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REVIEW

Spotlight on the Challenges of Depression following Retirement and Opportunities for Interventions

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Abstract: As a major life transition characterized by changes in social, behavioral, and psychological domains, retirement is associated with numerous risk factors that can contribute to the development of depression in later life. Understanding how these risk factors intersect with overall health and functioning can inform opportunities for mental health promotion during this transition. The objective of this review is to summarize the literature on risk and protective factors for depression during retirement transitions, discuss challenges related to appropriate management of depression in later life, and describe opportunities for prevention and intervention for depression relating to retirement transitions, both within and beyond the health care system. Key implications from this review are that 1) the relationship between depression and retirement is multifaceted; 2) while depression is a common health condition among older adults, this syndrome should not be considered a normative part of aging or of retirement specifically; 3) the existing mental health specialty workforce is insufficient to meet the depression management needs of the aging population, and 4) therefore, there is a need for interprofessional and multidisciplinary intervention efforts for preventing and managing depression among older adults. In sum, both healthcare providers, public health practitioners, and community organizations have meaningful opportunities for promoting the mental health of older adults during such major life transitions.

Keywords: aging, older adults, workforce, mental health, employment, epidemiology

Plain Language Summary

Among older adults, retirees are more likely to experience depression compared to those who are still working. This elevated risk reflects intertwining processes in social, biological, and psychological aspects of health, as well as barriers to accessing mental health care. Retirement often involves major changes in social roles and social networks, as well as changes to tangible assets like income and health insurance, which all impact risk and management of depression. Identifying and managing late-life depression is challenging. Many older adults with depression have co-occurring medical problems which complicate both appropriate diagnosis as well as pharmacologic treatment. There are also major shortages in the geriatric mental health care workforce. As a result, inter-professional partnerships are needed to promote mental health of older adults during this transition and to manage depression when it occurs. Within the clinic, integrative approaches such as the Collaborative Care Model are effective at improving both mental and physical health outcomes of older adults. Leveraging the expertise and strengths of non-physicians (eg, community health workers, peer supporters) and community resources (eg, senior centers, volunteer organizations) is an important component of supporting the mental health of retirees. Structural changes in the workplace, such as phased retirement and flexible work hours, are also warranted given the growing aging population. In sum, managing depression during the retirement transition requires innovative models of care that leverage resources beyond the specialty mental health sector to promote overall quality of life for older adults.

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Introduction

Each year, an increasing number of older adults seek psychiatric care; according to the 2019 Global Burden of Disease (GBD) estimates, 13.8% of adults ages 60 or older experience any type of mental disorders.[1] Depression is a particularly important public health concern in later life. Approximately 3.9% (40.2 million) of adults over age 60 experienced at least one major depressive episode in 2019,[1] and subsyndromal depression is even more common with, for example, point prevalence of 10–50% in the US.[2] Depression increases risk of medical morbidities including diabetes, cardiovascular diseases, and premature mortality.[3–5] The importance of late-life depression for overall population health will increase as the global population ages; the number of adults aged 60 and older is expected to increase from 1 billion (13%) in 2020 to 2.1 billion (22%) in 2050.[6]

Understanding risk factors for depression, particularly contextual factors related to major life transitions in later life (eg, health shocks, widowhood, employment changes), can inform prevention and intervention efforts to support mental health of older adults during these transitions. One important transition that should be considered when thinking about the prevention and management of depression among older adults is *retirement*. Retirement is a common transition among older adults around the world and is often accompanied by significant risk and protective factors for depression. In some countries, workers are required to retire at a specified age;[7] even in areas without a mandatory retirement age, most older adults retire from the workforce.[8] Prevalence of depression among retirees was estimated at 28%,[9] substantially higher than that of the overall older adult population. Retirement is a multi-faceted event (eg, timing, expectedness, voluntariness), and understanding how these various elements intersect with mental health has implications for addressing depression prior to, during, and after this transition.[10–12]

In this review, we aim to: (1) summarize the literature on risk and protective factors for depression during retirement transitions, (2) discuss challenges related to appropriate management of retirement-related depression, including shortages of geriatric mental health workforce, and (3) describe opportunities for prevention and intervention for depression relating to retirement transitions, both within and beyond the health care system. This review primarily draws on epidemiologic research published in the US and Europe, however we note that important sociocultural and historical differences between nations (eg, mandatory retirement age, healthcare coverage, state-sponsored pension systems) may affect both retirement transitions and depression risk.[10,13]

