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Detecting psychogeriatric problems in primary care: factors related to psychiatric symptoms in older community patients

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ABSTRACT

Objective The aim was to determine the relationship and influence of different variables on the psychiatric symptomatology of older people who reside in the community, as detected by family practitioners.

Design A cross-sectional and multi-centre study.

Setting Twenty-eight general practices and two psychiatric practices in Huesca, Spain, from 19 primary care health centres.

Subjects A sample of 324 patients aged over 65 years, representative of the older people who reside in the community in the province of Huesca.

Main outcome measures Symptoms of depression (Yesavage GDS), cognitive impairment (MMSE),

anxiety (GADS), psychotic symptoms, obsessive symptoms and hypochondriacal ideas (GMS) were measured by family practitioner and were detected following specific questions from the Geriatric Mental State (GMS-B) examination, following DSM-IV criteria, being defined as 'concern and fear of suffering, or the idea of having a serious disease based on the interpretation of somatic symptoms'. Sociodemographic, physical and somatic, functional and social data were evaluated. Analysis was carried out in three phases: univariate, bivariate and multivariate with logistic regression.

Results At the time of the study, 46.1% of the older people studied suffered from some psychiatric symptom; 16.4% had cognitive impairment, 15.7% anxiety, 14.3% depression, 6.1% hallucinations and delusions, 7.2% hypochondriacal ideas and 4.4% obsessive symptoms. Female gender was significantly associated with depression (prevalence ratio (PR) 3.3) and anxiety (PR 3.9). Age was a factor associated with cognitive impairment (PR 4.4). Depression was significantly related to severity of the physical illness (PR 61.7 in extremely severe impairment). Isolation (PR 16.3) and being single (PR 13.4) were factors which were

strongly associated with anxiety; living in a nursing home was associated with psychotic symptoms (PR 7.6).

Conclusions Severity of physical illness, isolation, living in a nursing home and female gender, among others, are related to psychiatric symptoms in community-residing older people identified in primary healthcare centres.

Keywords: associated factors, older people, primary health care, psychiatric symptoms, screening

Introduction

The high prevalence of psychiatric symptomatology in the older people (over 65 years) who reside in the community is known, with figures which may reach almost 50% of this group.^{1,2}

Multiple factors associated with the psychopathology of older people have also been studied. For example, depression has been related to female gender, functional disability, somatic disease, a smaller network size and being unmarried.^{3,4} Cognitive impairment seems to be associated with age, lower educational level, previous depression, social relations and functional disability.^{5,6} Anxiety symptoms have been associated with female gender, chronic disease and functional limitations.⁴ Likewise, psychotic symptoms in older people have been related to sensory impairment, cognitive impairment, isolation or depressive symptoms.⁷ Thus, we can generalise that the factors related to psychiatric symptoms in older people can include both physical and functional factors as well as psychological and social ones.

However, it is not easy to prove the real value of these relationships unless we take into account a comprehensive geriatric assessment which includes physical, psychological, social and functional assessments.

Objectives

- To detect any associated factors (physical, psychological, social, functional or of any other type) relating to the prevalence of psychiatric symptoms in accordance with the PSICOTARD

study (a Spanish acronym of late-onset psychopathology) in a community sample aged 65 years and over identified in healthcare centres in the Province of Huesca, Spain.

- To highlight the most significant factors in all the following psychiatric symptoms detected among older people: depression, cognitive impairment, anxiety and psychotic symptoms (delusions and hallucinations).

Methods

A descriptive multi-centre study conducted in 28 healthcare centres in the province of Huesca (north-eastern Spain). With a total area of 15 627 km² and a population of 218 023 inhabitants, Huesca has one of the oldest Spanish populations, with an ageing index of 23.5% (quotient of people of 65 years and older compared with people under 15), and 49 386 geriatric inhabitants (aged 65 and over).

