Original Research Article

Prevalence of Depression among Recently Admitted Long-Term Care Patients in Norwegian Nursing Homes: Associations with Diagnostic Workup and Use of Antidepressants

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Key Words

Depression · Antidepressant medications · Diagnostics · Nursing homes · Admission

Abstract

Aims: We aimed to establish the prevalence of depression among recently admitted long-term care patients and to examine associations with diagnostic initiatives and treatment as recorded in patients' medical records. **Materials and Methods:** Eighty-eight long-term care patients were included. Depression was diagnosed according to the ICD-10 criteria; patients were screened for depression using the Cornell Scale for Depression in Dementia (CSDD) and for dementia with the Clinical Dementia Rating (CDR) scale. **Results:** Depression was found in 25% of the patients according to the ICD-10 criteria and in 31% according to a CSDD sum score of ≥ 8 . Diagnostic initiatives were documented in the medical records of half of the patients with depression. Forty-four percent of the patients were prescribed antidepressants and 23% actually received them for the treatment of depression. **Conclusion:** Depression was prevalent among recently admitted long-term care patients, but diagnostic initiatives were too rarely used. Antidepressants were commonly prescribed, but depression was the indication for treatment in only half of the cases. Screening for depression should be mandatory on admission.

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Introduction

Depression is prevalent among nursing home patients [1–4] and contributes to reduced quality of life as well as increased morbidity and mortality [3, 5, 6]. The course of depression may be diverse, and treatment should be tailored to patients' individual needs. Drug treatment

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appears to be most common, while nonpharmacological treatment options like environmental initiatives and psychotherapy are seldom used in nursing homes [7]. Studies show that antidepressant drugs are prescribed to more than every third nursing home patient [8–10]. However, evidence of treatment effectiveness of antidepressant medications is limited in mild and moderate depression and depression in patients with dementia [11, 12]. Further, antidepressants may increase the risk of falls, hip fracture, hyponatremia and death [13–17]. The prevailing treatment of depression in nursing homes should therefore be reconsidered [18].

Previous research suggests that diagnostics and treatment decisions regarding depression in nursing homes are haphazard and that doctors seldom participate in diagnostic workup and treatment evaluations [19]. Although moving into a nursing home may indicate safety and comprehensive care, it also involves adjustment to a thoroughly different environment and it may imply dependency, loss and mourning [20]. Hence, recently admitted patients may be especially prone to depression, as shown in an Australian study [2].

Therefore, we designed a study to establish the prevalence of depression in patients recently admitted to long-term care (LTC) in nursing homes and to examine associations of depression with diagnostic workup and treatment with antidepressants recorded in patients' medical records.

Materials and Methods

Nursing Homes in Norway

In Norway, the municipalities are responsible for the nursing home services. About 40,000 Norwegian citizens live in a nursing home, which corresponds to 18% of inhabitants aged 80 years and older (Statistics Norway, 2012). Most nursing home doctors are general practitioners (GPs) working part time in these institutions, typically 1 or 2 days per week, although some larger nursing homes have full-time employed doctors. The doctor coverage is on average 0.37 h per week per patient [21].

Study Population

Following an information meeting, all 27 nursing homes in 3 municipalities in Rogaland County, Norway, were invited to participate in the study. Institutions that did not attend the meeting were asked by e-mail and phone calls to participate. Eleven nursing homes (24–145 beds) consented to participate. The participating institutions comprised 24 units, i.e. 22 regular units and 2 special care units for patients with dementia. The 11 nursing homes were enrolled consecutively during the study period, from April 2011 to May 2012. Ten institutions participated during the whole study period, and 1 institution was enrolled 2 months before the end of the study.

All recently admitted patients (defined as a stay shorter than 3 months) to LTC in the 24 nursing home units were informed about the study and invited by registered nurses to participate. Patients with an expected lifetime shorter than 3 months were not eligible. The patients were enrolled consecutively throughout the study period. Of 123 eligible patients, 18 declined to participate, 7 did not fulfill the inclusion criteria, 5 withdrew their consent, and 5 were not able to take part in individual interviews due to severe dementia. Finally, 88 patients were included in the study population. If they were competent, they gave their written informed consent themselves. Otherwise, the patients' next-of-kin was asked to provide a written informed consent.

