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REVIEW

Comprehensive assessment of depression and behavioral problems in long-term care

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ABSTRACT

Background: The IPA Taskforce on Mental Health Issues in Long-Term Care Homes seeks to improve mental health care in long-term care (LTC) homes. The aim of this paper is to provide recommendations on comprehensive assessment of depression and behavioral problems in order to further stimulate countries and professionals to enhance their quality of care.

Methods: Existing guidelines on comprehensive assessment of depression or behavioral problems in nursing home (NH) patients or patients residing in LTC homes were collected and a literature review was carried out to search for recent evidence.

Results: Five guidelines from several countries all over the world and two additional papers were included in this paper as a starting point for the recommendations. Comprehensive assessment of depression in LTC homes consists of a two-step screening procedure: an investigation to identify factors that influence the symptoms, followed by a formal diagnosis of depression according to DSM-IV-TR or the Provisional Diagnostic Criteria for Depression in Alzheimer Disease in cases of dementia. Comprehensive assessment of behavioral problems encompasses three steps: description and clarification of the behavior, additional investigation, and assessment of probable causes of the behavior. The procedure starts in the case of moderate behavioral problems.

Conclusion: The recommendations given in this paper provide a useful guide to professional workers in the LTC sector, but clinical judgment and the consideration of the unique aspects of individual residents and their situations is necessary for an optimal assessment of depression and behavioral problems. The recommendations should not be rigidly applied and implementation will differ from country to country.

Key words: comprehensive assessment, depression, behavioral problems, long-term care homes, recommendations

Introduction

Depression is a common health problem in patients in long-term care homes. A review of 39 international studies found an average prevalence rate of 15.5% (range: 6–26%) for major depressive disorder, 25.7% (range:11–50%) for minor depression and 43.9% (range:30–48%) for depressive symptoms (Jongenelis *et al.*, 2003). Jongenelis *et al.* (2004) found a prevalence of depression among Dutch nursing home (NH) patients without dementia of 8.1% for major depressive disorder, 14.1% for minor depression, and 24% for significant depressive symptoms. Davison *et al.* (2007) found a prevalence of 16.7% for major depressive disorder in Australian low-level care facilities.

Little is known about the prevalence of depression in NH patients with dementia. Zuidema *et al.* (2007a) found depressive symptoms in 20% of patients on dementia special care units, measured in a study of neuropsychiatric symptoms. Verkaik *et al.* (2009) recently found a prevalence of 19.1% for depression in Dutch NH patients with dementia. In the U.S.A., rates for major depressive disorder have been found ranging from 22.3% to 40% (Evers *et al.*, 2002; Gruber-Baldini *et al.*, 2005; Kaup *et al.*, 2007).

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Depression is strongly related to quality of life of NH patients (Hoe *et al.*, 2006); it seriously affects well-being and daily functioning, and increases use of health care services and even mortality (Demyttenaere *et al.*, 2005; Smalbrugge *et al.*, 2006b). Numerous studies have shown that cases of depression in NH patients often go undetected and undertreated, especially in patients with dementia (Gruber-Baldini *et al.*, 2005; Smalbrugge *et al.*, 2006a; Snowdon and Fleming, 2008).

Only a few studies have addressed the course of depression after admission to a nursing home. Smalbrugge *et al.* undertook a follow-up study of 350 newly admitted NH patients without dementia (Smalbrugge *et al.*, 2006a). The prevalence of depressive symptoms decreased from 41.3% at admission to 28.9% at 6 months follow-up. Only in 4.7% of the patients was there a new onset depression. However, in 63.3% of the patients depression persisted. A recently published Norwegian study of 902 randomly selected NH patients found a prevalence of 21.2% at baseline and after 1-year follow-up (Barca *et al.*, 2010). Incidence was 14.9% and persistence 44.8%. These numbers call for repeated screening and proper evaluation of treatment.

Behavioral problems, also referred to as neuropsychiatric symptoms, are very common in NH patients with dementia. Neuropsychiatric symptoms cover a wide range of symptoms including psychosis (hallucinations and delusions), anxiety, depression, sleeping disorders as well as agitation and aggression. Apathy is also seen as a neuropsychiatric symptom, since we know from research in community-dwelling dementia patients that apathy is very challenging for spousal caregivers (de Vugt *et al.*, 2006). Prevalence figures range from 3% to 54% for delusions, 1% to 39% for hallucinations, 7% to 69% for anxiety, 48% to 82% for agitation/aggression, from 11% to 44% for physical aggression, and 17% to 84% for apathy (Selbaek *et al.*, 2007; Zuidema *et al.*, 2007b). About 80% of the patients with dementia show some neuropsychiatric symptom as measured by the Neuropsychiatric Inventory (NPI) or Cohen Mansfield Agitation Inventory (CMAI) (Zuidema *et al.*, 2007a). Behavioral problems have a high impact on quality of life (Shin *et al.*, 2005) and are one of the most important predictors of nursing home placement (Gaugler *et al.*, 2009).

