(Ma et al., 2020)	yes	yes	yes	no	yes	yes	yes	yes	no
Family calls instead of walks (Xiang et al., 2020)	yes	yes	no	–	–	–	–	–	–
Restrict family visits (Tor et al., 2020)	yes	yes	–	–	–	–	–	–	–
Audiovisual materials and books instead of a walk (Xiang et al., 2020)	no	yes	yes	–	–	–	–	–	–
Stop motor group activities (Adhikari et al., 2020)	yes	yes	no	–	–	–	–	–	–
Carrying out graphomotor activities and personal experiences (dance, music) (Adhikari et al., 2020)	no	yes	yes	–	–	–	–	–	–
Nursing-administered prevention guidelines (Shi et al., 2020; Tor et al., 2020)	yes	yes	yes	–	–	–	–	–	–
Temperature taking once per shift. (Zhu et al., 2020)	yes	yes	yes	–	–	–	–	–	–
Only clothes and food provided by the institution are used (Zhu et al., 2020)	yes	yes	no	–	–	–	–	–	–
Preparation of isolation room (Percudani et al., 2020)	yes	yes	–	–	–	–	–	–	–
Preventive action such as stocking up on personal protective equipment. (Houghton et al.,C. 2020; Tor et al., 2020)	yes	yes	no	no	yes	yes	yes	yes	no
Covid education for healthcare personnel (Saitoh et al., 2020; Tor et al., 2020)	yes	yes	yes	yes	yes	yes	yes	yes	yes
Psychiatrist turn over from time to time (Tor et al., 2020)	yes	yes	no	no	yes	yes	yes	no	no
Telemedicine from home with remote access (Corruble, 2020)	no	no	no	no	yes	yes	no	no	yes
Face-to-face visit for LAI administration (nursery)	yes	yes	yes	no	yes	no	yes	no	no
Turn-over of presental assistance to decrease exposure and ensure physical presence (Tor et al., 2020)	yes	yes	yes	no	yes	yes	yes	no	no
Prioritized assistance to suicide risk and decompensation of SMI	–	–	–	yes	yes	yes	yes	yes	yes
Urgent telephone attention (Corruble, 2020)	yes*	yes*	yes*	yes	yes	yes	yes	yes	yes
Telephone follow-up from office (Tele-Psychiatry) (Corruble, 2020)	no	yes	yes	no	yes	yes	yes	no	no
Remote internet Access (Corruble, 2020)	no	no	no	yes	yes	yes	yes	yes	yes
Face-to-face medical attention with security measures	yes	yes	yes	No	yes	yes	yes	no	no

STHU: Short Term Hospitalization Unit CU: Convalescence UnitDH: Day Hospital.

PSRC: Psico-Social Rehabilitation Center CMHTs: Community Mental Health Teams CA-MHT: Child and Adolescence Mental Health Team ADU/ODDU: Adicctive/Outpatient Dual Disorder Unit SMIP:Severe Mental Illness Program.

\*Carried out by localized and presental on-call professionals.

created to minimize infection risks and making a rational use of the IPEs. Before the initial assessment of a possibly infected patient, a reunion was made with the medical team at the ward emitting the consultation referral, defining the cause for referral and its objective. The initial assessment with the patient was done by one only professional, assisted by a colleague in the placement and removal of the IPE and to accessing and leaving the room. When this was not possible (due to the organic or mental state of the patient), the follow-up was done in person. During the 8 first weeks 30 COVID and 24 non-COVID patients were assessed.

The additions and dual disorders unit (ADDU) includes one outpatient unit for the treatment of alcohol- and cocaine-related disorders -alcohol treatment unit (ATU)-, an outpatient dual disorders program (ODDP) and a hospitalization resource fulfilling the roles of a hospital detoxication unit and an inpatient dual disorder unit (HDU/IDDU). The latter is a reference unit for Castilla y Leon (Castilla y Leon regional council, 2016; Castilla y Leon refional council,2017), located in the LHM. It was closed on march the 16th, after referring the patients to either the Outpatient Drug Clinics(ODC), their Community Mental Health Teams (CMHT) or a Therapeutic Community in one case. The HDU/IDDU was repurposed as the new STHU. In the outpatient units, a mixed telemedicine program has been adopted, with occasional instances of presental assessments for patients at higher risk of relapse and for the administration of long-acting intramuscular treatments under supervision. All the group therapies were canceled, and urinalyses were not carried out. 8 cases of relapse were detected at the ATU, with one patient having to be urgently admitted in the STHU and 2 patients referred for admission in medical wards, due to acute organic pathologies. 2 relapse instances have been identified by the ODDP during the lockdown time, during the second and fifth week.

