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Research report

Differential clinical features of late-onset panic disorder

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Abstract

Objectives: The aim was to analyse the sociodemographic and clinical characteristics of panic disorder (PD) in patients with a PD onset after 60 years of age, at two outpatient psychiatric clinics in Barcelona (northeastern Spain). *Material and methods:* All patients presenting with PD at two outpatient clinics over a 4-year period were assessed by the same team. Patients with PD onset at 60 or after were grouped (late-onset), and compared with the group with an earlier onset. The instruments administered to the sample were: Global Assessment of Functioning scale, Panic-Associated Symptom Scale, Hamilton's Depression and Anxiety Scales and Marks-Matthews' Fear and Phobia scale. *Results:* Of 5301 patients attended over a 4-year period, 64 (1.2%) were PD patients aged 60 or above. Age at PD onset was over 60 in 27 cases (0.4% of the total population, and 6.1% of all PD patients). The mean age in the late-onset group was 67.0±4.9 years. Late-onset PD patients were less likely to report family history of PD. They scored lower on most scales assessing clinical severity (excepting GAF and agoraphobia scores), and they exhibited fewer and milder panic symptoms during the attacks. However, dysthymic disorder, but not major depressive disorder, was more common among late-onset PD patients ($P < 0.05$). *Comments:* The most notable findings in our late-onset PD subgroup of patients were: lesser severity of the disorder, greater comorbidity with dysthymia, and less family history of PD. Prevalence rates of late-onset PD in our sample appeared to be rather high. Physical illness and less severe panic symptoms may contribute to underdiagnosing PD in this particular subpopulation.

Keywords: Panic disorder; Elderly; Late-onset; Phenomenology; Psychopathology

1. Introduction

Prevalence rates of anxiety disorders in the elderly (15%) are similar to those of depression (14.9%), and higher than those of dementia (5.6%) (Manela et al., 1996). In the Duke's Epidemiological Catchment Area community sample, the most common anxiety disorders (in 6 months) in subjects over 65 years of age were specific phobias (9.6%), agoraphobia (5.2%), and generalized anxiety (1.9%), whereas panic disorder (PD) only affected 0.04% of in-

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dividuals (Blazer et al., 1991). Similar results were obtained in a community study conducted in London with elderly subjects over age 65: rates were highest for specific phobias (5.9%), agoraphobia (7.9%), and generalized anxiety (4.7%), and very low for PD (0.1%) (Manela et al., 1996). The review by Flint (1994) concludes that anxiety disorders are less common in the elderly than in younger adults and emphasizes the high rate of comorbidity with depression. These results are in agreement with epidemiological data which find that, except for organic mental disorders, all psychiatric disorders decline with age (Raj et al., 1993).

PD is a common psychiatric condition whose lifetime prevalence rates, similar across different countries, are estimated to range from 1.4 to 4.1% of the general population (Von Korff et al., 1985; Regier et al., 1990; Gago, 1992; Katerndahl and Realini, 1993; Eaton et al., 1989; Eaton et al., 1994; Dick et al., 1994; Weissman et al., 1997a). It tends to begin in adolescence or young adulthood and reaches its highest prevalence level between 25 and 40 years of age (Weissman and Merikangas, 1986, Weissman et al. 1997a). The literature points to the fact that PD progressively declines with age (Krystal et al., 1992; Flint, 1994). In the Epidemiologic Catchment Area study, 6-month prevalence of PD for those over 65 years was 0.04%, with an overall prevalence of 0.29% (Blazer et al., 1991), suggesting that the majority of these cases were chronic disorders with previous onset, and that new cases of late onset were very rare. Other epidemiologic studies have found PD prevalence rates in the elderly similar to the above-mentioned, ranging from 0.1 to 0.7% (Bland et al., 1988; Manela et al., 1996). The Guy's/AGE Concern Survey failed to find any cases of DSM-III defined PD in the month preceding the survey (Lindesay et al., 1989).

Unfortunately, there are few data available regarding the course of PD and clinical characteristics in elderly populations. The earlier literature on the topic consisted of several case reports (Frances and Flaherty, 1989; Beitman et al., 1991; Edwards and Morley, 1991; Lyle, 1995). Subsequently, some studies in clinical samples supported the finding of low prevalence rates of late-onset PD, which ranged from 2.3 to 5.7% (Luchins and Rose, 1989; Sheikh et al., 1991; Raj et al., 1993; Hassan and Pollard, 1994).