Little is known about the prevalence of behavioral problems in NH patients without dementia. Most studies report on mixed populations, with no separate figures for patients with and without dementia. Streim *et al.* (1997) reported that since 1986 several epidemiological studies using rigorous methods have consistently found high prevalence rates for psychiatric disorders in LTC settings ranging from 80% to 91%. Nursing home patients without a formal diagnosis of dementia form a heterogeneous group of patients comprising patients with stroke, Parkinson's disease, epilepsy, multiple sclerosis or other neurological or neurodegenerative diseases. Another group of NH patients without dementia comprises those with a primary psychiatric disorder such as depression, schizophrenia, personality disorder, bipolar disorder or generalized anxiety disorder that, in later life, developed a concomitant somatic disorder resulting in the need for NH placement. In general, all of these patients have multi-morbidity as a common characteristic.

Comprehensive assessment of depression and behavioral problems in long-term care is very important because this leads to a proper diagnosis and adequate treatment. Furthermore, comprehensive assessment of behavioral problems may at times result in finding causes of the behavior that can easily be treated by psychosocial or medical interventions (such as pain management).

Methods

Guidelines

We collected existing national and international guidelines on comprehensive assessment of depression or behavioral problems in NH patients or patients residing in long-term care homes. For this paper we included the *Consensus Statement on Improving the Quality of mental health Care in U.S. Nursing Homes on the Management of Depression and Behavioral Symptoms Associated with Dementia* (American Geriatrics Society and American Association for Geriatric Psychiatry, 2003), the Canadian Guideline on the *Assessment and Treatment of Mental Health Issues in Long Term Care Homes* (National Guidelines for Seniors' Mental Health, 2006), a German guideline entitled: *Rahmenempfehlungen zum Umgang mit herausforderndem Verhalten bei Menschen mit Demenz in der stationären Altenhilfe [Guidelines on the treatment and care of institutionalized people with dementia and challenging behaviors]* (Bartholomeyczik *et al.*, 2006), a Dutch guideline on *Depression in the Elderly*, with a specific paragraph on depression in long-term care homes (Kok *et al.*, 2008), and a Dutch Guideline on *Problem Behavior in Nursing Home Patients* (Smalbrugge *et al.*, 2008b).

The U.S. consensus statement is the most comprehensive and specific guideline we found, with 19 consensus statements on assessment of

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depression and 14 on assessment of behavioral problems in patients in LTC homes, which are still up-to-date. The recommendations of the Canadian guideline are in line with those of the U.S. consensus statement. The German guideline recommends the use of assessment instruments in patients with behavioral problems associated with dementia. The Dutch guideline on depression in NH patients recommends screening of all non-demented NH patients within two to four weeks after admission. If there is any sign of depression in NH patients, it is recommended that the Geriatric Depression Scale is used as a screening-assessment instrument in non-demented patients. These recommendations are again in line with the U.S. statement. The Dutch guideline on assessment of behavioral problems provides specific recommendations on description and clarification of the behavior, additional investigation, and assessment of probable causes of the behavior, that do not differ much from the U.S. statement.

Electronic literature search

A literature search in PUBMED (clinical queries, systematic reviews) was undertaken using the following search terms: assessment AND Depression AND (nursing home OR long term care home OR long term care facility). This revealed 28 papers of which only the paper by Nakajima and Wenger (2007) offered additional information because it dealt with quality indicators for the care of depression in vulnerable elders which underline the recommendations already given in the existing guidelines. A second literature search in PUBMED (clinical queries, systematic reviews) using the following search terms – assessment AND (behavioral problems OR problem behavior OR challenging behavior OR behavioral symptoms) AND (nursing home OR long term care home OR long term care facility) – revealed 43 papers of which none offered additional information of use. As a further resource we used the literature review of Snowden *et al.* (2003).

Definition

For the purpose of this paper we used the same definition of "comprehensive assessment" as in the Canadian Guideline (2006): "Assessment is understood as a comprehensive, ongoing process that includes; (1) screening to detect depressive and behavioral symptoms; (2) structural, goal-directed investigation to identify factors precipitating, maintaining and exacerbating identified symptoms; (3) interpretation of assessment findings, including formal diagnosis where appropriate."

Results

Comprehensive assessment of depression

1. Screening to detect depressive symptoms

At admission to a long-term care home and during the course of the admission certified nurses or nurse-assistants play a major role in the initial identification of symptoms indicating a (risk of) depression. They know their patients best and are able to observe symptoms on a daily basis. A two-step screening procedure (Alexandrowicz *et al.*, 2008) is the start of the assessment process. The first step involves a sensitive, easy to administer and short observational screening tool, followed, if appropriate, by a second step, using a more extensive assessment instrument. The screening procedures in the first step may involve the Hammond scale (Hammond *et al.*, 2000) – a six-question observational scale – or the Depression Rating Scale (DRS) – a seven-item observational scale which is derived from the Minimum Dataset of the Resident Assessment Instrument (RAI) (Burrows *et al.*, 2000). The Hammond scale, using a cut-off score of 3 points or more, had a sensitivity of 83%, a specificity of 95%, a positive predictive value of 0.69 and a negative predictive value of 0.96 for the geriatric mental state AGECAT diagnosis of depression (Hammond *et al.*, 2000). Using a cut-off score of 3 points, the DRS had a sensitivity of 94% for the Hamilton Depression Rating Scale and 78% for the Cornell Scale for Depression with minimal loss of specificity (72% for Hamilton, 77% for Cornell). It has been suggested that it is sufficient to just ask one question: "are you depressed" (Chochinov *et al.*, 1997). However, Mitchell and Coyne (2007) found that in primary care, one-question tests identify only three out of every 10 patients with depression.

