

## Anxiety Disorders

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JAN K. MOKKENSTORM<sup>1</sup>

Anxiety disorders are a group of psychiatric disorders characterised by anxiety symptoms that occur and persist without external (threatening) stimuli. Anxiety disorders are among the most prevalent disorders among the elderly with estimated one-month prevalence rates between three and nine percent (Skoog 1991, Lindsay *et al.* 1989, Regier *et al.* 1993).

The study of anxiety disorders has been included in LASA for several reasons. First, anxiety disorders threaten 'successful' aging in the elderly. Anxiety disorders have been associated with increased mortality (Kay and Bergmann 1966) and somatic illness (Lindsay 1991); with high levels of comorbidity with depression (Larkin *et al.* 1992, Maser and Cloninger 1990) and alcohol abuse (Kushner 1990); and with increased dependence (Queen and Freitag 1978). Therefore the occurrence of anxiety disorders seems to be important in the study of well-being and autonomy in the elderly.

Second, little is known about the course of anxiety disorders in the elderly. Results of longitudinal studies of anxiety disorders among adults younger than 55 years indicate a chronic course characterized by frequent incomplete remissions (Wittchen 1988, Ormel *et al.* 1993) and less favorable outcome when there is comorbid depression (Murphy 1990). To our knowledge, the published results of longitudinal studies of anxiety disorders in the elderly have been restricted to only two studies among selected populations, with only one follow-up measurement after baseline (Larkin *et al.* 1992, Bowling *et al.* 1992). These studies indicate fluctuating levels of anxiety, with an in time alternating pattern of anxiety and depression.

The planning of health care facilities, the development of preventive and curative programs aimed at prevalent disorders in the rapidly growing elderly population depend greatly upon knowledge of the course of these

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<sup>1</sup> Jan K. Mokkenstrom, M.D., is a resident in psychiatry and research scientist in the Department of Psychiatry, Vrije Universiteit, Amsterdam.

disorders, as well as upon predictors of favorable and less favorable outcome.

Third, the study of the course of anxiety disorders may clarify two intriguing observations. The first is the high rate of comorbidity with depression. The concurrent study of the course of depression and of anxiety may indicate whether in the elderly anxiety precedes depression, as has been shown in younger adults (Angst and Dobler Mikola 1985). If so, these findings would support aspects of the tripartite model of anxiety and depression (Clark and Watson 1991), in which anxiety is a shared phenomenon in depressive and anxiety disorders. In this model, the high rate of comorbidity of anxiety disorders and depression is explained by a partially causal relation in which the occurrence of anxiety causes or facilitates the occurrence of depression.

If anxiety would not precede depression in the elderly, these findings may indicate that there might be an important difference in the etiology of anxiety in elderly and younger subjects, justifying the distinction between early and late onset anxiety disorders (Flint 1994). Late onset anxiety disorders have been hypothesized as a sequel to late life depression and cognitive decline.

The second intriguing finding is the drop in prevalence rates of anxiety disorders by two to four percent after age 55 (Regier *et al.* 1990). While this may be a selection bias effect caused by excess mortality, it is possible that anxiety disorders have a shorter course among the elderly. This hypothesis could be tested in LASA, where different age cohorts are being studied longitudinally.

The interest in anxiety disorders in elder persons is quite recent. Major conceptual issues have yet to be addressed.

In the literature, there is no clearcut and common definition of the concept of 'anxiety'. Most definitions used are descriptive by nature and include cognitive, emotional and somatic phenomena. Usually, the cognitive phenomena in definitions of anxiety pertain to an anticipated danger or threat; the emotional phenomena to subjective feelings of dread; fear and apprehension, and the somatic phenomena to a range of autonomic bodily symptoms. Also, in the definitions of anxiety, there is often a statement regarding the absence of real, present danger. This distinguishes anxiety from fear, in which the same phenomena occur in response to real, external events. As stated in DSM-III-R (American Psychiatric Association 1987), anxiety may be focused on an object, situation or activity, which is avoided (phobia), or it may be unfocused (free floating anxiety); it may be experienced during prolonged periods of time, or occur in panic attacks.

