



Nutrition & Depression

in the Community-Based Oldest-Old

The number of older adults continues to increase in all health-care settings. The majority of older adults are living in the community. Most are dealing with at least one chronic physical illness or mental health concern. Nutritional status and depression, key indicators of overall health, have a complex and interdependent relationship. Clinicians must understand factors that affect nutrition and depression to promote positive health outcomes and enhance the overall quality of life for the oldest-old in the community.

Regina M. Phillips, PhD, RN, CNE

Nurses and other members of the healthcare team are frequently reminded that the U.S. population is aging rapidly. Recent data suggest that currently about 12.9% of the U.S. population is over 65 years of age (Administration on Aging [AoA], 2010). However, by 2030 close to 20% of the population will be older than 65 years. The majority of these older adults live in noninstitutional settings, either alone or with a spouse. Older adults usually experience at least one chronic physical illness or mental health condition. Although all older age groups are living longer, the oldest-old are the fastest growing portion of this population. Although this group has traditionally been described as 85 years or older, recent census data suggest that classifying the oldest-old as 90 plus years is more realistic (National Institute on Aging [NIA], 2011). In addition, the life expectancy for people who reach the older-than-90-years age group is greater than ever, but the risk of mobility limitations and disability has also increased (NIA, 2011). This article describes the effects of altered nutrition and depression on the oldest-old, defined as 85 years or older, and identifies strategies the healthcare team can use to minimize the impact of these important health risks.

Nutrition and dietary intake are important indicators of overall health. A healthy diet can reduce the effects of many chronic conditions, including obesity, cardiovascular issues, or

diabetes, as well as other health problems such as vitamin deficiency, weight loss, osteoporosis, or overall frailty. Depressive symptoms are important indicators of health and affect 5 million older adults in the United States; in addition, 13% of the major and minor depression reported occurs in the community-based elderly (Kurlowicz & Greenberg, 2007).

The relationship between nutrition and depression is complex. Depression has been associated with undernutrition, overnutrition, and deficits in specific food components and

nutrients. Depression can cause altered nutrition or complicate nutritional issues that already exist. Patients who are compromised nutritionally are more prone to depression (Gebretsadik & Grossberg, 2007). Understanding factors that impact nutrition and depression may help nurses and other healthcare team members develop strategies to prevent these health problems and the ability to promote positive health outcomes and overall quality of life.



Mealtime is associated with socialization for many individuals. In some settings, meals are the only time during the day that the older adult has contact with other family, friends, or supportive others. Research indicates that eating alone for more than one meal impacts dietary intake. In addition, a pleasant meal environment may facilitate optimal dietary intake for patients.

Nutrition in the Oldest-Old

Multiple factors increase the risk of altered nutritional status and dietary intake in the oldest-old. Some age-related physical changes increase nutritional risk in this age group; examples of these age-related changes are seen in Table 1. In addition, various acute and chronic health problems may impact nutritional status and dietary intake. For example, osteoarthritis may limit mobility and physical strength and the pain associated

Table 1. Age-Related Changes That Impact Altered Dietary Intake and Nutrition

- Decreased taste sensation
- Decreased secretion of digestive enzymes
- Decreased salivation
- Alterations in dentition and chewing ability
- Alterations in visual and olfactory acuity
- Potential changes to sensations of hunger, fullness, and/or satiety
- Decreased ability to detect thirst
- Decreased motor ability and/or physical strength
- Decreased renal function
- Decreased hepatic function

with this disease may affect the older adult's desire to eat. In some cases, specific health conditions may have a significant effect on nutrition. For example, patients diagnosed with diabetes may experience a change in nutritional status because of the dietary changes necessitated by the diagnosis of diabetes and related implications. Some changes may be positive. For example, the patient with diabetes may begin to, or continue to, follow a healthier overall diet. However, some changes required for a patient with diabetes may seem restrictive, and the patient may not comply with recommended diet or lifestyle changes.

Medications taken by the patient represent another physical factor that may impact overall dietary quality. The side effects of some medications, for example certain antibiotics, may alter taste sensations, or acuity, making some foods unpleasant to eat. Other medications may require the patient to change his or her usual food choices or restrict certain foods. For example, patients taking warfarin, a blood-thinner to prevent blood clot formation, must monitor the intake of foods containing Vitamin K, such as spinach, brussel sprouts, or kale, which can limit the therapeutic effect of warfarin.