The sample was selected by systematic random sampling, stratified by participants' healthcare centres, and included 324 people aged over 65. The sample size was calculated according to 95% confidence intervals (CIs) and 5% precision.

Three training sessions were held with the collaborating investigators. In addition, a procedure guide with specific instructions, cut-off points and interpretation for each test, as well as the DSM-IV clinical criteria for diagnosis, were produced and delivered to the collaborating investigators, together with the case report form.⁸

Two prevalences were calculated: current prevalence was the percentage of participants who presented symptoms at the time of assessment using the study screening test; lifetime prevalence consisted of older patients with previous diagnoses and

older patients who had no previous diagnoses but who had symptoms at the time of the study.

Those variables which may be risk factors and which lead to late-onset psychopathology were assessed: age, gender, marital status, population, severity of physical illness,⁹ hospitalisations in the last year, recent widowhood, sensory impairments, social isolation, poor self-perceived health, insomnia and a recent change of address. The following outcome variables were assessed:

- 1 Cognitive impairment, assessed by the Spanish version of the Folstein Mini-Mental State Examination (MMSE),¹⁰ The Clock Drawing Test,¹¹ the Verbal Fluency Test¹² and the Informant Questionnaire (IQCODE) were also applied.¹³
- 2 Presence of depressive syndrome was assessed according to the Spanish version of Yesavage's Geriatric Depression Scale (GDS).¹⁴
- 3 Anxiety, using the Spanish version of the Goldberg Anxiety Scale (GAS).¹⁵
- 4 Delusions, hallucinations, obsessive and hypochondriacal ideas in accordance with the items in the Spanish version of the Geriatric Mental State schedule (GMS).¹⁶

Statistical analyses

This consisted of three phases:

- 1 A univariate descriptive analysis in which the frequency distribution of the different variables recorded was studied, and the central tendency and dispersion were calculated for the quantitative data. The prevalence of the different late-onset psychopathology risk factors was assessed using 95% CIs.
- 2 A bivariate analysis in which the existence of a relationship between all the possible risk factors and each outcome measure was analysed. The techniques used to compare ratios were the chi-squared test, and Fisher's exact test was used with the qualitative variables. The Student's *t*-test, the Mann-Whitney U test and the ANOVA test were used when the explanatory variables were measured on the quantitative scale. Finally, linear regression techniques were used when both variable types were quantitative. An association was considered to exist between them when *p* was 0.05. The strength of the association was quantified by a PR.
- 3 A multivariate analysis to study the possible effects of all the factors on each outcome variable, together with a logistic regression model for explanatory purposes. All those factors showing an

association ($p < 0.05$) with each outcome variable in the bivariate analysis were included in the multivariate model. In this way, variables whose significance was close to the threshold of significance ($p < 0.1$) were also included in order not to exclude any important variable. This analysis enabled us to differentiate between the effects of all the factors adjusted for the remaining variables and to quantify the magnitude of this effect in the form of a PR and its corresponding 95% CI.

Results

Of the initial sample of 324 older subjects, 13 (4%) declined to participate and 18 (5.5%) could not be located. The final number of older persons studied was 293. The population was of an age equal to or over 65 years, with a mean age of 78.2 years (SD 7.2), with ages ranging from 66 to 101 years. The participants' other characteristics are shown in Table 1.

Mental symptoms were observed in 135 participants (46.1%; see Table 2). Psychopathology seemed to relate to gender, and was 2.8 times higher in females than in males (95% CI: 1.6–4.9). The largest association occurred between psychopathology and level of education, where people with a low level of education were 5.4 times more likely to suffer from psychopathological symptoms (95% CI: 1.3–22.4). Physical illness was also directly related to psychopathology. Thus, psychopathology was 3.2 times more frequent in people with moderate physical impairment (95% CI: 1.8–5.9), 19.9 times more likely in people with severe physical impairment (95% CI: 5.8–67.89) and 20.3 times more frequent in people with extreme physical impairment (95% CI: 2.1–190.07). Finally, dependence in activities of daily living (ADL) also seemed to play an important role in psychopathology among older people, and was 2.9 times more common among those older subjects with some dependence (95% CI: 1.3–6.3) (see Table 3).