The distinction between anxiety and fear is problematic when constructing an operational definition of anxiety to use in a community survey. Several solutions are possible. In our study, we choose to define anxiety disorders at two different levels of caseness: the diagnostic and the syndromal levels of caseness. We speak of anxiety disorders at the diagnostic level of caseness when the anxiety symptoms meet standardized criteria for a DSM-III-R diagnosis. These criteria exclude fear, and exclude mild levels of pathology or incidental appearance of symptoms. At the syndromal level of caseness, pathology exists that does not meet diagnostic criteria, but is still severe enough to influence functioning.

In our study, the classification of cases according levels of caseness is obtained by means of a two-stage design. In the first stage, a sensitive instrument is employed to screen all respondents for anxiety. At the second stage, respondents identified with levels of anxiety at the syndromal level of caseness will have a standardized diagnostic interview. The diagnostic instrument to be used in the anxiety study is the well-known Diagnostic Interview Schedule (Robins *et al.* 1981a and b), of which the depression, anxiety and alcohol abuse sections are used.

The theoretical background of the study of anxiety is the stress-diathesis model. In this model symptoms, in this case of anxiety, appear in vulnerable individuals when stressors tax the individual beyond the capacity to cope with these stressors. We assume that there are factors that increase the risk of developing an anxiety disorder, such as a positive family history of these disorders or certain personality characteristics like having an external locus of control or high neuroticism. Also, we assume there are factors that protect the individual against the occurrence of anxiety disorders, such as social support, employment and education.

Based on the stress-diathesis model, our main hypothesis is that the presence of anxiety is associated with the presence of current stressors; of factors that co-determine vulnerability; and with the (relative) absence of protective factors. More specifically, we predict that the occurrence of anxiety is positively associated with having chronic illnesses; with the personality characteristics external locus of control - the feeling that external circumstances and events determine one's course of life - and neuroticism; with increasing age; and with female sex. Based on the presumed social support derived from marriage, it would seem likely that the factor currently being married is negatively associated with the presence of anxiety. Similarly, level of education is predicted to have a negative association with anxiety.

## Methods

### *Measurement of anxiety*

By the time of the start of the first LASA cycle, there was no screening instrument available that was both well validated among the elderly and feasible within the framework of a large longitudinal survey. The instrument to screen for anxiety disorders needs to be short, little taxing to respondents, and relatively insensitive to anxiety-like manifestations of physical disease which can be expected in the elderly. Given these requirements, the Hospital Anxiety and Depression Scale - Subscale Anxiety (HADS-A) was selected. This is one of two seven-item subscales of a self-report questionnaire developed for use in medical outpatient clinic attenders (Zigmond and Snaith 1983). The HADS has been extensively validated in younger adults (Aylard *et al.* 1987). The use of separate subscales is justified, since both subscales measure different dimensions (Moorey *et al.* 1991). The score-range of each subscale of the HADS is 0 to 21, 0 reflecting the lowest possible level of pathology. For screening purposes, the recommended cut-off score at each subscale is eight or more.

The concept of anxiety that is being measured by the HADS-A is determined by its items. These are self report statements regarding: feeling tense or 'wound up'; a frightened feeling as if something awful is about to happen; worrying; the (in-)ability to sit at ease and relax; a frightened feeling like 'butterflies' in the stomach; feeling restless as if to have to be on the move; and sudden feelings of panic. The respondent can choose from four response categories: rarely or never, some of the time, occasionally, mostly or always. The respondent is asked to indicate as spontaneously as possible the response that comes closest to the way he felt in the last few days. The HADS-A was included in the main interview and had complete data on 2918 respondents. It was not included in the short version of the interview.

### *Other measurement instruments*

Marital status was dichotomized into currently being married (score 1) or not (score 0); education was trichotomized into low, middle and high level of education. The illnesses factor consists of the sum of chronic illnesses explicitly assessed in the interview (cancer, COPD, vascular diseases, rheumatoid diseases, stroke, diabetes mellitus, heart disease). The neuroticism factor is the summed score on the Social Inadequacy items of the Dutch Personality Questionnaire (Luteijn 1974). Locus of control was determined using the Mastery scale (Pearlin and Schooler 1978).

