The effect of somatic symptom attribution on the prevalence rate of depression and anxiety among nursing home patients

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Abstract

The validity of diagnostic psychiatric instruments for depression and anxiety disorders may be compromised among patients with complex physical illness and disability. The objective of this study was to determine the effect on the prevalence rate of depression and anxiety in a nursing home population of attributing somatic symptoms of depression and anxiety to either somatic or psychiatric disorder. Symptoms of major depression (MD), generalized anxiety disorder (GAD) and panic disorder (PD) were measured using the Schedules for Clinical Assessment in Neuropsychiatry (SCAN). Somatic symptoms of MD, GAD and PD were attributed to somatic causes when the interviewer was not sure about a psychiatric cause. To analyse the effect of this attribution on the prevalence rate of MD, GAD and PD, a sensitivity analysis was undertaken in which symptoms that were attributed to somatic causes were recoded as symptoms attributed to psychiatric disorder. Prevalence rates of MD, GAD and PD were calculated before and after recoding.

The prevalence of MD after recoding rose from 7.5% to 8.1%. The prevalence of GAD did not change. The prevalence of PD rose from 1.5% to 1.8%. Attribution of somatic symptoms to either somatic or psychiatric disorder when the interviewer was not sure about a psychiatric cause of the somatic symptoms had only a very modest effect on the prevalence rate of major depression, generalized anxiety disorder and panic disorder in a nursing home population.

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Introduction

One of the major problems in epidemiological psychiatric studies that investigate the prevalence of depression and anxiety disorders among elderly is how to deal with the somatic symptoms that contribute to DSM-IV (American Psychiatric Association, 1994) diagnoses like major depression (MD), generalized anxiety disorder (GAD) and panic disorder (PD). Should these somatic symptoms be attributed to a psychiatric disorder or should the symptoms be attributed to a physical illness?

Standardized diagnostic instruments such as the Diagnostic Interview Schedule (DIS) (Robins et al.,

1981) and the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) (World Health Organization, 1999) offer the possibility of distinguishing between psychiatric and somatic attributions of somatic symptoms. Symptoms attributed to somatic disorders then no longer contribute to psychiatric diagnoses.

In the DIS, attribution depends solely on respondents' self reports, which may lead to underdiagnosing of psychiatric diagnoses in elderly populations because older persons are more likely to attribute somatic symptoms to somatic causes than to psychiatric causes (Fogel and Fretwell, 1985; Harper et al., 1990;

Snowdon, 1990). In two community-based studies, using the DIS, it was indeed observed that attribution of somatic symptoms to somatic causes increased with age and that attribution to psychiatric causes decreased (Knauper and Wittchen, 1994; Heithoff, 1995).

In this study the SCAN was used in a nursing home population. In the SCAN, attribution is a decision of the interviewer and depends on anamnestic information (interview, self-report) together with additional information (from medical charts, medical histories, medication). In frail nursing-home patients with multiple chronic somatic morbidity this attribution decision often cannot be made beyond doubt.

Information about the effect of this often doubtful attribution on the prevalence rate of MD, GAD and PD in nursing home patients is lacking, although it is important for epidemiological psychiatric research as well as for clinical practice in nursing homes.

This study therefore investigated the effect attributing somatic symptoms to either somatic or psychiatric disorders may have on the prevalence rate of MD, GAD and PD.

Methods

Study population

This study is based on data collected in the Amsterdam Groningen Elderly Depression (AGED) study (Jongenelis et al., 2004). Fourteen nursing homes in the north-west of the Netherlands were selected to participate. Nursing homes for specific disease categories were excluded as were small nursing homes (<60 beds). No large reorganization or rebuilding activities were allowed because of possible influence on the mood of the respondents. To be eligible, subjects had to be aged 55 years and over, Dutch speakers, able to communicate sufficiently, and without serious hearing problems or severe cognitive impairment (Mini-Mental State Examination ≥ 15) (Folstein, Folstein and McHugh, 1975). All eligible patients were informed verbally and in writing. Informed consent was obtained from all respondents prior to inclusion. The Medical Ethical Committee of the VU University Medical Center approved the study.

From the source population (696 nursing home patients who met inclusion criteria) eventually an active sample of 350 patients remained who partici-

pated in the baseline data collection. Fifty-eight patients (8.3%) died before the interview could be started and 46 patients (6.6%) could not be interviewed because they were mentally or physically too ill to be interviewed; 235 patients (33.8%) refused to participate in this study and seven patients (1.0%) were not included for other reasons.

Complete SCAN-interview data were available for 333 of the remaining 350 patients: 47.8% of the source population.

