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Hospital indicators by Regional Communities, 1980-2004 (Longitudinal analysis of morbidity indicators and hospital staffing in mental health)

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Introduction. Comparative analysis by Spanish Regional Communities (RC) of indicators related to morbidity and staffing in psychiatric care hospital over a period of time (1980-2004) marked by the initiation and development of deinstitutionalization policies and handover of powers to RC.

Method. Longitudinal study. Descriptive analysis of variables, broken down by RC, related to psychiatric morbidity (ICD-9, codes 290-319) and indicators of hospital staffing over a 25-year period. Database source: Hospital Morbidity Survey, 1980-2004 and Statistics for care facilities providing in-patient care regime, 1980-2004.

Results. Differences between Regional Communities are substantial in all the analyzed variables: discharges, total and average stay, total and initial consultations, rate of psychiatrists in hospital care, number of beds and psychiatric hospitals. For all the Regional Communities as a whole, an increase is observed in hospital discharges, decrease of total and mean stays, notable increase of consultations, little increase in psychiatric staff in hospital care and stagnation in the decline of psychiatric hospitals and beds in operation in psychiatric hospital during the last period of time series and low increase in beds for the hospitals that are not classified as a psychiatric hospital.

Conclusions. We found evidence of qualitatively different care models between Regional Communities and substantial changes in major indicators over time series.

Key words:
Mental health. Reform in health hare. Hospital restructuring.

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Indicadores hospitalarios por Comunidades Autónomas, 1980-2004 (Análisis longitudinal de indicadores de morbilidad y dotación hospitalaria en salud mental)

Introducción. Análisis comparativo entre Comunidades Autónomas (CCAA) de indicadores asistenciales relativos a la morbilidad y dotación hospitalaria en la atención psiquiátrica a lo largo de un periodo de tiempo (1980-2004) marcado por el inicio y desarrollo de políticas desinstitucionalizadoras y traspaso de competencias a las CCAA.

Método. Estudio longitudinal. Análisis descriptivo de variables desagregadas por CCAA, relativas a la morbilidad hospitalaria por patología psiquiátrica (CIE-9, códigos 290-319) e indicadores de dotación hospitalaria a lo largo de un período de 25 años. Fuente de información: Encuesta de Morbilidad Hospitalaria, 1980-2004 y Estadística de Establecimientos Sanitarios en Régimen de Internado, 1980-2004.

Resultados. Las diferencias entre CCAA son sustanciales en todas las variables analizadas: altas, estancia total y media, consultas totales y primeras consultas, tasa de psiquiatras en atención hospitalaria, número de hospitales psiquiátricos y camas en funcionamiento. Para el conjunto de las CCAA, cabe destacar un incremento en las altas, descenso de las estancias totales y medias, incremento notable de consultas, escaso incremento de psiquiatras en atención hospitalaria y estancamiento en la disminución de hospitales psiquiátricos y camas en funcionamiento en hospital psiquiátrico durante el último período de la serie temporal, así como el escaso aumento de camas en funcionamiento en los hospitales no clasificados como hospital psiquiátrico.

Conclusiones. Encontramos indicios de modelos de atención cualitativamente diferentes entre CCAA y cambios sustanciales en los principales indicadores asistenciales a lo largo de la serie temporal.

Palabras clave:
Salud Mental. Reforma en atención de la salud. Reestructuración hospitalaria.

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INTRODUCTION

Improving mental health care is currently one of the challenges for the public health care system in the societies of our setting. This is a traditionally marginal setting that has not been given sufficient importance, considering the high prevalence of many of these diseases[1,2] and the high direct and indirect cost associated to these incapacitating and chronic conditions.

The systematic elimination of the insane asylum network, the institution that monopolized the care of persons with mental disease and other problems that were object of exclusion for centuries began around the middle of the 20th century because of the development of human rights and the appearance of antipsychotic drugs. Currently, an out-patient, assertive and community care model as well as therapeutic care that takes into account the needs derived from the lack of capacity associated to these diseases such as residential needs or those of social and work insertion is being proposed[3,4,5,6].

In 1986, the health care policy[7] was formulated through the General Health Care Law. This made it possible to explicitly begin a process of de-institutionalization or psychiatric reform in Spain[8,9,10] while transferring the responsibilities in health care material to the Regional Communities[11,12,13].

This present study offers the longitudinal analysis regarding the last 25 years for which statistical information is available (1980-2004) on a series of indicators regarding psychiatric care that makes it possible to reach better understanding on the differences, current situation and tendencies[14,15,16,17] in hospital psychiatric care in the different Regional Communities.

METHOD

Longitudinal study (1980-2004) to make a descriptive analysis of variables having national implications broken down by Regional Communities in Spain regarding hospital morbidity for mental conditions (ICD-9, codes 290-319) and principal indicators of hospital resources in the psychiatry area. The data have been broken down by Regional Communities and year of hospital discharge to facilitate the comparative analysis both in time and in Regional Community.

The time framework of the analysis in the present study covers a 25-year series (1980-2004) in order to make a longitudinal follow-up in a timeframe that includes the last period for which data are available. It also includes the years before the psychiatric reform was formulated and before health care competences were transferred to the Regional Communities of Spain. The time series has been divided into five 5-year periods to facilitate the date presentation.

The variables analyzed correspond to rates for discharges, total stays and average stays, total consultations and first consultations, psychiatric hospitals, bed operating per care area and care purpose and psychiatrists in hospital care per number of inhabitants.

The Hospital Morbidity Survey (EMH in Spanish) and Statistics for health care facilities providing in-patient care (EESRI in Spanish), both for the period going from 1980 to 2004 as information sources to conduct the present analysis.

