



ORIGINAL ARTICLE

Depression in internal medicine inpatients at the time of hospital discharge and referral to primary care



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Abstract

Background and objectives: This is the first multi-center study intended to document the prevalence, characteristics, and associations of depression in Medicine patients at the time of hospital discharge and their referral to Primary Care (PC).

Methods: Adult patients randomly selected among consecutive admissions to Medicine wards in 8 hospitals in Spain, covering health districts, were examined in a two-phase 'case-finding'

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Primary care

procedure. Standardized, Spanish versions of instruments were used, including the Standardized Polyvalent Psychiatric Interview (SPPI) and Cumulative Illness Rating Scale (CIRS). Cases of depression were diagnosed according to ICD-10 general hospital research criteria.

Results: Three hundred and twelve patients with treatable depression and 777 non-depressed controls were identified. In a conservative estimate, the global prevalence of major depression was 7.1%, dysthymia 4.2% and adjustment depression 7.1%, and 51.9% of cases were of moderate/ severe intensity. Depression was more frequent in women, the differences being significant in all categories of depression. The prevalence of depression was lower in individuals aged 85 or more years, the differences being significant in cases of both dysthymia and adjustment depression. A clear pattern of decreasing prevalence with age was observed in women. The depressed had as an average five medical systems affected, and higher CIRS scores compared with the controls, the differences being significant in cases of both major depression and dysthymia.

Conclusions: This is the first report showing a considerable prevalence of treatable cases of depression in Medicine patients at the time of hospital discharge and referral to PC. Depression is associated with the severity of the medical condition, and differences observed by age and sex have clinical implications. Paper read at the 3rd Annual Meeting of the European Association of Psychosomatic Medicine, Nuremberg 2015.

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Introduction

Classical studies have documented a high prevalence of depression in medical inpatients, and some include a considerable rate of major depressive disorder,¹ although other studies suggested that subthreshold depression is very common in this setting.² A considerable prevalence of depression has similarly been reported in many specific medical conditions.³ While most of these studies describe the association between depression and medical morbidity, some also suggest that medical illness is a risk factor for depression.⁴ One limitation in interpreting the available research relates to the wide discrepancy observed in the prevalence rates reported, ranging from 8% to 50%.³ Although regional or national differences may be at play to explain the differences,⁵ methodological dissimilarities between studies hamper a general conclusion. One of the difficulties observed relates to the valuation methods used, and exceedingly high rates of depression have been reported in some studies with assessment methods limited to screening-type questionnaires.⁶ Therefore, more comprehensive valuation is recommended, including two-phase case-finding techniques.⁷

The relevance of depression in medical patients is supported by outcome studies showing that it impairs health-related quality of life and is associated with increased costs,⁸ decreased compliance with medical treatment,³ and impairment of the outcome of medical conditions.⁹ Particularly relevant is the fact that depression has been linked with higher mortality rates in different medical illnesses, and the increased mortality rate persists when controlling for different risk factors, which include both biological factors and unhealthy behaviours.¹⁰ Moreover, clinical depression in the medically ill is one of the main factors in the so-called “complex” medical patients.¹¹ From the clinical perspective, it is important to note that depression in medical patients is often undetected,³ although the treatment may be efficacious.¹² Even some nursing studies have likewise underlined the relevance of identifying and treating depression in medical settings.¹³

Since depression has been associated with medical morbidity, even as a risk factor,⁴ it would be expected that improvement of the medical illness has a positive effect on depression. However, most studies have been conducted at the time of hospital admission or during hospitalization, and we have not found available information on depression at the time of hospital discharge when presumably the physical health would have improved. Such information could have particular implications for primary care, PC, since most patients are tracked by the family physician either or not they are also followed in mental health clinics.

