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Clinical profile of inpatients referred to a consultation-liaison psychiatry service: an observational study assessing changes over a 10-year-period

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Objective. Previous research has described the characteristics of Consultation-liaison psychiatry (CLP) services over one or more years. The aim of this paper was to examine the patterns of a large sample of patients receiving CLP service over a 10-year-period (2005–2014) and to determine the possible changes over time of the clinical practice. The sample size of our study, the duration of the observation period and the application of standardized operating procedures for acquiring and coding data, will provide more robust evidence than has been reported by most similar studies published in the last years.

Methods. Longitudinal observational and descriptive study. Data were collected prospectively with standardized operating procedures on consecutive inpatient consultation requests to the University Clinical Hospital of Barcelona CLP service.

Results. 9,808 psychiatric consultation were requested (referral rate=2.2%). The referrals to our CLP service were requested mainly by medical units. The most frequent psychiatric diagnoses were alcohol-related disorders, delirium and adjustment disorders. The mean percentage of patients treated with psychopharmacologic drugs was 81.6%. The mean length of the hospital stays of patients with psychiatric comorbidity referred to our CLP service was significantly longer than that of all the admissions to the hospital during that period. Most of the studied variables remained constant

over the 10-year-period. However, some somatic diagnoses at admission, reasons for referral and recommendations of psychotropic drugs presented significant changes.

Conclusions. Despite the continuous evolution and changes of several factors in the last two decades, like the health care systems, the clinical practice of CLP services has been quite stable over time. However, our results support the idea of a non-static specialty.

Keywords: Comorbidity, Consultation-liaison psychiatry, General hospital, Mental disorder, Referral

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Características clínicas de los pacientes derivados a un servicio hospitalario de psiquiatría de enlace e interconsulta: un estudio observacional evaluando cambios a lo largo de un período de 10 años

Objetivo. Existen diversas investigaciones previas que han descrito las características de distintos servicios hospitalarios de Psiquiatría de Enlace e Interconsulta (PEI) a lo largo de un periodo de tiempo de uno o más años. El propósito del presente artículo es el de examinar las características de una muestra amplia de pacientes remitidos a un servicio hospitalario de PEI, durante un período de 10 años (2005–2014) y determinar los posibles cambios de la práctica clínica a lo largo del tiempo. El tamaño muestral de nuestro estudio, la duración del periodo de observación y la aplicación de procedimientos estandarizados para la obtención y codificación de los datos, aportan una evidencia más sólida en comparación con otros estudios similares publicados en los últimos años.

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Métodos. Estudio observacional, longitudinal y descriptivo. Los datos se recopilaron de forma prospectiva mediante procedimientos estandarizados, en base a las solicitudes recibidas en el servicio hospitalario de PEI del Hospital Clínico Universitario de Barcelona.

Resultados. se solicitaron un total de 9,808 consultas psiquiátricas (tasa de derivación=2,2%). Las derivaciones a nuestro servicio fueron realizadas principalmente por unidades médicas. Los diagnósticos psiquiátricos más frecuentes fueron los trastornos relacionados con el consumo de alcohol, los cuadros confusionales y los trastornos de adaptación. El porcentaje medio de pacientes manejados con tratamiento psicofarmacológico fue del 81,6%. La duración media de las hospitalizaciones de los pacientes con comorbilidad psiquiátrica, derivados a nuestro servicio de psiquiatría de enlace, fue significativamente mayor a la estancia media global del hospital durante ese periodo. La mayoría de las variables estudiadas permanecieron constantes durante el período de 10 años. Sin embargo, algunos diagnósticos médicos en el momento del ingreso, motivos de derivación y recomendaciones de tratamiento psicofarmacológico presentaron cambios significativos.

Conclusiones. A pesar de la evolución continua y los importantes cambios que se han producido en los sistemas de salud en las dos últimas décadas, la práctica clínica de los servicios de PEI ha permanecido bastante estable en el tiempo. Sin embargo, nuestros resultados apoyan la idea de una especialidad dinámica.