Depression Among Retirees

While this varies by country, most individuals retire after age 60. As a result, retirement-related transitions often amplify and are amplified by the complex risk factors of late-life depression.[14,15] *Psychosocial risk factors*, such as poor life satisfaction, self-perceived health, economic security, social connectedness, and spiritual well-being, may impair coping strategies and resources to manage difficult situations.[16] Additionally, *biological risk factors*, reflective of overall immunological, metabolic, and cardiovascular diseases that are common in later life, can impact neurobiological pathways and increase susceptibility to depression.[17] Medication burden, potential contraindications, and drug-drug interactions with prescribed medications make depression more complex to treat in older adults.[18] Finally, *structural risk factors*, such as under-diagnosis of depression in primary care settings and workforce shortages in geriatric psychiatry, create additional barriers to accessing appropriate treatment.[19,20] These risk factors are connected in complex ways. For example, depression may worsen cerebrovascular illness and quality of life, which are, themselves, important risk factors for late-onset depression.[21] In addition, under-detection and lack of appropriate treatment can worsen depression in older adults by impairing psychosocial functioning (eg, social integration, engagement with meaningful activities).[22] Retirement can exacerbate depression risk factors by removing coping resources, introducing stressors, and limiting access to mental health care. Moreover, the relationship between retirement and depression is difficult to quantify because of the absence of unidirectional causal relationships (stemming from complex relationships among contributors to depression) and lack of complete data (stemming from underdiagnosis and poor treatment options).

While depression is common among older adults, it is not a normative part of aging or of retirement transitions. A systematic review by van der Heide et al[23] found strong evidence that retirement may even be *beneficial* for mental health, including improved depressive symptoms and reduced antidepressant use. Recent studies by Syse et al,[24] Gorry et al,[25] and Xie[26] also support this positive relationship. The improvement in depression following retirement could be

due to decreased work-related stress,[27,28] increased autonomy,[29] or increased engagement in physical and social leisure activities.[30]

Challenges and Opportunities in Transitioning Out of the Workforce

Many older adults have established expectations about when and how they will retire, informed by societal norms and their own desires for their futures. However, many workers retire earlier, and at younger ages, than they had anticipated. Common reasons for earlier than anticipated retirement include having health problems that preclude or complicate completion of work duties, workplaces compelling an employee to take an early retirement, or leaving the workforce in order to become a caregiver for a family member.[31] All of these instances are at least partially outside the control of the retiree, and as a result early retirement is associated with lower life satisfaction,[32,33] poorer retirement adjustment,[34] and higher incidence of depression.[35]

Employment offers numerous resources, both tangible and intangible, to help workers cope with stress and facilitate timely detection and treatment for depression. For example, most large employers offer Employee Assistance Programs (EAPs) and other initiatives to increase awareness and access to treatment for mental health problems.[36,37] These programs function as an easily accessible, affordable early treatment option outside of traditional clinical settings. Beyond the financial security that working for pay can provide, work itself can serve as a resource for coping with stressors outside the workplace through providing access to social support, engagement in personally-meaningful activities, and stability in identity.[38]

Finally, it is important to note that retirement from full-time paid employment does not preclude alternative arrangements of engaging with work. Employers should consider bridge employment or phased retirement programs (ie, options to work part time before transitioning out of work altogether), which are associated with better mental health of retirees.[39–41] Offering flexible work schedules may allow some older adults who are unable to work full-time because of health problems or caregiving obligations to continue paid employment,[42] delaying and easing the transitions of social roles, networks, and financial resources associated with retirement.

Understanding the Links Between Retirement Transitions and Depression

As shown by Table 1, retirement transitions are correlated with multiple risk factors for depression. Retirement often requires, or is a consequence of, changes in many aspects of life. Theoretical frameworks like life course theory,[43] the stress buffering model,[44] and the resource mobilization hypothesis[45] have called attention to the ways in which several aspects of life transitions are linked to mental health outcomes. In this paper, we will discuss the ways in which social roles, social networks, health behaviors, and financial resources moderate the relationship between retirement and depression, since their effects have been well-studied. Importantly, depression is not only a consequence, but may also be a cause of retirement. In addition, retirements may be prompted by situations, such as job insecurity or unemployment, health complications, and caregiving duties, which are themselves risk factors for depression.[46]

According to Schlossberg's model for analyzing adaptation to change, reactions to major events like retirement depend heavily on the nature of the transition (eg, whether it was planned and voluntary), whether people have access to resources to adapt to emotional and practical challenges of the transition (eg, government services, financial means, social network and engagement), and personal attributes (eg, age, gender, race/ethnicity, educational attainment, aspects of personality).[47] Individual differences in coping resources and contextual factors (eg, living alone vs with a partner) are important moderators of how individuals adapt to transitions like retirement, including their mental health outcomes.[48] For instance, retirement is often associated with higher rates of depression among people living in Western countries,[10] lower income men,[33] women of color in US,[49] and people residing in long-term care facilities.[50] These interrelated risk factors make depression in the context of retirement transitions a challenging condition to identify and address. The retirement transition impacts multiple domains of life, and below we detail how accompanying changes in social roles, social networks, financial resources, and health behaviors contribute to the links between retirement and depression.