Depression is similarly very common in PC,^{14,15} and the risk of depressive episodes in this setting rises with the number of comorbid medical diseases.^{16,17} However, recognition and treatment of patients with depression in PC may be substantially below the standards set by practice guidelines,¹⁸ and little change in the patterns of care were observed even years after the epidemiological evidence, which included data on the increased health care costs¹⁹ and other negative implications of depression, were widely available.^{20,21}

In this background of insufficient information, a multi-center, longitudinal project was designed to document at the time of discharge of medical inpatients the size and characteristics of depression, as well as the outcome of patients followed up in PC. The present study is the first report in this project, and was intended to document the prevalence of depression and type of depression at that specific time, and to test the hypothesis that differences by sex and age would be observed. We also tried to confirm the association of depression with the severity of the medical condition.

Methods

Design of the study

The general project was a longitudinal, randomized, blind to the observer, comparative study between depressed medical patients at the time of hospital discharge to Primary Care,

and patients without psychiatric co-morbidity. The present study, Part I of the longitudinal project, concerns the assessment of patients at the time of discharge. Part II refers to the follow-up of patients in PC and will be eventually reported.

The study was carried out by members of the *Spanish Research Network in Liaison Psychiatry and Psychosomatics (REPEP)*.²² Data from this investigation have been presented in several national and international meetings. The study was conducted from January 2004 through December 2006 in 8 different general, public hospitals of the national health system covering a health district in Spain. All of them were also university hospitals: Hospital Clínico Universitario, Zaragoza (coordinating center); Hospital Universitario Ramón y Cajal, Madrid; Hospital Universitario Doce de Octubre, Madrid; Hospital Universitario del Mar, Barcelona; Hospital Universitario Miguel Servet, Zaragoza; Hospital Clinic, Barcelona; Hospital General Universitario de Alicante; Hospital Universitario de la Princesa, Madrid. The Hospital Universitario Dexeus, a private Foundation hospital, participated in the study but their patients have not been incorporated in the analysis.

Consecutive patients admitted to the internal medicine wards of the participating hospitals both males and females, aged 18 or more years, were randomly selected at the time of admission for assessment in a two-phase, case-finding design.

Instruments

Socio-demographic variables (age, sex, marital status, living situation, working situation) were collected and the following instruments were used:

Hospital Anxiety and Depression Scale (HADS),²³ a self-administered scale with seven questions relating to anxiety and seven to depression.^{24,25} It has been suggested that the threshold in this scale indicating a significant clinical problem may be different depending on the medical sample. Therefore, a pilot study was previously completed, and a cut-off point ≥ 11 on the depression scale was selected for this particular study.

Examen Cognoscitivo Mini-Mental (Mini-Mental), the official Spanish version of Mini-Mental Status Examination (MMSE),^{26,27} the instrument for the screening of cognitive deficits in more widespread use internationally. The standard threshold point 23/24 was used in this study.

CAGE Scale, the instrument developed by Mayfield et al.^{28,29} and widely used for the screening of alcohol problems. The threshold used in this study to consider a "probable case" of alcoholism was 1/2, in correspondence with the literature. The use of other drugs was screened with a similar questionnaire, which was previously standardized in a pilot study.³⁰

Standardized Polivalent Psychiatric Interview, SPPI. This is a structured interview developed by our research group primarily for assessing medical patients.³¹ It was built on the Clinical Interview Schedule and is intended to evaluate individuals in a multi-axial schema: psychopathology, including duration and severity of disorder; somatic disturbance; social problems and social supports; and pre-morbid personality, with special emphasis on 'neuroticism'. The SPPI generates enough information to allow the use of different

research diagnostic criteria, including DSM-IV, ICD-10 and Goldberg's criteria of 'attribution' of somatic symptoms and 'relationships between psychiatric and physical disorder'. At the end of the interview, a psychiatric diagnosis is also coded. Finally, this interview also includes a section related to the recommended treatment. The instrument fulfills standards of feasibility, reliability, and validity, including procedural validity, which allows its use by researchers such as standardized primary care physicians.