Related to the outpatient units the Psychosocial Rehabilitation

Center (PSRC), located in the LMH, the frequency of telephone contacts with the long-lasting and severe mental disorder patients and their families was once/twice per week, depending on their mental health state and social support. In this moment most of them (33/35) remain stable. One patient died of physical illness (unrelated to COVID) and a presental visit was carried out before he died, giving support to his relatives by phone. One patient was admitted in the STHU for 2 weeks and 2 patients presented low mood state for 4 days, requiring more frequent follow-up calls leading to their amelioration. Follow-up via telephone was successful, 90% of the patients remaining stabile. The Day Hospital is a multidisciplinary resource located in the old provincial hospital beside the University Healthcare Complex (Regional Health Management of Castilla y Leon, 2002). During the pandemic, a mixed working model was created, presental for some hours per day, and by phone. Three patients stopped attending it to avoid transmitting the infection to their elder parents. Other 4 patients remained in the initial phase of treatment, keeping them from a possible decompensation. Individual and group therapy was maintained, keeping the initial objectives, analyzing the consequences of the lockdown regarding the duel for deceased close relatives and the impact of the economic crisis. Daily phone calls became weekly progressively. The patients' physical and mental states were evaluated, as was adherence to treatment, level of activity and feelings produced by the pandemic.

The Unit for Eating Disorders is a multidisciplinary resource and a regional reference unit including a Day Hospital and an outpatient consultation unit, place within the Virgen de la Vega hospital attaches to the University Hospital. Since the declaration of the state of alarm the activities of this Day Hospital were shut down and outpatient consultations were carried out prioritizing urgent cases (weekly, daily calls), with preferent referrals followed up every 15 days and ordinary

follow-ups every 2–3 months (“Niño Jesús” University Children’s Hospital, 2020). A presentational consultation was needed for three patients, one of them resulting in a referral for hospital admission.

The assistance of adult patients in the CMHTs has been an unprecedented challenge. A new joint model was implemented mixing presentational assistance, and consultations by phone with the aim of avoiding the infection. Presentational assistance was kept only for patients requiring depot medication provided by a nurse and follow-ups were done by phone, with attention to the severity of the cases and the need for special attention according to the previous experience of other European mental health care networks (Percudani et al., 2020; Chevance et al., 2020). An individual periodicity was established, increasing the frequency of contacts when needed to ensure security and to evaluate the necessity of urgent or preemptive attention with special care put to suicidal risk and possible decompensations of severe mental disorders. A recommendation has been made to follow mental health reinforcement strategies to deal with confinement such as physical exercise, occupational activity and increasing communication with loved ones. Contact with primary care services has been strengthened via telephone or the internet sending comments about the patients and treatment prescriptions for them to be included in the electronic prescription records. Contact with different community mental health resources, protection flats and programmed and urgent attention at the hospital were intensified. The patients’ reaction has been in general very favorable, being quite thankful for the assistance offered and the follow-up made by the whole team.

The child and adolescence mental health team, located in the University Hospital, canceled all the outpatient consultations programmed, organizing a mixed model, both presentational and telephonic with a rotational team consisting on 1 psychiatrist and 1 psychologist physically present at the hospital, following the scheduled patients up via telephone calls, paying special attention to possible incidences and emergencies in the pediatric population and wards. The rest of the team worked from home. The main objective was to ensure care continuity, avoiding possible relapses. Communication with Primary Care was kept, contacting by phone with preemptive referrals evaluating the necessity of presentational assistance. Only twelve patients with suicidal risk or acute symptoms were assessed in person, who could not be managed by phone. A patient admitted to hospitalization under the responsibility of the PS at the pediatric ward had to be visited in person, given that the child and adolescence psychiatry ward located in Valladolid (the unit of regional reference) has remained closed.