The statistical information source used to obtain data regarding hospital resources and hospital consultations used in the present study was the Statistics for health care facilities providing in-patient care (EESRI in Spanish) that collects information on both public and private hospitals as well as general and monographic hospitals. It is the only statistical source that collects this type of information on a national level. Regarding the first consultations and available beds in operation, the EESRI does not provide data broken down by Regional Communities for such a long time series as that analyzed in the present study, so that only the data corresponding to the last 5-year period (2000-2004) are presented.

Both statistical sources, EMH and EESRI, collect information on hospital morbidity, both for public and private hospitals as well as general and monographic hospitals. To obtain data on hospital morbidity, the EMH, considered as the best to obtain information on hospital morbidity, was used.

The statistical sources that have served as information sources in this study use different methodologies. The EESRI is not a survey but rather a registry[18]. In this case, the information is collected through a self-completed questionnaire. A questionnaire that should be filled out by the hospital itself that contains questions on a series of parameters such as discharges in the different health care areas during a certain year was provided to the hospitals. The EMH[19] is a survey with a sample size/size of study object population ratio very close to 0.9. The EMH has a more complex methodology. Selection of the sample elements was conducted in two stages: in the first stage, the sample of hospitals was obtained and in the second one, the patients who had been discharged were selected. At present, the hospital sample represents 85% of the total of the hospital centers and the number of patients obtained from it is at about 4,200,000 persons, this accounting for 90% of all the hospital discharges that occur yearly in our country. The EMH collects information regarding hospital discharges caused in Spain from two information sources, the patient registry book for the private hospitals and the Minimum Basic Data Set for public hospitals. For the present analysis, only the discharges with a principal diagnosis coded with the values of ICD-9 ranging from 290-319 were selected. The database was broken down by Regional Communities and the values for the 25 years that have been analyzed in this study.

In order to study the magnitude of the differences between Regional Communities on their increase or decrease regarding the indicators presented herein, the coefficient of variation and its evolution over the time series were studied for those variables having available data because as previously indicated and is reflected in the results, we have no data for the complete time series for the EESRI (1980-2004). The calculations regarding the coefficient of variation were made after eliminating the data regarding Ceuta and Melilla as they had extreme values.

Both in the case of EMH and in the case of EESRI, the value of the variable was established at the time of discharge. The sum of the stays caused by a patient was calculated within the year during which the patient was discharged.

Finally, we have indicated that the data found in the frequency tables of the yearly reports of the Statistics for health care facilities providing in-patient care regarding beds in operation in the case of Cantabria lack coherence, since the beds that were functioning in psychiatric hospital exceeded those functioning for the complete psychiatric health care area.

All the rates are calculated for 10,000 inhabitants.

RESULTS

Discharges

Discharges have shown an increasing growth over the period of 1980-2004 for the national area as a whole. The national rate of discharges by psychiatric conditions (ICD - 9, codes 290-319) has gone from **20.91** per 10,000 inhabitants in the five-year period of 1980-1984 to **26.65** in the five-year period of 2000-2004, according to the data obtained from the Hospital Morbidity Survey (EMH).

The evolution of the discharge rates for each one of the Regional Communities and their current situation according to the data obtained from the EMH can be seen in table 1. As can be seen, almost all the Regional Communities have a growing trend in regards to discharges for psychiatric conditions. During the last five-year period, only the Canary Islands and Ceuta and Melilla have shown a significant decreasing trend. In a mitigated way, La Rioja and Murcia also seem to have a slightly decreasing trend in regards to the discharges during the last five years. The following Regional Communities are above the national rate of psychiatric discharges (26.65) calculated for the last five years of the time series: Aragón, Asturias, Baleares, Castilla León, Cataluña, Madrid, Navarra and the Basque country.

Table 1 **Rate of discharges per 10,000 inhabitants groups by 5-year periods and broken down by regional community. Study period 1980-2004**

Discharge rates	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
National rate	**20.91**	**22.32**	**22.82**	**26.19**	**26.65**
Andalucia	19.29	15.98	16.82	18.15	18.81
Aragon	17.40	21.44	24.48	26.29	27.50
Asturias (Principality of)	21.40	19.41	24.63	26.68	29.53
Balearic Islands	24.41	27.63	31.02	32.72	36.02
Canary Islands	23.96	29.21	36.18	38.70	22.67
Cantabria	20.18	26.52	17.42	18.84	19.42
Castilla y León	25.03	27.37	27.26	28.15	30.87
Castilla-La Mancha	10.63	13.28	16.59	18.10	19.92
Cataluña	22.97	24.46	28.11	35.45	35.46
Valencian Community	11.56	15.06	16.00	19.32	22.25
Extremadura	15.54	22.80	18.01	21.67	25.10
Galicia	14.08	17.46	19.75	24.59	24.81
Madrid (Community)	30.95	30.98	25.08	27.52	27.92
Murcia (Region of)	27.23	27.47	24.29	26.61	26.15
Navarra (Local C. of)	35.67	38.05	25.59	32.33	34.91
Basque Country	18.60	22.14	23.70	31.54	35.17
Rioja (La)	24.98	19.66	20.75	22.01	21.51
Ceuta and Melilla	56.38	78.50	70.42	54.08	24.17
Coefficient of variation	*0.31*	*0.27*	*0.24*	*0.24*	*0.22*

Source: EMH.

The differences in the discharge rate between the Regional Communities are significant. In the last five-year period (2000-2004), the range for the discharge rate was distributed between 18.81 for Andalusia and 36.02 discharges for 10,000 inhabitants of the Balearic Islands according to that seen in the data obtained from the EMH. The coefficient of variation between Regional Communities calculated for the discharge rate seems to follow a decreasing trend (fig. 1).

