

Psychotic symptoms, hallucinations, and delusions, arising *de novo* in older adults, represent a major risk factor for the development of dementia, illness, delirium, functional impairment and death. These symptoms and associated behavioural manifestations overlap with depressive disorders and may be signs of cognitive impairment or dementia. Symptoms may be vague or legitimized so that the psychosis is unrecognized by family and physicians. Specific queries regarding the nature of the symptoms and the impact on function will provide diagnostic clues. Several brief assessment tools can be used in primary care, specifically the NPI-Q and Blessed Dementia Scale.

Key words: psychosis, hallucinations, delusions, dementia, depression

Recognition of Psychotic Symptoms among Older Adults

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Introduction

Case Study

SM is an 89-year-old man who presented to the emergency room stating that he wanted to die. His wife, distressed by his complaints, reported that he was consumed with the desire to die because of his physical complaints (vertigo, tinnitus, reflux, and weight loss) and a pervasive concern about finances. He was started on an antidepressant four weeks prior without benefit. Both the patient and his wife denied that he had memory problems. Review of the medical record documented evaluation of multiple somatic complaints and lack of response to medication or reassurance. Significant functional impairment was noted.

This scenario highlights some of the diagnostic uncertainty associated with recognition of psychotic symptoms among older adults.

Symptoms in Older Adults

The incidence of new psychotic symptoms among nondemented older adults may be significantly higher than generally recognized, with one study reporting an incidence of 19.8% in individuals over the age of 85.¹

Most psychotic symptoms in older adults present as visual hallucinations, delusions, and delusional misinterpretations. Although there is considerable clinical overlap, these appear to represent discrete clinical entities and may have different diagnostic and prognostic significance.^{1,3}

Hallucinations

Hallucinations are usually visual and may be complex⁴ and well formed (such as seeing people that talk).

Hallucinations often involve seeing family members, alive or deceased. They may involve children or people unknown

to the person. Hallucinations are usually nonthreatening. Even when individuals recognize that the hallucinatory episode is not real, they may see it in a positive way, such as the ability to communicate with a deceased relative. Hallucinations occur more commonly when the person is alone and family members may interpret the episode as a dream (or nightmare).

Delusions

Delusions are typically well organized and relate to ordinary events. The delusions often have sufficient plausibility so that relatives are uncertain whether they are delusions or not. The conviction that something has been stolen, often with accusations directed at a family member, may cause serious emotional distress and family discord unless identified as delusional. Individuals suffering from delusions may even call the police, who may not recognize the claims as a medical problem unless there are repeated episodes. Complaints about finances may seem plausible, but if individuals are delusional, they will not be mollified by explanation or reassurance. Paranoid delusions (for example, "my spouse is having an affair" or "my family is going to put me in a home") may occur in isolation and may be difficult to distinguish from appropriate concern. Individuals have been reported to respond to delusional thinking by brandishing guns, obviously representing a significant threat.⁵ Arising in the night, dressing, and leaving for "work" is common and may lead to caregiver fatigue. The distinguishing feature of delusions is their persistence despite facts, explanations, and reassurances.

Delusional Misinterpretation

Among individuals with dementia, misinterpretations and illusions are common: shadows on the floor or walls may be identified as water leaks or moving objects and lights outside may be mistaken for a burglar. The individual may become convinced that the house is not their own, that there is an additional floor in the house, boarders, or illicit activity taking place. Individuals with psychosis may think a stranger is in the house because they fail to recognize their reflection in the mirror. They may suffer from inability to recognize their own home or other familiar places.