There is evidence suggesting that late-onset PD may be a distinct subtype, with differences in vulnerability factors and in phenomenology (Sheikh and Salzman, 1995). PD in the elderly seems to be less severe than in younger ages (Sheikh et al., 1991, Sheikh, 1994). In a recent study, Sheikh and Swales (1998) showed that younger PD patients experienced greater cognitive distress, more avoidance behavior, higher overall physiological arousal, greater symptom severity during attacks, more severe agoraphobia, and lower global functioning than older PD patients. As regards treatment response, Buller et al. (1991) did not find any differences among the groups of early, medium and late onset, and found that age at PD onset did not predict outcome in short-term treatment with alprazolam or imipramine.

The identification and typification of late-onset PD would also require specific studies conducted with samples of elderly patients from different recruitment sources (general population, primary care, mental health care, geriatric units). The present study aims to identify cases of PD with an onset at 60 years of age and after, referred to two mental health units over a 4-year period, and to compare their sociodemographic and clinical characteristics with those of patients with an earlier PD onset.

2. Materials and methods

The study was conducted at two mental health units in Barcelona (northeastern Spain). The first one is a section of psychiatry at the La Alianza General Hospital. The other one (PSINEP, a Clinic of Psychology, Psychiatry and Neurology) provides standard outpatient psychiatric care. Both centers belong to the private health sector which provides coverage for 24% of the population in this region. At both centers, psychiatric care was provided by the same team. The study lasted 4 years, beginning with the creation of these units (March 1991–February 1995). During this period, 3206 patients were seen at La Alianza, and 2095 at PSINEP.

2.1. Sample

Subjects were excluded from the study if PD was secondary to any other medical condition, or sub-

stance-induced, or associated with organic brain disorders, in accordance with DSM-III-R criteria. In patients over 60, the final diagnosis was postponed until any other medical causes could be ruled out. Thyroid tests were conducted on all patients, as well as an EKG, a chest X-ray and a neurological exam. In patients with a thyroid disease, only those with normal thyroid function were included.

Of the 5301 patients examined at the two centers, 8.3% presented with PD. This rate was slightly higher at La Alianza (274/3206; 8.5%) than at PSINEP (168/2095; 8%). The study sample comprised a series of 442 patients over 16 years old, both men and women, suffering from PD, who were consecutively assessed at both centers. The average age of the sample was 40.73 ± 14.57 years, 76.4% were females, and 65.61% were married. Sixty-two percent of the PD patients ($n = 274$) came from La Alianza Hospital. The sociodemographic and clinical characteristics of our sample of PD patients were similar to those of a general population sample in an epidemiological study conducted in our country (Gago, 1992).

2.2. Procedure

Clinical assessment was conducted by two experienced interviewers, a psychiatrist (J.S.) or a clinical psychologist (J.C.), following DSM-III-R criteria (APA, 1987). The Structural Clinical Interview for DSM-III-R, Upjohn Version rev (SCID-UP-R) was used for axis I diagnoses (Spitzer and Williams, 1988). The presence of comorbid psychiatric disorders was also studied, following DSM-III-R criteria. Diagnostic groupings were made in drug dependences (which included alcoholism and other drug dependences) and in eating disorders (which included anorexia and bulimia nervosa), with a small number of cases in both groups. Diagnostic reliability was checked by two independent evaluators in a group of 30 patients, obtaining a κ value of 0.8 for axis I disorders.

The Family History Research Diagnostic Criteria interview (Endicott et al., 1975) in its Spanish version (Humbert, 1989) was used to assess the patients' family history. Patients or their first-degree relatives were the source of information for assessing psychiatric family histories.

To assess the severity of PD, clinical evaluation included Hamilton's anxiety and depression scales at the first visit (Hamilton, 1959, 1961), the general functioning scale (GAF) (APA, 1987), the Marks and Mathews' Fears and Phobia scale (Marks and Mathews, 1979), and the Panic-Associated Symptom Scale (PASS) questionnaire (Argyle et al., 1991). This latter questionnaire consists of five subscales that assess: situational panic attacks, unexpected panic attacks, limited panic attacks, anticipatory anxiety, and phobias.

In addition, we used a 14-item Inventory of Panic Attack Symptoms (ISAP), based on DSM-III-R symptoms (Seguí et al., submitted for publication). This self-administered inventory rates on a 4-point Likert scale to assess the severity of symptoms ($0 =$ non-existent; $1 =$ mild; $2 =$ moderate; $3 =$ severe). It has proved to have good psychometric properties in several studies to date (Seguí et al., 1998; Seguí et al., in press).