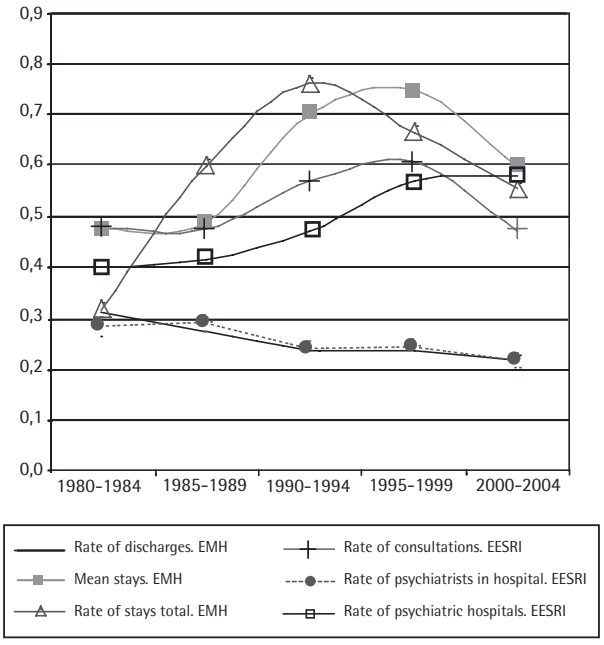

Figure 1 *Coefficient of Variation between Regional Communities (1980-2004), calculated for different variables. Source: EMH and EESRI.*

Average stays

The average stays for the complete national area has progressively and substantially decreased over the established study period. Truly important differences in the average stays are found between Regional Communities. As we can see in table 2, there is a wide range of distribution. According to the data obtained from the EMH for the last 5-year period (2000-2004), the range goes from between 10 days for discharge of Ceuta and Melilla or 13 days as a average for discharge for Asturias and 99 days for Cantabria for discharge due to psychiatric condition (ICD-9, 290-319). For the 5-year period of 2000-2004, the average stays on the national level were approximately 35 days according to the data obtained from the EMH.

The evolutive trend has been decreasing significantly during the study period (1980-2004).

Andalucía, Asturias, Balearic Islands, Valencian community and Castilla-La Mancha, Galicia, Madrid, Murcia and Ceuta and Melilla are below 35 days of stay for discharge, corresponding to the average stay calculated on the national level for the 5-year period of 2000-2004.

The coefficient of variation between Regional Communities for average stay for hospital discharge increased until the 5-year period of 1995-1999, when the value of the coefficient began to decrease, according to the data obtained from the EMH (fig.1).

The relationship between number of discharges and average stay is a partial reflection of the care model. To stress the differences between Regional Communities in regards to the relationship between indicators of morbidity attended presented herein, we give the example of the illustration corresponding to figure 2. This figure shows the discharge rate and average stay of each Regional Community obtained from the examination of the EMH data for the last 5-year period of the time series analyzed, 2000-2004.

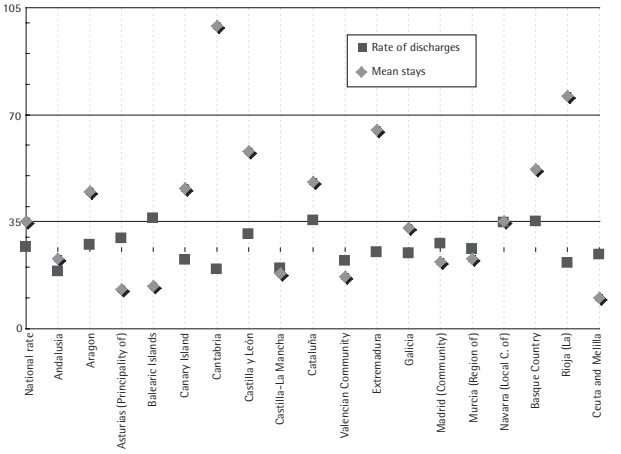

Figure 2 *Mean stay and rate of discharges by Regional Community, Period: 2000-2004. Source: EMH.*

Total stays

The analyses of the evolution of the rate of total stays (table 3) seem to indicate a significant decrease in the volume of persons seen in the hospital at a given time due to mental disease (ICD-9, 290-319).

There is a very wide distribution range for the rate of stay and the differences between Regional Communities are great. If we consider the results obtained through the EMH for the 5-year period of 2000-2004, the rate goes from 240

Table 2 Average stay per hospital discharge, grouped by 5-year periods and broken down by Regional Community. Study period 1980-2004

Mean stays	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
National rate	**154**	**127**	**118**	**63**	**35**
Andalucia	133	109	129	32	23
Aragon	293	291	189	99	45
Asturias (Principality of)	217	178	98	42	13
Balearic Islands	140	37	93	41	14
Canary Islands	56	92	129	46	46
Cantabria	182	136	197	218	99
Castilla y León	208	156	241	172	58
Castilla-La Mancha	429	157	97	32	18
Cataluña	148	122	117	82	48
Valencian Community	152	210	43	24	17
Extremadura	200	147	96	125	65
Galicia	188	95	81	52	33
Madrid (Community)	103	60	65	25	22
Murcia (Region of)	99	227	37	30	23
Navarra (Local C. of)	109	252	434	52	35
Basque Country	219	110	118	80	52
Rioja (La)	194	302	303	128	76
Ceuta and Melilla	15	20	10	8	10
Coefficient of variation	*0.47*	*0.49*	*0.70*	*0.75*	*0.60*

Source: EMH.

days of stay per 10,000 inhabitants in Ceuta and Melilla or 354 for Castilla la Mancha for the lowest values to 1918 for Cantabria or 1796 for Castilla León, for the highest stay rate. The following Regional Communities are found to be above the national average: Aragón, Canarias, Cantabria, Castilla y León, Cataluña, Extremadura, Navarra, Basque

Table 3 Rate of stay per 10,000 inhabitants, grouped by 5-year periods and broken down by regional community. Study period 1980-2004