Palabras Clave: Comorbilidad, Psiquiatría de Enlace e Interconsulta, Hospital general, Trastorno mental, Derivación

INTRODUCTION

Background

Mental health and substance use disorders are extremely common in medical settings. Overall, around 30% of people with medical conditions have mental health comorbidity. Most of these patients are only seen in the general medical sector, and approximately two-thirds receive no treatment for these disorders^{1,2}. There is a growing realization that presentation with multimorbidity of both physical and psychiatric disorders is the norm in clinical practice³. Psychiatric comorbidity in somatic patients is recognized as a major risk factor for impaired somatic treatment outcomes, longer length of stay, and increased rehospitalisation⁴.

Consultation-liaison psychiatry (CLP) refers to the skills and knowledge utilized in evaluating and treating the emotional and behavioural conditions in patients who are referred from medical and surgical settings⁵. This can be consultative, collaborative, or integrated as a core feature of the care of patients being treated in the non-mental health setting⁶.

Previous research has described the characteristics of CLP services over one or more years⁷. Studies published in the early 2000s included the first large cohorts of patients receiving CLP services. More recent reports have been based on small samples, usually a 12-month period of data collection without reporting observations of potential changes over time in CLP populations. However, it is very difficult to compare the results of those studies because of the different hospital settings, consultants, study periods, sample sizes and classification systems. These limitations may reduce the generalization of results. There is also a lack of data about the possible influence on the CLP clinical practice of several factors like rising rates of referral of older people due to the increase of life expectancy and demographic ageing⁸, the changes in patterns of drug use⁹ or the new trends in psychopharmacological prescriptions¹⁰.

Objectives

The aim of this study was to examine the patterns of a large sample of patients receiving CLP service over a 10-year-period (2005–2014) and to determine the possible changes over time of the clinical practice of this area. The sample size of our study, the duration of the observation period and the application of standardized operating procedures for acquiring and coding data, will provide more robust evidence than has been reported by most similar studies published in the last years.

MATERIALS AND METHODS

Study design

This is a longitudinal observational and descriptive study. Data were collected prospectively on consecutive inpatient consultation requests to our CLP service, over a 10-year-period (from January 1, 2005, through December 31, 2014). The results are reported following the STROBE statement^{11,12}.

Setting

The University Clinical Hospital of Barcelona, located in the city centre of Barcelona in the northeast of Spain, is an

819-bed tertiary care general hospital that attends to the health of 540,000 inhabitants. It is a reference hospital that develops several complex activities. The services of the adult CLP unit are provided by two psychiatrists, one full time and another part time who works specifically in substance-related disorders. Older people are treated according to their particular care needs by our general consultation-liaison psychiatrist, who is expert in psychogeriatrics. A full-time nurse specialist in psychiatry helps her colleagues to improve the approach to these patients. An average of three post-graduate year-2 or year-3 psychiatry residents spend a rotation of 4 months in the unit. They are trained according to European guidelines and every case they evaluate is reviewed by a staff psychiatrist (board certified faculty)^{6,13}. With the exception of residents, the team of our CLP unit remained stable during the 10 years of the study.

Participants

In the present study, we used a nonprobability sampling method, assessing adult inpatients admitted to non-psychiatric units of our general hospital who were consecutively referred to our CLP service.