The prevalence of cognitive impairment in our study, assessed using the MMSE, was 17.1% (95% CI: 13.2–21.8; see Table 2). However, there were clear differences in prevalence among the age groups studied. Between the ages of 65 and 69, the prevalence of cognitive impairment was 6.5%; it was 8.3% for those aged between 70 and 79, 26.4% in the 80 to 89 age group and 47.6% in people aged 90 or over. These differences were statistically significant (χ^2 : 32.9, df: 2, $p < 0.001$).

There were other factors as well as age influencing the onset of cognitive impairment. Those older people living in nursing homes were 3.4 times more likely to suffer cognitive impairment compared with

Table 1 Characteristics of the study population

Demographic characteristics	
Total group	293
Males	51.2%
Age (years): mean (SD)	78.2: 7.2
Education	
Low	49.8%
Medium	44.0%
High	6.1%
Marital status	
Married	60.4%
Single	10.9%
Divorced	0%
Widowed	28.7%
Living alone or not	
With a partner	37.2%
Alone	10.2%
With a partner and someone else	20.8%
With children or other family	25.3%
Nursing home	6.5%
Takes six or more medicines	25.6%
Physical organic disease	
Slight impairment	39.6%
Moderate impairment	47.1%
Severe impairment	10.2%
Very severe impairment	3.1%
Social network	
Alone	1.0%
Family	4.5%
Family and neighbours	9.6%
Family, neighbours, friends	84.9%
Life events in the last year	27.5%
Dependence in ADL	20.1%
Previous psychiatric disorder	24.9%

those who lived with their partners (95% CI: 1.1–10.1). Social relations also seemed to play an important role in cognitive impairment; it was more common among those older people whose social relations were confined to family only compared with those who related to family, friends and neighbours. Cognitive impairment was detected 2.5 times more frequently where functional dependency rather than independence was present (95% CI: 1.1–5.8). As regards psychiatric comorbidity, cognitive impairment was 2.5 times higher in people with depressive symptomatology compared to those with no symptomatology (95% CI: 1.1–5.8; see Table 4).

The prevalence of depressive symptoms, assessed by the GDS, was 14.3% (95% CI: 10.8–18.8), and affected females much more than males – 20.3% and 8.7% respectively (χ^2 : 13.6, df: 1, $p < 0.001$; see Table 2). Furthermore, depressive symptoms seemed to be more prevalent in those of more advanced age than in the under 70s (χ^2 : 8.4, df: 3, $p < 0.05$).

Among the factors relating to depression we found gender – depression was 3.3 times higher in females than in males (95% CI: 1.5–7.4). The most obvious relationship occurred with physical impairment, as assessed by the Spanish version of the Cumulative Illness Rating Scale, where we found that the poorer the state of health, the higher the PR of depressive symptomatology (3.6 for moderate physical impairment versus 61.7 for extremely severe physical impairment). The association between experiencing depressive symptomatology and living alone or experiencing depressive symptomatology and suffering neurological disease was 6.7 (95% CI: 2.1–21.0) and 2.7 (95% CI: 1.1–6.6) respectively. Regarding psychiatric comorbidity, psychosis was the pathology that was most associated with depression (95% CI: 1.2–16.1), followed by obsessive symptomatology (95% CI: 1.0–17.2) and anxiety (95% CI: 1.7–8.1; see Table 4).