Assessment

We extracted demographic information from the patients' medical records such as gender, year of birth, marital status, and date of nursing home admittance. Further, we retrieved documentation on any diagnosis of depression and diagnostic initiatives from the medical records, such as: (1) diagnosis codes F41.2 (mixed anxiety and depressive disorder) from the ICD-10 (WHO, Classification System, 1992), and P03 (depressed mood) and P76 (depressive disorder) from the ICPC-2 (International Classification of Primary Care, second edition); (2) diagnostic tests such as the Cornell Scale for Depression in Dementia (CSDD) [22] and the Geriatric Depression Scale (GDS), and (3) any notes made by the nursing home doctor regarding the presence of depression or depressive symptoms. In addition, notes regarding depression in the nurses' documentation

system were retrieved but not considered as diagnostic initiatives. For patients treated with antidepressant drugs, we registered when and why medication was started, and any change of drug treatment after admission to nursing home. Nonpharmacological therapy for depression was recorded as well.

Immediately after carefully having studied the patients' medical records, the first author (K.R.I.), a GP, conducted individual interviews with all patients in order to diagnose depression according to the criteria of ICD-10. In addition, we applied the Major Depression Inventory [23] in order to rate the severity of depression. Thus, this scale was not used to diagnose depression; therefore, the validity is of less importance. Occasionally, the patients' close relatives or primary nurse took part in the interviews. The diagnosis of depression was based both on interviews and diagnostic information from medical records. We compiled all diagnoses of F32–34 (ICD-10) into a common diagnosis labeled 'depression'.

Immediately after having compiled the diagnosis of depression for each patient, the GP completed the CSDD in collaboration with the patients' primary nurse. The CSDD is validated for both patients with and without cognitive impairment, showing high interrater reliability and fairly good validity among Norwegian nursing home patients [24]. The scale comprises 19 questions with the possible scores 0 (absent), 1 (moderate), and 2 (severe). The total score ranges from 0 to 38; scores of ≥ 8 indicate depression; a score > 12 indicates severe depression.

The interview of the patients' primary nurse also comprised the Clinical Dementia Rating (CDR) scale [25]. The CDR scores range from 0 (no dementia), to 0.5 (mild cognitive impairment), 1 (mild dementia), 2 (moderate dementia), and 3 (severe dementia). The scale has been validated for nursing home patients in Norway. Scores of ≥ 1 indicate dementia with a very high sensitivity and specificity [26].

The Lawton and Brody Instrumental Activities of Daily Living (IADL) [27] scale was completed by the patients' primary nurse. The IADL scale comprises 8 items with possible scores of 0 (not able to evaluate) and 1 (normal functioning), whereas increasing values from 2 to 5 indicate functional impairment in terms of everyday activities. The total score ranges from 8 to 31.

Ethics

The study was approved by the Western Regional Committee for Medical and Health Research Ethics (2011/537). Written consent was obtained from patients or next-of-kin for patients with cognitive impairment. Nine patients were able to provide their own consent to participate.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics 18 (PASW Statistics for Windows, SPSS Inc., Chicago, Ill., USA). We investigated all variables for normality using histograms and Q-Q plots. To explore the relationship between categorical data, we used the χ^2 test for independence. In case of numbers smaller than 5, we used Fisher's exact test. For correlation analysis on continuous variables, we used the Pearson product-moment correlation coefficient.

Results

Demography and Dementia

A total of 88 patients were included, with a mean (SD) age of 86.9 (8.0) years for men and 86.2 (7.2) years for women; 58.9% of the patients were women (table 1). The median (range) time from LTC admission to assessment for depression was 50 (6–128) days. According to the CDR, 69/88 (78.5%) patients suffered from dementia (CDR score ≥ 1). The median (range) IADL score was 27 (9–31) (table 1). There was a strong positive correlation between IADL and CDR scores ($r = 0.53$, $p < 0.001$).

Depression

Symptoms of depression were evaluated according to the research criteria of ICD-10. Of the 88 patients, 63 (71.6%) were not depressed, 15 (17.0%) had mild, 5 (5.7%) had moderate, and 5 (5.7%) had severe depression. The prevalence of depression did not differ significantly between the 35 patients who were evaluated within 6 weeks after admittance and those 52 evaluated after 6 weeks of stay [11/35 (31.4%) vs. 14/52 (29.6%), $p = 0.65$].