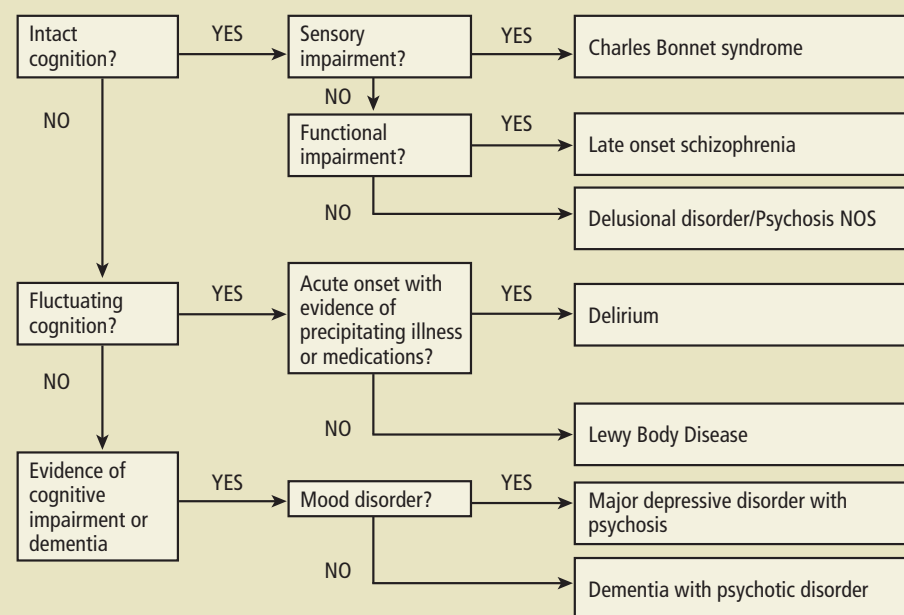
Other Psychotic Symptoms

Anger, agitation, restlessness, pacing, personality change, wandering, insomnia, and nighttime disturbances may be behavioural manifestations of psychotic symptoms. Associated mood changes including anxiety, euphoria, apathy, and irritability or emotional lability may be difficult to distinguish from depression or mania.

Distinguishing Psychotic Syndromes

Behavioural and psychotic symptoms among older adults differ from those associated with psychiatric illness in younger adults, but have specific identifiable patterns. New-onset complaints should be evaluated on a semi-urgent basis to exclude delirium (an acute confusional state). The hallmark of delirium is fluctuating cognitive status and inattention. Medications and sensory deprivation appear to be important precipitants. The most common cause of delirium is pre-existing dementia. Of those inpatients whose admission Mini-Mental Status Exam (MMSE) was abnormal, 66% developed delirium.⁶ Delirium (outside of health care settings) occurs rarely: a recent study identified it in only 0.5% of community-dwelling Canadian older adults.⁷ Delirium is an important consideration since it may be reversible.⁸ However, prompt correction of the underlying cause(s) is essential for good recovery and maintenance of function. On the contrary, failure to recognize delirium is associated with a lower likelihood of full recovery.⁸

Figure 1: Algorithm for Initial Diagnosis of Psychotic Symptoms among Older Adults



Use of this algorithm assumes the patient has no chronic psychiatric illness and is of normal intelligence.

Delirium, regardless of the attributed cause, is also a major risk factor for dementia and death.⁷⁻⁹ In outpatients, evaluation without hospitalization is preferable, since changing the milieu may precipitate worsening delirium.

Isolated visual hallucinations with a clear sensorium may occur in the absence of other psychiatric symptoms, most commonly occurring between sleep and wakefulness (hypnagogic hallucinations). Hallucinations in those age 70–90 were associated with a 64% likelihood of developing dementia over a twenty-year period (compared with a risk of 25% in those without psychotic symptoms).¹ The Charles Bonnet syndrome is the development of well-defined visual hallucinations in an individual with either ocular or central vision impairment¹⁰ and may be a dementia prodrome.¹¹

Lewy body dementia, the third most common neurodegenerative disorder (after Alzheimer's disease and Parkinson's disease) may also present with isolated complex visual hallucinations.¹² The diagnostic criteria for Lewy Body disease consists of fluctuating cognition, gait disorder or falls, and sensitivity to neuroleptics and may only become evident over time.