The second screening step needs to be performed only if the first step reveals symptoms that indicate depression i.e. Hammond or DRS-scale scores beyond cut-off scores. In nursing homes in the Netherlands, the eight-item version of the Geriatric Depression Scale of Jongenelis *et al.* (2006) is often used (Gerritsen *et al.*, 2007; Jongenelis *et al.*, 2007). The GDS-8 was made by deleting GDS-items that are not applicable to most NH patients. The GDS-8 showed a good internal consistency ($\alpha = 0.80$) and high sensitivity rates of 96.3% for major depression and 83.0% for minor depression, with a specificity rate of 71.7% at a cut-off point of 3 or more (Jongenelis *et al.*, 2007). The authors also concluded that the GDS-8 is less burdensome for the patient, comfortable to use and less time

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consuming than other GDS versions. Smalbrugge *et al.* (2008a) recently found that GDS-8 can be used for screening and assessing change in severity of depression in NH patients. An alternative for the GDS-8 is the GDS-12 Residential (Sutcliffe *et al.*, 2000). Screening for depression can be performed by trained allied health professionals such as (nursing home) physicians, psychologists and nurses or nurse practitioners.

Cognitive and specifically communicative problems may render it impossible to use the GDS reliably. In long-term care homes, a high proportion of patients have significant cognitive or communicative problems, whether due to dementia or to strokes with accompanying aphasia. These patients face problems in diagnostic interviews and may have symptoms that cannot be easily interpreted by professional caregivers. The decision whether a GDS assessment was reliable rests on the clinical judgment of the professional caregivers, i.e. the (nursing home) physician, psychologist and the nurses.

When reliability is questioned or when administering the GDS is not possible, we advise using a proxy measure, i.e. the Cornell Scale for Depression in Dementia (CSDD) (Alexopoulos *et al.*, 1988). The CSDD relies on interviews with patients, direct observations and information from interviews with caregivers. The CSDD consists of 19 items, each rated as 0 = absent, 1 = mild or intermittent and 2 = severe. The scores of the individual items are summed and a cut-off of 8 or more indicates depression (Alexopoulos *et al.*, 1988). Vida *et al.* (1994) reported a cut-off of 8 or more, a sensitivity of 90% and specificity of 75% for patients with Alzheimer's disease (N = 34). The CSDD performed well in all comparative studies with the GDS and other depression measures (Muller-Thomsen *et al.*, 2005; Mayer *et al.*, 2006).

2. Structural, goal-directed investigation to identify factors precipitating, maintaining and exacerbating identified symptoms

According to the studied guidelines, residents with new-onset depression or worsening of depressive symptoms should receive a full medical evaluation by a physician including history and, if appropriate, a physical examination that focuses on pain, nutritional status, worsening of chronic medical conditions, recent onset of medical conditions and medications that have the potential to alter cognition or mood. Unless recent results are available, laboratory and diagnostic testing as determined by the findings of the history and physical examination should be considered including hemoglobin, thyroid function, electrolytes, vitamin B12 and folic acid levels, glucose and liver functions. Furthermore, psychosocial factors like loneliness, bereavement, coping with loss of abilities or with institutionalization should be taken into account.

3. Interpretation of assessment findings, including formal diagnosis where appropriate

Because the criteria to establish a formal diagnosis of depression differ between patients with or without dementia, it is necessary to rule out whether the patient has dementia. It is beyond the scope of this paper to provide an extensive description of the diagnostic process when establishing a formal diagnosis of dementia. We refer to the existing (national) guidelines.

A formal diagnosis of depression only has to be established if screening is indicative for depression i.e. screening yields scores beyond cut-offs. As a result of the two-step screening process and a formal diagnosis there are four possibilities:

1. No depressive symptoms.
2. Depressive symptoms but no formal diagnosis of depression.
3. Minor depression.
4. Major depression (light, moderate, severe).

Diagnosis of major depression has to be established according to the DSM-IVTR criteria. For minor depression the same criteria are used but only two to four symptoms are present. Diagnosis of depressive symptoms means that a cut-off score is reached on the screening instrument from the second screening step but that the diagnosis of depression is not established. Diagnosis is based on an interview with the patient and if possible a proxy-interview. Diagnosis of depression in dementia patients has to be established using the Provisional Diagnostic Criteria for Depression in Alzheimer Disease (PDC-dAD) (Olin *et al.*, 2002). Further evaluation is the same as for patients without dementia. Special attention should be given to patients with suicidal ideation, psychosis, and patients who refuse food and fluids. In general, these patients should be referred to an old age psychiatrist.