Cumulative Illness Rating Scale (CIRS),³² an instrument designed to assess organic impairment in a reliable, brief, and easy-to-use way, has been successfully tested in medical inpatients.³³ It evaluates 13 categories or systems (heart, vascular, respiratory systems, etc.) each one scored from 0 (no impairment) to 4 (highest possible impairment). Careful training of interviewers was previously completed to follow the recommendations of the Spanish author.

Psychiatric diagnostic criteria. Psychiatric cases have been diagnosed according to both, the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-IV-TR, APA 2000) and the International Classification of Diseases, 10th Edition, Research Criteria. For the present study, we have used the modified version of ICD-10 for general hospital medical patients completed by the European, ECLW Workgroup.³⁴

Somatic diagnostic criteria. The medical condition has been diagnosed according to both, the International Classification of Diseases, 9th Edition (ICD-9-M), and the International Classification of Diseases for Primary Care (ICHPPC)³⁵ and the former has been used in the present study.

The following inclusion and exclusion criteria were used for the group of depressed patients: *Inclusion criteria*: a) Criteria for "caseness" in the Standardized Polivalent Psychiatric Interview (SPPI)³¹ (global score 2+). b) Diagnosis of depression in any of the following ICD-10 categories: "organic depression" (F06.3); "major depression" (depressive episodes F31, 32, 33); "adjustment depression" (34.1). *Exclusion criteria*: a) Any type of psychiatric co-morbidity with the following ICD-10 categories: dementia, delirium, other "organic" disorders different from depression; substance abuse disorders, schizophrenia group, mental retardation. b) Co-morbidity with other ICD-10 psychiatric categories (neurosis, personality disorder, etc.) only when these were the primary diagnosis. The severity of depression was categorized according to SPPI criteria (global score 2, 3, 4).

For the group of controls, non-cases, the patients were required to have no clinically relevant psychopathology (SPPI <2). Non-compliance, refusals, etc. were also exclusion criteria.

Procedure

The patients selected according to the criteria described in the sampling section were asked to sign a written informed consent according to Spanish laws, and their socio-demographic information was collected. Three days before discharge, once the internists informed their decision, the participating individuals were assessed in phase I by research workers, "lay interviewers" previously trained and standardized, with the Mini-Mental and CAGE and drug questionnaires. The patients considered to be probable cases of