Rate of total stays	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
National rate	**3,229**	**2,843**	**2,688**	**1,639**	**942**
Andalucia	2,563	1,748	2,165	577	426
Aragon	5,096	6,246	4,627	2,605	1,248
Asturias (Principality of)	4,640	3,457	2,424	1,120	383
Balearic Islands	3,409	1,015	2,877	1,330	494
Canary Islands	1,338	2,699	4,673	1,783	1,044
Cantabria	3,680	3,595	3,430	4,104	1,918
Castilla y León	5,217	4,267	6,555	4,834	1,796
Castilla-La Mancha	4,559	2,089	1,611	587	354
Cataluña	3,393	2,977	3,287	2,904	1,687
Valencian Community	1,758	3,158	689	461	389
Extremadura	3,106	3,348	1,735	2,702	1,637
Galicia	2,652	1,665	1,608	1,290	821
Madrid (Community)	3,193	1,870	1,619	701	613
Murcia (Region of)	2,694	6,247	900	793	592
Navarra (Local C, of)	3,874	9,581	11,096	1,667	1,227
Basque Country	4,069	2,432	2,808	2,520	1,814
Rioja (La)	4,853	5,934	6,296	2,812	1,636
Ceuta and Melilla	863	1,575	711	434	240
Coefficient of variation	*0.32*	*0.60*	*0.76*	*0.67*	*0.55*

Source: EMH.

Country and La Rioja. The remaining Regional Communities are below the national rate.

The EMH reflects an increase of the values of the coefficient of variation until the 5-year period of 1990-1994. In the subsequent 5-year periods, the value of the rate tends to decrease (fig.1).

Total consultations

The rate of total consultations in the psychiatry area grows exponentially in the territory as a whole (fig. 3). The national rate during the 5-year period 2000-2004 is at 646.63 per 10,000 inhabitants, almost twice that of the previous 5-year period. If we break the data down by Regional Communities, important differences are found. The range of total consultations by Regional Communities ranges from 168.28 in the Basque Country to 1,367.81 per 10,000 inhabitants in Murcia. Table 4 shows the differences in the rate of total consultations.

The rate of total consultations grows in all the Regional Communities, but not with the same intensity. The total consultations rate is also lower in the Regional Community that grows with the least intensity, standing out among these the Basque Country, Navarra and Asturias. On the other extreme, as can be seen in the table, are the Regional Communities of Madrid, Galicia or Murcia.

The coefficient of variation increased up to the 5-year period of 1995-1999, after which a decrease began.

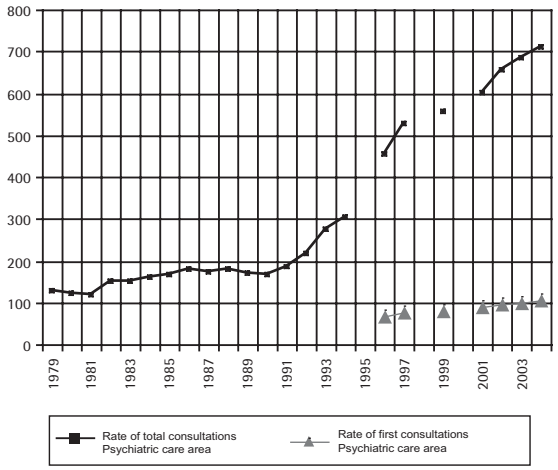

Figure 3 *Rate of total consultations and first consultations. Spain 1980-2004. Source: EESRI.*

Psychiatrist rates

In relationship to the rate of psychiatrists in hospital care (table 5), there has been a mild increase of the number of psychiatrists in the 25-year period. In the last 5-year period, the values have remained the same as that of the previous period, that is 0.56 per 10,000 inhabitants. The distribution range of the rate broken down by Regional

Table 4 **Total consultations, grouped by 5-year periods and broken down by Regional Community. Study period 1980-2004**

Rate of total consultations	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
National mean	**140.58**	**173.87**	**229.54**	**367.96**	**646.63**
Andalucia	88.05	106.31	178.28	734.03	567.57
Aragon	172.56	269.26	358.05	225.27	741.42
Asturias (Principality of)	139.57	93.96	108.82	498.70	258.35
Balearic Islands	93.48	143.88	178.50	616.47	549.72
Canary Islands	98.13	120.08	277.33	564.63	778.46
Cantabria	119.85	142.30	99.65	498.05	703.37
Castilla-La Mancha	125.72	160.07	367.22	604.97	605.06
Castilla y León	113.62	193.95	298.47	418.46	726.68
Cataluña	258.70	329.12	325.20	144.25	614.39
Valencian Community	61.21	110.63	107.30	362.14	457.97
Extremadura	39.82	49.13	132.87	763.23	434.36
Galicia	130.69	187.38	352.38	598.88	1.061.11
Madrid (Community)	206.99	202.64	250.56	1.110.28	841.86
Murcia (Region of)	98.76	100.97	193.15	169.95	1.367.81
Navarra (Local C. of)	178.97	183.38	93.66	131.99	246.78
Basque Country	117.27	101.39	55.03	2.89	168.28
Rioja (La)	28.05	71.24	19.70	604.32	544.61
Ceuta and Melilla	216.64	418.19	632.80	604.32	689.91
Coefficient of variation	*0.48*	*0.48*	*0.57*	*0.61*	*0.47*

Source: EMH.