Social factors can also impact nutrition. These factors include financial or socioeconomic issues, educational level, or being a caregiver. Socioeconomic status and education level may affect specific food choices and overall health. Seeman et al. (2008) found that socioeconomic status and

education were associated with several biological parameters known to predict health risk, including high-density lipoprotein (HDL) cholesterol, total cholesterol, and waist-hip ratio. Socioeconomic status also affects dietary supplement use. Sebastian et al. (2007) found that vitamin/mineral intake through the diet was insufficient in large numbers of older adults; socioeconomic factors and education level impacted the use of vitamin/mineral supplements in this population. Caregiver's education level may also affect nutritional status of the patients under their care (Correa et al., 2009).

Mealtimes are associated with socialization for many individuals. In some settings, meals are the only time during the day that the older adult has contact with other family, friends, or supportive others. Research indicates that eating alone for more than one meal impacts dietary intake (Hetherington et al., 2006). In addition, a pleasant meal environment may facilitate optimal dietary intake for patients.

Psychological factors, such as dementia and/or depression, may be related to nutritional status and dietary intake as well. In some cases, specific food elements or nutrients, such as folate, omega-3 fatty acids, and Vitamin E, have a suggested role in the prevention of dementia associated with Alzheimer's disease (Gebretsadik & Grossberg, 2007). Sanchez-Villegas et al. (2011) found that trans unsaturated fatty acids had an adverse effect on depression risk. German et al. (2011) reported that depressed patients had inadequate intake of Vitamins E and C; reports of food insufficiency, that is, patients reporting inadequate amounts of food often or sometimes, were more than four times higher in patients who were depressed as compared to those who were not. Some behaviors associated with dementia may impact the patient's dietary intake. For example, patients who wander or pace may have increased caloric needs. Other patients with dementia may be overweight or obese because they are sedentary; other patients may eat individual meals more than once because they do not remember eating earlier.

Depression

Depression is not a normal part of aging; however, it is prevalent, often misdiagnosed, and sometimes inadequately treated in the older adult (Centers for Disease Control and Prevention [CDC], 2010).

Estimates of the number of older adults in the community with major depression range from 1% to 5%; for those requiring home care, the number increases to 13.5% (CDC, 2010). Many older adults with depression have battled this throughout their entire life. Sometimes depression occurs for the first time in later life, facing their first episode at 80 to 90 years of age (National Alliance on Mental Illness (NAMI), 2009). Depression in older adults commonly occurs with other health problems such as cardiovascular disease, diabetes, or cancers. Patients with depression along with these chronic diseases tend to have more severe symptoms of both the depression and the chronic disease (National Institute of Mental Health [NIMH], 2011).

Like other age groups, the older adult may experience various forms of depression. Major depression is a more severe form that may affect the individual's ability to perform everyday activities. The patient may exhibit symptoms such as a depressed mood most of the time, lack of interest in usual activities, anxiety, agitation, or indecisiveness. People experiencing minor depression have fewer symptoms for a shorter period of time. Cases of minor depression may become major if untreated (Butcher & McGonigal-Kenney, 2005).

Some people think that depression is normal in older adults or the expected reaction to a chronic illness, or the losses and changes associated with age. Sometimes the symptoms of depression evident in aging are confused with dementia, arthritis, cancer, heart disease, stroke, and other chronic conditions (NAMI, 2009). If left untreated, depression in the older population can lead to death from suicide. In fact, the single most significant risk factor for suicide in this population is depression (NAMI, 2009). White males, 85 years and older, have a higher risk of suicide and are four times more likely to commit suicide than the general population (NIMH, 2010).

Risk factors for depression in older adults include a previous history or a family history of depression, being single or divorced, taking certain medications, or substance abuse. Women have a greater risk of depression, although men with depression are more likely to commit suicide. Certain medical conditions, such as Parkinson's disease, Alzheimer's disease or dementias, multiple sclerosis, stroke, and Huntington's disease, increase an older adult's



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depression risk. Some symptoms of depression in older adults are slightly different from other populations (Butcher & McGonigal-Kenney, 2005). These diseases cause sudden disability or disability over time and put the patient at greater risk for depression. Characteristics of depression in these patients may include memory problems, confusion, vague complaints including complaints of pain, difficulty sleeping, and irritability. Some older adults experience delusions or hallucinations. In some cases, depression can be associated with loss of appetite, leading to weight loss; in other cases, patients may overeat, leading to being overweight or obese (NIMH, 2011).