Table 1 Links Between Retirement Transitions, Depression Risk and Protective Factors, and Potential Interventions for Promoting Mental Health of Older Adults

Type of Effect	Potential Correlates of Retirement Transitions	Effects on Depression	Potential Interventions
Protective Factors	Loss of Job Responsibilities	Less Work Stress	N/A
		Better Life Satisfaction	
	Increase in Physical and Leisure Activities	Better Life Satisfaction	N/A
Psychosocial Risk Factors	Loss of Social Role (especially unplanned or involuntary transitions)	Poor Life Satisfaction	Phased retirement Second career Volunteer programs Hobbies
	Loss of Work Network	Social Isolation and Loneliness	Peer support
	Changes in Lifestyle	Health Problems	Community-based exercise
		Social Isolation	Alcohol and smoking cessation
		Financial Problems	
	Loss of Income	Financial Problems	Financial planning Social safety nets
Biological Risk Factors	Polypharmacy	Disease Comorbidity	Collaborative care model
		Lack of Treatment	Non-pharmacological treatments
	Age-related illness	Vascular Depression	Collaborative care model
		Lack of Treatment	Home-based care
Structural Risk Factors	Loss of Insurance and Other Employer-Provided Benefits	Financial Problems	Extension of benefits
		Health Problems	Non-physician workforce
	Health-Related Retirement	Early Retirement	Social safety nets
		Social Isolation	Healthy behaviors
		Financial Problems	
		Disease Comorbidity	
	Lack of Screening	Lack of Treatment	Collaborative care model Home-based care Non-physician screeners
	Shortage of Geriatric Psychiatrists	Lack of Treatment	Community-based treatment Non-physician workforce

Social Roles

Retirement involves a major a role transition,[51] often marked by a discontinuous loss of job-related identity. This loss of social role is often accompanied by lower life satisfaction[52,53] and low mood.[54,55] Retirees are especially susceptible to poor mental health when they are not yet certain what their new social role will be or have not fully shifted into their new role.[45,56] This liminal phase can pass almost immediately (eg, if someone retires "into" a second career or a new social role like caregiving) or may be drawn out over months or years (eg, if someone does not have a plan for retirement or is struggling to realize that plan). For instance, a qualitative study of retirees by Quine et al found that while many initially struggled to adjust to retirement, some grew to accept and even enjoy their post-retirement life over time;[57] as one retiree shared:

> Initially, I found it soul-destroying … that I wasn't going to … work. But as time went on and I became involved in … voluntary work, I derive a great deal of satisfaction from it, and I don't think I could go back to a full-time job.

As this quote illustrates, older adults may view retirement, and the resulting social role transition, positively. Older adults often experience high levels of life satisfaction when they are able to make voluntary decisions, have self-efficacy, and meet their expectations.[58] Consistent with this, older adults report higher life satisfaction and lower rates of depression

when they retired voluntarily (eg, in order to get away from job stress or pursue other interests) rather than when pressure from employers or other circumstances was involved.[10,59–61]

Loss of Social Networks

Social isolation and loneliness are key drivers of depression among older adults.[62] Those who receive greater social support and feel a greater sense of belonging in their communities tend to have better mental health outcomes,[63,64] while those who are socially isolated more frequently experience depressive symptoms.[65] Typically, older adults obtain social support from their spouse, close family and friends, or high community integration, paired with strong work-based relationships.[66,67] People who get work-related social support are less likely to experience depression,[64] so for these individuals, replacing the work-based network would be an important step in avoiding social isolation and maintaining quality of life in retirement.[67]

Retirees with stronger existing non-work relationships tend to have more positive mental health outcomes. Importantly, the association with psychological wellbeing is likely driven more by the *perception* of social support than by the objective number of relationships the person has.[68–70] For instance, marital satisfaction[57] and strong relationships with loved ones[71] are related to happiness and positive mental health in retirement. Retirees who remain socially active and engaged in their community also fare better.[72–74] On the other hand, retirees who are removed from their social networks and who move into residential long-term care are at greater risk for depression.[75]

Financial Strain

While individuals of all ages can experience financial strain, economic challenges unique to older adults include retirement preparedness,[76] high healthcare costs[77] and financial exploitation.[78] Financial wellbeing, or the ability to manage one's economic needs and obligations, is negatively associated with depression especially among older adults.[79,80] Lower income adults tend not only to have higher rates of depression,[81] but also to be more susceptible to depression as they age.[82] Although many retirees can meet their needs with their retirement income, average consumption in retirement falls short of the predictions of economic models, suggesting that retirees may experience financial shortages.[83] Moreover, adults with low or insufficient income tend to have a harder time adjusting to retirement,[84] and a growing fraction of adults in the US lack pension plans or sufficient individual savings to ensure their financial security in retirement.[85]

In addition to wages, retirees often also lose access to employer benefits, chief among them health insurance. In countries without affordable public options, adults tend to purchase health insurance at a steep discount from employers. In the US, for example, only retirees over the age of 65 can receive low-premium healthcare coverage through Medicare. In one survey, almost half of older adults below the Medicare eligibility age said they were unlikely to be able to afford health insurance in retirement.[86] Moreover, over two thirds of respondents were concerned that, given the political instability of public options, changes in federal insurance policies (eg, Medicare eligibility, Affordable Care Act) would affect their healthcare coverage. Reporting financial barriers to care, including lack of health care coverage, is positively associated with depressive symptoms.[87] Even when older adults qualify for government-subsidized healthcare coverage, the costs of accessing mental health services may be high; Medicare charges a 20% copay for many outpatient mental health services and steep deductibles for inpatient care.[88]