Data were collected between November 1999 and May 2001. All measurements were administered in face-to-face interviews lasting between one and three hours, spread over one to three interview sessions.

Instruments

The SCAN, a semi-structured diagnostic interview developed by the World Health Organization, including the Present State Examination (PSE), was used to measure depressive and anxiety symptoms (World Health Organization, 1999). It contains sections in which DSM IV criteria of depression and anxiety disorders are incorporated (American Psychiatric Association, 1994). Trained interviewers conducted sections 3 (symptoms like worrying, nervousness), 4 (symptoms of anxiety, panic and phobia) 6 (depressive symptoms), 7 (symptoms like loss of concentration and energy) and 8 (symptoms like weight loss, sleeping problems).

If somatic symptoms were attributable to somatic disorders (physical illness or use of medication) this was registered by the interviewer. The interviewer used interview information, chart information and information provided by care personnel for the attribution decision. In the original SCAN procedure somatic symptoms were only attributed to somatic disorder when the interviewer was convinced about a somatic cause. However, in the nursing home this procedure was judged to be less appropriate as residents were selected to have complex multimorbidity. In order to arrive at conservative estimates of the prevalence of depressive and anxiety disorders, somatic symptoms were also attributed to a somatic disorder when the interviewer was unsure about the attribution. This modified attribution further offered the opportunity to quantify the amount of diagnostic doubt and its effect on prevalence rate of MD, GAD and PD in nursing home populations.

Being convinced or being in doubt about attribu-

tion of somatic symptoms to somatic disorders was not something that was recorded separately, but interviewers mentioned in research discussions that they were in doubt in the majority of somatic attribution decisions.

Somatic symptoms were coded into four categories:

- (0): symptom not present
- (1): symptom present, but below threshold for clinical relevance
- (2): symptom present, but attributable to somatic disorders (physical illness or use of medication)
- (3): symptom present and attributable to psychiatric disorders

Analyses

For diagnosing major depression (MD), generalized anxiety disorder (GAD) or panic disorder (PD) the DSM-IV criteria require presence of several somatic symptoms (American Psychiatric Association, 1994). Criterion A for major depression includes significant change of weight or appetite, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy and diminished ability to think or concentrate. Criterion C for generalized anxiety disorder partly includes the same symptoms but also irritability and muscle tension. Criterion A1 for panic disorder includes the somatic symptoms of a panic attack: palpitations, sweating, trembling, shortness of breath, feeling of choking, chest pain, nausea, feeling dizzy, paresthesias and chills or hot flushes.

To assess the effect that attributing of these symptoms to somatic disorder may have had on the prevalence of MD, GAD and PD, the symptoms originally scored 2 were recoded into score 3. The next step was to calculate the prevalence of MD, GAD and PD (with and without agoraphobia) for the dataset with the originally coded symptoms and for the dataset with the recoded symptoms. This is a sensitivity analysis, showing the upper limit of the effect misclassification of symptoms may have had.

Results

The study sample consisted of 333 nursing home patients. Table 1 shows the demographic and clinical characteristics of the population. Their mean age was 79.3 years and 68.8% were women. In more than 50% of them three or more physical illnesses were present. All had moderate to large functional impairments and in 61.9% the MMSE score varied from 15 to 23.

In Table 2 the prevalence of symptoms attributed to somatic disorders and of symptoms attributed to psychiatric disorders is summarized (somatic symptoms of criterion A for MD, criterion C for GAD and criterion A1 for PD). Somatic symptoms of MD and GAD were predominantly attributed to psychiatric disorder, whereas somatic symptoms of PD were predominantly attributed to somatic disorder.

Using the original data, a prevalence of 7.5% (95% CI: 4.7% – 10.3%) ($n = 25$) was found for MD, a prevalence of 1.2% ($n = 4$) was found for GAD and a prevalence of 1.5% (95% CI: 0.2%–2.8%)($n = 5$) was found for PD.