Patients over 60 years of age (or under 60 whenever cognitive deterioration was suspected) completed as well the Spanish version (Lobo et al., 1979) of the Mini-Mental Status Examination (Folstein et al., 1975).

2.3. Data analysis

Patients with PD were divided in two groups, according to their age at onset of PD: onset before age 60, and onset at 60 years or above. The choice of this cut-off point was somewhat arbitrary, and was suggested by the threshold age found in the literature for late onset, which varies from 55 years (Sheikh, 1994; Sheikh and Swales, 1998), to 60 years (Raj et al., 1993) or 65 years (Hassan and Pollard, 1994). The statistical tests used were Student's t test for continuous variables, and χ^2 test for categorical ones, applying Yates's correction or Fisher's test when necessary. The minimum level of significance was $P < 0.05$.

The odds ratios (OR) were obtained by logistic regression, with a confidence interval of 95%. The OR, which indicate the strength of association among the comorbid psychiatric diagnoses in both groups, are considered statistically significant when the confidence intervals include 1.0. The data analyses were performed through the SPSS software package (Norusis, 1990).

3. Results

In our sample, mean age at onset of PD was 32.8 years (SD = 13.8 years), ranging from 8 to 76 years of age. A total of 27 patients (6.1%) had an age at PD onset of 60 years or over. The mean age in the late-onset group was 67.0±4.9 years, versus 39.0±13.3 years in the other group. Duration of illness was found to be shorter in late-onset patients (1.9±1.7 vs. 8.3±10.4 years; $t = 10.4$ $P < 0.0001$). There was a trend to a greater proportion of females in the late-onset group ($\chi^2 = 2.8$. $P < 0.09$). Late-onset PD patients were less likely to report family history of PD and alcoholism (Table 1). Both groups did not differ with respect to prior medical services utilization, number of consultations to specialists and emergency rooms, hospitalizations for PD, or previous treatment.

Late-onset patients scored lower both on the social phobia scale of the Marks-Matthews' Fears and Phobia Scale, and on the PASS questionnaire (general scores, scores of spontaneous and limited attacks, and scores of anticipatory anxiety), which indicates a lesser severity of the disorder. By contrast, the rate of agoraphobia and the GAF score were similar in both groups.

Late-onset patients exhibited lesser severity and frequency of most of their panic attack symptoms. Severity was lower for the following symptoms: dyspnoea, palpitations, feeling of choking, nausea, sweating, trembling, fear of dying, fear of going crazy and depersonalization. During their attacks, the following symptoms were less common: dyspnoea, palpitations, chest pain, sweating, depersonalization, paresthesias, trembling, and fear of dying (Table 2).

Mood disorders tended to be more common among late-onset PD patients (63.0%) than among patients with earlier-onset (44.8%). Late-onset patients had higher rates of dysthymia ($P < 0.05$), but similar rates of major depression. The four cases of

Table 1
Clinical characteristics of panic disorder

	Onset < 60 years ($n = 415$)	Onset > 60 years ($n = 27$)	Significance
Female sex	20 (77.1%)	17 (63.0%)	n.s
Family history			
Schizophrenia	6 (1.4%)	0 (0.0%)	n.s.
Alcohol-related disease	44 (10.6%)	0 (0.0%)	$P < 0.05$
Depressive disease	112 (27.0%)	3 (11.1%)	n.s.
Panic disorders	98 (23.6%)	2 (7.4%)	$P < 0.05$
Frequency of panic attack in the last month	11.9±14.7	10.3±12.3	n.s.
Hamilton Depression (HDRS)	18.0±7.7	17.6±8.2	n.s.
Hamilton anxiety (HARS)	23.8±6.6	21.2±7.3	$P < 0.05$
GAF	56.0±6.7	56.0±6.8	n.s.
Marks and Matthews Scale			
Social	4.1±8.1	2.0±4.6	$P < 0.05$
Blood	9.6±8.4	6.9±8.7	n.s.
Agoraphobia	15.4±13.2	14.9 ±13.1	n.s.
Panic-Associated Symptom Scale			
Total	15.2±5.8	11.4±5.1	$P < 0.001$
Situational panic	2.7±1.9	2.2±1.4	$P < 0.05$
Spontaneous panic	4.2±1.2	3.4±1.2	$P < 0.001$
Limited symptoms attack	1.3±1.3	0.6±0.9	$P < 0.001$
Anticipatory anxiety	4.7±1.7	3.2±2.2	$P < 0.01$
Phobic score	2.4±1.7	2.2±1.7	n.s.