Table 5 Rate of psychiatrists in hospital care, grouped by 5-year periods and broken down by Regional Community. Study period 1980-2004

Rate of psychiatrists in hospital care	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
National rate	**0.42**	**0.44**	**0.51**	**0.56**	**0.56**
Andalusia	0.32	0.37	0.49	0.54	0.55
Aragon	0.39	0.46	0.56	0.64	0.76
Asturias (Principality of)	0.38	0.35	0.40	0.33	0.35
Balearic Islands	0.46	0.66	0.65	0.64	0.55
Canary Islands	0.48	0.51	0.58	0.66	0.54
Cantabria	0.36	0.35	0.47	0.58	0.63
Castilla -La Mancha	0.28	0.30	0.42	0.41	0.45
Castilla y León	0.47	0.53	0.56	0.63	0.61
Cataluña	0.60	0.61	0.64	0.72	0.76
Valencian Community	0.32	0.25	0.25	0.30	0.41
Extremadura	0.16	0.18	0.30	0.31	0.40
Galicia	0.33	0.42	0.56	0.63	0.58
Madrid (Community)	0.53	0.52	0.64	0.65	0.55
Murcia (Region of)	0.36	0.46	0.47	0.62	0.44
Navarra (Local C. of)	0.61	0.50	0.39	0.52	0.50
Basque Country	0.38	0.43	0.43	0.52	0.47
Rioja (La)	0.38	0.42	0.46	0.55	0.50
Ceuta and Melilla	0.38	0.47	0.54	0.41	0.40
Coefficient of variation	*0.28*	*0.29*	*0.24*	*0.24*	*0.22*

Source: EMH.

Communities goes from 0.35 in Asturias to 0.76 psychiatrists per 10,000 inhabitants in Catalonia, this being a very important difference. Galicia, Castilla León, Cantabria, Aragón and Catalonia are above the average. The lowest rates correspond to Asturias, Extremadura, Ceuta and Melilla or the Valencian Community.

The coefficient of variation decreases over the period analyzed.

Psychiatric hospitals

In table 6, the rate of psychiatric hospitals per 10,000 inhabitants can be seen. We have wanted to accompany the values of the rates of the number of psychiatric hospitals with the values in absolute terms (meaning the number of psychiatric hospitals for the corresponding 5-year period).

The national rate has decreased over the period studied, especially in the 5-year periods of 1985-1989 and 1990-1994. A growing trend in the rate of psychiatric hospitals has only been found for the Basque Country for the entire period studied. The absolute values, and not the rate of psychiatric hospitals, would also reflect an increase of psychiatric hospitals in Navarra, in the Valencian Community and in Catalonia. The trend in regards to the rate for the remaining communities during the last 5-year period of 2000-2004 is also downwards.

The range in the rate of psychiatric hospitals by Regional Communities is also very wide. Thus, for example, Andalusia has a rate with a value of 0.008 and Navarra with 0.071 psychiatric hospitals per 10,000 inhabitants

The coefficient of variations of the rate of psychiatric hospitals increases over the time series.

Bed in operation and first consultations

We do not have the data in relationship to the beds in operation and first consultations (table 7) for the 25-year time series broken down by Regional Communities. Thus, we only present the data for the last 5-year period of 2000-2004.

There are large differences regarding the beds in operation in the Regional Communities. The range of the distribution of the beds in operation in the psychiatric care area is between 1.52 for Ceuta and Melilla or 1.62 for Murcia as the lowest values, to 9.83 for Castilla Leon, as maximum value. There is also an elevated range of values for the beds in operation in psychiatric hospital: Ceuta and Melilla have a null value, Asturias 1 bed per 10,000 inhabitants and on the opposite extreme, Cantabria has 8.96 beds in psychiatric hospital per 10,000 inhabitants. Finally, the data regarding beds that are not located in a psychiatric hospital also show significant differences. The range could not be greater: from 0.45 for Extremadura to 2.9 in the case of Galicia. As we have already mentioned in the section regarding the methodology of the present article, the data regarding the beds in operation in the case of Cantabria lack coherence, and there is a negative number in table 7.

Table 6 Rate of psychiatric hospitals, grouped by 5-year periods and broken down by Regional Communities. Presented between brackets is the annualaverage 5-year period of the number of psychiatric hospitals in absolute terms. Study period 1980-2004

Rate of psychiatric hospitals and number of psychiatric hospitalsin absolute terms	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
National rate	**0.036 (138)**	**0.028 (107)**	**0.023 (91)**	**0.022 (87)**	**0.021 (87)**
Andalucia	0.019 (12)	0.018 (12)	0.008 (6)	0.007 (5)	0.008 (6)
Aragon	0.050 (6)	0.057 (7)	0.050 (6)	0.050 (6)	0.049 (6)
Asturias (Principality of)	0.035 (4)	0.036 (4)	0.035 (4)	0.028 (3)	0.022 (2)
Balearic Islands	0.015 (1)	0.015 (1)	0.014 (1)	0.013 (1)	0.011 (1)
Canary Islands	0.023 (3)	0.028 (4)	0.027 (4)	0.022 (4)	0.022 (4)
Cantabria	0.047 (2)	0.038 (2)	0.038 (2)	0.038 (2)	0.037 (2)
Castilla-La Mancha	0.035 (6)	0.035 (6)	0.031 (5)	0.028 (5)	0.025 (4)
Castilla y León	0.037 (10)	0.039 (10)	0.039 (10)	0.035 (9)	0.031 (8)
Cataluña	0.028 (17)	0.024 (15)	0.021 (13)	0.021 (13)	0.022 (15)
Valencian Community	0.013 (5)	0.014 (5)	0.011 (4)	0.014 (6)	0.013 (6)
Extremadura	0.019 (2)	0.019 (2)	0.019 (2)	0.019 (2)	0.019 (2)
Galicia	0.043 (12)	0.044 (12)	0.038 (10)	0.029 (8)	0.022 (6)
Madrid (Community)	0.037 (17)	0.027 (13)	0.019 (9)	0.016 (8)	0.016 (9)
Murcia (Region of)	0.021 (2)	0.020 (2)	0.019 (2)	0.018 (2)	0.018 (2)
Navarra (Local C. of)	0.059 (3)	0.058 (3)	0.057 (3)	0.075 (4)	0.071 (4)
Basque Country	0.035 (8)	0.037 (8)	0.038 (8)	0.042 (9)	0.043 (9)
Rioja (La)	0.039 (1)	0.038 (1)	0.038 (1)	0.038 (1)	0.036 (1)
Ceuta and Melilla	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Coefficient of variation of rates of psychiatric hospital	*0.40*	*0.42*	*0.47*	*0.57*	*0.58*

Source: EESRI.