In addition to adding to post-retirement stress, personal financial difficulties may delay or even altogether preclude retirement among adults who hope to stop working.[60] For instance, during the Great Recession, many adults in the US did not retire because the balance in their retirement or pension accounts declined substantially.[89] Shifts in fiscal policies, including Social Security eligibility age, are another common cause of delayed retirements.[90] Like early retirements, these *non-transitions* tend to be outside the control of the individual and involve a failure to meet one's expectations about retirement. Some studies associate these sorts of delays in workforce exits to higher levels of stress and depression,[35,90,91] although others suggest that they may have no effect, or even positive effects, on mental health.[92,93]

Change in Health Behaviors

The retirement transition is associated with changes in health-related behaviors that have implications for both mental and physical health. For instance, compared to when they worked, older adults often have higher alcohol consumption,

less physical activity, poor dietary habits, and higher incidence of smoking when they retire.[94,95] These behaviors are all linked to poor overall quality of health, poor life satisfaction,[96] and, in turn, higher incidence and severity of depression.[16,97] Additionally, retirees are less frequently engaged in cognitively-engaged activities that involve memory and problem-solving, which may contribute to cognitive decline.[98,99] Overtime, these changes can result in cognitive and functional impairments,[100] which are associated with increased risk of depression.[101–103]

Health Problems as a Cause of Retirement

More than 50% of men and 30% of women ages 50+ who retired early reported that poor health, including depression, limited their ability to continue working.[83] Health problems are a leading cause of early and involuntary retirements, and are associated with worse retirement satisfaction.[31,59,104] Older adults with poor health often have mobility problems, which can increase social isolation and feelings of loneliness.[66,105] Additionally, older adults with physical health problems often experience significant financial strain because the unplanned loss of wages and employer-sponsored health insurance makes it harder to meet ongoing financial and healthcare needs.[106,107] Finally, the relationship between depression and physical health is bi-directional: Not only are physical health problems common in later life, such as cardiovascular disease and diabetes, associated with increased risk of depressive symptoms,[108] depression itself is also associated with increased risk and worse prognosis of cardiometabolic diseases.[21]

Challenges to the Management of Depression Among Retirees in Healthcare Settings

In a report published by the Commonwealth Fund, Tikkanen et al highlighted healthcare barriers to managing patients with mental health conditions in the US and several European countries. Many countries such as the US, New Zealand, Sweden, and Germany have limited health system capacity to meet the mental health needs.[109] Given its complex clinical presentation and risk factors, management of depression in the context of retirement is particularly challenging within healthcare settings. Compared to other countries, US older adults are most likely to report unmet mental health needs.[110] In this section, we use the US as an example to discuss three main health system challenges with managing depression relating to retirement transitions, focusing on factors related to appropriate diagnosis, pharmacological treatment, and workforce needs. Table 2 summarizes some examples of these challenges.

Challenges with Diagnosing Late-Life Depression

Screening for symptoms is an important step in identifying older adults in need of depression care. However, such screening efforts are challenging to implement for older adults who have multiple complex, chronic conditions that can share symptoms with depression such as appetite changes, sleeping problems, fatigue, and concentration difficulties.[111] Most older patients only receive mental health care services in primary care settings, and primary care providers tend to underdiagnose late-life depression. For example, in a meta-analysis of 31 studies, primary care physicians only correctly identified 47.3% of depression cases and 78.6% of non-cases in older patients, with an overall accuracy of 71%. This accuracy rate was lower than that of younger adults (overall accuracy ~ 77.8%) and mixed aged adults (overall accuracy ~ 79.6%).[20] Additionally, salient risk factors for depression in retirement transitions are complex,[90] and thus, could be overlooked by health care professionals. As retirement and its implication on mental health are often discussed outside the healthcare settings, efforts to

Table 2 Examples of Challenges in Managing Depression Among Retirees in Healthcare Settings

Challenge	Examples
Appropriate diagnosis	• Late-life depression is underdiagnosed at primary care • Depression screening rarely asks about work-related stress due to retirement and retirement transitions
Pharmacological treatment	• Low treatment efficacy and tolerability in older adults • Polypharmacy • Poor medication adherence
Shortages of geriatric workforce	• Small numbers of board-certified geriatric psychiatrists • Declining fill rate in geriatric psychiatry residency

include conversations around retirement (eg, retirement-related stress) during primary care visits can help identify salient risk factors to depression during retirement transitions.