Table 2
Frequency and severity of panic symptoms

	Frequency of symptoms			Severity of symptoms		
	Onset < 60 years (415)	Onset > 60 years (27)		Onset < 60 years (415)	Onset > 60 years (27)	
Dyspnea	324 (78.1%)	14 (51.9%)	$P < 0.01$	1.9±1.2	1.1±1.2	$P < 0.001$
Choking	169 (40.7%)	6 (22.2%)	n.s.	0.8±1.1	0.4±0.8	$P < 0.05$
Palpitations	367 (88.4%)	16 (59.2%)	$P < 0.001$	2.3±1.0	1.4±1.3	$P < 0.001$
Chest pain	256 (61.7%)	11 (40.7%)	$P < 0.05$	1.4±1.3	1.0±1.3	n.s.
Sweating	239 (57.6%)	5 (18.5%)	$P < 0.001$	1.2±1.1	0.4±0.8	$P < 0.001$
Dizziness	232 (55.9%)	16 (59.3%)	n.s.	1.1±1.1	1.1±1.1	n.s.
Faintness	263 (63.4%)	18 (66.7%)	n.s.	1.5±1.3	1.7±1.3	n.s.
Nausea	131 (31.6%)	5 (18.5%)	n.s.	0.6±0.9	0.3±0.6	$P < 0.005$
Depersonalization	126 (30.4%)	2 (7.4%)	$P < 0.01$	0.6±1.0	0.2±0.7	$P < 0.01$
Derealization	118 (28.4%)	3 (11.1%)	n.s.	0.6±1.0	0.3±0.9	n.s.
Paresthesia	216 (52.0%)	8 (29.6%)	$P < 0.05$	1.1±1.1	0.7±1.1	n.s.
Hot flushes	210 (50.6%)	9 (33.3%)	n.s.	0.9±1.0	0.6±0.9	n.s.
Trembling	250 (60.2%)	9 (33.3%)	$P < 0.01$	1.3±1.1	0.7±1.0	$P < 0.05$
Fear of dying	295 (71.7%)	14 (51.9%)	$P < 0.05$	1.8±1.7	1.2±1.3	$P < 0.05$
Fear of going crazy	116 (28.0%)	3 (11.1%)	n.s.	0.7±1.1	0.2±0.6	$P < 0.05$

bipolar disorder belong to the earlier-onset group. In the late-onset group, there were no cases of alcoholism or social phobia.

Mood disorders were more likely to appear before PD in the late-onset group (64.8% of late-onset patients vs. 37% of earlier-onset ones). A simultaneous onset of mood disorders and PD was present at similar rates in both groups (17.6% of late-onset patients vs. 20.1%), and mood disorders were more likely to appear after PD in the earlier-onset group (17.5% of late-onset patient vs. 43% of earlier-onset patients) Table 3.

4. Discussion

The difficulty of making a reliable diagnosis of anxiety disorders in the elderly is one the main limitations of our results; for example, medical conditions or use of drugs should always be ruled out as a potential cause. Thus. since the diagnosis of PD in elderly patients is hampered by a number of difficulties (Small, 1997), it has been claimed that these disorders often remain undiagnosed and untreated in the elderly population (Sheikh, 1994, Flint, 1994, Lindesay, 1991). The high comorbidity with

Table 3
Comorbidity of panic disorder in late-onset PD patients

	Onset < 60 years (415)	Onset > 60 years (27)	OR[a]	CI[b]	Significance
Major depression	149 (35.9%)	10 (37.0%)	1.1	0.8–3.6	n.s.
Dysthymia	38 (9.2%)	7 (25.9%)	3.5	1.3–8.3	$P < 0.01$
Drug/alcohol dependence	46 (11.1%)	0 (0.0%)	726.2	0.02–239	n.s.
OCD	30 (6.9%)	1 (3.7%)	0.5	0.1–3.5	n.s.
Simple phobia	127 (30.6%)	5 (18.5%)	0.5	0.2–1.3	n.s.
Social phobia	63 (15.2%)	2 (7.4%)	0.5	0.1–3.5	n.s
Eating disorders	14 (3.4%)	0 (0.0%)	245.8	0.06–2510	n.s.