Data sources and variables

Our CLP service receives requests for urgent or planned consultations via intranet from inpatients of all hospital units. All of the patients admitted to the hospital for more than 24 hours and who were referred to psychiatry during the study period were assessed using a prospectively computerized clinical database performed with Microsoft Access according to the European Consultation/Liaison Workgroup (ECLW) proposals for standardized data collection¹⁴. Computerization allowed the systematic collection of the following clinical variables:

1. Sociodemographic variables and clinical characteristics of the sample: age, gender, personal psychiatric history and history of suicide attempts, current psychosocial stressors and physical disabilities and provisional somatic diagnoses at admission according to the International Classification of Diseases (ICD-10)¹⁵.
2. Features of the referrals: date, sources (medical specialties) and primary reasons for referral.
3. Intervention and outcome: psychiatric diagnosis according to the DSM-IV-TR categories¹⁶, psychopharmacological intervention, number of visits, destination at discharge and length of hospital stay.

The main data sources were the patients, when their general medical condition allowed the psychiatric interview,

and the family members and/or caregivers. We also obtained complementary data through the anamnesis of the referring physician, the nursing daily reports, the hospital medical history and previous medical and psychiatric reports.

Bias

To enhance and control reliability and to ensure a standard lexicon and operating procedure for acquiring and coding data, all the team members responsible for performing the consultations were trained specifically by a senior consultant psychiatrist. We followed the guidelines and consensus statements of the European Association of Consultation-Liaison Psychiatry and Psychosomatics (EACLPP) and the Academy of Psychosomatic Medicine (APM)^{6,13}. To address potential sources of bias, we analysed only one referral for each admission, excluding the duplicate referrals processed for the same patient.

Statistical methods

We performed a descriptive analysis, including the socio-demographic variables and clinical characteristics of the sample, the features of the referrals and the psychiatric intervention and outcome. The description of age and length of hospital stay was carried out by obtaining mean scores and their standard deviations. The rest of the variables were analysed by total numbers, percentages and number/year ratios.

Pearson's Chi-squared test for dichotomous categorical dependent variables was applied as the statistical procedure to analyse the possible changes throughout the 10-year-period. Confidence intervals and significance values were adjusted at a level of $p=0.005\%$. We also compared the statistical differences of length of hospital stays: a) between the patients with psychiatric comorbidity referred to our CLP service and all the admissions to the University Clinical Hospital of Barcelona during that period, and b) between the subgroup of patients visited by our team who did not meet the criteria for any diagnosis or condition on Axis I or Axis II and the subgroup who presented a psychiatric disorder. A Mann-Whitney U test for independent samples was used as a non-parametric test to compare these means after testing the non-normal distribution of this quantitative variable with the Kolmogorov-Smirnov test.

All statistical procedures were carried out using *IBM SPSS Statistics 23* (Armonk, NY: IBM Corp.) for *Microsoft Office 2013*.

Compliance with research ethics standards

All proceedings followed a strict compliance with the ethical principles for medical research established by the

World Medical Association in the Declaration of Helsinki¹⁷. The study protocol was approved by the Ethical Committee Board of the University Clinical Hospital of Barcelona.

RESULTS

Participants: referral rate, sociodemographic variables and medical conditions at admission

During the study period, 446,541 patients were admitted to the hospital. For 9,808 of them, a psychiatric consultation was requested (referral rate=2.2%). Therefore, we had an average of 980.8 requests per year (ranging from 891 to 1,070). We excluded 479 duplicate referrals processed for the same patient and admission.

On average, the patients of the sample were aged 55.3 ± 17.4 years and 30% were above 65 years. There were 5,503 men (56.1%) and 4,305 women (43.9%). Of the patients in the sample, 30.4% presented with a physical disability or mobility impairment requiring different adaptive equipment and/or external support, 66.5% had previous psychiatric contacts, mainly due to substance-related disorders (28.5%) and mood disorders (15.1%), 12.1% had a history of suicide attempts, and 31.4% presented with current psychosocial stressors.

The main ICD-10 somatic diagnoses categories at admission were diseases of the digestive system (17.4%), neoplasms (14.3%), external causes of morbidity (including suicidal attempts, deliberate self-harm, injuries and poisoning) (11.9%), diseases of the nervous system (11.8%), diseases of the circulatory system (10.5%) and infectious diseases (9.4%).