Nutrition and Depression

Nutrition and depression have a complicated and interdependent relationship. In older adults with depression, malnutrition, including vitamin and/or mineral deficiencies, is common (Gebretsadik & Grossberg, 2007). Weight loss and anorexia have multiple physical and psychological causes

in older adults. Depression is one of the psychological causes. In addition, some vitamin and mineral deficiencies can contribute to physical and cognitive changes. For example, Vitamin B deficiencies have been associated with dementias and anemia (Pfeiffer et al., 2005). Vitamin D deficiencies may be associated with cardiovascular changes; Vitamin D and calcium deficiencies have also been associated with osteoporosis (Pilz et al., 2008). Holick (2007) describes a potential link between Vitamin D deficiencies and schizophrenia and depression as well.

Some research supports the relationship between depression and nutritional risk. Torres et al. (2010) studied 314 older caregivers in Australia; about half of the caregivers were over 75 years. Primary family caregivers were assessed for the amount of caregiving time, appetite, hunger, selected anthropometric measures, depression, and nutritional risk. Using the short form of the Geriatric Depression Scale (GDS)-short form, about one-third were considered depressed. In addition, about half reported being overweight or obese and about one-fifth were at risk for malnutrition (Torres et al., 2010). Torres et al. (2010) interviewed a subgroup of caregivers and found that about 50% of the caregivers had less than one serving of fruit daily; about 75% had less than the recommended five servings of vegetables daily, both risk factors for the development of chronic health problems. Depression symptoms in this group were also associated with poor appetite.

German et al. (2011) evaluated the relationship between dietary intake, food insufficiency, and depression in poor older adults in a community in Israel. Although the 112 participants were on average younger than the oldest-old, about 47% in the sample were considered depressed using the GDS-short form; about one-fourth were classified as food insufficient. German et al. (2011) found that 90% of the participants, no matter what their depression score, had an inadequate intake of fiber, calories, and protein. In addition, depressed participants reported higher rates of food insufficiency due to a lack of financial resources. Although there was no difference in the specific eating and digestive problems affecting dietary intake reported by either the depressed or the nondepressed participants, participants with depression reported that more diseases interfered with their eating habits and that they avoided more meals (German et al., 2011).

The B vitamins and folic acid have long been suspected to have an important role in the mechanism against depression (Ford et al., 2008). However, evidence of these vitamins' impact on depressive symptoms in older adults is still evolving. A large, longitudinal study examined risk factors for Alzheimer disease and other chronic illnesses among community-based older adults (Skarupski et al., 2010). Health and dietary intake information from more than 3,500 people was collected using interviews and self-reported questionnaires. The researchers found that higher total intakes of Vitamins B6 and B12 were associated with a decreased likelihood of depression in older adults (Skarupski et al., 2010).

Involuntary weight loss and depression can contribute to, or be part of, a syndrome called "geriatric failure to thrive" (GFTT). Like the pediatric syndrome of the same name, if untreated, GFTT leads to death. More recent prevalence and incidence statistics are absent, but estimates from the late 1980s to the 1990s suggest that 5% to 35% of older adults in the community are affected by failure to thrive (Rocchiccioli & Sanford, 2009). Like malnutrition and depression, GFTT is not a normal part of aging, but the incidence increases with age. A patient identified with GFTT experiences a downward, multidimensional spiral that includes weight loss, decreased appetite, malnutrition, depression, impaired physical function, and cognitive impairment (Rocchiccioli & Sanford, 2009). The specific treatment for GFTT varies depending on the cause. However, patients with these characteristics require extensive evaluation for the underlying cause so that treatment can be initiated.

Role of the Nurse and Home Healthcare Team

Nurses and healthcare team professionals in all settings play a key role in identifying patients who are at risk for, or who have, poor nutrition and/or depression. Misconceptions about altered nutrition and depression in older adults have potentially devastating consequences. Home care team members should educate the patient, family, and support network about risk factors for malnutrition and depression. Team members should also help the patient and family understand normal age changes and ways to differentiate these changes from nutritional alterations and depressive symptoms.