Challenges with Antidepressant Treatment

While antidepressants are widely prescribed for older adults,[112] these medications are less efficacious and have poorer tolerability among older adults, in part due to higher burden of medical comorbidities.[18,113] Relapse and recurrence are common, particularly among patients who discontinue antidepressant treatments.[18] Studies reported that only a third of older patients treated with antidepressants achieved remission,[114,115] and individuals with signs of frailty or vascular depression have weaker responses to antidepressants.[115,116] As a result, the potential benefits and risks for adverse events related to antidepressant treatments need to be regularly assessed.[117]

Polypharmacy, defined as the simultaneous use of more than one prescription drug, is increasingly common in older adults across all clinical settings.[118] In 2015/16, the CDC estimated that seven in 10 adults aged 40–79 used at least one prescription drug, and 22.4% used five or more, in the past 30 days.[119] In addition, more than 50% of older adults may be taking one or more medications that are not medically necessary.[118] Polypharmacy increases risk of adverse drug events and drug-drug interactions such as falls, frailty, cognitive impairment, and mortality.[118,120] Concerns regarding these adverse drug events led to the development of the Beers Criteria, an evidence-based guidance developed by a consensus panel of multidisciplinary experts, to guide health care professionals on safe medication prescriptions for geriatric patients. For example, serotonin-norepinephrine reuptake inhibitors, a class of antidepressants, are generally not recommended for patients with a history of falls or fractures.[121] Even with these criteria, Charlesworth et al estimated that 15% of community-dwelling older adults used a medication on Beers list.[122]

Poor medication adherence to multi-drug regimens is another concern in managing late-life depression with antidepressants. Approximately 40–60% of older patients do not adhere to their recommended medications.[123] Nonadherence is often a result of the complex interactions between factors related to the patients, providers, and health system. Patients may have difficulties in maintaining consistent medication administration practices due to cognitive impairment, functional limitations, and medication literacy; poor patient-provider communication, costs of medications, and fragmentation of care at the health system level also contribute to poor adherence.[124] In a study of older men being treated for depression, the primary predictors of non-adherence were experiencing medication side-effects and not experiencing sufficient improvement in depressive symptoms.[125] Taken together, these barriers suggest that antidepressant medications alone may not adequately manage depressive symptoms in older adults. As depression during retirement transitions often arises from psychosocial risk factors, effective treatment of depression relating to retirement requires a necessary shift toward an integrative approach that combines both pharmacological and psychotherapy interventions.

Shortage of Geriatric Mental Health Workforce

Mental health professionals, including geriatricians, psychiatrists, counselors, and therapists, play an important role in managing depression post-retirement. Despite a rapid growth in the number of older adults, the geriatric health workforce is much too small to meet the needs of this population.[126] As of December 2020, the American Board of Psychiatry and Neurology (ABPN) awarded a total of 3638 certificates in geriatric psychiatry; of whom 1457 (40%) are active (not expired or not revoked) certificates.[127] In addition, the capacity of the geriatric mental health workforce has declined over time; for example, the number of board-certified geriatric psychiatrists has been declining since 1991.[128]

Figure 1 illustrates the capacity of geriatric psychiatric workforce in the US. The values in this figure were estimated using provider data from the US News and World Report[129] and depression prevalence data from the Institute of Health Metrics and Evaluation's Global Health Data Exchange.[1] With a target of maximum caseload of 900 patients per psychiatrist,[130,131] only 15 states have sufficient numbers of geriatric psychiatrists for each to have a caseload of 900 depressed patients or fewer. This shortage is even greater when we consider other mental health conditions that would benefit from specialty care. Even fewer states have enough geriatric psychiatrists to meet the target caseload of 900 older adults who received services for any mental illness.[132]

Other geriatric health professions face similar workforce shortages. For example, there is a shortage in consultation-liaison psychiatrists who provide care for older patients with comorbid mental health and physical health conditions. Among

