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Brief report

# Generalized anxiety in community-dwelling elderly: Prevalence and clinical characteristics

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ABSTRACT

*Background:* Generalized anxiety disorder (GAD) is a chronic and disabling disorder with a low rate of full remission. As it is commonly assumed that cases in the elderly principally represent the continuing chronic course of early onset illness, there has been little research into the clinical characteristics, including comorbid psychiatric and physical conditions, which may be specific to older people.
*Methods:* Lifetime GAD and psychiatric comorbidity were diagnosed in 1974 community-dwelling elderly people aged 65 or over using a standardized psychiatric examination, the MINI, based on DSM-IV criteria. Multivariate regression analyses were adjusted for socio-demographic, lifestyle, biological, and clinical variables, as well as adverse life events.
*Results:* The lifetime prevalence of GAD was 11% (95% CI=9.6–12.4%) of whom 24.6% reported a late onset with a first episode after 50 years of age. The 6-month current prevalence was 4.6% (95% CI=3.7–5.5%). Most of the prevalent cases were recurrent but only 36.3% were receiving treatment. Fourteen percent were comorbid with major depression and 34% with phobia but their associated factors differed. The factors associated with pure GAD were being female, having cognitive impairment, lower body mass index, reporting low affective support during childhood, taking a high number of somatic medications independently of other mental health factors, e.g. psychotropic medication use, major depression, and phobia.
*Limitations:* The study is limited by cross-sectional design.
*Conclusions:* Our data indicate that GAD prevalence is high in elderly people with a late-life onset of GAD in 25% of cases. GAD in the elderly is not just a severity marker of depression and is clinically distinct from phobia, the other major anxiety disorder of the elderly.



## 1. Introduction

Generalized anxiety disorder (GAD) is a chronic disorder commonly preceding depressive episodes and associated with increased disability and mortality (Kessler et al., 2001). Treatment is difficult with low rates of full remission (Hoge et al., 2012). Despite a high prevalence in primary care, its recognition in general practice is relatively low, especially in older adults (Parmentier et al., 2013). It is indeed commonly assumed that cases in the elderly represent the continuing chronic course of early onset illness and/or a severity marker of depression (Kessler and Wittchen, 2002; American Psychiatric Association, 1994) However, different risk profiles may be expected among the elderly in comparison with younger adults as both the exposure to and the impact of risk factors change with age (Vink et al., 2008). This notably includes lifetime accumulation of traumatic events as well as chronic physical and neuropsychiatric disorders (cognitive decline, depression, and other anxiety disorders which are frequent in the elderly (Ritchie et al., 2004), especially phobia, which also have specific characteristics (Ritchie et al., 2013)).

Previous studies have been mostly carried out in clinical settings, which limits generalizability; community-based studies have tended to use symptom scales as opposed to structured clinical interviews and rarely examine older adults specifically (Vink et al., 2008). Four principal epidemiological studies focusing on GAD in elderly populations mainly found associations with the number of chronic disorders, functional limitations, and psychosocial factors (Beekman

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et al., 2000; Schoevers et al., 2003, 2005; Goncalves et al., 2011; Chou et al., 2011). None of them considered psychotropic use as well as factors associated with early environment, or related to specific age-related chronic disorders.

This study aimed to describe lifetime GAD prevalence for both early and late-life onset cases and their clinical characteristics including comorbidity in a large cohort of over 2000 community-dwelling elderly. Psychiatric disorder was detected using a standardized clinical interview and controlling for a large range of socio-demographic, lifestyle, and clinical variables as well as early and late-life adverse events.

## 2. Methods

### 2.1. Subjects

Participants $\geq 65$ years old were recruited by random selection from electoral rolls between 1999 and 2001 as part of the ESPRIT study of neuropsychiatric disorders in community-dwelling French elderly people (Ritchie et al., 2004). Of the persons initially contacted, 27.3% refused to participate and were replaced by another participant drawn randomly from the same electoral division so that each division was equally represented. The protocol was approved by the National Ethics Committee and written informed consent was obtained. Of the 2189 non-demented participants, 215 were excluded because of missing data on GAD at baseline, leaving 1974 subjects for the analyses. Their socio-demographic, lifestyle, biological and clinical characteristics were not significantly different from those excluded.

### 2.2. Clinical measures and socio-demographic, lifestyle, biological characteristics

The diagnosis of lifetime anxiety disorder and major depression was established according to DSM-IV criteria using the Mini-International Neuropsychiatric Interview (MINI, French version 5.00), a standardized psychiatric interview validated within the general population setting (Lecrubier et al., 1997). Interviewers were trained for 3 months in the Department of Adult Psychiatry at La Colombière Hospital (Montpellier, France), and cases were reviewed by a panel of independent psychiatrists as described previously (Ritchie et al., 2013).