Depression with Psychotic Features versus Dementia with Psychosis

Distinction between depression with psychotic features and dementia with psychotic features is difficult. Symptoms of depression overlap with those of noncognitive signs of delirium and dementia¹³ and may cause poor performance on cognitive testing.¹⁴ Complaints of loss of interest in activities, decline in social interaction, and changes in sleep and appetite are very common in both depression and dementia. Weight loss, psychomotor retardation, and diminished concentration do not distinguish between depression and dementia.¹⁵ Depressive symptoms reported by family members may be important even when denied by the very mildly demented patient.¹⁶ All depression is associated with increased morbidity and mortality. Depression among older adults has been recognized as a precursor to dementia.^{17,18} The presence of depressive symptoms increases the likelihood of developing postoperative delirium,¹⁹ cardiovascular events,²⁰ and death.²¹⁻²³

The spectrum of depression includes minor depression, major depression, and major depression with psychotic features. It may occur de novo in late life or be a recurrence of a lifelong pattern of illness.

Depression with psychotic features occurs with severe mood disorder. The psychotic symptoms, usually delusions, must occur only in the context of the mood disorder. Among those with dementia, provisional guidelines for the diagnosis of depression in Alzheimer's dementia may be useful.²⁴

Pre-existing dementia is the most common cause of psychotic symptoms among older adults. In those in whom dementia is not recognized, asking family members about memory complaints and use of tools such as the Blessed ADL scale can provide useful information regarding prior functional status.²⁵ Even in the absence of memory complaints, significant functional decline is suspicious for dementia. Probing questions and insistence on specific details (rather than the family's interpretation) may allow better understanding of the person's status. For example, a daughter may excuse her father addressing her by her deceased mother's name as simple forgetfulness rather than being a failure to recognize her (or delusional misinterpretation). Unfortunately, cognitive testing of a psychotic individual may be difficult and provide unreliable data.

Among those with Alzheimer's disease, psychotic symptoms occur in virtually all patients,²⁶ most commonly later in the illness when significant functional losses are evident and activities of daily living are impaired.

Late-onset schizophrenia is a rare disease but should be considered in the absence of cognitive changes.²⁷ In schizophrenia, most hallucinations are auditory and delusions are more often paranoid or persecutory.

Clinical Approach

An older adult with psychosis may present with complaints of nonspecific nervousness or anxiety or simply feeling "unwell." Others may complain of dizziness or lightheadedness or other somatic complaints that fail to respond to evaluation or empiric therapy. Since the community has become more aware of depressive symptoms, family members may accompany an older adult and request an antidepressant for them when the symptoms represent a psychotic disorder. In other cases, families may minimize, make excuses, or deny the problem. Wanting to "go home" may be interpreted as a desire to visit old home places and prompt family trips. This normalization is common among families in which the older person is allowed to remain in a decision-making capacity long after judgment is impaired. Family members may also fear that the patient is "going crazy" and be reluctant to volunteer information.

Therefore, when an older adult presents with unusual symptoms or experiences, or when a cluster of symptoms defies investi-

gation, it is useful to ask family members detailed questions regarding specific behaviour or personality changes. Several tools are available for semiquantitative analysis of symptoms. The Neuropsychiatric Inventory Questionnaire (NPI-Q) was designed as a brief instrument for use in the general practice setting.²⁸ The Behavioral Pathology in Alzheimer's Disease scale (BEHAVE-AD)²⁹ distinguishes between specific behaviours and accompanying emotional components (for example, sad demeanor with suicidal ideation) or physical components (hitting in anger). It can predict inability of the family to care for the person at home but is probably too cumbersome for use in primary care. The Blessed Dementia Scale includes an analysis of change in function and a brief checklist of behavioural symptoms.²⁹ Figure 1 presents an algorithm for the initial diagnosis of psychotic symptoms.