The prevalence of anxiety symptoms, assessed using the GADS scale, was 15.7% (95% CI: 12–20.3), and was more prevalent in females (24.5%) than in male subjects (7.3%) (see Table 2). Despite it not being related to age, it was related to gender as it was 3.9 times more prevalent in female subjects (95% CI: 1.8–8.4). It also related to marital status as more anxious symptomatology was observed in single older patients than in their married counterparts (95% CI: 1.3–138.60), and it was associated with dependence in ADL (95% CI: 1.0–4.8). The highest association was seen between living alone or cohabitating and anxiety symptomatology; older people who lived alone suffered anxiety symptoms 16.5 times more often than those who lived with a partner (95% CI: 1–279.7). As with psychiatric comorbidity, anxiety was associated with a greater frequency of depression (95% CI: 2.1–8.9) and hypochondriacal symptomatology (95% CI: 1.2–9.6; see Table 4).

Psychotic symptoms were the least prevalent mental condition in our population. Using the GMS, we found a prevalence of 6.1% (see Table 2). The following psychotic disorders were detected: hallucinations in 2.4%, paranoid delusions in 4.4% and megalomaniac ideas in 0.3%.

A relationship was found between psychotic disorders and the presence of depression. Depressive symptomatology was identified 5.6 times more in patients with psychotic symptoms than in healthy subjects (95% CI: 1.8–17.6). Living in a nursing

Table 2 Gender-specific current prevalence according to the different psychiatric symptoms

Diagnostic criteria	Instrument	Male (n=150)			Female (n=143)			Total (n=293)		
		Cases		Prevalence	Cases		Prevalence	Cases		Prevalence
		n	%	95% CI	n	%	95% CI	n	%	95% CI
Depression	GDS ^a	13	8.7	5.1–14.3	29	20.3	14.5–27.6	42	14.3	10.8–18.8
Anxiety	GADS ^b	11	7.3	4.1–12.7	35	24.5	18.2–32.1	46	15.7	12.0–20.3
Cognitive impairment	CME ^c (MMSE ^d)	19	12.7	8.3–18.9	31	21.7	15.7–29.1	50	17.1	13.2–21.8
Psychosis (hallucinations and delusions)	GMS ^e	8	5.3	2.7–10.2	10	7	3.8–12.4	18	6.1	3.9–9.5
Some mental symptoms		51	34	26.9–41.9	84	58.7	50.5–66.5	135	46.1	40.5–51.8

^a GDS: Yesavage Geriatric Depression Scale; ^b GADS: Goldberg Anxiety and Depression Scale; ^c CME: Cognitive Mini-Examination; ^d MMSE: Mini-Mental State Examination; ^e GMS: Geriatric Mental State Schedule.

Table 3 Factors associated with the presence of some psychiatric symptomatology in older people

Related factors	PR ^a	CI ^b (95%)
Female gender	2.8	1.6–4.9
Level of education (low)	5.4	1.3–22.4
Physical illness		
Moderate impairment	3.2	1.8–5.9
Severe impairment	19.9	5.8–67.8
Extreme impairment	20.3	2.1–190.07
Dependence in ADL	2.9	1.3–6.3

^a PR: prevalence ratio; ^b CI: confidence interval.

home was the variable with the highest association with psychotic symptomatology, which was 7.6 times higher in people who lived in nursing homes compared to those who lived with a partner (95% CI: 1.2–48.4). Having severe physical impairment was also associated with psychotic symptomatology (see Table 4).

Discussion

Gender

We must highlight the significant association of female gender with the prevalence of overall psychogeriatric symptomatology, which concurs with the majority of studies consulted.⁴ However, it is worth noting that the significance of female gender is specific to the group of affective (anxiety and depression) psychological disorders, and that there are apparently no differences in gender in the prevalence of psychotic symptoms (hallucinations and delusions), obsessive ideas and hypochondriacal ideas. We attribute these differences to factors which are still under debate and which may be due to either hormonal factors or the psychosocial determinants of our sample; the majority of cases were females who were not economically independent and who had seen their life expectations reduced to marriage and motherhood in Spain's post-civil war period. In any case, this is a topic which is still under debate, although the association between affective disorders and the female gender is practically constant in previous studies.⁴