Referral features

Table 1 shows the referral sources according to specialty departments and reasons for the consultation.

Psychiatric intervention and outcome

During hospitalization, 35.2% of the patients were given only one consultation and 43% of them were visited 2–3 times. The rest of the patients (21.8%) required a more extensive follow-up by our CLP service.

Psychiatric diagnoses according to the DSM-IV-TR categories are provided in Table 2. Of patients that did not receive a diagnosis, 38.6% were referred for complete clinical protocols or for evaluation of depressive (25.4%) or anxiety (9.3%) symptoms. The mean percentage of patients treated with psy-

Table 1		Sources and primary reasons for referral (n = 9,808)		
Source (Specialty)	Number	%	Number/year	
Hepatology	1,333	13.6	133.3	
General medicine	1,201	12.2	120.1	
Neurology	1,193	12.2	119.3	
Haemato-Oncology	892	9.1	89.2	
Surgery	793	8.1	79.3	
Cardiology	784	8	78.4	
Infectious diseases	636	6.5	63.6	
Trauma and orthopaedics	558	5.7	55.8	
Respiratory medicine	519	5.3	51.9	
Gastroenterology	391	4	39.1	
Urology and nephrology	384	3.9	38.4	
Intensive care unit	254	2.6	25.4	
Neurosurgery	215	2.2	21.5	
Others *	655	6.7	65.5	
Total	9,808	100	980.8	
Reason	Number	%	Number/year	
Depression	2,089	21.3	208.9	
Substance abuse	1,922	19.6	192.2	
Clinical protocols	1,157	11.8	115.7	
Confusion	1,020	10.4	102	
Anxiety	1,010	10.3	101	
Psychiatric history/medication	961	9.8	96.1	
Behaviour management/agitation	746	7.6	74.6	
Suicidal risk/attempt assessment	383	3.9	38.3	
Others	520	5.3	52	
Total	9,808	100	980.8	

* Includes otorhinolaryngology, endocrinology, dermatology, obstetrics and gynaecology.

chopharmacologic drugs during the study period was 81.6%. The main recommendations of psychopharmacological intervention were second-generation antipsychotics (25%), selective serotonin reuptake inhibitors (SSRIs) (15.2%) and benzodiazepines (9.2%). Some groups of psychiatric medications

Table 2			
Psychiatric diagnoses according to the DSM-IV-TR categories (n = 9,808)			
Diagnostic categories	Number	%	Number/year
Substance-related disorders			
Alcohol-related disorders	1,726	17.6	172.6
Others	598	6.1	59.8
Delirium, dementia, and cognitive disorders			
Delirium	1,559	15.9	155.9
Dementia	608	6.2	60.8
Adjustment disorders	1,569	16	156.9
No diagnosis or condition on Axis I/Axis II	991	10.1	99.1
Mood disorders			
Major Depressive Disorder	588	6	58.8
Bipolar Disorders	206	2.1	20.6
Dysthymic Disorder	118	1.2	11.8
Anxiety disorders	579	5.9	57.9
Schizophrenia and other psychotic disorders			
Other psychotic disorders	216	2.2	21.6
Schizophrenia	177	1.8	17.7
Personality disorders	373	3.8	37.3
Others *	500	5.1	50
Total	9,808	100	980.8

* Includes somatoform disorders, mental retardation and eating disorders.

like methadone and other opiates or mood-stabilizers had a low prescription (<3% for each group).

Hospital-to-home discharge was the intended destination in the majority of the referrals (73.3%). However, 12.6% of the patients were admitted to a psychogeriatric unit and 2.4% were admitted to a psychiatric inpatient unit. The majority of patients discharged were recommended for further psychiatric health care through their own general practitioner (30.5%), the community psychiatric services (27.1%), the community addiction treatment services (21.6%) or others (20.8%).