After the declaration of the state of alarm, two new programs were created. The first one, named PASMICOR (intends to give a quick response to mental health problems arising from the COVID 19 pandemic), being given direct access to via one e-mail and without risk of contagion, making the assessment easier. 128 people were assessed: health care professionals, patients, and relatives to people admitted to the hospital due to the infection by COVID. The program was initiated on March the 23rd, and on April the 7th the offer was opened to primary care professionals, patients isolated at home, relatives and third age residential centers (DOC-PSQ-GE-20-01-02, 2020). Sixteen clinical psychologists, members of the PS, and an additional psychologist specifically hired for the program, made 455 interventions by phone. The second program was organized two weeks after the beginning of the state of alarm, to assist homeless people (HP) who could not continue living on the streets<sup>2</sup>. The city hall of Salamanca, cooperating with local entities, enabled one local shelter for their lodging and maintenance.

<sup>2</sup> Spain. 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. [Royal Decree 463/2020, of 14 March 2020, which declares the state of alarm for the management of the health crisis caused by COVID-19]. BOE A-2020-3692, nr. 67, 14 March 2020. Available in: <https://www.boe.es/buscar/pdf/2020/BOE-A-2020-3692-consolidado.pdf>

The aim of the program was to detect mental illness and respond to them if necessary. Four psychiatrists in teams of two people have been attending the center weekly. Give the high risks found in this population, the interviews have been performed with the use of complete IPEs. In addition, 7 phone calls have been made to the Center managers. During the first visit, a 27% of the 22 locked down people, fulfilled DSM-5 criteria for at least one diagnostic label of mental disorder, and 24% presented symptoms requiring sleep hygiene and healthy lifestyle measures. Finally, 27 people were assessed with some form of mental disorder being detected in 62,9% of them, 33,3% of them consisting in substance use disorders. Only one of them used required attention at the emergency service, before the program was initiated.

#### 4. Discussion

As a consequence of the pandemic a radical re-adaptation of the Psychiatry service was carried out in three main aspects: generalized implementation of telemedicine, physical shutdown of the resources, and reorganization of human resources with those professionals who were not off work due to COVID nor were included in the COVID teams. Additionally, two programs were initiated, namely one program to assist health care professionals, patients and relatives affected by the COVID infection (PASMICOR program) and another program for homeless people. The reorganization and the creation of new teams resulting from it has already been described in Spain (Arango et al., 2020) and Europe (Percudani et al., 2020; Chevance et al., 2020), following some of the suggestions made in China. Patients have remained stable and their subjective perception of the support given was hardly lesser than with conventional hospitalization

The usage of tele-medicine in an extensive way, with around 9000 calls in 8 weeks, was successful in all the resources, in consonance with previous works (Corruble et al., 2020; Castro et al., 2012) including the new implemented health care resources and establishing that the use of tele-medicine in mental health is feasible.

The number of hospitalization beds was 69% lower, with an adequate containment of the patients with severe mental disorders. Changes made in the STHU are coherent with the proposals made by other hospitals: short stays under more strict criteria, encouraging outpatient assistance, implementing isolation, and avoiding presentational visits (Liu et al., 2020). There was no specific zone defined only for likely COVID patients, separated from the rest of the unit with protective measures, nor has a separate unit been generated, although it has been considered. In previous experiences, the creation of units for infectious cases in psychiatric hospitals was suggested and transferring the STHU to general hospitals (Xiang et al., 2020). That is related to the fact that in China, most of the acute wards are in psychiatric hospitals (Xiang et al., 2020). In Singapore, acute psychiatry wards are kept in psychiatric and general hospitals with the necessary measures of protection, training and isolation and the turnover of psychiatrists is organized after set time intervals (Tor et al., 2020), as we did in our team. They propose keeping electroconvulsive therapy, with fitting preventive measures (Tor et al., 2020), although it has not been done so in our case. There is no literature on the adaptation of half-term units to the COVID-19 pandemic. Most of the changes generated are replicated in other studies made in STHUs, even if some measures like patient discharge after two weeks of stay is not applicable to this resource (Ji et al., 2020; Zhu et al., 2020). There is no experience either about the closure of rehabilitation units due to the pandemic, but the assertion can be made that close, multidisciplinary support via telephone, although provisional as management strategy, seems to be effective to minimize relapses, with the patients experiencing a similar subjective perception of support. Furthermore, home treatment stands as a way of avoiding hospitalization and infection (Yao et al., 2020). For patients who are not candidates for tele-medicine or who need closer support,

this would be the ideal option, combined with granting the administration of depots and the lab analyses needed in patients under treatment with clozapine, and blood levels of lithium.