Table 1. Patient characteristics

Age, years	86.4 ± 7.4
Women	56 (58.9)
Marital status	
Widowed	58 (65.9)
Married	21 (23.9)
Unmarried	7 (7.9)
Divorced	2 (2.3)
Number of days from admission to screening	50 (6–128)
Clinical dementia rating	
No dementia (CDR scale score = 0)	10 (11.4)
Mild cognitive impairment (CDR scale score = 0.5)	9 (10.2)
Mild dementia (CDR scale score = 1)	27 (30.7)
Moderate dementia (CDR scale score = 2)	32 (36.4)
Severe dementia (CDR scale score = 3)	10 (11.4)
Lawton and Brody IADL sum score	27 (9–31)

Values represent n (%), mean ± SD or median (range).

Table 2. Prevalence of depression in recently admitted nursing home patients, according to ICD-10 criteria, and nursing home doctors' diagnostic workup documented in patients' medical records

Documentation in patients' medical record	Patients assessed for depression (ICD-10), n (%)			
	all (n = 88)	depression (ICD-10) (n = 25)	no depression (ICD-10) (n = 63)	χ^2 p value
Any diagnostic initiative ^a	33	14 (56.0)	19 (30.2)	0.02
Diagnostic code ^b	17	8 (32.0)	9 (14.3)	0.08 ^c
Diagnostic test ^d	3	1 (4.0)	2 (3.2)	1.00 ^c
Nursing home doctors' note	25	10 (40.0)	15 (23.8)	0.13

^a Comprising diagnostic code, diagnostic test and doctors' note. ^b Diagnostic code: F41.2 (mixed anxiety and depressive disorder) from the ICD-10; P03 (depressed mood) and P76 (depressive disorder) from the ICPC-2 (International Classification of Primary Care, second version). ^c Fisher's exact test. ^d CSDD and GDS.

Screening of the study population by means of the CSDD revealed a mean (SD) sum score of 5.9 (4.3). Altogether, 27/88 (30.7%) patients had scores of ≥ 8 and were considered depressed. More patients with an ICD-10 depression diagnosis, compared to those with no depression, had a CSDD sum score ≥ 8 [18/25 (72%) vs. 9/63 (14.3%) patients, $p < 0.001$].

There was no significant difference in the prevalence of depression between patients with [23/69 (33.3%)] and without dementia [2/19 (10.5%)] ($p = 0.08$).

Review of the Nursing Home Records

Review of the patients' medical records revealed that any diagnostic initiatives, that is notes written by nursing home doctors, diagnostic codes and diagnostic tests regarding depression, were documented for 14/25 (56%) of the patients with depression and for 19/63 (30.2%) of those not depressed ($p = 0.024$) (table 2). Diagnostic tests conducted after nursing home admission were documented in the medical records of 3 patients (CSDD: $n = 2$; GDS: $n = 1$). Among patients with depression, diagnostic workup was less commonly documented for patients with dementia [15/23 (65.2%)] than for those without dementia [2/2 (100%)]]; however, these numbers were too small for comparison. Nurses documented depression for

Table 3. Indications for prescribing antidepressant medications to recently admitted nursing home patients, and depression according to ICD-10

Indication for antidepressant use	Patients using antidepressants, n (%)			Fisher's exact test p value
	all (n = 39)	depression (ICD-10) (n = 15)	no depression (ICD-10) (n = 24)	
Depression	20	11 (73.3)	9 (37.5)	0.05
Neuropsychiatric symptoms	13	2 (13.3)	11 (45.8)	0.05
Unknown	6	2 (13.3)	4 (16.7)	1.00

Table 4. Antidepressants prescribed to recently admitted nursing home patients, according to indication and diagnostic initiatives

Any diagnostic initiative	Any antidepressant (n = 39)	Antidepressant for depression, n (%) (n = 20)	Antidepressant for other indications, n (%) (n = 19)	Fisher's exact test p value
Yes	26	17 (85.0)	9 (47.4)	0.019
No	13	3 (15.0)	10 (52.6)	

15/25 (60%) of those depressed according to ICD-10 and for 17/63 (27%) of those not depressed ($p = 0.04$).