The mean length of the hospital stays of patients with psychiatric comorbidity referred to our CLP service (23.7±27.1 days) was significantly longer ($p<.001$) than that of all the admissions to the University Clinical Hospital of Barcelona (6.8±11.2 days) during that period. We also found that the length of the hospital stays of patients visited by

our team that did not meet criteria for any psychiatric diagnosis (19.7±23.5) was also significantly shorter ($p<.001$) than the subgroup presenting with a psychiatric disorder (24.8±28 days).

Changes of the main variables over time

Most of the studied variables remained constant over the 10-year-period. However, some ICD-10 somatic diagnoses at admission, reasons for referral and recommendations of psychotropic drugs presented statistically significant changes throughout the observation period.

In respect to the ICD-10 provisional somatic diagnosis at admission, there was a significant increase of patients in which the main primary diagnostic was neoplasm (12.1% to 15.7%, in 2005 and 2014, respectively) ($\chi^2=5.162$, $df=1$, $p=.023$) and a decrease in patients affected by an infectious disease (13.8% to 8.3%) ($\chi^2=14.293$, $df=1$, $p=.000$) or by a respiratory disease (8.3% to 4.7%) ($\chi^2=9.626$, $df=1$, $p=.002$).

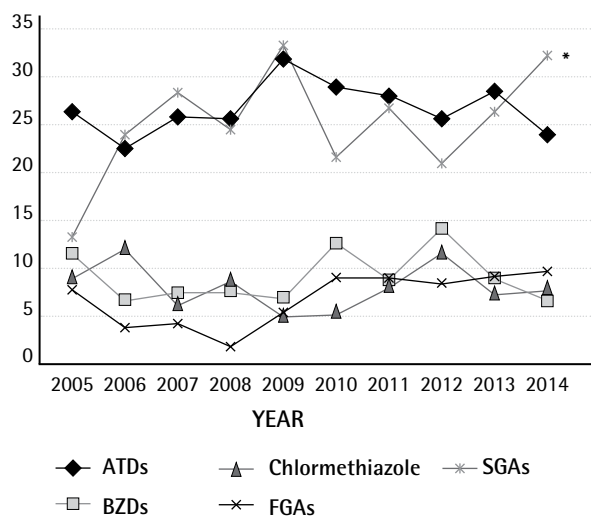
There also was a significant increase in the referrals due to "suicidal risk/attempt assessment" (2.9% to 5.1%) ($\chi^2=5.673$, $df=1$, $p=.017$) and "psychiatric history/medication" (4.6% to 12.8%) ($\chi^2=40.372$, $df=1$, $p=.000$) and a decrease in the referrals due to "substance abuse" (23.9% to 15.4%, in 2005 and 2014, respectively) ($\chi^2=21.167$, $df=1$, $p=.000$). There were no significant changes in the rest of the reasons for referral.

As shown in Figure 1, the prescription of second-generation antipsychotics showed a remarkable increase (13.5% to 32.1%, in 2005 and 2014, respectively) ($\chi^2=81.442$, $df=1$, $p=.000$). At the end of the 10-year period methadone and other opiates were rarely prescribed (6.5% to 1.2%) ($\chi^2=30.145$, $df=1$, $p=.000$). The rest of the recommendations of psychopharmacological treatment as antidepressants, benzodiazepines, first-generation antipsychotics or mood-stabilizers remained constant over the 10-year-period.

DISCUSSION

Key results

The main achievement of this study is the evaluation of a large sample (9,808 consultations) of consecutive referrals to a CLP service during an extensive observation over time. To our opinion, our study provides more robust evidence than has been reported by most similar previous published studies. In addition to updating and expanding the available clinical data on the activity carried out in the last years in the CLP services, we have also obtained other interesting results like the homogeneity on CLP clinical practice over



ATDs: antidepressants; BZDs: benzodiazepines; FGAs: first-generation antipsychotics; SGAs: second-generation antipsychotics.