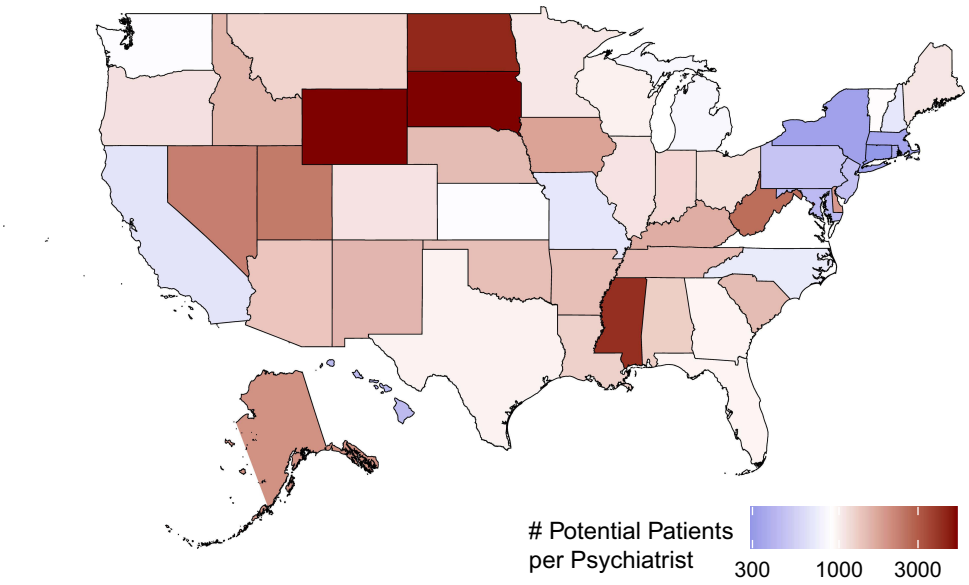

Figure 1 Capacity of the geriatric psychiatry workforce to serve adults aged 65+ with depressive disorders in the US.
Notes: The authors created this figure with data from the following sources: 1) Maximum caseload for outpatient psychiatrist was ~900 patients estimated from the US Department of Veterans Affairs (VA). Data from Veterans Health Administration[130] and McQuistion HL and Zinns R.[131] 2) Number of geriatric psychiatrists per state was estimated from US News and World Report's provider list (n= 2758).[129] 3) Number of adults ages 65+ with depressive disorders (including major depressive disorder or dysthymia) per state was estimated from the Institute of Health Metrics and Evaluation's Global Health Data Exchange (data from Global Burden of Disease Collaborative Network).[1] This map likely underestimated the workforce shortage for various reasons: 1) typical caseload in the VA or in US community-based psychiatry is much lower than 900 (data from McQuistion HL and Zinns R[131]) 2) number of geriatric psychiatrists in the US News and World Report's provider list (n= 2758); data from Geriatric Psychiatrist Near Me[129] is almost twice as high as the number with currently active licenses (n= 1457); data from American Board of Psychiatry and Neurology, Inc.[127] and 3) patients with mental illness other than depressive disorders, who may also need psychiatric care, were not included.

1706 certificates in consultation-liaison psychiatry awarded by the ABPN, only 1183 (69%) are active certificates.[127] Looking beyond mental health specialty care, the US Health Resources and Services Administration (HRSA) reported a national shortage of 19,350 full-time equivalent (FTE) geriatricians in 2013; this figure is projected to increase to 26,970 FTE geriatricians by 2025 under the current workforce participation.[133] As shown by Figure 2, while HRSA projects that all

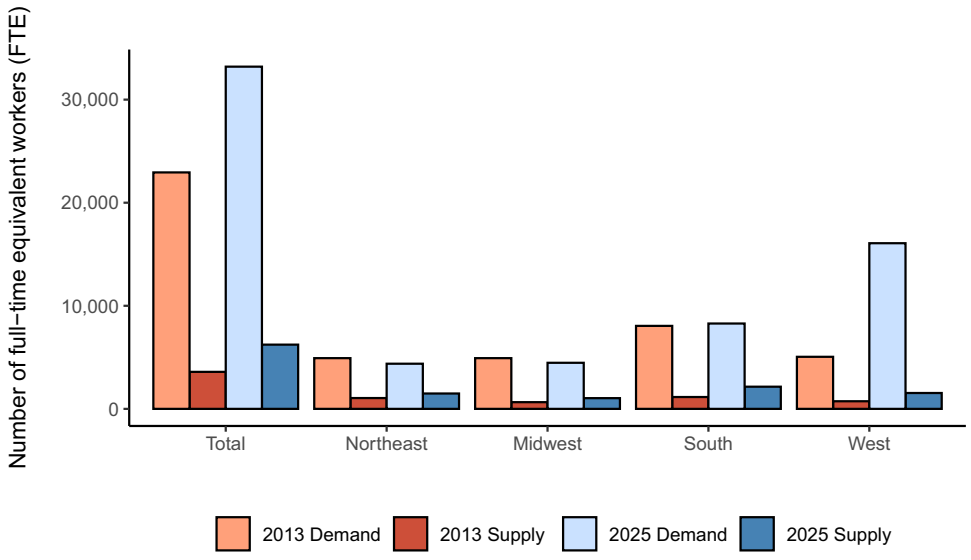

Figure 2 Current and projected geriatrician workforce supply and demand for services: data from the US Health Resources and Services Administration (HRSA).
Notes: The authors created this figure with data from HRSA's National Center for Health Workforce Analysis, 2017 (data from US Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis).[133] Projections assume that 30% of the population aged 65+ will need care by a geriatrician (whether in- or out-patient care; data from Fried LP and Hall WJ)[134] and current rates of healthcare workforce participation and patterns of health care utilization. HRSA estimated regional demands based on regional population characteristics (eg, age, sex, household income, insurance status, health status, etc.).

parts of the US will have workforce shortages, these shortages will be most acute in the Western (deficit of 14,530 FTEs) and Southern (deficit of 6130 FTEs) regions of the US. All projections assumed that 30% of the population ages 65+ will need care by a geriatrician (whether in- or out-patient care).[134] These projected shortages of geriatricians negatively impact geriatric care delivery, particularly when many older adults often receive their health care at primary care.

