

This fact sheet describes the cognitive and behavioral trajectories of three types of serious mental illness (SMI) in older adults including, (1) Schizophrenia, (2) Bipolar disorder, and (3) Major Depression, and is intended to help clinicians and other behavioral health professionals differentiate between symptoms associated with dementias and cognitive decline in these three SMIs. Symptoms associated with serious mental illnesses (SMIs) and dementia can be similar and may be misdiagnosed by clinicians (SMHSA, 2020). The information provided here is intended to help address the unmet cross-sectoral needs of older adults. Assessment tools used to diagnose schizophrenia, depression, mania, and dementia are included on page 4.

Schizophrenia in Older Adults

Schizophrenia is a chronic mental health condition that affects approximately 1% of older Americans ages 65 and older, and 8% older adults in Oregon (SAMHSA, 2020). Schizophrenia is not a progressive disease. The International Late-Onset Schizophrenia Group distinguishes between late-onset schizophrenia (LOS), with onset between ages 40-60 years, and very-late-onset schizophrenia-like psychosis (VLOSLP) with onset ages 60 years and older (Harris et al., 1988). The three types of symptoms associated with schizophrenia include positive, negative, and cognitive symptoms.

Positive symptoms (Cohen et al., 2015)	Negative symptoms symptoms (Cohen et al., 2015)	Cognitive symptoms (Raji, 2009)
<ul style="list-style-type: none">• Hallucinations• Delusions• Thought disorder• Movement disorder	<ul style="list-style-type: none">• Difficulty planning activities• Lack of emotion• Flat affect/reduced speaking• Limited facial expressions• Avoiding social situations• Interacting in socially awkward ways• Low energy	<ul style="list-style-type: none">• Lack of attentiveness and focus• Difficulty concentrating• Difficulty processing and using information• Memory loss

Positive symptoms typically fluctuate over the life course (Cohen et al., 2015). Rates of early-onset schizophrenia (EOS) and LOS symptoms are similar among older and younger populations. However, patterns of cognitive decline differ by age of onset. Cognitive symptoms are the strongest predictor of functional disability and affect about 70 to 80% of older adults with schizophrenia (Raji et al., 2009).

- EOS results in severe deficits in almost all cognitive measures (Raji et al., 2009).
- LOS results in large deficits in attention, fluency, and visuospatial construction (Raji et al., 2009).
- Intact verbal memory, which refers to the ability to store and retrieve verbal messages, best differentiates Alzheimer's disease dementia from cognitive impairment in schizophrenia (Palmer et al. 2010; Heinrichs, 2005) regardless of current age and age at onset (Heaton et al., 1994).

Chronological age (versus age at onset) is an important risk factor for cognitive decline in schizophrenia. The absolute risk of dementia is low in older adults with schizophrenia but rises with age (Korner et al., 2009). Three phases of cognitive decline in schizophrenia exist. The normative phase includes ages from childhood to 14 years before onset. The declining phase includes ages 14 years prior to psychosis onset to 22 years after. The further deterioration phase is from 22 years after the onset of psychosis (Jonas et al., 2022).

Persons with schizophrenia may be at higher risk for cognitive decline due to:

- Vascular factors (e.g. diabetes, heart disease, hypertension) that are left untreated or poorly treated,
- Prevalence of comorbid substance abuse which is especially high in schizophrenia,
- Metabolic syndrome due to certain antipsychotic medications, and
- Lifestyle factors including sedentary lifestyle, low levels of intellectual stimulation, long institutionalization.

In most cases of cognitive decline in schizophrenia, no underlying substrate has been found to explain it and the dementia of schizophrenia is not attributable to Alzheimer's disease or any other recognized neuropathological substrate (Harrison, 1995).

Diagnosing and treating older adults with schizophrenia and dementia

Diagnosing dementia in persons with schizophrenia can be challenging due to several confounders, including preexisting cognitive dysfunction, negative symptoms (e.g., apathy), and behavioral challenges (Dululio, et al., 2010). A thorough work-up for cognitive decline in persons with schizophrenia should include a diagnosis, and use of assessment tools (Wise, et al, 2019). Treatment for schizophrenia depends largely on frequency and intensity of symptoms. Treatment methods include the following:

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| Diagnosing Schizophrenia | <ul style="list-style-type: none">A comprehensive medical history with particular focus on risk factors,A physical exam, including a neurological exam,A cognitive history to determine onset and progression of cognitive decline, and cognitive domains involved. |
| Assessment Tools | <ul style="list-style-type: none">The Brief Assessment of Cognition in Schizophrenia (BACS; Keefe et al. 2004) takes 15 minutes to administer.A Schizophrenia Cognition Rating Scale (SCoRS; Keefe et al. 2006) takes 30 minutes to administer. |
| Treatment Options | <ul style="list-style-type: none">Antipsychotic medications can help reduce the intensity of psychotic symptoms, but do not improve, and may worsen cognitive decline due to anticholinergic properties (Vinogradov et al. 2009).Psychosocial treatments such as cognitive training and cognitive remediation may help improve cognitive dysfunction in schizophrenia (Vinogradov and Schulz 2016). |

Note: The NIMH Matrix Consensus Cognitive Battery (Marder et al., 2004) is the gold standard among these tests but is not suited for routine clinical work as it takes around 1-1.5 hours to administer.

Bipolar Disorder and Older Adults

Bipolar disorder is a severe, chronic psychiatric disorder that affects .05 - 1% of the older adult population (60+) and between 2,000 and 4,000 older Oregonians (SAMHSA, 2020). While most of these individuals include those with a lifelong history of bipolar disorder who are now older, 5-10% of this group includes "late converters," i.e., patients with unipolar depression who have a manic episode at age 50 or later (Arnold et al. 2021).