[a] Odds ratio.
[b] Confidence interval.

physical illnesses and the lower frequency and severity of symptoms may help underdiagnosing PD in patients over 60, both in the general health care and in psychiatric settings. Diagnostic overlap is frequent in other instances, such as diagnosis of affective disorders among the physically ill or the mentally retarded (Salvador-Carulla et al., 1998). In this line of evidence, Lindesay (1991) demonstrated that 17 out of the 28 agoraphobic patients over 65 years of age had a late onset. Most cases were related to an episode of physical illness such as myocardial infarction, bone fracture, stroke, sudden onset of visual impairment, and elective surgical procedures (such as transuretral resection of prostate and hysterectomy). Only two cases had a history of panic attacks in association with late-onset agoraphobia and concurrent depression. These results highlight the importance of an accurate differential diagnosis with other medical conditions before making the diagnosis of PD in the elderly. Katon and Roy-Byrne (1989) had already noted this problem and emphasized that physicians often do not consider the diagnosis of PD in elderly patients. As a further illustration, Beitman et al. (1991) found that out of 27 patients over 65 who consulted a cardiologist with chest pain and no evidence of coronary disease, nine (33%) fit criteria for PD, with a mean age at onset of 62 (SD: 23 years). These findings suggest that PD may be prevalent in older patients with chest pain and no evidence of coronary disease and that PD may begin later in life. Finally, a potential limitation in our study was the use of DSM-IIIR criteria instead of DSM-IV (our study was started before the introduction of DSM-IV), which might be a cause of underdiagnosing PD in our general sample, as DSM-IIIR did not emphasize the cognitive and phobic aspects of the syndrome as DSM-IV does. However, this would imply diagnosing agoraphobia without panic attacks, and this diagnosis appears to be extremely infrequent in our sample, as well as in population-based studies conducted in our country (Gago, 1992).

Conversely, overdiagnosis of PD may have occurred in our study, on account of the false positives cases secondary to medical conditions or substance-induced. We tried to overcome this bias through careful medical examinations, and we finally excluded twelve patients with associated medical conditions or taking panic-like symptoms inducing drugs. However, longitudinal data on the course of the disorder are necessary to rule out this confounding factor. Although medications which may induce panic-like symptoms were considered for the differential diagnosis, use of non-psychotropic drugs was not recorded in our data base, so this factor cannot be properly analysed.

4.1. Prevalence of late-onset PD

Our prevalence results are closely coincident with those reported in other studies, which range from 2.3 to 5.7% of patients with PD. Sheikh et al. (1991) found that 3.4% of a series of PD cases recruited through advertisements had their onset after 55 years. Other studies have found rates of 5.7% of cases with onset after 60 years of age in a geriatric unit (Raj et al., 1993), and of 2.3% of patients over 65 treated at a hospital psychogeriatric department (Luchins and Rose, 1989). Our results should nevertheless be considered with caution, as they come from two health centers in Barcelona (Spain) and are not representative of the overall population of PD in our country. However, the clinical and sociodemographic characteristics of our PD group under 60 years were similar to those reported in other studies conducted in similar settings (Breier et al., 1984; Barlow et al., 1985; Aronson and Logue, 1988; Noyes et al., 1987; Rapee et al., 1990; Starcevic et al., 1993; Cox et al., 1994). The rate of comorbidity found in the present study for the younger population with PD is also similar to those reported by other authors (Magee et al., 1996).

4.2. Lesser severity of late-onset PD

Early onset tends to be associated with increased clinical severity in several psychiatric disorders such as major depressive disorder (Weissman et al., 1997b; Kovacs et al., 1988), bipolar disorder (Taylor and Abrams, 1973, 1981; Strober et al., 1988), and obsessive–compulsive disorder (Minichiello et al., 1990). Data are more conflicting in the case of PD; although Goldstein et al. (1997) suggested that early-onset PD probands and first-degree relatives may exhibit more clinical severity, small sample size and lack of severity assessment scales are important

limitations to their results. In a greater sample of subjects with PD, our research team recently demonstrated that early-onset (under 18) PD patients did not exhibit more clinical severity (Seguí et al., in press).