There are several barriers to expanding the geriatric mental health workforce. Historically, geriatric psychiatry is one of the least popular specialties chosen by medical residents, with less than half of available fellowship positions filled each year.[19,135] According to the Accreditation Council for Graduate Medical Education, in the academic year 2020/21, there were 64 accredited programs in geriatric psychiatry and 44 on-duty residents, a 58% drop compared to 2002/03, which saw a peak of 106 residents. For comparison, the number of addiction psychiatry residents increased 65% (from 57 to 94 residents), child and adolescent psychiatry increased 43% (from 681 to 975 residents), and forensic psychiatry increased 38% (from 66 to 91 residents) during this same time period.[136] In addition, the geriatric psychiatry workforce does not reflect the diversity of US's aging population.[137,138] This requires attention as the diversity of the older adult population increases; as discussions around retirement and mental health are often culturally-bound, providers need to be trained to engage in effective patient-provider communication regarding screening and treatment engagement for depression.[139] Finally, low reimbursement rates by public insurance further suppresses the supply of the behavioral health workforce. For instance, once US older workers lose employer-sponsored healthcare coverage after retirement, many rely on Medicare for their mental health care expenses. Due to an insufficient reimbursement for psychiatric care, only 51.5% of disincentivizes psychiatric providers to accept Medicare-billed patients,[140] severely limiting options for patients who cannot afford to pay over $100 per hour for uninsured care.[141] This further exacerbates the shortage in access to psychiatric care for retired older adults, particularly among economically disadvantaged patients who have less financial support for retirement.[130]

Opportunities and Recommendations for Promoting Mental Health of Older Adults During Retirement Transitions

The phenomenon of aging provides numerous reminders of the intrinsic links between mental and physical health.[97] As discussed above, depression in the context of retirement is multi-faceted and involves complex interactions between biological, psychological, and social risk factors. As a result, intervention strategies for late-life depression necessitate a shift toward integrative approaches to support both mental and physical health of older adults during retirement transitions. In this section, we highlight successful evidence-based integrative interventions, within and beyond health system settings, for managing depression that occur in the context of retirement transitions.

Opportunities Within Healthcare Settings

Novel models for delivering healthcare interventions in clinical settings can increase diagnosis and improve treatment effectiveness for depression.

Collaborative Care Models

Dozens of trials have demonstrated the clinical effectiveness of the collaborative care model (CCM) for improving both mental and physical health of older adults. The CCM addresses the complex health needs of older adults with depression through a multi-professional, integrative team approach within primary care settings. Table 3 summarizes five core elements of the CCM identified by the American Psychiatric Association, as well as their benefits.[142] A CCM health team typically consists of a primary care provider, a consulting mental health specialist (eg, psychiatrist or psychologist), and a care manager (eg, a social worker or nurse). In contrast to the traditional care model, which is often inconsistent and fragmented, the CCM improves care coordination by fostering an effective collaboration between the primary care provider and the consulting mental health specialist. Served as a bridge between the health professionals and the patients, the care manager is responsible for assessing the patients' needs, coordinating depression treatments, monitoring adherence, and evaluating treatment effectiveness. Furthermore, the CCM tailors depression treatments, including antidepressant medication and/or behavioral therapies, to the patient's specific health needs and desired outcomes.[143] Multiple trials in primary care settings have demonstrated the effectiveness of the CCM at improving depression outcomes for older adults (eg, Improving Mood-Promoting Access to Collaborative Treatment;[144] Prevention of

Table 3 Five Core Elements of Collaborative Care Model, Definitions, and Benefits

Element	Definition	Benefits
Patient-centered team care	Effective collaboration between a multi-professional health team using shared care plans that incorporate the patient's specific health needs and desired health outcomes	• Address both physical and mental health concurrently • Coordinated care that reduces duplicate assessments and prescription of medications • Increased patient engagement, improved care experience and health outcomes
Population-based care	Care team uses a registry to actively identify and track patients in need of care	• Care team can reach out to patients who are not improving or responding well to treatment and provide individualized consultation
Measurement-based treatment	Treatment decisions are guided by clinical outcomes routinely assessed by validated measurement tools	• Ongoing monitoring of treatment effectiveness and adherence • Alter treatment approach when health outcomes do not improve as expected
Evidence-based care	Applying findings from well-designed research studies to patient care and clinical decision-making	• Provide accessible and effective treatment for the patient's specific clinical context
Accountable care	Providers are incentivized to provide high-quality care and improved clinical outcomes instead of the volume of care	• Ensure high quality care • Reduce downstream healthcare costs (eg, hospitalization, emergency room)

Note: Adapted from American Psychiatric Association: Learn about the Collaborative Care Model.[131]

Suicide in Primary Care Elderly: Collaborative Trial;[145] Primary Care Research in Substance Abuse and Mental Health for the Elderly;[146] the Collaborative Depression Trial,[147] and the Program of Research to Integrate the Services for the Maintenance of Autonomy[148]). Importantly, the participants in these trials had multiple medical morbidities and are therefore representative of typical older adults with depression.[143] The CCM not only improves depression outcomes and treatment adherence but also reduces other related outcomes (eg, suicide) and mortality compared to usual care; it is also effective at improving health outcomes of racial/ethnic minorities and those with low socioeconomic backgrounds.