A formal diagnosis of depression in long-term care patients is not easy and symptoms have to be weighted in the specific context of the setting and the characteristics of the patients, such as their limited life-expectancy and multi-morbidity. For instance, a wish to die does not necessarily reflect a suicidal ideation and should be carefully interpreted. But symptoms like sleep disturbance or appetite loss have to be interpreted in the specific context and always have to be investigated by a full medical evaluation, as stated above, in order to identify treatable causes or factors.

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Recommendations

1. It is *recommended* that comprehensive assessment of depression in patients in long-term care homes is a multidisciplinary process with specific contributions of at least (assistant) nurses, psychologists, and physicians (nursing home physician, general practitioner, old age psychiatrist).
2. It is *recommended* that the assessment procedure should consist of a two-step screening process, an investigation to identify factors that influence the symptoms, followed by a formal diagnosis.
3. It is *recommended* that all newly admitted patients receive at least the *first step* of the depression screening within two to four weeks of admission.
4. It is *recommended* that all residents receive the *first step* of the depression screening at least every six months.
5. Use of the Hammond scale or the Depression Rating Scale is *recommended* for the first screening step and the eight-item Geriatric Depression Scale (GDS) or the GDS Residential for screening purposes.
6. For patients who are cognitively and communicatively non-competent, use of the Cornell Scale for Depression in Dementia is *recommended*.
7. A full medical evaluation is *recommended* as part of the assessment procedure. This should consist of a diagnostic interview, history taking, physical examination, and laboratory and diagnostic testing.
8. Before establishing a formal diagnosis of depression it is *recommended* that patients are diagnosed to see whether or not they have dementia.
9. Use of DSM-IVTR criteria is *recommended* to establish a formal diagnosis of depression in patients without dementia and use of the PDC-dAD is *recommended* to establish a diagnosis in dementia patients.
10. It is *recommended* that patients with suicidal ideation, psychosis, and patients who refuse food and drinks should be referred to an old age psychiatrist.

Comprehensive assessment of behavioral problems

The process of comprehensive assessment of behavioral problems in patients residing in long-term care homes encompasses three steps: description and clarification of the behavior, additional investigation, and assessment of probable causes of the behavior. These three steps ultimately result in a definition of the problem behavior. Problem behavior is defined according to the Guideline of the Dutch Association of Nursing Home Physicians (Smalbrugge *et al.*, 2008b) as "any behavior of a patient that is challenging for the patients themselves or for people surrounding the patient". This definition applies to patients with or without a diagnosis of dementia and therefore differs from behavioral and psychological symptoms of dementia (BPSD). Although comprehensive assessment of behavioral problems does not essentially differ between patients with or without dementia, it is recommended that it should first be established whether or not a patient suffers from dementia because of its consequences for appropriate treatment. Whenever possible, the type of dementia should be established too. For example, patients with dementia with Lewy bodies present with specific symptoms (e.g. hallucinations and delusions), whereas patients with frontotemporal dementia present with disinhibition, apathy and changes of character. However, we realize that a full evaluation of the dementia type according to international accepted criteria, including imaging (CT/MRI), is burdensome for the patients and should be performed by specialized memory clinics. Therefore, this decision has to be made carefully and is recommended particularly in the case of persisting symptoms which point to specific pathology, for instance brain tumor or normal pressure hydrocephalus.

One of the issues in the definition stated above is the question of when a behavioral problem becomes *challenging*. We realize that this is rather subjective. However, there is a certain subjective threshold at which the problem becomes serious enough for patient or caregiver. Some behavioral problems are not reported since they are not considered a "problem" or "challenging" in the long-term care setting. The conceptual model of a seven-tiered hierarchy of BPSD could be of use here (Brodaty *et al.*, 2003). This model categorizes BPSD into seven tiers according to symptom severity. The proposed assessment procedure applies to tier 4 (moderate behavioral problems) up to tier 7 (extreme behavioral problems). We leave it to the clinical judgment of the professionals involved to skip certain parts.

When a patient exhibits new onset or changes in behavioral symptoms, the *first step* of a comprehensive assessment is a detailed description and clarification of the behavior. This step encompasses: description of the behavior, frequency and duration, place and circumstances, determinants (facilitators of the behavior, events predicting the behavior), consequences of the behavior (for whom is the behavior challenging?), and explanation (what does the resident express with this behavior?). It is recommended that the physician personally observes the behavior whenever possible in order to get an individual impression. However, the (assistant) nurses form the most important source of information in this first step. Thorough analysis of behavior can be assisted with video techniques.

Depending on the findings in the first step, the *second step* involves the physician in history taking,

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including a proxy interview (when appropriate), a full physical examination, and laboratory and diagnostic testing indicated by the results of the physical exam. A psychological investigation should be part of this additional investigation. Premorbid personality, cognitive functioning, intelligence, and life history can all give information to explain the behavior further. Assessment scales can assist in the further differentiation and screening of the behaviors. The use of an assessment scale should never be a substitute for proper observation of a resident's challenging behavior and perhaps other co-occurring neuropsychiatric symptoms. Several assessment instruments are available for the measurement of neuropsychiatric symptoms, such as the Revised Memory and Behavior Problem Checklist (RMBPC; RMBPC-Nursing home version, RMBPC-NH), BEHAVE-AD, Neuropsychiatric Inventory – Nursing Home version (NPI-NH) (Reisberg *et al.*, 1987; Teri *et al.*, 1992; Wood *et al.*, 2000; Allen *et al.*, 2003).