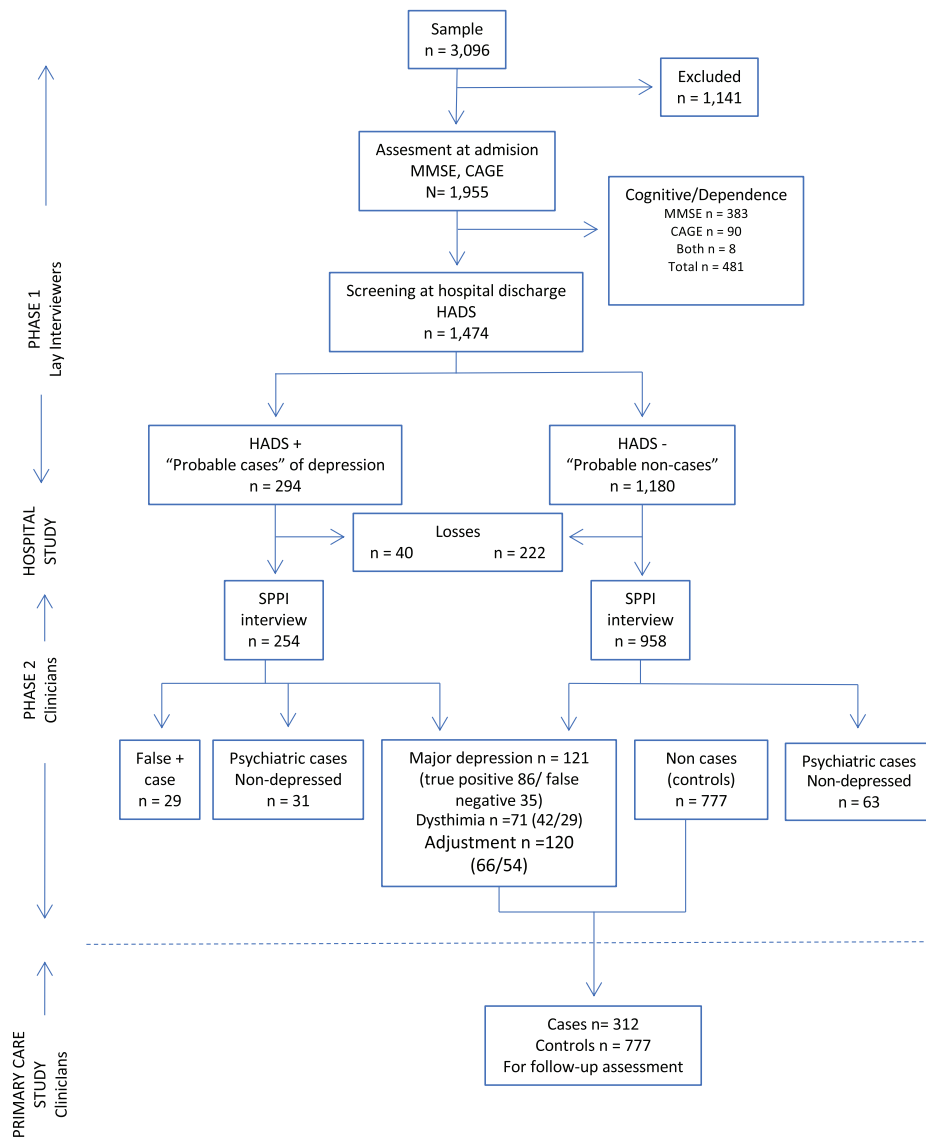


Fig. 1

cognitive deficits (Mini-Mental) and/or use of substances (CAGE) on the basis of scores on one or both instruments were excluded. The remaining individuals were then assessed with the HADS, to identify probable cases of depression and probable non-cases. In phase II, in the following 48 hours, all individuals were examined by clinicians standardized in the use of the SPPI interview. These clinicians were psychiatrists in training (residents), but also standardized family physicians since we have previously documented the procedural validity of the SPPI (Lobo *et al.* 1993). For a diagnosis of a “case” of depression or, on the contrary, a confirmation as a control; and to confirm that the patients fulfilled the inclusion and exclusion criteria, the interviewers were supervised by senior research psychiatrists, expert in the use of the SPPI in this setting.

Statistical analysis

Chi-square tests were used to assess differences between categorical variables, and t-test or Mann-Whitney U tests

were used for continuous variables according to the normality assumption. Statistical analyses were done with the SPSS version 21.0 (Chicago, IL, USA). All tests were two-tailed and statistical significance was set at $p < 0.05$.

Results

Fig. 1 shows that out of the 3,096 patients recruited, 1,141 were excluded because of the severity of the physical illness. Following the initial examination in Phase 1 of the hospital study, 1,955 patients were examined and 481 patients (24.6%) were also excluded because of low cognitive performance (MMSE criteria) or substance abuse (CAGE criteria). The HADS was given to 1,474 patients. Forty patients among high scorers in the HADS and 222 low scorers were lost (early discharge, refusal, etc.); since the former were preliminarily found to have symptoms consistent with depression and the false-negative rate in those initially assessed suggests that the percent with depression (and adjustment disorder)

Table 1 Demographic and clinical characteristics of the samples of depressed patients and controls.