* Differences between years are statistically significant ($\chi^2=81.442$, $df=1$, $p=.000$).

Figure 1

CLP recommendations of psychopharmacological treatment

the last years and the impact of psychiatric comorbidity on the length of hospital stay.

Referral rate

In spite of mounting evidence supporting the involvement of CLP for inpatients with psychiatric comorbidities, referral rates from treating doctors remain low¹⁸. Despite methodological differences and a wide disparity in the number of cases reviewed in the studies published in the last years, the rate of psychiatric consultation in CLP services remained in the range of 0.7% to 5%¹⁹⁻²⁴. Our referral rate (2.2%) was approximately situated in the middle of this range.

Sociodemographic variables and medical conditions at admission

The sociodemographic features of patients of our sample were similar to the overall profile of patients referred to other CLP services²³. Usually they were male, 55 years old, with previous psychiatric contacts (over 65% had previous psychiatric contacts) and 12% of them with history of sui-

cide attempts. Around one third of the sample presented with a physical disability and/or current psychosocial stressors. In accordance with the trends described by other researchers indicating increasing rates of referral of older people to CLP, 30% of patients of our sample were above 65 years⁸. In agreement with previous reports, these results seem to indicate that CLP services are frequently offered to the most vulnerable segments of the population¹⁹.

In respect to the medical conditions at admission, the patients of our study were admitted to the hospital mainly due to diseases of the digestive system, neoplasms or external causes of morbidity. There are few previous studies that systematically collect like ours the main medical conditions at admission according to the ICD classification of patients referred to CLP in tertiary care hospitals. The only comparable research was conducted by Gala et al. (1999)¹⁹ in a sample of 4,182 patients referred to CLP during a 1-year-period from 17 Italian general hospitals. They found that the most frequent provisional ICD-9 somatic diagnoses at admission were gastrointestinal diseases (13.4%), cardiovascular diseases (13.2%), general physical symptoms (12.5%), metabolic-endocrine disorders (6.7%), self-poisoning (5.5%), cancer (4.6%), and infectious diseases (4.3%). Although some medical conditions, such as gastrointestinal and cardiovascular diseases, have a similar prevalence to that found in our study, the results obtained by these researchers may not be fully comparable because not all hospitals included in the evaluation were tertiary care reference hospitals. Another factor that limits the possibility of comparison is the fact that the data were collected only during a period of 1 year and almost two decades have passed since then.

Referrals features

In concordance with the results obtained in our study, previous studies have found that 80–90% of the referrals to the CLP service were requested by medical units instead of surgical departments^{20,24-27}. To date, the only study analysing the reasons for referral with the largest sample was published by the ECLW in 2001²⁰. This study described data collection of 10,560 patients of 56 CLP services from 11 European countries for 12 months in 1991. The most frequent reasons for referral were current psychiatric symptoms (38.6%), unexplained physical complaints (18.6%), deliberate self-harm (17%) and substance abuse (7.2%). One year later, Diefenbacher et al. (2002) published a longitudinal observational study of a tertiary care psychiatric CLP service over a 10-year-period (1988–1997) using a standardized computerized clinical database²¹. They examined 4,429 consecutive consultations reporting four main reasons for referral: "depression" (12.6–18.3%); "behaviour management/agitation" (8.3–13.3%); "judgment/informed consent/Against Medical Advice" (6.9–11.1%); and, "suicidal risk/at-

tempt assessment" (5.8–10.1%). These data and the data in our study indicate that non-psychiatric units require assistance in managing patients whose psychopathological state is prone to impeding the medical treatment process.