Moniz-Cook *et al.* (2008) recently reviewed outcome measures for psychosocial intervention research in dementia care. They recommended the NPI-NH as the measure of choice (compared with the BEHAVE-AD) because it includes a wide range of behaviors (including apathy) and also has a measure for expressing the burden of care for professional caregivers (Wood *et al.*, 2000). The RMBPC or the RMBPC-NH can be used as a brief and practical alternative, since they also measure caregiver's reaction to problem behavior. The NPI was originally developed by Cummings (Cummings, 1997; Cummings *et al.*, 1994). The nursing home version has been adapted for use by professional caregivers in nursing home facilities and has proven to be valid and reliable for use by trained (nursing) staff in different countries throughout the world (Wood *et al.*, 2000; Iverson *et al.*, 2002; Lange *et al.*, 2004; Selbaek *et al.*, 2008). The NPI-NH is very useful as a screening instrument. In a recent study, the test-retest reliability and the inter-rater reliability were modest, suggesting that in general the NPI-NH may not be useful for monitoring behavioral changes in individual patients with dementia, except when neuropsychiatric symptoms are moderate to severe, or when effect sizes are large (Zuidema *et al.*, 2010). As an alternative, the shorter version of the NPI, the NPI-questionnaire (NPI-Q) can be used; however, this scale is not specifically validated in long-term care (Kaufer *et al.*, 2000).

The Cohen Mansfield Agitation Inventory (CMAI) is the most appropriate instrument for agitation and aggression (Cohen-Mansfield, 1986; Cohen-Mansfield and Billig, 1986). The CMAI is widely used in the nursing home setting and has a well-established reliability (Miller *et al.*, 1995; Koss, 1997) and validity (Miller *et al.*, 1995; de Jonghe and Kat, 1996) in different patient samples. The test-retest reliability is high, but for multiple measurements (to detect change of agitation after intervention), the CMAI should preferably be completed by the same rater (Zuidema *et al.*, 2010). As an alternative, the shorter version of the CMAI, the Brief Agitation Rating Scale, can be used (Finkel *et al.*, 1993; Shah *et al.*, 1998).

Behavioral problems can be caused by physical factors including medication, psychological or psychiatric factors, personal factors, and environmental factors. Delirium first has to be ruled out as a possible cause of problem behavior. We refer to the existing guidelines. Medications with known toxic effects and able to influence behavior include antihypertensives, substances that have an influence on the dopamine-acetylcholine balance (like antipsychotics), analgesics, antibiotics, steroids, benzodiazepines, antihistamines, and digoxin (Fick *et al.*, 2003). Emphasis on physical factors should include pain and discomfort, constipation, dehydration, hearing and vision problems, and sleep pattern. Residents with new onset or changes in behavioral symptoms should be assessed for psychological or psychiatric disorders, such as psychosis, depression, anxiety disorder, sleep disorders, and substance abuse or withdrawal. Personal factors as a possible explanation and cause of the behavior include coping strategies of the resident (for instance as a response to increased dependency), unmet needs, lifestyle habits, mood, and fear of losing control.

Environmental factors include interaction with other residents, family and staff, tolerance of staff, attitudes of staff (person-centered or not), amount of stimuli (too much or too little), space available in the nursing home, place in the living room, social and meaningful activities, privacy, environment of the nursing home (homelike, small- or large scale, gardens), respect for autonomy, and preferences.

Recommendations

1. It is *recommended* that comprehensive assessment of behavioral problems in patients in long-term care homes is a multidisciplinary process with specific contributions of at least (assistant) nurses, psychologists, and physicians (elderly care physician, general practitioner, old age psychiatrist).
2. It is *recommended* that comprehensive assessment should be actioned in the case of moderate behavioral problems (Tier 4; Brodaty *et al.*, 2003) or worse.

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3. It is *recommended* that the assessment procedure consists of three consecutive steps: description and clarification of the behavior, additional investigation, and assessment of probable causes of the behavior.
4. Although comprehensive assessment of behavioral problems does not differ between patients with or without a formal diagnosis of dementia, it is *recommended* that it should first be established whether a patient has dementia or not, and if possible, what type of dementia.
5. It is *recommended* that when a resident exhibits new onset or changes in behavioral symptoms a full, person-centered and tailor-made comprehensive assessment is carried out. Person-centered and tailor-made means that the professional caregivers decide which components of the full assessment procedure are used, dependent on the individual status/ situation/ needs of the patient.
6. Use of the NPI-NH is *recommended* for screening purposes of behavioral symptoms. When there is a need for specific screening on agitation or aggression the CMAI is recommended.
7. It is *recommended* that delirium should first be ruled out as a possible cause of the behavioral problems.
8. It is *recommended* that residents with new onset or changes of behavioral symptoms should be initially evaluated for possible physical conditions (including medication), psychiatric conditions, personal factors and environmental factors that possibly contribute to the cause of the behavior.