*Statistical method*

To test our predictions, two logistic regression analyses were performed. Two dichotomised HADS-A variables were used as dependent variables. As stated above, a HADS-A score of 8 or more is the criterium to classify for anxiety at a syndromal level of caseness. At this point baseline data of the Diagnostic Interview Schedule are not available. To give an impression of the association of key variables with anxiety at a diagnostic level of caseness, the HADS-A score of 11 or more was used as an indication of anxiety at the diagnostic level of caseness.

**Results**

In table 1 are summarized some descriptive statistics for the HADS-A in the baseline cycle. Reassuring is the high internal consistency (Cronbach's alpha = 0.81). The male-female differences in anxiety score was significant ( $p < 0.05$ ).

Table 1  
Descriptive statistics for the Hospital Anxiety and Depression- Subscale Anxiety

	Total	Male	Female
Mean score	2.53	2.06	2.96
St. dev.	3.30	2.86	3.60
St. error	0.06	0.08	0.09
Median	1	1	2
Alpha	0.81		

Table 2  
Number of syndromal and 'diagnostic' cases of anxiety by sex

Anxiety	Total	Male	Female
HADS-A >7	253	90	163
HADS-A >10	103	33	70

As shown in table 2, of the 2918 respondents in the analysis 253 (8.7%) had HADS-A scores of 8 or more. Of these syndromal cases, 35.6% were male and 64.4% were female. Similarly, of 103 'diagnostic' cases scoring 11 or more (3.5% of the total analytical sample), 32.0% were male and

68.0% were female. Thus, almost twice as many females as males were a case on either level.

In the regression equations demographic, somatic, social and psychological variables were included as factors. Due to missing values, 273 respondents were excluded, yielding 2846 respondents for analysis. Regression coefficients of both logistic regression analyses are displayed in table 3.

Table 3  
Logistic regression coefficients (and standard errors) of two regression models predicting anxiety at both the syndromal and the 'diagnostic' level

	Anxiety HADS-A $\geq 8$	Anxiety HADS-A $\geq 11$
Age (5 yr groups)	-0.11 (0.05)*	-0.13 (0.07)
Sex	0.35 (0.16)*	0.50 (0.24)*
Illnesses	0.19 (0.07)*	0.23 (0.09)*
Neuroticism	0.06 (0.01)**	0.05 (0.01)**
External Locus	0.27 (0.02)**	0.32 (0.03)**
Marital Status	-0.28 (0.16)	-0.09 (0.24)
Education	-0.10 (0.11)	-0.22 (0.18)

\*  $p < 0.05$

\*\*  $p < 0.001$

Interestingly, being in a younger age group predicts anxiety at the syndromal level of caseness. The predictive ability is reduced to non-significant at the 'diagnostic' level. As stated earlier, this finding still has to be explained by longitudinal studies. Sex is significantly, but weakly, predictive of the occurrence of anxiety at both levels of caseness. The fact that females constitute almost twice the number of cases of anxiety as compared to males can therefore not be ascribed to the factor sex alone.

Since illness is considered to be a major stressor, it is surprising to observe that chronic illness is only weakly predictive of anxiety at both levels of caseness. One explanation for this finding could be that older persons are able to adapt to illnesses, finding a more or less stable functional equilibrium with a minimum of anxiety.

Neuroticism turns out to be a strong predictor of anxiety at both levels of caseness. This is what one would expect to find when screening for anxiety, since most authors view neuroticism as almost synonymous with 'trait anxiety'. External locus of control appears to be the best

predictor of anxiety at both levels of caseness. This is also according to our expectation.

Both presumably protective factors, currently being married and level of education, do not significantly predict anxiety at either level of caseness. This finding may be interpreted to mean that protective factors do not have direct effects on level of anxiety.

### Conclusions

The longitudinal and cross-sectional study of anxiety disorders among the elderly is of great scientific and public health importance. Anxiety disorders are prevalent in the LASA sample, with prevalence rates of 8.7 at the syndromal - and 3.5 at the 'diagnostic' level of caseness. The vulnerability factors external locus of control and neuroticism are significant predictors of anxiety at both levels of caseness. The stressor number of chronic illnesses only has weak predictive ability at both levels of caseness. The same is true for sex, when other factors are taken into account. The protective factors currently being married and level of education do not predict anxiety at either level of caseness.

These first descriptive findings concern direct effects only. Further research should attempt to determine conditions under which both stressors and protective factors are most likely to operate, and how each type of factors affects the course of anxiety disorders.

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