Demographic characteristics	Total Sample (N=1693)	Controls (N=777)	Major depression (N=121)	Dysthymia (N=71)	Adjustment (N=120)
Age – years (mean)	72 ± 14.8	69.8 ± 15.1	70.6 ± 13.4	71.4 ± 12.8	71.9 (13.2)
Sex – no. (%)					
Female	916 (54.1)	359 (46.2)	79 (65.3) ^{***}	52 (72.3) ^{***}	74 (61.7) ^{**}
Marital status – no. (%)					
Single	162 (10.3) ^{**}	80 (10.5)	12 (10.0)	4 (5.8)	8 (6.7)
Married	820 (52.0)	454 (59.3)	67 (55.8)	35 (50.7)	69 (58.0)
Widowed	512 (32.4)	195 (25.5)	32 (26.7)	26 (37.7) [*]	37 (31.1)
Other	84 (5.3)	36 (4.7)	9 (7.5)	4 (5.8)	5 (4.2)
Missing	115	12	1	69	1
Educational level– no. (%)					
No studies	308 (22.4)	107 (15.6)	32 (29.6)	13 (21.0)	15 (14.3)
Primary incomplete	406 (29.5)	208 (30.3)	30 (27.8)	24 (38.7)	39 (37.1)
Primary complete	473 (34.4)	255 (37.1)	38 (35.2)	19 (30.6)	36 (34.3)
Secondary	114 (8.3)	68 (9.9)	4 (3.7)	2 (3.2)	8 (7.6)
Middle grade or higher	76 (5.5)	49 (7.1)	4 (3.7)	4 (6.4)	7 (6.7)
Missing	316	90	13	62	15

* p < 0.05.

** p < 0.01.

*** p < 0.001.

would be higher than indicated, the analysis was performed with 1693 individuals in the denominator (1955 minus 262 individuals lost). Two-hundred and fifty-four among the high scorers in the HADS, and 958 among the low scorers were examined by standardized clinicians using the SPPI interview.

Fig. 1 also shows that 121 cases of major depression (7.1%), 71 cases of dysthymia (4.2%), and 120 cases (7.1%) of adjustment depression were identified. Therefore, a total of 312 cases of depression or adjustment depression (18.4%) were identified, as well as 94 cases of psychiatric disorders different from depression. The 777 non-cases identified in phase 2 among the low scorers in the HADS were considered to be the controls for this study. Among the cases of depression or adjustment depression, 38 (12.2%) of them were scored as severe, 124 (39.7%) moderate and 150 (48.1%) mild.

Table 1 describes the demographic characteristics of the global sample, as well as the cases of depression and the non-depressed controls. The mean age of the full sample was 72 years. The patients diagnosed with depression were slightly older than the controls, but the differences were not statistically significant. The females predominated in the full sample (54.1%), and also among the cases of the three categories of depression or adjustment depression (65.3%; 72.3% and 61.7% respectively), their proportion being significantly higher than among the controls (46.2%), particularly among the two categories of depression ($p < 0.001$). Most individuals in the study were married or widowed. More than half the individuals both in the full sample and in all the categories of depression and adjustment depression had primary incomplete or no studies; among the controls, the proportion was slightly lower, but the differences were not statistically significant.

Table 2 shows the prevalence of the three categories of depression or adjustment depression and their distribution

by age and sex. It confirms that the prevalence of depression was lower in individuals aged 85 or more years, the rate being low in the three categories and particularly low in the cases of dysthymia, the differences by age being statistically significant (1.1%; IC 95% 0.0-2.4). Among the males, adjustment depression was significantly higher in the age group 65-74 years, and no significant differences were observed in the other two categories. Among women, a clear pattern of decreasing prevalence with age was observed in the three categories; the prevalence was significantly lower in both categories of depression in individuals aged 85+ years and was particularly low in the dysthymia subgroup (1.1%; IC 95% 0.0-2.6).

Table 3 shows the relationships between both types of depression and the adjustment depression category and the severity of physical illness measured by the CRSI. The number of medical systems affected in the patients with all diagnostic categories was higher than in the controls (4.4 ± 1.9), the differences being statistically significant in cases of major depression (4.9 ± 2) and dysthymia (5.5 ± 2.2) ($p < 0.05$). Similarly, the total score in the CRSI was significantly higher in the major depression (10.8 ± 4.5) and dysthymia cases (11.6 ± 5.1) than in the controls (9.6 ± 4.3) ($p < 0.05$).