Conclusions

The recommendations given in this paper provide a useful guide to professional workers in the long-term care sector, but clinical judgment and the consideration of the unique aspects of individual patients and their situations will be necessary for the optimal assessment of depression and behavioral problems. The recommendations should not be rigidly applied. Implementation will depend on the model of mental health service delivery and the type of health insurance and therefore will differ from country to country. We advise that multidisciplinary care programs incorporating the recommendations should be developed. Health care professionals should be properly trained to work according to the care program. Implementation of the care program should be rigorously assessed to see whether it results, for instance, in better recognition and treatment of depression or behavioral problems.

Conflict of interest

None.

Description of authors' roles

R.Koopmans, S. Zuidema and D. Gerritsen wrote the draft of the paper and performed the literature search. R. Leontjevas reviewed the draft paper and added additional literature.

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References

Alexandrowicz, R., Weiss, M., Marquart, B. and Wancata, J. (2008). [The validity of a two-step-screening procedure for depression.] *Psychiatrische Praxis*, 35, 294–301 (in German).

Alexopoulos, G. S., Abrams, R. C., Young, R. C. and Shamoian, C. A. (1988). Cornell Scale for Depression in Dementia. *Biological Psychiatry*, 23, 271–284.

Allen, R. S. *et al.* (2003). The Revised Memory and Behavior Problems Checklist – Nursing Home: instrument development and measurement of burden among certified nursing assistants. *Psychology and Aging*, 18, 886–895.

Barca, M. L., Engedal, K., Laks, J. and Selbaek, G. (2010). A 12 months follow-up study of depression among nursing-home patients in Norway. *Journal of Affective Disorders*, 120, 141–148.

Bartholomeyczik, S. *et al.* (2006). *Rahmenempfelungen zum Umgang mit herausforderndem Verhalten bei Menschen mit Demenz in der stationären Altenhilfe*. Bundesministerium für Gesundheit.

Brodaty, H., Draper, B. M. and Low, L. F. (2003). Behavioural and psychological symptoms of dementia: a seven-tiered model of service delivery. *Medical Journal of Australia*, 178, 231–234.

Burrows, A. B., Morris, J. N., Simon, S. E., Hirdes, J. P. and Phillips, C. (2000). Development of a minimum data set-based depression rating scale for use in nursing homes. *Age and Ageing*, 29, 165–172.

Chochinov, H. M., Wilson, K. G., Enns, M. and Lander, S. (1997). "Are you depressed?" Screening for depression in the terminally ill. *American Journal of Psychiatry*, 154, 674–676.

Cohen-Mansfield, J. (1986). Agitated behaviors in the elderly. II. Preliminary results in the cognitively deteriorated. *Journal of the American Geriatrics Society*, 34, 722–727.

Cohen-Mansfield, J. and Billig, N. (1986). Agitated behaviors in the elderly. I. A conceptual review. *Journal of the American Geriatrics Society*, 34, 711–721.

Cummings, J. L. (1997). The Neuropsychiatric Inventory: assessing psychopathology in dementia patients. *Neurology*, 48 (Suppl. 6), S10–16.

Cummings, J. L., Mega, M., Gray, K., Rosenberg-Thompson, S., Carusi, D. A. and Gornbein, J. (1994). The Neuropsychiatric Inventory: comprehensive

https://doi.org/10.1017/S1041610210000736 Published online by Cambridge University Press

assessment of psychopathology in dementia. *Neurology*, 44, 2308–2314.

Davison, T. E., McCabe, M. P., Mellor, D., Ski, C., George, K. and Moore, K. A. (2007). The prevalence and recognition of major depression among low-level aged care residents with and without cognitive impairment. *Aging and Mental Health*, 11, 82–88.

de Jonghe, J. F. and Kat, M. G. (1996). Factor structure and validity of the Dutch version of the Cohen-Mansfield Agitation Inventory (CMAI-D). *Journal of the American Geriatrics Society*, 44, 888–889.

de Vugt, M. E., Riedijk, S. R., Aalten, P., Tibben, A., van Swieten, J. C. and Verhey, F. R. (2006). Impact of behavioural problems on spousal caregivers: a comparison between Alzheimer's disease and frontotemporal dementia. *Dementia and Geriatric Cognitive Disorders*, 22, 35–41.

Demyttenaere, K., Hemels, M. E., Hudry, J. and Annemans, L. (2005). A cost-effectiveness model of escitalopram, citalopram, and venlafaxine as first-line treatment for major depressive disorder in Belgium. *Clinical Therapeutics*, 27, 111–124.

Evers, M. M., Samuels, S. C., Lantz, M., Khan, K., Brickman, A. M. and Marin, D. B. (2002). The prevalence, diagnosis and treatment of depression in dementia patients in chronic care facilities in the last six months of life. *International Journal of Geriatric Psychiatry*, 17, 464–472.

Fick, D. M., Cooper, J. W., Wade, W. E., Waller, J. L., Maclean, J. R. and Beers, M. H. (2003). Updating the Beers criteria for potentially inappropriate medication use in older adults: results of a U.S. consensus panel of experts. *Archives of Internal Medicine*, 163, 2716–2724.