The first consultations had even greater differences. The lowest value corresponds to the Basque Country with 16.89 first consultations per 10,000 inhabitants. Ceuta and Melilla and Murcia have the highest values with rates of 205.65 and 100.88, respectively. The total consultations for first consultations ratio is 6.70, as can be seen in the last column of table 5. Ceuta and Melilla and Castilla-La Mancha have the lowest values, 3.35 and 4.72, respectively. Catalonia has the highest value, 8.99.

We have to give special attention to some of the data on a national level that is of great interest because of its meaning in regards to the care model adopted and the situation of the current psychiatric care. Thus, for example, we observed that four out of every five beds that are operating for the combination of the care area are located in psychiatric hospital. We stress the elevated rate of first consultations since almost 1% of new consultations occur every year in psychiatry. Almost 1% of the population comes to a psychiatric consultation. We can also see (table 4 and fig. 3) how the total consultations have experienced an important growth since 1991. In the period ranging from 1996 to 2004, the first consultations have multiplied by 1.56 and the total ones by 1.57. In 1996, there were 6.63 total consultations for first consultation. In 2004, there were 6.68 total consultations for first consultation in the psychiatric area.

CONCLUSIONS

From the data presented in this study, we can make an interpretation on the evolution of these variables on the national level (fig. 4). The progressive increase in the rate of discharges and parallel decrease in the average stays and the volume of total stays per psychiatric condition (ICD 9, 290-319) stand out. The relationship between these variables seems to be clearly shaped on the national level although it would be necessary to study readmissions to determine exactly what the relationship is between these indicators.

It is important and interesting to observe how the relationship between discharge rates and those of averages stay differs considerably between the Regional Communities when a priori (fig. 2) and because of the data analyzed in complementary longitudinal analysis in other research line that we are performing, we observe that there is an inversely proportional relationship between average stay and rate of admissions on the national level during the time series. However, not only is no proportional relationship for these variables maintained as that indicated for the national level between the different Regional Communities, but a low averages stay does not imply a high rate of admissions in many cases. This would indicate the existence of some qualitatively different care models between Regional Communi-

Table 7 **Rate of beds operating and first consultations. grouped by 5-year periods and broken down by Regional Community Study period 2000-2004**

	Beds operating in hospital		Beds operating in psychiatric hospital		Beds operating in non-psychiatric hospital		First consultations in health care site hospital		Total consultations per first consultation	
	Rate	*Proportion between Regional/ National rate*	*Rate*	*Proportion between Regional/ National rate*	*Rate*	*Proporción between Regional/ National rate*	*Rate*	*Proporción between Regional/ National rate*	*Rate*	*Proporción between Regional/ National rate*
Andalucia	2.21	*0.45*	1.45	*0.36*	0.76	*0.84*	90.32	*0.94*	6.28	*0.94*
Aragon	8.27	*1.68*	7.32	*1.82*	0.96	*1.06*	96.50	*1.00*	7.68	*1.15*
Asturia	1.80	*0.37*	1.00	*0.25*	0.80	*0.89*	30.39	*0.31*	8.50	*1.27*
Balearic Islands	3.71	*0.75*	2.86	*0.71*	0.86	*0.95*	93.59	*0.97*	5.87	*0.88*
Canary Islands	3.38	*0.69*	2.02	*0.50*	1.36	*1.51*	124.71	*1.29*	6.24	*0.93*
Cantabria	6.37	*1.29*	8.96	*2.23*	-2.59	*-2.88*	110.65	*1.15*	6.36	*0.95*
Castilla-La Mancha	3.44	*0.70*	2.81	*0.70*	0.63	*0.70*	128.30	*1.33*	4.72	*0.70*
Castilla y León	9.83	*2.00*	8.12	*2.02*	1.71	*1.90*	102.03	*1.06*	7.12	*1.06*
Cataluña	7.66	*1.56*	7.02	*1.75*	0.64	*0.71*	68.35	*0.71*	8.99	*1.34*
Valencian C.	1.93	*0.39*	1.19	*0.30*	0.74	*0.82*	70.67	*0.73*	6.48	*0.97*
Extremadura	8.59	*1.74*	8.14	*2.02*	0.45	*0.50*	83.48	*0.86*	5.20	*0.78*
Galicia	4.45	*0.90*	1.55	*0.39*	2.90	*3.21*	178.68	*1.85*	5.94	*0.89*
Madrid	4.67	*0.95*	4.10	*1.02*	0.57	*0.63*	121.15	*1.26*	6.95	*1.04*
Murcia	1.62	*0.33*	1.12	*0.28*	0.49	*0.55*	200.88	*2.08*	6.81	*1.02*
Navarra	6.87	*1.39*	5.36	*1.33*	1.51	*1.67*	31.98	*0.33*	7.72	*1.15*
Basque Country	9.59	*1.95*	8.70	*2.16*	0.90	*1.00*	16.89	*0.17*	9.96	*1.49*
Rioja (La)	7.37	*1.50*	6.44	*1.60*	0.93	*1.03*	97.11	*1.01*	5.61	*0.84*
Ceuta and Melilla	1.52	*0.31*	0.00	*0.00*	1.52	*1.69*	205.65	*2.13*	3.35	*0.50*
National rate	**4.92**	*1.00*	**4.02**	*1.00*	**0.90**	*1.00*	**96.53**	*1.00*	**6.70**	*1.00*

Source: EESRI.

