

## **2012 Graduate Research Prize Essay**

### **Diagnosis of Late-Life Depression: A Critical Review**

**Shaina Garrison**  
**Psychology**

#### **Introduction**

Over the past 150 years, the average life expectancy has dramatically increased from 40 years to 80 years (Aw, Silva, & Palmer, 2007). Due to continued advances in medicine, the relative proportion of people over the age of 65 is predicted to increase from its present 18% to 25% of the worldwide population by 2031 (Aw et al., 2007). Due to the rapid expansion of this age demographic, there is an increased need for research that identifies specific issues that the older population will face in order to help them enjoy long, healthy lives.

For most people, late life is associated with improved emotion regulation and an increased motivation to focus one's attention on emotionally gratifying information (Carstensen & Mikels, 2005). However, for some proportion of the older population, depressive symptoms will interfere with their ability to experience satisfaction with their lives. In older adults, both clinical and subthreshold depression diagnoses have been linked to severe impairment and health risks (e.g., Beekman, Deeg, Braam, Smit, & van Tilburg, 1997; Beekman et al., 2002; Bruce, 2001). Therefore, it is logical that clinicians and researchers would want to know as much as possible about the prevalence, etiology, course, and most beneficial form of treatment of depressive disorders in the geriatric population.

In the general population, the lifetime prevalence of Major Depressive Disorder (MDD) is believed to be between 10% and 25% in women, and from 5% to 12% in men (*DSM-IV-TR*, 2000). A review of the existing literature on age effects on depression revealed that past studies that attempted to quantify the prevalence of depression in the older adult population have yielded mixed results due, in part, to differences in diagnostic methods. Without a standard method for defining and diagnosing depression in older individuals, a coherent understanding of age-related changes in depression cannot be reached. In addition, the lack of standardization in assessment methods can lead to unreliable diagnoses on the part of clinicians, resulting in older adults not always receiving appropriate treatment for their symptoms.

The following paper reviews the literature on the diagnosis of clinical depression in elderly individuals. The development of the existing assessment techniques and the movement toward a standardized diagnostic technique will be discussed. In addition, the methods of control used in research for defining and diagnosing depression will be critiqued. Pros and cons of available control and assessment techniques will be considered, and suggestions will be made for future

research endeavors in this field.

## Characterizing Depression

Some of the discrepancy in the literature over the prevalence of depression in advanced age stems from the fact that some studies characterize depression as MDD as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000), whereas other studies define depression in terms of the number of depressive symptoms one experiences, without the necessity of an MDD diagnosis. The *DSM-IV-TR* defines MDD as the presence of one or more Major Depressive Episodes without the presence of any Manic, Hypomanic, or Mixed Episodes or Psychotic Disorders. MDD may consist of a single Major Depressive Episode, or it may be recurrent. The current clinical status and features of the MDD may be further specified. Older adults are more likely to present with Melancholic Features than other forms of MDD (Blazer, 2003; Parker, Roy, Hadzi-Pavlovic, Wilhelm, & Mitchell, 2001), in contrast to younger adults, who are more likely to experience Atypical Features (*DSM-IV-TR*, 2000).

Overall, the prognosis for older adults with MDD is very poor (Beekman et al., 2002). MDD has been linked to severe impairments in the elderly population including increased risk of mortality (Beekman et al., 2002) and increased likelihood of disability (Bruce, 2001). Imaging research indicates that severe MDD is associated with decreased volume in the prefrontal lobes (Kumar, Jin, Bilker, Udupa, & Gottlieb, 1998), which may contribute to the cognitive difficulties often reported in late-life depression (*DSM-IV-TR*, 2000). Specific cognitive difficulties that are associated with MDD include impairments in verbal recall and mental flexibility (Elderkin-Thompson et al., 2003).

However, research indicates that even subclinical levels of depressive symptoms can still be chronic and debilitating in older adults. If an individual presents with between two and four of the Major Depressive Episode features, he or she is considered to have subthreshold depression, also referred to as Minor Depressive Disorder (Blazer, 2003; *DSM-IV-TR*, 2000). The *DSM-IV-TR* (2000) states that, on average, people with Minor Depressive Disorder are significantly less impaired than people with MDD and may be able to function at nearly normal levels, although it may require more effort than usual to complete one's daily tasks. For elderly people with minor depression, however, the prognosis is still unfavorable, although not as poor as that for elderly sufferers of MDD (Beekman et al., 2002). For example, older adults with subclinical depression are at high risk for developing clinically significant affective disorders (Beekman et al., 2002). Minor depression is also associated with deteriorating physical health, in contrast with major depression, which seems to be independent of physical health (Beekman et al., 1997). Subclinical depression can also lead to impaired executive functioning in elders (Elderkin-Thompson et al., 2003).