Table 4 Factors associated with psychiatric symptomatology in a community sample of older people

	PR ^a	CI ^b (95%)
Cognitive impairment		
Living in a nursing home	3.4	1.1–10.1
Lack of social relations	6.3	1.6–25.1
Depression	2.5	1.1–5.8
Dependence in ADL	2.5	1.1–5.8
Advanced age	4.4	0.7–27.1
Depression		
Being female	3.3	1.5–7.4
Living alone	6.7	2.1–21.0
Neurological disease	2.7	1.1–6.6
Severe physical impairment	61.7	3.4–109.83
Anxiety	3.7	1.7–8.1
Psychosis	4.4	1.2–16.1
Obsessive symptoms	4.2	1.0–17.2
Anxiety		
Being female	3.9	1.8–8.4
Being single	13.4	1.3–138.6
Living alone	16.5	1.0–279.7
Being depressed	4.3	2.1–8.9
Dependence in ADL	2.1	1.0–4.8
Hypochondriacal symptoms	3.4	1.2–9.6
Psychotic symptoms		
Living in a nursing home	7.6	1.2–48.4
Depression	5.6	1.8–17.6

^a PR: prevalence ratio; ^b CI: confidence interval.

Age

Age is undoubtedly a determining factor for the onset and worsening of cognitive impairment. As in the studies consulted,^{17,18} we observed that cognitive impairment progressively increased with age; this has been confirmed by all the tests used (MMES, the Clock Drawing Test, the Verbal Fluency Test and IQCODE), although decline was especially evident in the Spanish version of the MMES and the Informant Questionnaire (IQCODE).

We did not find a statistically significant relationship between increasing age and the prevalence of depression, nor did the majority of studies on this matter.¹⁹ Nonetheless, an increasing tendency towards depression was evident in the 80 to 90 age group, but this was not significant. Other studies also mention this tendency of the very elderly showing higher

prevalence of depression (the over-75s and over-80s).²⁰

Depression

The topic of the factors associated with depression in older people is perhaps one of those most widely dealt with in the psychogeriatric medical bibliography. Numerous factors have been related with depressive symptoms in older people: female gender, place of residence, marital status, somatic diseases, life events, quality of life, level of education, previous psychiatric diagnostic, mortality etc., and there are extensive reviews on the subject.^{4,21}

In our study, we highlight the strong association found between depression and severity of physical illness. Patients with moderate physical impairment show a 3.6 times higher, those with severe physical symptomatology show a 13.3 times higher and those with an extremely severe physical illness show a 61.7 times higher association with depressive symptomatology. This reveals the important relationship between the severity of physical illness and depression in older people, and may justify one of the current discussion points in terms of the increased mortality associated with depression.²² Despite acknowledgement that a percentage of this mortality may possibly be independent, undoubtedly it may be related to the severity of physical illness in geriatric patients, and even more so if this variable has not been well controlled. Although the relationship between depression and medical disease has been well studied, it is a topic that is still under-debated.²³ The results of this study support the finding that the severity of physical illness is more important than the somatic pathology itself, with the already known exception of neurological disease, with which the association found in our study was also significant (PR 2.7); in which case it is more likely that the association is due to the possible relationship between the impairment of the frontal-subcortical circuits in diseases such as Parkinson's disease or cerebrovascular accidents (strokes) and the development of depressive symptoms.²³ Therefore, it is extremely important to carry out an exhaustive geriatric assessment in studies into depression among older people in order to identify the possible confounding variables which influence the associated factors to be controlled.²⁴

In the majority of studies consulted, other social factors such as living alone are an independent factor in the association of depression with older people (PR 6.7).^{25,26} This infers that solitude may be one of the possible aspects on which to act in a preventative fashion in older patients. In this work, as in the literature consulted, depression is a disorder

that is found comorbidly with other psychiatric symptoms such as anxiety (PR 3.7) and obsessive symptoms (PR 4.2). Nonetheless, we also found an association between depression and psychotic symptoms (PR 4.4). Other authors have already shown a significant depression–anxiety comorbidity, even with psychosis, although in this case it was noted in dependent patients receiving home care.^{21,27–29}