Finkel, S. I., Lyons, J. S. and Anderson, R. L. (1993). A brief agitation rating scale (BARS) for nursing home elderly. *Journal of the American Geriatrics Society*, 41, 50–52.

Gaugler, J. E., Yu, F., Krichbaum, K. and Wyman, J. F. (2009). Predictors of nursing home admission for persons with dementia. *Medical Care*, 47, 191–198.

Gerritsen, D. L. *et al.* (2007). [The GDS-8; a short, client- and user-friendly shortened version of the Geriatric Depression Scale for nursing homes]. *Tijdschrift voor Gerontologie en Geriatrie*, 38, 298–304 (in Dutch).

Gruber-Baldini, A. L., Zimmerman, S., Boustani, M., Watson, L. C., Williams, C. S. and Reed, P. S. (2005). Characteristics associated with depression in long-term care residents with dementia. *Gerontologist*, 45 (Special issue 1), 50–55.

Hammond, M. F., O'Keeffe, S. T. and Barer, D. H. (2000). Development and validation of a brief observer-rated screening scale for depression in elderly medical patients. *Age and Ageing*, 29, 511–515.

Hoe, J., Hancock, G., Livingston, G. and Orrell, M. (2006). Quality of life of people with dementia in residential care homes. *British Journal of Psychiatry*, 188, 460–464.

Iverson, G. L., Hopp, G. A., DeWolfe, K. and Solomons, K. (2002). Measuring change in psychiatric symptoms using the Neuropsychiatric Inventory – Nursing Home version. *International Journal of Geriatric Psychiatry*, 17, 438–443.

Jongenelis, K. *et al.* (2003). [Depression among older nursing home patients: a review]. *Tijdschrift voor Gerontologie en Geriatrie*, 34, 52–59.

Jongenelis, K., Pot, A. M., Eisses, A. M., Beekman, A. T., Kluiter, H. and Ribbe, M. W. (2004). Prevalence and risk indicators of depression in elderly nursing home patients: the AGED study. *Journal of Affective Disorders*, 83, 135–142.

Jongenelis, K. *et al.* (2007). Construction and validation of a patient- and user-friendly nursing home version of the Geriatric Depression Scale. *International Journal of Geriatric Psychiatry*, 22, 837–842.

Kaufer, D. I. *et al.* (2000). Validation of the NPI-Q: a brief clinical form of the Neuropsychiatric Inventory. *Journal of Neuropsychiatry and Clinical Neurosciences*, 12, 233–239.

Kaup, B. A. *et al.* (2007). Depression and its relationship to function and medical status, by dementia status, in nursing home admissions. *American Journal of Geriatric Psychiatry*, 15, 438–442.

Kok, R. M., Pot, A. M. and Fisher, E. (2008). *Mutlidisciplinary Guideline Depression, Addendum Elderly*. Utrecht: Trimbos Institute.

Koss, E. (1997). Assessing patterns of agitation in Alzheimer's disease patients with the Cohen-Mansfield Agitation Inventory. The Alzheimer's disease cooperative Study. *Alzheimer Disease and Associated Disorders*, 11 (Suppl. 2), S45–50.

Lange, R. T., Hopp, G. A. and Kang, N. (2004). Psychometric properties and factor structure of the Neuropsychiatric Inventory – Nursing Home version in an elderly neuropsychiatric population. *International Journal of Geriatric Psychiatry*, 19, 440–448.

Mayer, L. S. *et al.* (2006). Comparison of three rating scales as outcome measures for treatment trials of depression in Alzheimer disease: findings from DIADS. *International Journal of Geriatric Psychiatry*, 21, 930–936.

Miller, R. J., Snowdon, J. and Vaughan, R. (1995). The use of the Cohen-Mansfield Agitation Inventory in the assessment of behavioral disorders in nursing homes. *Journal of the American Geriatrics Society*, 43, 546–549.

Mitchell, A. J. and Coyne, J. C. (2007). Do ultra-short screening instruments accurately detect depression in primary care? A pooled analysis and meta-analysis of 22 studies. *British Journal of General Practice*, 57, 144–151.

Moniz-Cook, E. *et al.* (2008). A European consensus on outcome measures for psychosocial intervention research in dementia care. *Aging and Mental Health*, 12, 14–29.

Muller-Thomsen, T., Arlt, S., Mann, U., Mass, R. and Ganzer, S. (2005). Detecting depression in Alzheimer's disease: evaluation of four different scales. *Archives of Clinical Neuropsychology*, 20, 271–276.

Nakajima, G. A. and Wenger, N. S. (2007). Quality indicators for the care of depression in vulnerable elders. *Journal of the American Geriatrics Society*, 55 (Suppl. 2), S302–311.

National Guidelines for Seniors' Mental Health. (2006). *The Assessment and Treatment of Mental Health Issues in Long Term Care Homes. Focus on Mood and Behaviour Symptoms*. Toronto: Canadian Coalition for Seniors' Mental Health.

Olin, J. T. *et al.* (2002). Provisional diagnostic criteria for depression of Alzheimer disease. *American Journal of Geriatric Psychiatry*, 10, 125–128.