Table 3 also shows the relationships between severity levels of depression ('mild', 'moderate', 'severe', SPPI scores 2, 3, and 4, respectively) and the severity of physical illness measured by the CRSI. Compared with the controls, the number of medical systems affected was significantly higher in all categories, the number increasing parallel to the severity of depression. Similarly, the total score in the CRSI was significantly higher in all categories of depressive symptoms categories, being highest in the category classified as 'severe' ($p < 0.001$).

Table 2 Prevalence of major depression, dysthymia and adjustment depression and distribution by age and sex.

	Major depression		Dysthymia		Adjustment	
	N	Prevalence % (IC 95%)	n	Prevalence % (IC 95%)	n	Prevalence % (IC 95%)
Total	121	7.1 (5.9 - 8.4)	71	4.2 (3.2 - 5.1)	120	7.1 (5.9 - 8.3)
< 65 years	30	8.1 (5.3 - 10.9)	14	3.8 (1.8 - 5.7)	19	5.1 (2.9 - 7.4)
65 - 74 years	34	8.1 (5.5 - 10.7)	19	4.5 (2.5 - 6.5)	45	10.7 (7.8 - 13.7)
75 - 84 years	47	7.4 (5.3 - 9.4)	35	5.5 (3.7 - 7.3)	44	6.9 (4.9 - 8.9)
>= 85 years	10	3.7 (1.5 - 6.0)	3	1.1 (0.0 - 2.4)*	12	4.5 (2.0 - 7.0)*
Men	42	5.4 (3.8 - 7.0)	19	2.4 (1.4 - 3.5)	46	5.9 (4.3 - 7.6)
Women	79	8.6 (6.8 - 10.4)	52	5.7 (4.2 - 7.2)*	74	8.1 (6.3 - 9.8)
Men						
< 65 years	9	4.1 (1.5 - 6.7)	3	1.4 (0.2 - 2.6)	6	2.7 (0.6 - 4.9)
65 - 74 years	12	5.6 (2.5 - 8.6)	6	2.8 (1.2 - 4.4)	22	10.2 (6.2 - 14.2)*
75 - 84 years	18	7.1 (3.9 - 10.2)	9	3.5 (2.1 - 5.0)	14	5.5 (2.7 - 8.3)
>= 85 years	3	3.5 (0.0 - 7.4)	1	1.2 (0.0 - 2.4)	4	4.7 (0.2 - 9.1)
Women						
< 65 years	21	14.0 (8.4 - 19.6)	11	7.3 (3.2 - 11.5)	13	8.7 (4.2 - 13.2)
65 - 74 years	22	10.8 (6.6 - 15.1)	13	6.4 (3.0 - 9.8)	23	11.3 (7.0 - 15.7)
75 - 84 years	29	7.6 (4.9 - 10.2)	26	6.8 (4.3 - 9.3)	30	7.8 (5.1 - 10.5)
>= 85 years	7	3.9 (1.1 - 6.7)	2	1.1 (0.0 - 2.6)	8	4.4 (1.4 - 7.4)

* Statistically significant.

Discussion

The results of this first report show that 18.4% of individuals non-severely ill at admission to internal medicine wards were considered to have clinically significant depression (major or dysthymia) or adjustment depression at the time of discharge from internal medicine wards and referral to primary care. The study also supports the hypothesis that differences of prevalence by sex and age would be observed; and that the depressions are associated with the medical illness severity. Our study confirms the considerable prevalence of depression in medical patients,^{3, 36} but contrary to previous studies documents the size of the problem at the time of hospital discharge. Furthermore, differently from most previous reports, this one is a multi-center investigation of a large sample of patients coming from rather typical public hospitals covering health areas in the country, and

therefore gives some representativity of the problem in Spain. This may be important to eventually document national differences.⁵