Both MDD and minor depressive symptoms are associated with excessive use of public health services such as hospitals and social work agencies (Beekman et al., 1997). This finding

has significant public health implications, as healthcare is costly, and the overuse of public health services by older adults can overwhelm some aspects of the public healthcare system. It is also important to note that depressed elders experiencing financial difficulties or legal struggles may seek the help of public service providers such as social workers, not realizing that their problems may stem from depression (Brink et al., 1982). If the individual's symptoms are somatic, as they often are in old age, they might seek treatment from physicians for their physical ailments. It has been reported that older adults are reluctant to seek the help of mental healthcare specialists, perhaps due to a negative view of mental health issues (Brink et al., 1982). This bias might lead elders to seek the help of public servants who do not specialize in mental health. However, these workers, not being trained in the recognition and treatment of depression to the same degree as psychiatrists, will not be able to treat the root of these individuals' impairments. As a result, any benefits the older individuals receive from this sort of assistance will be short-lived, and the cycle of misdiagnosis, impairment, and overuse of public services will continue.

It is important to take note of how depression is defined when looking at studies that assess the prevalence of depression in the older adult community. Many studies that assessed depression along a continuous scale found a U-shaped association between age and the number of depressive symptoms reported in individuals, such that depressive symptoms decrease in frequency until middle age and increase in frequency throughout early and late old age (e.g., Blazer, Burchett, Service, & George, 1991; Wu, Schimmele, & Chappell, 2011; Yang, 2007). However, when depression is categorized in terms of meeting the diagnostic criteria for MDD, a negative association between advanced age and depression is often found (e.g. Jorm, 2000; Yang, 2007). Additionally, the way in which depression is defined affects the absolute prevalence rates. For example, a 1995 cross-sectional study of older adults in The Netherlands found that while the prevalence of MDD was only 2.02%, 14.9% of the population had clinically relevant levels of depressive symptoms, encompassing both major and minor depression (Beekman et al., 1995). Clearly, variation in the definition of depression has contributed to much of the divergence in the literature regarding the prevalence of late-life depression.

The discovery that major depression and minor depression have different etiologies highlights the importance of differential diagnosis. Subthreshold depression seems to develop as a reaction to exogenous stressors associated with late life such as loneliness and poor subjective health (Beekman et al., 1995). In contrast, late-life MDD is associated with personal and family histories of mood disorders (Beekman et al., 1995). These differences clearly show that major and minor depression are different syndromes and should be addressed differently in both the research and clinical domains.

Knowledge of the etiological differences between major and minor depression is essential in the clinical setting for selecting the appropriate treatment for the patient's syndrome. While the first line of therapy for MDD is treatment with serotonin-selective reuptake inhibitors (SSRI) and psychotherapy, SSRIs are not usually recommended for treatment of Minor Depressive Disorder unless the symptoms become chronic (Blazer, 2003). Thus, older adults suffering from minor depression are generally advised to take part in psychotherapy to address the stressors that are

causing their suffering and impairment. Accurate diagnosis of depression by clinicians is particularly essential for older adults, as misdiagnosis can have severe consequences. False diagnosis with MDD in an individual who is only experiencing minor depressive symptoms can lead to unnecessary pharmacological interventions, which may exacerbate the individual's existing symptoms and actually worsen their suffering (Cooke & Tucker, 2001). In addition, depression that is left untreated can result in the problems discussed earlier, including increased impairment and suicidality.

Despite the growth of research that emphasizes the importance of accurate diagnosis, diagnostic accuracy remains an issue among healthcare providers. For example, in a 2001 study of six nursing homes in New York, fewer than 50% of cases of MDD were accurately recognized and diagnosed by nurses and social workers on the nursing home staff (Teresi, Abrams, Holmes, Ramirez, & Eimicke, 2001).

Once depression is defined, how is it determined which individuals meet the criteria for that definition? The following section discusses the ways in which depression has been assessed in past studies that investigated the role of age in depression.

## **Available Techniques for Assessment of Depression in Older Adults**

The diagnostic criteria provided by the *DSM-IV-TR* (2000) are currently the most widely agreed-upon set of criteria used to diagnose MDD and other depressive disorders (Cooke & Tucker, 2001). However, there is variation in the methods that clinicians and researchers use to determine which of these criteria an elderly individual meets.