Reisberg, B., Borenstein, J., Salob, S. P., Ferris, S. H., Franssen, E. and Georgotas, A. (1987). Behavioral

https://doi.org/10.1017/S1041610210000736 Published online by Cambridge University Press

symptoms in Alzheimer's disease: phenomenology and treatment. *Journal of Clinical Psychiatry*, 48 (Suppl.), 9–15.

Selbaek, G., Kirkevold, O. and Engedal, K. (2007). The prevalence of psychiatric symptoms and behavioural disturbances and the use of psychotropic drugs in Norwegian nursing homes. *International Journal of Geriatric Psychiatry*, 22, 843–849.

Selbaek, G., Kirkevold, O., Sommer, O. H. and Engedal, K. (2008). The reliability and validity of the Norwegian version of the Neuropsychiatric Inventory – Nursing Home version (NPI-NH). *International Psychogeriatrics*, 20, 375–382.

Shah, A., Evans, H. and Parkash, N. (1998). Evaluation of three aggression/agitation behaviour rating scales for use on an acute admission and assessment psychogeriatric ward. *International Journal of Geriatric Psychiatry*, 13, 415–420.

Shin, I., Carter, M., Masterman, D., Fairbanks, L. and Cummings, J. (2005). Neuropsychiatric symptoms and quality of life in Alzheimer disease. *American Journal of Geriatric Psychiatry*, 13, 469–474.

Smalbrugge, M., Jongenelis, L., Pot, A. M., Eefsting, J. A., Ribbe, M. W. and Beekman, A. T. (2006a). Incidence and outcome of depressive symptoms in nursing home patients in the Netherlands. *American Journal of Geriatric Psychiatry*, 14, 1069–1076.

Smalbrugge, M., Pot, A. M., Jongenelis, L., Gundy, C. M., Beekman, A. T. and Eefsting, J. A. (2006b). The impact of depression and anxiety on well being, disability and use of health care services in nursing home patients. *International Journal of Geriatric Psychiatry*, 21, 325–332.

Smalbrugge, M., Jongenelis, L., Pot, A. M., Beekman, A. T. and Eefsting, J. A. (2008a). Screening for depression and assessing change in severity of depression. Is the Geriatric Depression Scale (30-, 15- and 8-item versions) useful for both purposes in nursing home patients? *Aging and Mental Health*, 12, 244–248.

Smalbrugge, M. *et al.* (2008b). *Guideline Problem Behavior*. Utrecht: NVVA.

Snowden, M., Sato, K. and Roy-Byrne, P. (2003). Assessment and treatment of nursing home residents with depression or behavioral symptoms associated with dementia: a review of the literature. *Journal of the American Geriatrics Society*, 51, 1305–1317.

Snowdon, J. and Fleming, R. (2008). Recognising depression in residential facilities: an Australian challenge. *International Journal of Geriatric Psychiatry*, 23, 295–300.

Streim, J. E., Oslin, D., Katz, I. R. and Parmelee, P. A. (1997). Lessons from geriatric psychiatry in the long-term care setting. *Psychiatric Quarterly*, 68, 281–307.

Sutcliffe, C. *et al.* (2000). A new version of the Geriatric Depression Scale for nursing and residential home populations: the Geriatric Depression Scale (Residential) (GDS-12R). *International Psychogeriatrics*, 12, 173–181.

Teri, L., Truax, P., Logsdon, R., Uomoto, J., Zarit, S. and Vitaliano, P. P. (1992). Assessment of behavioral problems in dementia: the revised memory and behavior problems checklist. *Psychology of Aging*, 7, 622–631.

Verkaik, R., Francke, A. L., van Meijel, B., Ribbe, M. W. and Bensing, J. M. (2009). Comorbid depression in dementia on psychogeriatric nursing home wards: which symptoms are prominent? *American Journal of Geriatric Psychiatry*, 17, 565–573.

Vida, S., des Rosiers, P., Carrier, L. and Gauthier, S. (1994). Prevalence of depression in Alzheimer's disease and validity of research diagnostic criteria. *Journal of Geriatric Psychiatry and Neurology*, 7, 238–244.

Wood, S. *et al.* (2000). The use of the Neuropsychiatric Inventory in nursing home residents: characterization and measurement. *American Journal of Geriatric Psychiatry*, 8, 75–83.

Zuidema, S. U., Derksen, E., Verhey, F. R. and Koopmans, R. T. (2007a). Prevalence of neuropsychiatric symptoms in a large sample of Dutch nursing home patients with dementia. *International Journal of Geriatric Psychiatry*, 22, 632–638.

Zuidema, S. U., Koopmans, R. T. C. M. and Verhey, F. R. J. (2007b). Prevalence and predictors of neuropsychiatric symptoms in cognitively impaired nursing home patients. *Journal of Geriatric Psychiatry and Neurology*, 22, 632–638.

Zuidema, S. U. *et al.* (2010). Assessing neuropsychiatric symptoms in nursing home patients with dementia: reliability of reliable change of index of the Neuropsychiatric Inventory and the Cohen-Mansfield Agitation Inventory. *International Journal of Geriatric Psychiatry*. Epublished ahead of print, 5 August.

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