Bipolar disorder includes both the highs and lows of mood states, which are termed mania and depression respectively.

Symptoms of Depression
<ul style="list-style-type: none"> • Long lasting sadness, • Lack of interest in activities, • Sleep and/or appetite disturbance, • Difficulty concentrating, • Impaired memory and decision making, and • Recurrent thoughts of death, suicide (Barnes, et al., 2022).

Symptoms of Mania or Hypomania
<ul style="list-style-type: none"> • Persistently elevated, expansive, or irritable mood, • Increased activity or psychomotor agitation, • Inflated self-esteem or grandiosity, • Decreased need for sleep, • Overly talkative, pressured speech, • Distractibility, • Impulsivity, risk taking behaviors, and • Possible psychotic features (APA, 2022).

There is some evidence that bipolar disorder can be viewed as a progressive condition that leads to cognitive impairment, at least in a subgroup of individuals. Impairments in adult euthymic patients with bipolar disorder are seen in attention/processing speed, verbal memory, verbal fluency, and executive function, and longitudinally, in worsening of executive function (Cipiani et al., 2017).

Diagnosis and treatment of older adults with bipolar disorder and dementia

Although depression is a common symptom in dementia, euphoria/elation is not (Zhao et al. 2015). Severe depression and severe mania can invalidate test scores of diagnostic tools for cognitive functioning such as the SLUMS or the MoCA (see QR codes below). Current recommendations include:

- Administer a cognitive rating scale and a depression or a mania rating scale concurrently,
- If results indicate severe depression or mania, defer cognitive testing until the patient is at or close to their euthymic baseline,
- Medication to treat bipolar symptoms should be carefully evaluated by a psychiatric provider to assist with weighing risks and benefits of common bipolar medications with possible effects on cognition (Kessing, 2006).

Major Depression and Older Adults

Older adults with depression include those with recurrent, early onset depression (EOD) that persists into late-life, and those with late-onset depression (LOD). Minor depression can carry major risk since it can become a major depressive disorder in around 8-10% of older adults annually (Meeks et al., 2011). Late-life depression (LLD) results in higher suicide risk as well as non-suicide related mortality. Several behavioral symptoms are specific to psychotic depression and differ from those of non-psychotic depression (Schatzberg, 2003).

Cognitive symptoms associated with LLD (Vermeulen et al., 2019)
<ul style="list-style-type: none"> • Attention deficits, • Working memory deficits, • Processing speed deficits, • Executive function deficits.






Cognitive symptoms associated with psychotic depression (Vermeulen et al., 2019)
<ul style="list-style-type: none"> • More global cognitive deficits, • Executive function deficits, • Attention deficits, • Working memory deficits.

Behavioral symptoms associated with psychotic depression (Schatzberg, 2003).
<ul style="list-style-type: none"> • Psychomotor agitation, • Delusions, • Hallucinations, • Attention deficits, • Working memory deficits.

A greater number of previous depressive episodes leads to greater global cognitive decline (Semkovska et al., 2019). Over half of individuals who develop a major or mild neurocognitive disorder develop neurobehavioral symptoms before the onset of the cognitive disorder, with depression and irritability being the most common symptoms (Wise et al., 2019). The risk of vascular dementia was significantly higher than for Alzheimer's disease (AD) (Diniz et al., 2013), but most individuals with mid and/or late-life depression develop dementias other than AD or vascular dementia (Barnes et al., 2012).

Diagnosing Major Depression	}	<ul style="list-style-type: none"> Determine whether cognitive symptoms occur before or concurrently with the onset of depressive symptoms in patients with a pre-existing neurocognitive disorder. Subsyndromal depression should not be ignored due to its clinical implications. Ask about psychotic symptoms, especially in emergency and inpatient settings. They have been missed in about 25% of patients in these settings (Rothschild et al., 2008).
Treatment Options	}	<ul style="list-style-type: none"> "Build trust, identify strengths, engage in problem solving if possible, avoid judging behavioral symptoms, Promote sleep hygiene, a calm and consistent environment, medications as prescribed, and positive self-care, Involve family and the natural support network if appropriate and possible, Minimizing symptoms and maximizing daily functioning and quality of life, Inadequate treatment of LLD includes low-intensity antidepressants, medication other than antidepressants, and short duration treatment" (Vimal Aga, M.D.).

Assessment Tools for Cognitive Impairment and Serious Mental Illness

	<p>Montreal Cognitive Assessment (MoCA): A highly sensitive tool for early detection of mild cognitive impairments. The assessment includes short term memory, visuospatial abilities, language, and other executive functions.</p>
	<p>Saint Louis University Mental Status Exam (SLUMS): An 11-item questionnaire that tests for orientation, memory, attention, and executive function, with items such as clock drawing and figure recognition.</p>
	<p>Mini-Cog: A 3-minute instrument that can increase detection of cognitive impairment in older adults. It consists of two components, a 3-item recall test for memory and a simply scored clock drawing test.</p>
	<p>The Clinical Global Impression-Schizophrenia Scale (CGI-SCH): A valid, reliable instrument to evaluate severity and treatment response in schizophrenia. This tool is brief and simple, and appropriate for use in observational studies and routine clinical practice.</p>
	<p>The Positive and Negative Syndrome Scale (PANSS): measures the prevalence of positive and negative syndromes in schizophrenia. PANSS is organized as an interview.</p>

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