Anxiety

Social and type of living/partners factors have been seen to be most important in their association with anxiety symptoms in the older people studied. Those who lived alone (PR 16.5) and single people (PR 13.5) were more anxious. Those who lived with their children felt less anxiety than those who lived with their partner only. Living with another older person (frequently an older dependent person or someone with an illness) probably favours anxiety more, or living with children protects older people from it. We require prospective studies to know the real effect of this association. Previous prospective studies have already shown the influence of depression and a poor social network on the development of anxiety in older people.³⁰ We previously mentioned that anxiety symptoms are more prevalent in females than in males, and this is also a constant feature in the other studies consulted.^{1,31}

Psychotic symptoms (hallucinations and delusions)

In previous studies, an almost constant association has appeared between cognitive impairment and the onset of psychotic symptoms in older people.^{32,33} We did not find an independent association (after logistic regression) between cognitive impairment and the presence of hallucinations and delusions. However, we did find an association with other psychological comorbidities, such as depression. Social factors like living in a nursing home (PR 7.6), or somatic factors like the severity of physical illness (PR 6.1), showed a stronger relationship, although the latter was not statistically significant and in this sense our study concurs with those of other authors who had studied this topic more specifically.³² Therefore, we hypothesise that psychotic symptoms may be more prevalent among those living in nursing homes given the difficulties of controlling and/or accepting these patients in the community. Those patients with psychotic symptoms in our study sample had already been previously diagnosed with chronic psychosis (early onset schizophrenia, delusional dis-

order etc.), a condition which has, perhaps, favoured the possible non-association with cognitive impairment given the previous diagnostic preponderance; some authors have even suggested that psychotic symptoms may simply appear prior to cognitive impairment and may not be the cause of it.⁷

Our study has its limitations which nevertheless, in our opinion, have certain associated strong points. Although the number of patients is lower than in other papers consulted, it is perfectly representative of the older people living in the community of our region. Besides, given the nature of the study design, the definition of risk factors was not expected. Despite this, our work has allowed us to study numerous variables, some of which have not been included in previous studies but have given us clear results, for example the impact of the severity of physical illness. Furthermore, this study has enabled us to establish an objective list of the associated factors relating to psychiatric symptoms of older people which will, in turn, allow us to conduct subsequent longitudinal studies. The coordination efforts of all the healthcare services (community mental health and general health care) should be stressed, while the considerable support of a large number of general practitioners should be highlighted.

Conclusions

Numerous factors are associated with psychiatric symptomatology in older people. We must highlight the heterogeneity of these factors in all the psychiatric syndromes. Although female gender is a factor that relates independently to depression, anxiety and cognitive impairment, this influence is not without the nuances and psychosocial features of the female subjects of this study sample (hormonal factors, widowhood, economic dependence on husbands etc.), which may partially explain these differences. Severity of physical illness, functional deterioration and solitude, among others, are factors that are independently associated with the psychopathology of older patients; therefore those factors that accompany ageing itself favour the development of psychiatric symptoms among older subjects, hence the high prevalence of these symptoms found in our study.

If general practitioners were trained in use of diagnostic screening instruments, the recognition of psychopathology in older people would increase. Therefore, we may conclude that training in psychogeriatric assessment is necessary in healthcare services.

It is necessary to continue working on this subject and, despite the high-quality review papers consulted on this particular issue, we need to consider long-term, prospective, follow-up studies to determine the real risk and the importance of all the factors studied, for the purpose of defining the profile of an older person at psychological risk to whom preventative actions may be offered. This is the basis of the work we are undertaking in the second part of this study (Psicotard II).

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CONFLICTS OF INTEREST

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