The Center for Epidemiologic Studies Depression Scale (CES-D) was developed in the 1960s to measure depressive symptoms in the general population (Radloff, 1977). The 30-item CES-D was originally included as part of a longer structured interview used to assess a variety of psychological constructs including mood, well-being, and social desirability. However, many researchers use the CES-D alone to measure how many depressive symptoms an individual has from each of the major components of depression, defined as depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance (Radloff, 1977). Individuals rate the frequency with which they experience each symptom on a scale from zero to three. The CES-D has been validated against many other depression scales, has been tested in a variety of demographic populations, and is considered to be highly reliable when assessing depression in the general population (Radloff, 1977; Watson & Pignone, 2003). However, in elderly populations, the CES-D has been found to be less sensitive for diagnosing minor depression than MDD (Watson & Pignone, 2003).

The Geriatric Depression Scale (GDS) was developed in the early 1980s when researchers began to notice that depressed older adults often presented with features that were distinct from those typically reported in younger and middle-aged adults (Montorio & Izal, 1996). In particular, the scale did not include somatic symptoms due to the prevalence of confusion in older adults about whether their physical symptoms were a result of depression, a general

medical condition, or the normal effect of the aging process on the human body (Brink et al., 1982; Montorio & Izal, 1996; Watson & Pignone, 2003). The GDS also uses a simplified yes/no answer format in order to reduce confusion in elderly people who may be experiencing cognitive decline. The GDS can be used in its full, 30-item format or in an abridged, 15-item format for expedited administration<sup>1</sup>. Like the CES-D, the GDS has been extensively evaluated and validated against other scales (Brink et al., 1982; Watson & Pignone, 2003). The 15-item GDS has been found to be more sensitive than the CES-D at detecting minor depression in older adults (Watson & Pignone, 2003).

The CES-D and GDS are both self-report scales, which have costs and benefits in both the clinical and research domains. One advantage of self-report scales is that they can be used to quickly screen and categorize patients without the need for extensive interviewing and observation, which can help clearly disordered individuals receive treatment faster (Brink et al., 1982). The need for fast treatment is particularly important for the depressed elderly, who are at high risk for suicidal ideation (Blazer, 2003) and completed suicide (Cooke & Tucker, 2001). However, an alternative view of this expedited clinical process is that patients who are on the borders of the cut-off scores for clinical significance might benefit from a more lengthy and in-depth diagnosis protocol. In this way, more detailed structured and semi-structured interviews could lead to reductions in both false positives and false negatives when diagnosing depression.

The following section encompasses a fuller discussion of limitations of past research. It also makes suggestions for ways in which future researchers can address these limitations, which will ultimately benefit both the research and clinical domains.

## **Issues of Control and Directions for Future Research**

It is not clear from the literature why some studies assess depression in older adults using the CES-D, others use the GDS, and others use the two in conjunction with each other or with other depression scales. At first glance, it seems as though the GDS should always be the better choice for diagnosing late-life depression due to its simplicity and the omission of the somatic and psychomotor symptoms that are often confusing to older adults. However, it is important to remember that older adults are more likely to present with melancholic depression, some features of which are somatic (i.e., significant changes in weight) and psychomotor (i.e., psychomotor retardation or agitation) in nature (*DSM-IV-TR*, 2000). In fact, melancholic depression has been shown to lead to more psychomotor disturbance in older adults than in younger adults (Parker et al., 2001). By neglecting to assess this subset of systems, there might be an increased rate of false negatives when diagnosing depression in older adults. Thus, clinicians and researchers would benefit from the administration of both the GDS and the CES-D, in conjunction with a physical examination to ascertain the cause of any somatic symptoms (Blazer, 2003).

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<sup>1</sup> The long and short versions of the GDS are in the public domain. They may be found at [www.stanford.edu/~yesavage/GDS.html](http://www.stanford.edu/~yesavage/GDS.html)

Furthermore, tests of cognitive functioning such as the Mini-Mental State Examination (MMSE) or the Clinical Dementia Rating Scale should be given in order to assess whether (a) the individual is competent to self-report his or her symptoms and (b) the underlying cause of any cognitive impairments is dementia or another source of cognitive decline (Blazer, 2003; Montorio & Izal, 1996). The standardization of this diagnostic workup would lead to improved interclinician reliability and increased consistency across research studies.

A major issue in the existing research on aging and depression is that cross-sectional studies can result in cohort effects; in other words, changes over time in education and awareness about mental health issues, availability of mental health resources, economic issues, average stress levels, and other factors may contribute to observed differences in depression between younger and older people (Wu et al., 2012; Yang, 2007). In this way, cross-sectional studies only tell us about the prevalence of depression in the current population, but they do not provide an accurate picture of how depression changes in individuals as a result of the aging process. In addition, there may be age bias in cross-sectional studies related to differential validity of the test items across age groups (Jorm, 2000). For these reasons, there is a need for more longitudinal research that assesses changes in depression in individuals over time.