Reorganization of the Liaison Psychiatry unit is in consonance with other Spanish hospitals (Arango et al., 2020). Previous training in the usage and removal of IPEs has permitted to avoid contagion and the frequent meetings with the teams of internal medicine have allowed to limit direct contact with the infected patients. The application of telemedicine in Liaison psychiatry has turned out being useful for the moment, optimizing the average protection resources, material, and time available and lowering the risk of infection.

The readjustment of resources in the ADDU, reducing presental and hospital-based activity (Xiang et al., 2020) via telephone and on-line support, has obtained good results in consonance with previous works about the pandemic in China, (Liu et al., 2020). There is some experience, especially in the EEUU, about the use of telemedicine in addicted patients (Tofghi, 2018; Ondersma, 2019), but there aren't enough descriptions of units similar to the IADDU. Already described consequences of COVID-19 such as development of anxiety, depression, insomnia, suicidal risk, lack of adherence to treatment, relapses, problems while accessing the emergency care system and COVID-19 infection (Liu et al., 2020; Volkow, 2020) have hardly been detected. However, these findings correspond only to the first 8 weeks and must be revised in the long-term or after the situation goes back to normal. In contrast with the usual rate of relapse presented by these patients (Grau-Lopez, 2012), decompensations for the moment seem minimal, although substances keep being consumed; consumption of alcohol and anxiolytics is probably increasing, since they are easier to acquire in these circumstances.

Concerning outpatient units PSRCs work intensively with groups, hence some of the objectives of the rehabilitation like daily basic self-care, social relationships and activities cannot be checked since they need presental supervision. However, PSRC has been effective keeping patients stable and maintaining social contact among them by phone. This suggests that, by means of tele-medicine, some of the objectives can be pursued and it can be used in the future (Castro et al., 2012; Góngora-Alonso et al., 2020), even with patients with schizophrenia. Psychiatry Day Hospital remained open with a mixed health care system (presental and by phone), permitting to manage the difficulted associated with stress due to the anomalous and dangerous situation, as well as continuing with its previous work. Even though most day hospitals have closed, we kept ours open given its location outside the Universities Hospitals and pondering the potential risks and benefits for the patients. Up to this date it has fulfilled its aim to avoid decompensations and the need to use the emergency services, lowering the number of admitted patients following the existent recommendation (Management Office, 2020; IASC, 2020). In the Eating Disorder Unit, the risks were unaffordable, because of the medical frailty of the patients, because of which the day hospital was closed following the recommendations in this area (Asociación Española de Trastornos de la Alimentación, 2020).

Regarding adult outpatients attention no great difficulties have been detected. Patients have reacted very positively, showing gratitude for the call and the follow-up made by the team. This suggests that telemedicine can be a very relevant resource in the attention to geographically distant patients, urgent and preemptive, which is similar to the previously described experience (Percudani et al., 2020), and that it will undoubtedly stay after the pandemic is over, at least partially. The system helps screening referrals from primary care via first contact with the patients by which their real needs and the necessity for referral to an adequate resource is assessed. The child and adolescence team has assessed 12 children, although more are likely to appear in the following weeks, given that confinement has been linked to new symptoms after 33,7 days on average (Xie et al., 2020), and to an impoverishment at baseline status (Zhang et al., 2020). In Spain, children with Autism Spectrum Disorders have been allowed to go out since the

first days of the pandemic,<sup>3</sup> as have children under 14 on week 6, with some restrictions.<sup>4</sup> Based on clinical records, after follow-up by phone it seems that previously existing problems, like behavioral alterations in children with ADHD, have worsened as the tie of lockdown got extended, with the apparition of other kinds of symptoms, such as sleep distortion and anxiety. These symptoms have been managed via contact by telephone, and thus could be considered for other settings.

The assistance given by the PASMICOR program during these weeks is quite relevant, given that encouraging mental health in healthcare providers and survivors would be impervious in order to reduce suffering and demoralization after the pandemic (Kangas, 2013; Levin, 2013). The application of special psychological and emotional support programs has been adequate in order to reduce the frequency and intensity of post-traumatic stress disorder and anxiety and depressive symptoms and has helped preventing the appearance of chronic pathologies although interventions shouldn't be offered without a careful assessment, which would hinder the use of natural coping mechanisms (CTRWG, 2020). That is why the attention must be provided by qualified professionals, since emotional, cognitive, and behavioral responses in resilient people are often difficult to differentiate from stress or post-traumatic stress disorder (Drury et al., 2013). Direct access to individual psychological and psychopharmacological help has been provided (Huremović et al., 2019), allowing for early and confidential access by healthcare professionals to support resources (Richins et al., 2019). Providing mental health care for HPs is a challenge given that the prevalence of mental disorders among them, higher than 60%, is within the expectable range, since it was estimated that 50% suffered from some kind of mental disorder (Scott et al., 1993; Muñoz et al., 2005) and up to 60% suffer from an alcohol use disorder (Panadero et al., 2016). Preventive evaluations, like the one carried out in our case, could avoid the access to the emergency care units in the situation of a pandemic, supposing a reduction in risks for the patients themselves and health care professionals.