Treatment of Depression

Altogether, 43/88 (48.9%) patients received any treatment of depression: 24/88 (27.3%) were treated with antidepressant medication only, 4/88 (4.5%) received nonpharmacological treatment only (environmental interventions or talk therapy), and 15/88 (17.0%) patients received antidepressants as well as nonpharmacological treatment.

Altogether, 39 patients were treated with antidepressants: 20/88 (22.7%) for depression, 13/88 (14.7%) for neuropsychiatric symptoms, whereas the indication for drug treatment was not documented in 6/88 (6.8%) cases (table 3). Treatment with antidepressants was initiated before nursing home admission in 29/88 (33.0%) patients and after admission in 10/88 (11.4%). Antidepressants had not been withdrawn from any of the patients after admission. Of all patients, 26/88 (29.5%) still received the same dose of antidepressants, whereas doses were reduced in 5/88 (5.68%) and increased in 6/88 (6.8%) patients; 2/88 (2.3%) patients had their antidepressant replaced (not shown). Of the 20 patients receiving antidepressants for treatment of depression, 17/20 (85%) had documented diagnostic initiatives in their medical records (table 4).

Discussion

This study found that depression affected 28% of recently admitted LTC patients, but in only half of the cases did we find evidence for a diagnostic evaluation of depression. Antidepressants were prescribed to 44% of the patients; however, only half of these patients were using these drugs for treatment of depression.

Prevalence of Depression

Even though there are many differences in the diagnostic criteria used, it is well established that the prevalence of depression among nursing home patients is high [28]. Patients recently admitted to a nursing home are especially at risk of developing depression due to severe functional impairment, multimorbidity, cognitive impairment, expectations to adjust, and finally mourning and losses [1]. Some studies have pointed out that relocation per se increases the risk of depression [2, 6]. To our knowledge, there are only a few studies that shed light on the prevalence of depression among these patients. A Dutch study conducted within 10 days after admission found 27% of the patients having depressive symptoms [29], assessed with the Minimum Data Set Depression Rating Scale [30]. An American study revealed a prevalence rate of 33% on admission and a 40% cumulative prevalence rate during the first 3 months [4], according to quarterly Minimum Data Set assessment. Clinical interviews with Australian nursing home patients, considering the DSM-IV criteria and CSDD, revealed a 25 and 14% prevalence of major depression 1 and 3 months after admission, respectively [31]. After completion of the transmission process itself, one may expect a gradual adaptation to the nursing home environment. We found no statistically significant difference in depression prevalence between patients assessed within 6 weeks versus more than 6 weeks after admission. This may, however, be due to the small sample size and should therefore be interpreted with care.

Across different diagnostic criteria, the 28% prevalence rate found in our study compares well to other studies that are based on depression assessment scales. Differences in admission criteria and case mix between nursing homes in various countries may also contribute to different prevalence rates. The prevalence of depression did not differ significantly between patients with and without dementia. This finding is in line with another recently published study by van Asch et al. [18].

For 30% of the patients who were not depressed on our systematic assessment, some diagnostic initiative was documented in the medical records (table 2). However, we were not able to examine the quality of the diagnostic process performed by the nursing home doctors compared to the known systematic procedure by the study researcher, and hence the equivalence of the resulting depression diagnoses.

Diagnosing Depression

Our study revealed that surprisingly little attention was paid to diagnostic workup and documentation of depression in the medical records of recently admitted LTC patients. We found that 19% of all patients had a diagnostic code regarding depression documented in their medical records. A Dutch study reported a 10% prevalence of diagnosed depressive disorders [18] in nursing home populations. Neither we nor van Asch et al. [18] found a significant difference in diagnostic workup between patients with and without dementia.