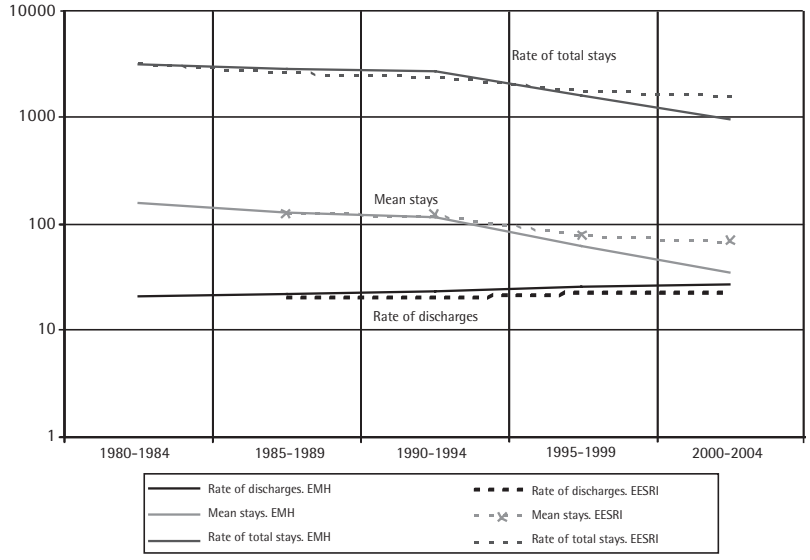

Figure 4 *Rates of discharges, total and mean stays. Spain 1980-2004. Source: Statistics for Health Care Facilities providing Inpatient Care (EESRI) and Hospital Morbidity Survey (EMH).*

ties. As work hypothesis, we manage the possibility that under certain conditions, some very different care regimes are being developed although the differences we have observed in the relationship between the average stays and discharges could also be mediated by some very different readmission levels.

These work hypotheses should be examined in future works to determine the behavior and differential weight of the variables of readmission, total stays and average stays between the Regional Communities. In our opinion, they may constitute future research lines of interest.

In relationship to the consultations seen in hospital, we observe an extraordinary increase of the total consultations during the last two decades. This growth, that began in the decade of the 1990s, is accompanied by an equal increase in the proportion of first consultations. During the last decade for which data is available, both the first consultations as well as total consultations have increased yearly by 6%. In addition to having a high annual increase, we stress the elevated value of these rates[20,21,22]. Almost 1% of the population comes to the psychiatric service in first consultation per year. In spite of this, we stress the limited increase of psychiatrists in hospital care per inhabitant over the time series.

The stagnation of the decrease of psychiatric hospitals and elevated rate of beds that are operating in the psychiatric hospital compared with the rate of beds that are operating in hospitals that are not classified as psychiatric ones (table 7) suggest an important dependence of the psychiatric hospital[23] on mental health care[24,25,26].

There are substantial differences between Regional Communities in all the variables analyzed[27, 28]: discharges, average stays, total stays, total consultations and first consultations, number of psychiatrists in hospital care per inhabitant, psychiatric hospitals in beds that are operating both for psychiatric hospital as well as for the psychiatric care area in hospitals. The distribution range for these variables broken down by Regional Communities is very extensive, the rate for certain Regional Communities may represent elevated multiples of the national rate. The data we present in the results refer to the historic evolution in these indicators broken down by Regional Communities, stressing the last five year period of the time series.

The evolution of the values of the coefficient of variation for the variables analyzed in this study cannot be interpreted as a mere reflection of the increase or decrease in the differences between Regional Communities in regards to the psychiatric care model, but this is still an indicator of the relative value when we study these differences and their evolution during the time series in regards to the variables analyzed herein. The coefficient of variation (fig. 1) reflects a decrease in the value of dispersion between these indicators in regards to the total stays and average stays during the last period analyzed. During the first 5-year periods of the series, the coefficient of variation for the stays progressively increased. A similar behavior was found in the coefficient of variation of the total consultations that increased during the first half of the time series and suffered a decrease during the last decade. The coefficient of variation of the discharges has been decreasing over the total time series analyzed that is less important than in the case of the coefficient of variation of the stays during the last period of the time series analyzed. We have also observed a decreasing trend in the rate of psychiatrists in hospital care that is very similar to the previous in regards to the evolution of this dispersion value. The coefficient of variation for the rate of psychiatric hospitals suffers an increase during the time series analyzed that tends to become stabilized in the last 5-year period.

We could state that although the values of the coefficient of variation are high in the global aspects and that the current trend to increase continues in some of them (rate of psychiatric hospitals), we have also observed a decrease in many of the previously specified variables (discharge rate, total stay rate, means stays, total consultation rate and rate of psychiatrists and hospital care). We stress that this does not necessarily mean that the care models are becoming more homogenous. However, it is obvious that the dispersion values indicate a trend to present less variability between Regional Communities during the last 5-year periods for the hospital indicators mentioned.

The content in methodology used in the statistical sources employed in this study were carefully studied and the Hospital Morbidity Survey was selected as the best source of information for the analysis of hospital morbidity, that is, of the hospital discharges and stays. We must indicate in this regards that the results obtained from one statistical source and another (EMH and EESRI) do not coincide, but they maintain a constant ratio on the national level in regards to the discharges over the entire time series and regarding the stays until the last decade analyzed. The differences between the data coming from one information source and another are greater regarding the stays occurring during the 5-year period of 1995-1999 and very especially during the 5-year period of 2000-2004.

Statistics for health care facilities providing in-patient care (EESRI) also reflect a increase of hospital discharges but shows values that are maintained below those obtained from the EMH. The difference on a national level between the data from one statistical source and the other (EMH and EESRI) maintained a stable ratio over the series (values obtained in the EESRI/values obtained in the EMH = 0.9). In the last 5-year period of the series, 2000-2004, the rate of hospital discharges in the area of psychiatric care is 23.3 per 10,000 inhabitants according to the data obtained in the EESRI, while the EMH presents a higher rate of 26.65 for this same 5-year period. The Regional Communities below or above the national rate coincide when we compare the data coming from one statistical source and the other, that is, both information sources show that the same Regional Communities are below the national rate. Although the Re-

gional Communities that are above or below the national rate coincide, they do not coincide with the same values nor do they occupy the same position in an ascending or descending distribution in regards to the discharges rate.