In the prior case study, multiple physicians had evaluated the patient and provided medical diagnoses potentially associated with increased morbidity and mortality. A tentative diagnosis of depression was made and treatment initiated, but the differential diagnosis is delirium, depression with suicidal ideation, depression with psychosis, any of the dementias with psychotic features, or late-onset schizophrenia. These entities are listed in Table 1. One's initial diagnosis will be based on available evi-

Table 1: Differential Diagnosis for Psychotic Symptoms

Diagnosis	Code	Diagnostic features
Delirium due to a general medical condition	293.0	Fluctuating cognition, acute onset
Substance-induced delirium	292.81	Many classes of medications, particularly those with anticholinergic side effects, cause delirium. Evidence for causal role of medication and improvement after withdrawal
Psychotic disorder due to a general medical condition (includes dementia with behavioral disorder)	294.11	Underlying dementia, or underlying neurological or medical disorder causing psychosis
Major depressive disorder with psychotic features	296.24	Delusions associated with altered mood
Late-onset schizophrenia	295.30	Preservation of cognition and affect but preoccupation c delusions or hallucinations and functional impairment
Delusional disorder	297.0	Nonbizarre delusions; mood or functional changes
Psychotic disorder NOS	298.9	Psychotic symptoms that fail to meet specific criteria
Note: Includes DSM-IV TR diagnoses and codes.		
Source: American Psychiatric Association, 2000. ²		

Key Points

- Patients often present as vague complaints or nonspecific nervousness or anxiety.
- Symptoms include visual hallucinations, delusions, and delusional misinterpretations; these are usually nonthreatening
- Psychotic symptoms are usually of organic etiology (delirium or dementia, particularly Lewy Body Disease); more rarely are they associated with primary psychiatric illness such as psychotic depression.
- Symptoms are often normalized or misinterpreted by family.
- Symptoms are often not reported without specific questions (which may be obtained with BEHAVE-AD or NPI-Q).
- Additional history on functional status (Blessed Dementia Scale) and cognition are necessary for diagnosis.
- All neuropsychiatric symptoms have a major impact on morbidity and mortality.

dence and provide guidance for management. However, it is important to realize that recognition of change in symptoms, signs, and response to therapy over time may lead to a different diagnosis.

In clinical practice, the extent and consequences of the psychotic symptoms dictate management. Management is directed at behaviours that affect the individual or his/her caregivers. The quietly hallucinating individual putting her dolls to bed, or setting the table for extra people, may not require therapy. Conversely, the nonverbal individual with agitation and physical violence but without identifiable hallucinations or delusions will require multimodal management.

Conclusion

Psychotic symptoms among older adults often present as vague complaints or nonspecific nervousness or anxiety. Primary symptoms are usually visual hallucinations, delusions, and delusional misinterpretation. These are usually organic, associated with sensory impairment and may be a precursor or symptom of dementia. The symptoms are often normalized, misinterpreted, or not reported by family members. Specific questions are necessary to elicit an accurate history and understand the impact of symptoms on function. Several brief scales exist for use in primary care. Early detection and management may minimize the impact of psychotic symptoms on morbidity and mortality. 