Another problem in the literature on late-life depression is that severely depressed elders are more likely to drop out of or miss observations in longitudinal studies (e.g. Beekman et al., 2002). For this reason, our knowledge about severe depression is limited. Future research attempts should focus on decreasing attrition in the most severely depressed old adults by offering additional compensation for full cooperation and complete participation in studies. The self-report measures that are commonly used in studies of depression may be completed from the privacy of one's home, which could make participation in these studies more attractive to severely depressed individuals. Increased mortality in the clinically depressed elderly also leads to increased rates of attrition in both longitudinal and cross-sectional research (Blazer, 2003). Continued efforts to improve recognition and treatment of MDD and its precursors in the geriatric population will hopefully lead to improved prognoses for depressed individuals, which will, in turn, benefit future research efforts.

Late-life depression is often comorbid with medical conditions as well as other psychiatric disorders. In fact, many general medical conditions have been shown to cause, exacerbate, or mimic depressive symptoms (Cooke & Tucker, 2001; *DSM-IV-TR*, 2000). For this reason, there have been attempts in relatively recent research to control for these comorbid conditions in order to tease apart the effects of aging on depression independent of other conditions.

Blazer et al. (1991) discovered that frequency of depressive symptoms was associated with advanced age, being female, cognitive impairment, disability, and lack of social support. Without the inclusion of these factors in the regression analysis, there was a positive correlation between advanced age and depression in people over the age of 65. However, when these factors were controlled for, the association reversed, such that the oldest old participants had the fewest depressive symptoms. Similarly, Wu et al. (2012) identified that the linear increase in depressive symptoms in elderly people results from an increase in medical comorbidity in late life. After

controlling for medical illness, there was no relationship between age and depressive symptoms. These findings convey that psychological and physiological factors associated with advanced age influence the frequency of depressive symptoms above and beyond the role of aging itself. From these findings, we can also ascertain that some risk factors for late-life depression, such as availability of social support and seeking treatment for medical conditions, are potential sources of intervention in order to diminish the likelihood that some older people will develop depression.

It is important to note that studies that utilize depressed elders do not always report or control for the age of onset of depression, thereby lumping together people who have had chronic depression since childhood and people who may have had their first Major Depressive Episode in their old age. There is evidence that late-onset depression is more likely to occur due to exogenous stressors, whereas early-onset depression is likely related to endogenous factors such as neuroendocrine dysregulation and genetics (Klein, 2010). These differences in etiology indicate that future studies should make an effort to control for onset.

Future studies of aging and depression should continue to use scales such as the GDS that are designed to be short, simple, and easily visible to healthy older adults, who may be visually impaired or experiencing mild cognitive decline. More research is also needed to fully understand the interaction of dementia and depression. Despite the relative simplicity of the GDS, it is not recommended for use with individuals who are more than mildly demented on the Clinical Dementia Rating scale (Montorio & Izal, 1996). Specifically, patients with dementia may not be able to accurately remember and report on their experience of depressive symptoms over the past week, as required by the GDS. Future research should attempt to develop new scales that clinicians can administer to more severely cognitively impaired individuals, perhaps by including reports from caregivers and asking patients to report their present symptoms rather than remembering past experiences of symptoms. This research will further scientific knowledge about the prevalence of depression in dementia patients in hopes of ultimately providing these individuals with accurate diagnoses and beneficial treatment plans, thereby improving their quality of life.

## **Conclusions**

As the years pass, there will be increasing numbers of elderly adults in the population. They will be our co-workers, our neighbors, our family members, and someday, ourselves. Recent research has indicated that social workers, nurses, and other healthcare providers are not adequately trained to recognize and treat signs of depression in geriatric populations (Blazer, 2003). It is exceedingly important to educate healthcare providers and the general public about the ways in which late-life depression differs from early-life depression in appearance, etiology, and appropriate treatment in order to improve recognition of depressive symptoms and increase the proportion of depressed elders who receive adequate treatment. Furthermore, improved diagnostic success will lead to increased knowledge about the community prevalence of

depression and changes in depression in individuals over time.

For most people, old age is a time to focus on maintaining intimate relationships and reflect on the most meaningful achievements of their lives (Carstensen & Mikels, 2005). Since medical advances mean that we have greater longevity (Aw et al., 2007), we can be productive and happy members of our community for longer and accomplish more with the time we have. However, for some, aging and its associated stressors can result in mood disturbances such as major and minor depression, which significantly detract from their quality of life. Late-life depression is treatable, but improvements in research and clinical practice are needed to ensure that more people are accurately diagnosed and treated.



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