This report documents a relevant clinical problem since the ‘cases’ of depression fulfilling SPPI criteria are considered to be in need of an intervention and more than half had symptoms of moderate or severe intensity. While adjustment reactions might be expected in this setting, we show that ICD-10 depressive episodes, similar to DSM-IV major depression, were as common. In fact, even sub-threshold forms of depression have been considered to need some action to prevent a poor outcome.^{2,37} Moreover, the prevalence estimate in this study is conservative, since a proportion of patients excluded by protocol might also be depressed at discharge: a) those surviving patients who were very ill at the time of admission; and b) those excluded because of low cognitive performance or substance abuse

Table 3 Severity of medical illness by the Cumulative Rating Scale Index (CRSI scores) in controls and in types of depression and by severity level of depressive symptoms.

	Controls n = 777	Major depression n = 121	Dysthymia n = 71	Adjustment depression n=120
No. Categories	4.4 (1.9)	4.9 (2.0)*	5.5 (2.2)*	4.7 (2.0)
Total score	9.6 (4.3)	10.8 (4.5)*	11.6 (5.1)*	10.3 (4.3)
		Mild symptoms of depression n = 150	Moderate symptoms of depression n = 124	Severe symptoms of depression n = 38
No. Categories		4.9 (2.0)*	4.9 (2.1)*	5.4 (2.1)*
Total score		10.6 (4.5)*	10.6 (4.4)*	12.3 (5.3) [§]

* P-value < 0.05 (REF. Controls).

**P-value < 0.01 (REF. Controls).

[§] P-value < 0.001 (REF. Controls).

Mann-Whitney U test.

since both these clinical conditions have been associated with depression.^{38,39}

In relation to the clinical significance of the findings, a number of previous reports reviewed in the introductory section have documented the negative consequences of depression in medical patients,^{3,36,8,21,40} which may be worse in older individuals such as those predominating in our particular study.^{5,21} Complications in the patients' management have also been reported.⁴¹ A particularly relevant negative outcome is the increased mortality risk documented in depressed medical patients.⁴² Some of the studies are remarkable in this respect, such as the one by Schulz et al.¹⁰ documenting that depression was an independent predictor of mortality when controlling for prevalent clinical disease, or the comprehensive meta-analysis of prospective studies by Cuijpers et al.⁹, showing a 50% increased risk even after adjustment for publication bias.

This study also shows the importance of a full assessment of patients to reach a clinical diagnosis, rather than only using questionnaires such as the HADS. Unsal et al., reported an exceedingly high prevalence of disorders, probably related to the low threshold in the HDAS (≥ 7), since in our study, with a more conservative threshold (≥ 11) we found a 19% of probable cases of depression. While this figure is not far from the prevalence, we report implementing a standardized diagnostic interview (SPPI, Lobo et al.³¹), the study of associations of depression, and particularly the calculation of risk factors would be seriously hampered when using only questionnaires, because of both the unavoidable false positive and false negative cases. When logistical reasons preclude the full assessment of patients, two-stage techniques are more acceptable than the use of questionnaires alone.¹²

In relation to demographic characteristics, it is remarkable that the mean age of the full sample was 72 years. This suggests that a high proportion of individuals hospitalized in internal medicine wards in the Spanish public health system are patients of geriatric age, as previously reported.⁴³ The depressions were significantly more common among individuals with low educational backgrounds, and also among women. Both these findings were expected in view of previous evidence in the general population,⁴⁴ but also in general hospital samples.⁴⁴ The data on the prevalence of depression by age and sex is also informative since significant differences have been observed in several parameters. In general, the highest prevalence of depression was observed in the 65-74 years subgroup, but maybe the most remarkable finding is the low prevalence in the oldest all (individuals aged 85 or more years). Moreover, in women, but not in men, there was a clear pattern and the prevalence decreased as the age increased. On the other hand, it has previously been observed that age adjustment resulted in a strengthening of the association with depression.⁴ Some differences by sex were also observed in the associations between the different types of depression and the individuals' age, being significant only in the subgroup of adjustment depressions among men, but in both the major depression and dysthymia subgroups among women.