Our finding of less severe PD in elderly patients is in accord with other studies (Sheikh et al. 1991, Sheikh, 1994, Sheikh and Salzman, 1995, Sheikh and Swales, 1998), except for the rate of agoraphobia and level of impairment (GAF), which was similar to the younger patients in our sample. Similarly, Hassan and Pollard (1994) did not find demographic or clinical differences between their younger and elderly PD patients. As Sheikh et al. (1991, 1994) have suggested, a relationship could be posited between the severity of symptoms and the duration of illness. In a recent study (Seguí et al., 1998), we found that severity of panic symptoms was lower at more advanced ages. In this research, a factor analysis of the symptoms was performed, and two main factors — out of four — were found to significantly account for the symptoms' variance: a 'cardiorespiratory' factor, and a 'vestibular' factor, which included the symptoms 'faintness' and 'dizziness'. Interestingly, in our present results, only two panic symptoms were more common and more severe (although not statistically different) in the late-onset group: faintness and dizziness. These 'vestibular' panic symptoms appear to be the most frequent symptoms in late-onset patients. If replicated, this finding should deserve further research to clarify etiopathogenic mechanisms. It has been hypothesized that the lower noradrenergic activity related to aging could explain the lesser intensity of PD symptoms in the elderly (Charney et al., 1990). This decrease would include: reduction in the number of receptors and in the response to noradrenergic agonists and antagonists, neuronal loss in the locus coeruleus, and increase in MAO activity, with a consequent reduction in the levels of noradrenaline and MHPG (Krystal et al., 1992). In this line of evidence, a recent study of Flint et al. (1998) found that when given the panicogenic agent cholecystokinin tetrapeptide (CCK-4), older subjects had significantly fewer and less intense symptoms of panic, shorter duration of symptoms, and less of an increase in heart rate than did younger subjects.

As regards symptom assessment in the elderly, another methodologic problem is a common limitation: memory bias could play a role in the reports of fewer symptoms by older patients (Small, 1997). This bias is reduced in our study, since patients were assessed when they had experienced severe panic attacks and had been referred to emergency or cardiology units.

4.3. Greater comorbidity with dysthymia

Our finding of significantly higher rates of dysthymia in older late-onset PD patients is in agreement with previous reports which indicate an excess of mood disorders in elderly subjects with anxiety disorders (Flint, 1994; Lindesay, 1991). In the series of Luchins and Rose (1989), two of three PD patients with an onset after 65 exhibited minor depressive syndromes (close to dysthymic disorders). The Guy's Age Concern Survey found that 39% of phobic (mainly agoraphobic) subjects had depression, compared with 11% of non-phobic subjects (a statistically significant difference) (Lindesay et al., 1989). The results from the ECA (Eaton et al., 1989) and Lindesay's (1989) studies suggest that the majority of cases of agoraphobia in old age are seldom of recent onset, and that many cases of late-onset agoraphobia arise secondary to a depressive illness or to physical illness. The association of late-onset PD with depression might be explained by the decline of noradrenergic neurons with age (Charney et al., 1990), or, alternatively, by their relation to medical conditions. The predictive value of depression on the outcome of PD is an important issue that requires long-term follow-up studies.

4.4. Less family history

The finding of less family history of PD in late-onset patients is consistent with what has been observed in other disorders such as mood disorders (Taylor and Abrams, 1973, 1981; Strober et al., 1988, Weissman et al., 1997b) or obsessive–compulsive disorder (Bellodi et al., 1992). Conversely, recent studies (Goldstein et al., 1997; Battaglia et al., 1995, Seguì et al., in press) have reported higher rates of PD in first-degree relatives of early-onset PD. All these findings seem to support the hypothesis that a genetic influence may be stronger in younger

patients (Shulman and Post, 1980; Glasser and Rabin, 1984; Bretner, 1994; Battaglia et al., 1998). Family history could not be assessed through direct interview, which could be an important limitation to these results. However, our results of family history in early-onset PD were in accord with Goldstein et al. (1997), in the only research employing this kind of methodology.

5. Conclusion

Prevalence rates of elderly patients with late-onset PD (over 60 years of age) in an outpatient psychiatric sample appeared not to be so low as previously thought, particularly in those settings attending elderly population. Patients with late-onset PD exhibited lesser severity of PD symptoms, but similar levels of impairment than younger PD subjects. The greater frequency of physical illness, together with fewer and milder panic symptoms, may contribute to underdiagnosing (and untreating) elderly patients with PD. Epidemiological studies in the general population are necessary to further investigate and confirm our results.

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