Diagnostic tools such as CSDD and GDS were documented for only 3 patients; this finding supports a qualitative study [19] suggesting that nursing home doctors hardly ever perform screening tests for depression. Even though diagnostic tools can be assumed to be known by nursing home doctors, these tests may not be easily available in all nursing homes due to different electronic patient record systems. Another study suggests that doctors focused less on depression than nursing staff [32]. In the medical records, we found doctors' notes regarding depression in 40% and nurses' notes in 47% of those depressed. Even though the nurses pay more attention to patients' depressive symptoms, their accuracy in diagnostics is limited [32, 33]. We can only speculate about the reasons for the doctors' diagnostic inaction. A previous study suggests that nursing home doctors base their diagnostic and therapeutic conclusions about depression on entrusted nurses' opinions [19]. Provided the limited time that doctors have, high-quality cooperation with the nursing staff is needed to safeguard the patients' mental health [34, 35]. Registration of the patients' weight and body mass index is

mandatory in Norwegian nursing homes and may assist the staff in focusing on the patients' nutrition and well-being. In the same manner, compulsory psychiatric screening should be conducted in all patients within a short time after admission and later on a regular basis. For this purpose, the ICD-10 diagnostic system is too time-consuming and complicated for most nursing home doctors to complete. Further, patients with severe dementia or aphasia are not eligible for individual interviews. A validation study [24] indicates that CSDD is a suitable screening tool in the Norwegian nursing home setting. In order to improve the systematic diagnostics of depression, we believe that it is worthwhile to implement tools that fit patients irrespective of their mental states.

Treatment

Our study showed that 44% of the recently admitted patients received antidepressants, compared to 30% of patients with dementia and 27% of those without on admission to Swiss nursing homes [36]. The considerably higher antidepressant use in our study can only partly be explained by the fact that patients were assessed within a period of 3 months after admission, because treatment with antidepressants was initiated before admission for 3 out of 4 patients. This finding supports previous research indicating that the prescription of antidepressants increases after nursing home admission [37]. The extensive use of antidepressants among recently admitted nursing home patients reflects the prescribing trends for the general population in Norway, that is 13% of persons aged 80 years and older are using these drugs [38].

In recent decades, there has been an encouraging decline in the prescription of antipsychotic drugs to Norwegian nursing home patients. On the other hand, increased prescription of antidepressant drugs seems to have partly replaced antipsychotics [9]. The most obvious explanation may be that nursing home doctors increasingly prescribe antidepressant medications for other indications than depression. We found that every third prescription of antidepressants was for treatment of neuropsychiatric symptoms. Although a literature review indicates that this treatment can be effective [39], neuropsychiatric symptoms are not approved as an indication for antidepressants. However, a full discussion of this issue is beyond the scope of this paper.

Almost all patients using antidepressants for treatment of depression had some documentation on the diagnosis of depression or diagnostic initiatives in their medical records. Even though initiating these drugs seems to be justified, prescribing antidepressant medication to vulnerable old nursing home patients should always be thoroughly evaluated considering limited efficiency [11, 12] and risk of serious side effects [14, 15, 17]. Nonpharmacological treatment options should always be the first choice. Our study revealed that 34.9% of the patients received nonpharmacological interventions for depression, which is not a small proportion after all. Psychosocial interventions, such as psychotherapy, music therapy, reminiscence therapy, and physical training programs, should be implemented in nursing homes at a larger scale. However, so far only a few studies have explored the efficiency of nonpharmacological treatment [7, 40, 41], and comparative studies are lacking.

Methodological Considerations

Recently admitted nursing home patients to LTC are a vulnerable group, which has not been included in many previous studies. The strength of this study is that an experienced GP performed a comprehensive diagnostic procedure; however, her findings have not been verified by another doctor. The medical record for each patient had been reviewed thoroughly before she conducted interviews with all patients. Because she was not aware of the nurses' diagnostic assessment regarding depression (CSDD) when diagnosing depression according to ICD-10, and vice versa, we were able to compare doctor-led and nurse-led diagnostic workup among patients at particular risk. The participating institutions were of

different sizes and located both in a city and in smaller municipalities. Hence, they are representative of Norwegian nursing homes in general.

The most important limitation of the study is the small sample size, with consequences for statistical power. The patient variables were recorded within a time range of 3 months after admission. Because both the prevalence of depression [4] and the prescription of antidepressants [37] tend to increase during the initial phase of nursing home stay, data collection and assessment of all patients should preferentially have been conducted after similar lengths of stay. However, this was impossible for practical reasons.

Conclusion

Although depression was prevalent in recently admitted LTC patients, documented diagnostic initiatives were sparse after admission. Antidepressants were prescribed for many patients, but in only half of the cases was the indication treatment of depression. Screening tools for depression which can be applied by trained nurses should be mandatory on admission.

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Disclosure Statement

The authors have no conflicts of interest to declare.

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