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References

- Ostling S, Palsson SP, Skoog I. The incidence of first-onset psychotic symptoms and paranoid ideation in a representative population sample followed from age 70-90 years. Relation to mortality and later development of dementia. *Int J Geriatr Psychiatry* 2006 (ePub ahead of print).
- American Psychological Association. *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, Text Revision (DSM-IV-TR). Arlington, VA: American Psychological Association, 2000.
- Ballard CG, Bannister CL, Patel A, et al. Classification of psychotic symptoms in dementia sufferers. *Acta Psychiatr Scand* 1995;92:63-8.
- Manford M, Andermann F. Complex visual hallucinations: Clinical and neurobiological insights. *Brain* 1998;121:1819-40.
- Green RC, Kellerman AL. Grandfather's gun: when should we intervene? *J Am Geriatr Soc* 1996;44:467-9.
- O'Hara R, Mumenthaler MS, Davies H, et al. Cognitive status and behavioral problems in older hospitalized patients. *Ann Gen Hosp Psych* 2002;1:1.
- Andrew MK, Freter SH, Rockwood K. Prevalence and outcomes of delirium in community and non-acute care settings in people without dementia: a report from the Canadian Study of Health and Aging. *BMC Med* 2006;4:15.
- Andrew MK, Freter SH, Rockwood K. Incomplete functional recovery after delirium in elderly people: a prospective cohort study. *BMC* 2005;5:5.
- McCusker J, Cole M, Dendukuri N, et al. Delirium in older medical inpatients and subsequent cognitive and functional status: a prospective study. *CMAJ* 2001;165:575-83.
- Pfeiffer RF, Bodis-Wollner I. Charles Bonnet syndrome. *J Am Geriatr Soc* 1996;44:1128-9.
- Pliskin NH, Kiolbasa TA, Towle VL. Charles Bonnet syndrome: an early marker for dementia? *J Am Geriatr Soc* 1996;44:1055-61.
- McKeith IG. Consensus guidelines for the clinical and pathologic diagnosis of dementia with Lewy bodies (DLB): report of the Consortium on DLB International Workshop. *J Alzheimers Dis* 2006;9(suppl3):s417-23.
- Rubin EH, Zorumski CF, Burke WJ. Overlapping symptoms of geriatric depression and Alzheimer-type dementia. *Hosp Community Psychiatry* 1988;39:1074-9.
- Rubin EH, Kinschler DA, Grant EA, et al. The influence of major depression on clinical and psychometric assessment of senile dementia of the Alzheimer type. *Am J Psychiatry* 1991;148:1164-71.
- Purandare N, Burns A, Craig S, et al. Depressive symptoms in patients with Alzheimer's disease. *Int J Geriatr Psychiatry* 2001;16:960-4.
- Rubin EH, Veiel LL, Kinschler DA, et al. Clinically significant depressive symptoms and very mild to mild dementia of the Alzheimer type. *Int J Geriatr Psychiatry* 2001;16:694-701.
- Lyness JM, Heo M, Datto CJ, et al. Outcomes of minor and subsyndromal depression among elderly patients in primary care settings. *Ann Intern Med* 2006;144:496-504.
- Jorm AF. History of depression as a risk factor for dementia: an updated review. *Aust NZ J Psychiatry* 2001;35:776-81.
- Leung JM, Sands LP, Mullen EA, et al. Are preoperative depressive symptoms associated with postoperative delirium in geriatric surgical patients? *J Gerontol A Biol Sci Med Sci* 2005;60:1563-8.
- Ford DE, Mead LA, Chang PP, et al. Depression as a risk factor for coronary artery disease in men: the precursors study. *Arch Intern Med* 1998;158:1422-6.
- Everson SA, Roberts RE, Goldberg DE, et al. Depressive symptoms and increased risk of stroke mortality over a 29-year period. *Arch Intern Med* 1998;158:1133-8.
- Lesperance F, Frasure-Smith N, Talajic M, et al. Five-year risk of cardiac mortality in relation to initial severity and one-year changes in depression symptoms after myocardial infarction. *Circulation* 2007;115:1049-53.
- Schulz R, Beach SR, Ives DG, et al. Association between depression and mortality in older adults: the Cardiovascular Health Study. *Arch Intern Med* 2000;160:1761-8.
- Olin JT, Schneider LS, Katz IR, et al. Provisional diagnostic criteria for depression of Alzheimer disease. *Am J Geriatr Psychiatry* 2002;10:125-8.
- Blessed G, Tomlinson RF, Roth M. The association between quantitative measures of dementia and of senile change in the cerebral grey matter of elderly subjects. *Br J Psychiatry* 1968;114:797-811.
- Holtzer R, Tang MX, Devanand DP, et al. Psychopathological features in Alzheimer's disease: course and relationship with cognitive status. *J Am Geriatr Soc* 2003;51:953-60.
- Arunpongpaal S, Ahmed I, Aqeel N, et al. Antipsychotic drug treatment for elderly people with late-onset schizophrenia. *Cochrane Database Syst Rev*. 2003;CD004162.
- Kaufer DI, Cummings JL, Ketchel P, et al. Validation of the NPI-Q, a Brief Clinical Form of the Neuropsychiatric Inventory. *J Neuropsychiatry Clin Neurosci* 2000;12:233-9.
- Reisberg B, Borenstein J, Salob SP, et al. Behavioral symptoms in Alzheimer's disease: phenomenology and treatment. *J Clin Psychiatry* 1987;48(suppl):9-15.