We and Diefenbacher et al. have carried out similar studies and have mainly gathered the same referral reasons. The only difference in the most frequent reasons has been with "judgment/informed consent/against medical advice", which we believe to be included in several other reasons (confusion, anxiety, depression, psychiatry history, behaviour management, etc.). As for the study of the ECLW, there were a lot of CLP services with more heterogeneity. Therefore, they have joined different reasons for referral in clusters, such as "current psychiatric symptoms", or "deliberate self-harm". Unexplained physical complaints haven't been used by us due to the vast majority of our sample having a serious illness often provoking multiple physical symptoms. In our sample, the rate of consultations motivated by unexplained symptoms in the context of somatoform disorders (including factitious and dissociative disorders) was very low (1%).

Psychiatric intervention and outcome

Despite the variability of the prevalence and the different classification systems used in the previous research, there is homogeneity with respect to the most predominant psychiatric diagnostic groups established by the CLP services¹⁹⁻²⁷. In concordance with the results obtained in our study, the most frequent diagnosis that remains the major foci of consultation-liaison practices are organic mental disorders, mood disorders, and substance-related disorders.

The studies published in the early 2000s pointed out that 50–65% of patients referred to CLP require a psychopharmacological intervention¹⁹⁻²¹. Although this aspect has been studied very little in later studies, some researchers have pointed to an increase in the prescription of psychotropic drugs over time, mainly second-generation antipsychotics and SSRIs antidepressants²⁴. Our findings also coincide with this trend. As in previous investigations^{19,21,28}, a higher proportion of patients received between one and three visits, although more than 20% of patients referred to our CLP service were highly complex and required a more extensive psychiatric follow-up during the hospitalization. The majority of patients discharged were recommended for further psychiatric health care, mainly community psychiatric or addiction treatment services.

Like in our research, the impact of psychiatric comorbidity on the length of hospital stay was also addressed by Fulop et al. in a study of all medical/surgical patients discharged in 1984 from the Mount Sinai Hospital in New York City (n=37,370) and Northwestern Memorial Hospital in Chi-

cago (n=21,889)²⁹. Similar to the results obtained by our research group, the mean±SD length of stay of the patients with psychiatric comorbidity was significantly longer than that of the other patients at both hospitals: 19.8±33.3 versus 9.2±15.3 days at Mount Sinai Hospital and 13.7±27.7 versus 8.3±13.2 days at Northwestern Memorial Hospital. We have also been able to establish that the patients without any diagnosis or condition on Axis I or Axis II that were visited by our CLP team also had a significantly shorter length of hospital stay than the subgroup who presented with a psychiatric disorder. This factor can be explained by the fact that, in general, they were lower complexity patients.

Change over time of the main variables

Few long term recent studies have reported observations of changes over time with CLP populations^{21,24,25}. In the study carried out by Diefenbacher et al. over 10 years, most of the studied variables did not demonstrate significant changes over time²¹. Nevertheless, they found that levels of psychosocial and somatic functioning decreased, and changes occurred in the patterns of some CLP recommendations, e.g., tricyclic antidepressants were replaced by SSRIs. In 2008, Devasagayam and Clarke examined the effect of changes to a CLP service on referral and service delivery patterns across a period of 7 years²⁵. In a sample of 1,129 inpatients, they found that the annual referral rate increased, as did the mean age of referred patients and the main reason for referral changed from suicide evaluation and history of psychotic symptoms to depression. To our knowledge, the last published study, performed in a Taiwanese hospital²⁴ on 1,610 psychiatric consultations in the first five years after opening a CLP unit, showed that the diagnosis of depression increased significantly over time, although the reasons for most referrals did not change significantly. Medications shifted to more atypical antipsychotics and newer antidepressants over the study period. In our study the vast majority of the variables remained constant and did not demonstrate significant changes between 2005 and 2014. However, we have found some interesting changes over the 10-year-period:

ICD-10 somatic diagnosis at admission

Since the early 1990s, incidence rates for all cancers combined have increased worldwide³⁰. In accordance with this trend, during our study period there was also a significant increase of patients in which the main primary diagnostic was neoplasm.