A standardized interview included questions on socio-demographic characteristics, smoking, alcohol, physical activity, diabetes, respiratory disorders, osteoporosis, thyroid disorder, cancer, hypercholesterolemia, hypertension, and measures of weight, height, waist, and hip. Waist-to-hip ratio (WHR) and body mass index (BMI, expressed as $kg/m^2$) were calculated. Medical questionnaires provided information on history of ischemic pathologies (angina, myocardial infarction, stroke, cardiovascular surgery, and arteritis) as well as arrhythmia and heart failure. The participants were asked to show medical prescriptions, drug packages, and any other relevant information to record all past-month somatic and psychotropic medications taken. Mobility limitation, visual and hearing impairment were evaluated as described elsewhere (Norton et al., 2012). Lipid levels were measured from blood samples taken after 12 h-fasting (Ancelin et al., 2010), and global cognitive function using the Mini-Mental State Examination (MMSE), a score $<26$ indicating cognitive impairment (Folstein et al., 1975). Verbal fluency and visual memory were assessed using Isaacs' Set (Isaacs and Kennie, 1973) and the Benton Visual Retention Test (Benton, 1965). The Trail Making Tests (TMT) A and B assessed psychomotor speed and executive function (Reitan, 1958). Low cognitive performance was defined as scoring in the lowest tertile except for the timed TMT (highest). Exposure to adverse events in the past year was assessed using the Gospel Oak questionnaire (Harwood et al., 1998). A self-report questionnaire (Ritchie et al., 2009) with binary yes/no response categories examined environment during childhood and adolescence, covering exposure to severe abuse (physical, verbal or sexual abuse, neglect or excessive punishment), parental loss or separation, parents with mental disorder, alcohol or drugs problems, conflict at home, financial difficulties, excessive sharing of problems, war and natural catastrophe. Low affective support was defined as having reported less than six positive factors among parental affection, availability of an adult friend, happy childhood, happy at school, normal education, parents doing their best, and raised by both parents.

### 2.3. Statistical analysis

Chi-square tests compared the characteristics of participants included in the analyses with those excluded. Logistic regression was used to compare participants with or without GAD at baseline and polytomous regression to compare subjects with pure GAD, GAD comorbid with phobia, and pure phobia, with subjects free of GAD and phobia. Multivariate models included covariates associated with GAD ($p<0.15$). Model 1 was adjusted for socio-demographic and clinical variables and Model 2 was further adjusted for psychiatric variables (including use of psychotropic medication, current major depression and phobia). SAS (version9.3, SAS Institute, NC, USA) was used for the statistical analysis and all tests were two-tailed, with the significance level at $p<0.05$.

## 3. Results

### 3.1. Socio-demographic and clinical characteristics associated with current GAD

In this elderly sample (58.3% females), the 6-month prevalence of GAD was 4.6% (95% CI=3.7–5.5%). The mean(SD) age of the sample was 72.8(5.3) years with no significant differences between subjects with and without GAD. Current GAD was 2.2-fold more frequent in women (6.0% vs. 2.7%, $p=0.0007$). Around 36.3% of the GAD cases were taking psychotropic medication (compared to 13.1% without GAD, $p<0.0001$); 42.5% anxiolytics, 33.3% antidepressants and 24.2% both. In analyses adjusted for age and sex, a higher education level, higher BMI, and lower HDL-cholesterol were significantly associated with a lower odds of GAD (Table 1). GAD was associated with lower performance on the Isaacs task, hearing impairment, number of somatic medications, depression, phobia, psychotropic medication, and recent adverse events. Multivariate logistic regression (Model 1) showed a higher number of somatic medications and female sex being associated with GAD and higher BMI with lower prevalence (Supplementary Table S1). After further adjustment for psychiatric disorder (Model 2), the association with higher BMI was significant (OR=0.59, 95% CI=0.35–0.98, $p=0.04$) as well as that with psychotropic medication (OR=2.62, 95% CI=1.56–4.40, $p=0.0003$), depression (OR=2.80, 95% CI=1.29–6.11, $p=0.01$), and phobia (OR=3.72, 95% CI=2.22–6.23, $p<0.0001$). The impact of early environment was examined in 1352 participants having completed the childhood questionnaire. In the fully adjusted model (Model 2), low affective support was independently associated with GAD (OR=1.98, 95% CI=1.00–3.91, $p=0.05$).

### 3.2. Psychiatric comorbidity

Fourteen percent of GAD cases were comorbid with major depression, and 38.2% with other anxiety disorders, which was predominantly phobia of all types (for 34.8%) (cf. Table 1). Less