It should be noted in this study the comorbidity found in the internal medicine patients, since the depressed ones had as an average 5 medical systems affected and 4.4 systems the non-depressed patients. These findings are in

accordance with previous reports, particularly among older patients.⁴⁶ It is in this background that abundant literature has emerged related to "complex medical patients", those having medical comorbidity together with problems in the psychopathological, social, and health care domains⁴⁷; its prevalence was 25% in a recent multicenter study in Spain.⁴⁸ In relation to the implications for the present study, INTERMED, an instrument developed to help in the detection and management of complex patients has been shown to predict among them those that would be discharged with morbidity such as depression.⁴⁹

This study also provides support for the hypothesis that depression in internal medicine patients is associated with the severity of the medical condition measured by the CSRI indexes. In general, and compared with controls, the depressed patients had both a higher number of bodily systems affected by medical illness and higher scores on the CSRI, the differences being statistically significant in most calculations. Moreover, in general, the number of medical systems affected and the total CSRI score tended to increase parallel to the severity level of depression. Most previous research concurs with our findings,⁴ although some are discrepant and have associated the depression not with the severity of the physical disease, but with the patients' perception of greater severity.⁴⁵

The size and characteristics of the problem of depression comorbid with severe medical illness, as described in this study, is a real challenge for the medical field, and also specifically for PC. In fact, a strong emphasis has been placed on the need for a new approach to face in medicine the ill-treated problem of general comorbidity.⁴⁶ A significant proportion of depressed patients in PC have comorbid medical illnesses,¹⁴ and the care of depression in this setting is reported to provide good value.^{50,51} However, some international reports have argued that the recognition and treatment of patients with depression are still substantially below the standards set by practice guidelines.¹⁸

Moreover, the patients with depression comorbid with severe medical illness may present very special management difficulties. The practitioners who are going to have a substantial role in their care might require a set of skills that needs to be defined. New methods and strategies may be promising, such as the combined treatment by psychiatrists and PC practitioners⁵² or the new, stepped care models.⁵³ Strategies of collaborative care have been reported to improve the quality of life in depression in patients with severe physical comorbidity, such as cancer patients,⁵⁴ and clinically relevant improvements, cost-effective, have been reported in patients with acute cardiac illness.¹² Psychiatric consultation in the PC setting, which has been shown to be effective in other areas of the discipline,⁵⁵ could certainly be effective in this specific problem.

Limitations

Aside from the limitations discussed in the previous paragraphs, in this cross-sectional study we cannot exclude the possibility that uncontrolled factors, such as type of medical illness may have influenced the results. We do not have data on the patients treated for depression during their hospitalization.

In conclusion

This first study on depression at the time of hospital discharge from internal medicine wards and potential referral to primary care shows that the prevalence of depression, including major depression and severe depression, is considerable. The study also supports the hypothesis of differences of prevalence by sex and age, and by type of depression: as expected, depressions were significantly more frequent in women, with a clear pattern of decreasing prevalence of depression as the age increased. The study confirms the high levels of comorbidity found in internal medicine wards in Spain, where the mean age of patients is 72 years and supports the hypothesis that all types of depression are associated with the severity of physical morbidity. While this part of the study is cross-sectional and basically descriptive and gives no information on causality, the findings have clinical significance. The programmed follow-up of patients in PC will provide outcome data, as well as possible risk factors in cases of poor outcome.

Ethical considerations

This study was approved by the Ethics and Scientific Committees of the Coordinating Hospital, and by the scientific committee of the “Fondo de Investigación Sanitaria” (FIS).

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Conflict of interest

The authors have no conflict of interest to declare in relation to this study.

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