The re-organization of human resources was crucial. In this regard, it is relevant to consider the high rates of infection among professionals from the PS, even though it is a second line department in the COVID setting, even if it is in consonance with previous reports which claim that mental health professionals are a risk population (Xiang et al., 2020; Li et al., 2020), possibly because of the kind of relationship, contact and dynamics established with the patients and because of the delayed access to IPEs to mental health resources.

The response to the pandemic has been articulated in a noticeably short time, and we consider that its execution has been successful taking the few instances or relapse among the patients. The permanent contact and interaction between teams has without a doubt contributed to the fight against mental burnout and additional stress. It is vital to maintain professionals mentally healthy when coping with the pandemic (Walton et al., 2020), being a priority in the response given by public health care systems. Opportune, adequate information to the professionals is crucial to avoid the apparition of group anxiety.

We can conclude that the usage of support via telephone and tele-matic applications in this situation looks promising for patients with

<sup>3</sup> Spain. Instrucción de 19 de marzo de 2020, del Ministerio de Sanidad, por la que se establecen criterios interpretativos para la gestión de la situación de crisis sanitaria ocasionada por el COVID-19. [Instrucción de 19 March 2020, by the Ministry of Health, which establishes the interpretative criteria for the management of the health crisis caused by COVID 19.] BOE-A-2020-3898, nr. 76, 20 March 2020. Available at: <https://www.boe.es/eli/es/ins/2020/03/19/1>

<sup>4</sup> Spain. Orden SND/370/2020, de 25 de abril, sobre las condiciones en las que deben desarrollarse los desplazamientos por parte de la población infantil durante la situación de crisis sanitaria ocasionada por el COVID-19. [Order SND/370/2020 of 25 April, on the conditions under which the ambulation of child population is allowed to develop during the health crisis caused by COVID19]

BOE-A-2020-4665, núm. 116, del 25 de abril de 2020. Available at: <https://www.boe.es/eli/es/o/2020/04/25/snd370>

mental disorders, and its implementation should be encouraged beyond the current crisis (Bilal et al., 2020). It is necessary to continue researching on the impact of COVID on the course of illness and treatment of patients with mental disorders. The response should be articulated with the other levels of the health care system, including primary care and other resource in the drug-dependence assistance network. The response described here is only initial and short-term and will surely change, and thus will need to be reevaluated. As a final lesson, it seems relevant to plan medium- and long-term care by adding realistic possibilities for the health care system, the professionals' needs and demands from patients and their relatives.

### CRedit authorship contribution statement

**Carlos Roncero:** Conceptualization, Formal analysis, Data curation, Writing - original draft, Writing - review & editing. **Llanyra García-Ullán:** Conceptualization, Formal analysis, Data curation, Writing - original draft, Writing - review & editing. **Javier I. de la Iglesia-Larrad:** Formal analysis, Writing - original draft, Writing - review & editing. **Carmen Martín:** Investigation, Resources, Writing - original draft, Writing - review & editing. **Pilar Andrés:** Investigation, Resources, Writing - review & editing. **Ana Ojeda:** Investigation, Resources, Writing - review & editing. **David González-Parra:** Investigation, Resources, Writing - review & editing. **Javier Pérez:** Investigation, Resources, Writing - review & editing. **Clara Fombellida:** Investigation, Resources, Writing - review & editing. **Ana Álvarez-Navares:** Investigation, Resources, Writing - review & editing. **José Antonio Benito:** Investigation, Resources, Writing - review & editing. **Virginia Dutil:** Writing - review & editing. **Carolina Lorenzo:** Investigation, Resources, Writing - review & editing. **Ángel Luis Montejo:** Conceptualization, Investigation, Resources, Writing - review & editing.

### Declaration of Competing Interest

None

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### Supplementary materials

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