Table 2. Selected Medications for Depression and Adverse Nutritional Impact

	Generic Name	Brand Name	Adverse Nutritional Impact
Selective serotonin reuptake inhibitors	Citalopram	Celexa	Nausea/diarrhea, weight gain or loss, obesity, hypokalemia, hypoglycemia
	Escitalopram	Lexapro	Nausea/diarrhea, weight gain
	Fluoxetine	Prozac	Nausea/diarrhea, weight gain, dehydration
	Paroxetine	Paxil	Nausea/diarrhea, weight gain, dehydration, hypercalcemia, hyper- or hypoglycemia, hypokalemia, hyponatremia
	Nortriptyline	Pamelor	Weight gain, nausea/vomiting/diarrhea, anorexia
	Sertraline	Zoloft	Weight gain, hypoglycemia, thirst
Serotonin-norepinephrine reuptake inhibitors	Duloxetine	Cymbalta	Nausea/diarrhea, dry mouth, weight gain, dehydration
	Venlafaxine	Effexor	Nausea/diarrhea, hyponatremia, weight gain, dehydration, hyperglycemia, hypercalcemia, hyperkalemia
Tricyclic agents	Desipramine	Norpramin	Nausea/diarrhea, increase/decrease blood glucose levels, dry mouth, weight gain or loss
	Nortriptyline	Pamelor	Weight gain, nausea/vomiting/diarrhea, anorexia
Other serotonergic agents	Bupropion	Wellbutrin	Nausea/diarrhea, weight gain, edema
	Mirtazapine	Remeron	Weight loss, dehydration

Several specific interventions can help address altered nutrition. First, a careful and ongoing assessment of the patient is important for early intervention. Using a comprehensive health history, the clinician reviews potential age changes along with dietary changes associated with chronic or acute health conditions (Table 2). There are a variety of methods available for assessment of dietary intake, such as food diaries and food frequency reporting. In addition, the Mini Nutritional Assessment (MNA) is an easy-to-use screening and assessment tool designed for older adults at risk for malnutrition

(Amella, 2007). Only a few minutes are needed for healthcare team members to become familiar with the tool and to administer it in the community. Including a nutritionist or dietitian on the team may help identify nutritional alterations not immediately obvious.

An oral health assessment is an important part of a comprehensive history and assessment because poor dentition, a sore mouth, or poor dental care can make eating painful or unpleasant. In some cases, a dental referral may be warranted to treat dental or mouth conditions affecting dietary intake. An ongoing and comprehensive



Some herbal substances may enhance or counteract the action of the medication prescribed for depression. A consultation with a pharmacist will ensure a safe medication regimen. The impact of potential adverse reactions to these medications on nutritional status should also be carefully monitored. Consultations with a dietitian may also be an important part of the healthcare plan.

review of medications, including over-the-counter medications and herbal supplements, is also important. A pharmacist can review the patient's medications and identify those medications that may be contraindicated because of their potential impact on dietary intake. Some additional resources can be found in Box 1.

By listening carefully to the patient, family, and other supportive social network members when available, clues can be provided about nutritional challenges faced by the patient that may not be clearly apparent. It is important to determine if the patients are living and/or eating alone. Determine if caregivers, if present, are responsible for preparing meals for the care recipient and the caregiver too. Assess financial concerns that might affect the ability to acquire food. Consider any cultural or religious preferences that may modify the patients' dietary intake and overall nutritional status. It is also important to assess the environment where

patients live and eat; determine if food is easily accessible or are there mobility issues that prevent the patients from preparing or eating a meal. Surveying the environment for medical equipment or supplies that may make the area an unpleasant place for meal preparation and meal enjoyment is also important.

Home health team members need to assess if the prescribed therapeutic diet is too restrictive for the patient. The Academy of Nutrition and Dietetics, formerly the American Dietetic Association, suggests that healthcare providers carefully consider the risks and benefits of therapeutic diets for older adults (2010). Restrictive diets may result in weight loss or an unpleasant eating experience. The benefits of a less-restrictive diet may outweigh health risks. In some cases, patients may need supplemental nutritional support. Nutritional supplements should be incorporated into the overall dietary plan in consultation with the primary care provider and dietary consultation.

Along with a comprehensive assessment of altered nutrition, a physical and mental health evaluation is an important assessment of a patient for depression. The assessment is initiated when the presence of risk factors, such as loss of a spouse, change in living arrangements, presence of physical disabilities or chronic health issues such as cardiovascular disease or stroke, burden from caregiving, or dementia are identified. One screening tool is the GDS, which has been tested in research and practice, and is frequently used for this population. One version of the scale includes 30 yes/no questions; a shorter version has been developed with 15 items that is easier to use, especially with patients who are physically ill or have mild-to-moderate dementia (Greenberg, 2007). The Cornell Scale for Depression in Dementia is intended to assess depression in patients with dementia, but can also be used in patients without dementia (Kurlowicz et al., 2002). This assessment is a 19-item tool that uses information from a caregiver interview, a patient interview and observations of the patient (Kurlowicz et al., 2002). The assessment evaluates moods such as anxiety or sadness, behaviors such as agitation or slower reaction or speech, physical signs such as appetite or weight loss, and cyclical activities such as altered sleep patterns or cyclical mood swings (Alexopoulos, 2002).