We have indicated that there is an important discrepancy regarding the total stay values and consequently also in regards to the average stays between the two statistical information sources used in this study (EESRI and EMH) during the last two 5-year periods of the time series and specifically during the 5-year period of 2000-2004. The ratio between the values of one source and the other remained stable during the previous 5-year periods. Thus, for example, even though the values of the average stays are very similar between the EMH and EESRI during the first 5-year periods of the time series analyzed (during the 5-year period of 1985-1989, the average stay is 127 in both sources), the average stays on the national level for the 5-year period of 2000-2004 are at 35 days according to the data obtained from the EMH and 69 days if we consider the results obtained using the EESRI information source. In relationship to the total stays, we must indicate that the ratio between the rates obtained from one statistical source and the other really remained stable during the first three 5-year periods with an approximate value of 0.9, which is very similar to that observed between the discharges. However, during the 5-year period of 1995-1999 and 2000-2004, there was an important differentiation between both databases in regards to the total stays (and consequently the average stays) that are calculated in greater degree in the EESRI. In the last 5-year period, the ratio indicated almost doubled its value in regards to the previous 5-year periods (values obtained from EESRI/values obtained from EMH = 1.7). On the national level, between 1980-1984, the national rate had elevated values of stays that were very similar in both information sources: EMH (3,229) and EESRI (3,323). Finally, following the 5-year period of 1990-1994, the rate began to show a very important decrease, as shown by both statistical sources. However, we have observed a significant discrepancy between the two information sources (fig. 4). The rate of total stays in the EESRI is much greater than in the EMH in the last period of the series. This, in turn, explains the differences between averages stays when we use one source of information or the other. The rate of total stays for the last 5-year period is 942 according to the EMH and 1615 if we consider the data provided by the EESRI.

The range of distribution by Regional Communities presented by the data obtained from the EMH is very extensive. The EESRI reflects distribution ranges of the morbidity variables that are just as wide. Thus for example, if in the last 5-year period (2000-2004), the discharge rate range is distributed between the 18.81 for Andalusia and 36.02 for the Balearic Islands as shown by the data obtained from the EMH, and the range shown by the EESRI has a very similar amplitude. In the lower limit, there is Cantabria (16.0) and in the upper one Navarra (34.4). In relationship to the average stay, the distribution range by Regional Communities is even greater when considering the results that we can obtain from the EESRI. During the last 5-year period (2000-2004), according to the data obtained from the EMH, the range goes from between 10 days per discharge for Ceuta and Melilla or 13 days as average for discharge in Asturias and 99 days for Cantabria for discharge due to psychiatric disease (ICD-9, 290-319). According to the data obtained in the EESRI, the range would go from nine days in Ceuta and Melilla or 23 days in the case of Asturias and Murcia in the lower limit and 131 for Cantabria in the upper limit. If we consider the results obtained through the EMH in relationship to the rate of total stays, the range of distribution ranges from 240 day of stay per 10,000 inhabitants in Ceuta and Melilla or 354 for Castilla la Mancha as the lowest values to 1918 for Cantabria or 1,796 for Castilla Leon that have the highest rates of total stay. According to the data obtained, the range would be even greater in the EESRI than in the EMH in regards to rate of stays. The EESRI shows that the values during the last 5-year period ranges from 245 for Ceuta and Melilla or 530 days of stay per 10,000 inhabitants in the case of Murcia, for the lower limits of the range, to 3,356 for the Basque Country or the 3,243 for Castilla Leon, which has the highest values in the distribution of stays rate.

In any case, we must stress that the same Regional Communities are found above the national average in regards to discharges and average and total stays regardless of the statistical source used. In addition, both statistical sources show an increase in discharges and reduction of total and average stays (fig. 4).

We should indicate that bias could be easily introduced into the data obtained from EESRI according to the methodology used in the data collection of this registry. This is because while an active search is made of the data that will shape the statistics based on two baseline documents (registry book, fundamentally for the private hospitals and CMBD, for the public hospitals) in the EMH, the EESRI only uses some questionnaires filled out by the hospital itself.

In regards to the average stays, the coefficient of variation reflects a similar behavior regardless of whether one source of information or the other is used when calculating the value dispersion for this indicator. There is an increase at the beginning of the period and decrease in the second half of the period studied. In relationship to discharges, the coefficient of variation shows a moderately decreasing trend according to the data obtained from the EMH, a trend that becomes less after the 1990's since after that time the rate decreases very slowly, going from 0.24 in the 5-year period of 1990-1994 to 0.22 in the 5-year period of 2000-2004. As in the case of the coefficient of variation of the discharges calculated based on the data obtained from the EMH, the coefficient of variation from the rates of discharge calculated from the data provided by the EESRI reflect a moderate decrease of the variability until 1990-1994. In this 5-year period, the coefficient of variation calculated from the EESRI has a value of 0.25. After this decade, the coefficient of variation has been stable, neither growing nor decreasing, with a value of 0.26 over the last

two decades. In the coefficients of variations regarding total stays, a much greater discrepancy is observed between the dispersion values calculated in one statistical source or the other. The EMH reflects an increase of variability until the decade of 1990-1994 and they decrease after that, while the coefficient of variation calculated from the EESRI data show an increase over all the period. In spite of the discrepancy in the trend and evolution of the dispersion indicators calculated from one statistical source or the other, the coefficient of variation values for the last period of 5-years practically coincide, regardless of one source or the other. When the calculations are made from the data provided by the EESRI, the coefficient of variation during the 5-year period of 2000-2004 is estimated at 0.56. When the calculations are made from the data provided by the EMH, the coefficient of variation during the 5-year period of 2000-2004 is estimated at 0.55. In this sense, the data would be very similar independently of the information source used. However, as indicated previously, the trend shown between one source and the other is different.

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