On the other hand, our results showed a decrease of infectious diseases over time, mainly influenced by the decrease in AIDS incidence during that period. In 2015, the rate of new

diagnoses of AIDS in Western Europe, was 0.8 per 100 000 population, a steady decline that began in the late 1990s and continued through 2015 with a 60% decrease in the rate of new AIDS cases over the decade³¹. Neuropsychiatric manifestations of HIV infection and AIDS like mood disorders or cognitive, motor or behavioural abnormalities are a frequent reason for consultation to CLP services³².

In our study over the 10-year-period, consultations by respiratory diseases have also decreased. This finding can be partially explained by public health factors, such as the introduction of a wide range of comprehensive policies to reduce and eliminate tobacco smoke in the European region³³.

Reasons for referral

Between 2005 and 2014 there was a significant increase in referrals to our CLP service due to "suicidal risk/attempt assessment". Prior to the onset of economic recession in 2007, suicide rates had been falling in Europe. Subsequently, this downward trend was reversed, rising by 6.5% by 2009 and remained elevated through 2011³⁴. Analysing national suicides data in Spain between 2005 and 2010 revealed a substantial increase of 8.0% in the suicide rate above the underlying trend since the financial crisis³⁵. There also was a significant increase in referrals due to "psychiatric history/medication". We hypothesized that the most probable cause is the increase in knowledge about the biological correlates of mental disorders over the last decades that has translated into improved the public understanding of mental illness and increased readiness to seek mental health care including psychiatric medication³⁶.

Finally, during the 10-year-period of our investigation, there was a decrease in the referrals due to "substance abuse" mainly involving alcohol-related disorders. Trends in total alcohol consumption in Spain over the years 2000–2009 has continued to decrease. This decrease began in the mid-1970s, driven by a lower consumption of wine and spirits³⁷. In the past few decades, a great deal of knowledge about effective treatment for alcohol problems has been developed and most European countries have implemented alcohol interventions. The importance of hospital settings is decreasing, more ambulatory work is being done and the primary care is becoming more important³⁸. These factors may have led to an increase in direct referrals from medical hospital units to community addiction treatment services during the 10 years of the study.

Psychopharmacological recommendations

Like the results obtained by Su et al.²⁴, over the 10-year-period of our investigation the prescription of sec-

ond-generation antipsychotics also showed a remarkable increase. Since the 1990s, atypical antipsychotic use has expanded considerably, presenting a huge rise in prescriptions. In CLP, like in general psychiatry, off-label prescribing is common and gives clinicians scope to treat patients who are refractory to standard therapy or where there is no licensed medication for an indication^{39,40}. In the last years both heroin entrants and injecting have declined in importance⁹. We also found that at the end of the 10-year-period methadone and other opiates were rarely prescribed.

Limitations and generalisability

The primary and most inherent shortcoming of single-centre studies is their potentially limited external validity. Factors like the wide variability of mental health organization settings or the inherent particularities of the different CLP services around the world may reduce the generalization of our results to all the CLP hospital units. Any comparison to be done between the previous research and ours, should take into account the different methods used and the wide variety of patients included. It is difficult to comment on hospital factors that might influence the generalisability of research. We have tried to minimize the impact of these factors following the guidelines and consensus statements proposed by the reference associations in the field of CLP (EACLPP, APM and ECLW)^{6,13,14}.

CONCLUSIONS

Despite the continuous evolution and changes of several factors in the last two decades, like the health care systems, the clinical practice of CLP services has been quite stable over time. However, results demanding psychiatric approaches, such as increasing neoplasms, as well as increasing suicide attempts, higher use of atypical antipsychotics, or lower use of opioids, support the idea of a non-static specialty. Regardless of medical diagnoses, the primary focus of liaison psychiatrists' intervention remains the treatment of clinical manifestations of delirium, adaptive/mood disorders and substance-related disorders. We consider that studies like ours are very useful to describe the CLP activity that takes place in tertiary care hospitals and to standardize the clinical procedures.

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