Treatment of Depression

Depression in older adults is treatable. The use of medications is one effective treatment method for this age group. Using medications in the oldest-old is a challenge, however, because many different medications may be used to manage age changes and acute/chronic health problems. Therefore, the risk of drug interactions and adverse side effects is higher in this age group (Spoelhof et al., 2011). Tricyclic antidepressants, selective serotonin reuptake inhibitors (SSRIs), serotonin–norepinephrine reuptake inhibitors, and other second-generation antidepressants are all effective in this population (Spoelhof et al., 2011). SSRIs such as citalopram, paroxetine, fluoxetine, or sertraline are preferred because they may have fewer detrimental adverse side effects. Lower than usual doses of these medications may be effective in the oldest-old.

Patients should be monitored closely to avoid untoward side effects from these medications or interactions with other medications. In addition, patients may be using herbal supplements. Team members should assess for herbal supplements, such as St. John's wort, that may be incompatible with prescribed medications. In addition, some herbal substances may enhance or counteract the action of the medication prescribed for depression. A consultation with a pharmacist will ensure a safe medication regimen. The impact of potential adverse reactions to these medications on nutritional status should also be carefully monitored. Consultations with a dietitian may also be an important part of the healthcare plan.

Medications are often combined with psychotherapy and cognitive behavior therapy to enhance their effectiveness with depressive symptoms. In patients with a higher risk for adverse side effects from medications, these treatment modalities may be preferred (Spoelhof et al., 2011). In addition, these therapies can be particularly helpful for patients with significant life crises, lack of social support, or coping skills with their present life situation. Social supports in their environment may also be considered. For example, the assistance of friends in the patient's church or social group can be helpful in encouraging treatment compliance or just in providing friendship during a difficult time. In some cases, medications and

Box 1. Resources for Nutrition and Depression in the Oldest-Old

General Nutrition and Depression Information

1. National Institute of Aging: for information about issues related to aging and the older adult (<http://www.nia.nih.gov>)
2. Local area office on aging for information about resources in the specific community
3. Area health department

Resources Related to Nutrition

1. Meals on Wheels: to arrange for home delivery of meals (<http://www.mowaa.org/>)
2. Dietary Guidelines for Older Americans: information on how good diet can promote health and reduce the risk of disease; information is available by age group (<http://www.cnpp.usda.gov/DGAs2010-PolicyDocument.htm>)
3. Dietitian or Nutritionist Locator: locate dietitian or nutritionist by city/state or zip code (<http://www.wellness.com/find/dietitian%20-%20nutritionist>)
4. Eldercare Locator: sponsored by the U.S. Department of Health and Human Services; patients and caregivers can locate a variety of services by zip code (http://eldercare.gov/eldercare.net/public/resources/topic/Food_Nutrition.aspx)
5. Mini Nutritional Assessment (MNA): locate the MNA (http://www.mna-elderly.com/forms/MNA_english.pdf)

Resources Related to Depression

1. National Suicide Prevention Lifeline: a service for people in crisis or who know someone who is; toll-free number is available 24 hours a day, every day and all calls are confidential: 1-800-273-TALK (8255)
2. Depression Support Help: for patients or caregivers (<http://www.depressionsupporthelp.com/>)

psychotherapy are supplemented with electroconvulsive therapy.

Summary and Implications for Practice

Nurses and other healthcare team members play key roles in the detection of depression in the oldest-old. With prompt detection and treatment, the effects of depression, including effects on nutritional status, may be reversed. Untreated, depression may lead to chronic



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physical and mental health concerns. The healthcare team should be aware of risk factors for depression in older adults such as significant losses, a history of depression, and/or physical or cognitive impairment. In addition, it is essential to assess the impact of these changes on dietary intake and nutritional status. Ongoing assessment provides the healthcare team with opportunities for prompt multidisciplinary treatment.

Nutrition and depression are each unique, interdependent, and complex health concerns in the older adult. Early detection and treatment of depression and alterations in nutritional status are important for overall positive health outcomes. Home healthcare professionals can be important advocates for patients' successful

achievement of positive dietary intake and overall nutrition. In addition, the home healthcare team members are integral to early detection and management of depression in the oldest-old. ■

Regina M. Phillips, PhD, RN, CNE, is an Assistant Professor, Department of Nursing at Towson University, Towson, Maryland.

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Address for correspondence: Regina M. Phillips, PhD, RN, CNE, Department of Nursing, Towson University, Towson, MD 21252 (rphillips@towson.edu).

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