Reattributing symptoms to psychiatric disorders did

Table 1. Demographic and clinical characteristics of a sample of nursing home patients in the Netherlands ($n = 333$)

Characteristic	N	%
Age (mean 79.3; SD 8.3; range:55–99)		
55–79	161	48.3
80–99	172	51.7
Sex		
Male	104	31.2
Female	229	68.8
Having a partner		
Yes	98	29.4
No	235	70.6
Years of education		
<=6 years	141	42.5
> 6 years	191	57.5
Vision		
Not impaired	266	79.9
Impaired	67	20.1
Hearing		
Not impaired	304	91.6
Impaired	28	8.4
Number of physical illnesses (mean 3.7; SD 1.6; range 1–9)		
<3	141	48.1
≥3	152	51.9
Functional impairments		
large	144	43.4
moderate	188	56.6
Cognitive functioning (MMSE) (mean 22.0; SD 3.8; range 15–30)		
Mild dysfunction (15–23)	206	61.9
No dysfunction (24–30)	127	38.1
Length of stay		
> 1 year	199	59.7
< 1 year	134	40.3

Table 2. Prevalence of somatic symptoms ('symptoms attributed to psychiatric disorders' or 'symptoms attributed to somatic disorders') of major depression, generalized anxiety and panic disorder in a sample of nursing home patients in the Netherlands (n = 333)

	Symptoms attributed to psychiatric disorders n (%)	Symptoms attributed to somatic disorders n (%)
<i>Somatic symptoms of major depression and generalized anxiety disorder</i>		
Significant change of weight or appetite	51 (15.3%)	1 (0.3%)
Sleeping problems (insomnia or hypersomnia)	94 (28.2%)	4 (1.2%)
Psychomotor agitation or retardation	30 (9.0%)	11 (3.3%)
Fatigue or loss of energy	64 (19.2%)	23 (6.9%)
Diminished ability to think or concentrate, indecisiveness	25 (7.5%)	3 (0.9%)
Irritability	16 (4.8%)	0 (0%)
Muscle tension	21 (6.3%)	20 (6.0%)
<i>Somatic symptoms of panic disorder</i>		
Palpitations, pounding heart	15 (4.5%)	32 (9.6%)
Sweating	11 (3.3%)	30 (9.0%)
Trembling or shaking	8 (2.4%)	40 (12.0%)
Shortness of breath	12 (3.6%)	29 (8.7%)
Feeling of choking	12 (3.6%)	22 (6.6%)
Chest pain or discomfort	9 (2.7%)	24 (7.2%)
Nausea or abdominal distress	17 (5.1%)	37 (11.1%)
Feeling dizzy, unsteady, light-headed, or faint	10 (3.0%)	66 (19.8%)
Paresthesias	5 (1.5%)	37 (11.1%)
Chills or hot flushes	13 (3.9%)	22 (6.6%)

increase the prevalence of MD to 8.1% (95% CI: 5.2% – 11%)(n = 27). The prevalence of GAD did not change and the prevalence of PD rose to 1.8% (95% CI: 0.4% – 3.2%)(n = 6).

Discussion

The present study examined the effect attributing somatic symptoms of depression and anxiety to either somatic or psychiatric disorder may have on the estimates of prevalence of depression and anxiety in nursing home patients. Results showed that attribution of symptoms to somatic disorders occurred frequently, although much less frequently for symptoms of MD and GAD than for symptoms of PD.

Recoding of the symptoms that were attributed to somatic disorders into symptoms attributed to psychiatric disorder led to only a very modest increase in prevalence rates of MD (7.5% to 8.1%) and PD (1.5% to 1.8%). The prevalence rate of GAD (1.2%) remained unchanged.

It was remarkable that the recoding of somatic

symptoms of PD that were originally frequently attributed to somatic disorders resulted in only a small increase of prevalence rate of PD. This is probably caused by the DSM-IV criteria for PD. Although in the recoded situation many more people suffered from a panic attack (53 instead of 16), these panic attacks did not have the frequency (two or more) and the consequences (constant worrying about a next panic attack or about the consequences of the panic attack; important behavioural changes due to the panic attacks) required for a psychiatric diagnosis of PD.

The findings of the present study are in line with the results reported in a community-based study (ECA study) for the prevalence of late-life depression before and after recoding of symptoms originally attributed to somatic disorder (Heithoff, 1995). Heithoff observed only small differences in prevalence using the DIS as diagnostic instrument in which attribution is based on the respondents' self-report.

Some limitations of the present study must be mentioned. Firstly, the study population is selective.

Serious cognitive impairment (MMSE < 15), speech and language problems and extreme frailty were exclusion criteria. It is possible that problems with correct attribution of symptoms are even greater in extremely frail patients. This could then cause larger differences in prevalence rates before and after recoding.

Secondly, the numbers of patients with MD, GAD and PD was small. Future studies, with larger populations, are needed to confirm the results of this study.

Conclusions

Even in a setting with frail elderly, such as a nursing home, misclassification of somatic symptoms of depression and anxiety has, at maximum, only a very modest effect on the prevalence of depressive and anxiety disorders.

Our findings therefore question the widely held belief that MD, GAD and PD are underdiagnosed in elderly patients due to misclassification of somatic symptoms.

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