Home-Based Collaborative Care Models

The CCM has been adapted for home-based care to address the high burden of depression among disabled and home-bound older adults. These home-based care models deliver integrated depression management in the patient's home by a collaborative team of primary care provider, mental health specialist, and home health nurse. As with CCM, multiple clinical trials have demonstrated the feasibility and effectiveness of these home-based models of care (eg, Program to Encourage Active, Rewarding Lives for Seniors (PEARLS)[149] and the Depression CARE for PATients at Home (CAREPATH)).[143] PEARLS provides six to eight in-home counseling sessions over 19 weeks, focusing on problem-solving treatment as well as physical and social activation.[149] CAREPATH seeks to integrate depression care into routine home health practice; home health nurses are trained to identify and manage depression as part of routine home visits and discharge planning, and coordinate depression care with the patients' primary care provider and mental health specialist.[150]

Opportunities in Community Settings

Often, non-clinical interventions can be used to mitigate social and behavioral risk factors, and promote engagement with protective factors, for depression among older adults. Meaningful social engagement is associated with improved mental well-being[151] and community settings, including social services agencies, senior centers, volunteer groups, and houses of faith, can all play a role in providing avenues for engaging in these types of activities for older adults before, during, and after retirement transitions.

Volunteer Programs

Despite having both a lifetime of experiences and often a desire to remain engaged with productive activities, retired older adults have a limited set of meaningful social roles available to them.[152] This is part of the reason why older adults are at risk of social isolation, loneliness and functional decline.[153] One role that is both readily available and has benefits not only for the older adult but for their community is that of being a volunteer. Indeed, the emotional, behavioral, and functional benefits of volunteering are sizable, and have been quantified in several clinical trials. The Experience Corps project, a trial in which older adults were randomized to either participate in high-commitment (>15 hours/week) volunteering in area schools or a wait-list control, found clinically-significant impacts on reducing depressive symptoms and preserving cognitive and physical functioning.[152,154] This evidence led the American Association for Retired Persons (AARP) to launch the Experience Corps Initiative,[155] which recruits older adults to volunteer in elementary schools around the US. For similar reasons, pursuit of hobbies and leisure activities is also associated with lower risk of depression.[156,157]

Peer Support Programs

Beyond volunteering, engagement with peers (ie, other older adults or people who are also experiencing poor mental health) can support management and recovery from depression and can be used to counter social isolation.[158,159] Peer support interventions have been shown to reduce depressive symptoms, showing improvements over usual care and comparable results as cognitive behavioral therapy.[160] Peer support programs may be especially effective when they bring together people who share an identity or affinity. For instance, the *Men's Sheds* (and corresponding *Women's Sheds*) movements in Australia offer activity-based, local programming in Australia that consists of activities (eg, woodworking, repairing bikes, building model vehicles) done in a social setting, with the goal of reducing social isolation and improving a range of mental and physical health outcomes.[161,162] Moreover, information and communication technologies (ICTs) have the potential to increase social connectedness among older adults who are physically limited in leaving their home.[163,164] Tools like email, messaging, and social networking sites are frequently used by older adults to connect with family and friends, and gaming applications, chat forums, and blogs to pursue interests and access social support. Since health-specific ICTs are gaining acceptance among older communities, there is also an opportunity to increase access to peer support through virtual forums and clinical care through telemedicine.[165–167]

Programs to Support Physical Activity and Related Health Behaviors

Many programs that promote physical activity among older adults have also been shown to reduce incidence of depression by improving overall health and reducing social isolation. Substantial evidence has shown that exercise can reduce mild to moderate depressive symptomatology.[168,169] Community-based exercise programs, which combine social accountability with physical activity, are even more effective at improving mental health outcomes.[170] One of the largest community-based exercise programs, the YMCA SilverSneakers initiative, offers group fitness classes tailored to older adults.[171] Evaluations of this program have shown that participants are less socially isolated and have lower risk of depressive symptoms.[172,173] Similarly, the Happy Older Latinos are Active (HOLA) project combines physical activity with social engagement and educational materials designed to address key barriers to physical activity among the Latinx population.[174] Tailored interventions like these are crucial to reducing depression in minoritized communities whose needs many programs do not adequately address.

Promoting other health behaviors can also improve mental health outcomes and more accessible to older adults with physical limitations. For instance, interventions that emphasize the mind-body connection (eg, including yoga, meditation, tai chi, and mindfulness practices) have been shown to not only improve symptoms of depression but also management of chronic medical conditions that are common in later life.[175] Smoking cessation interventions may also improve mental health in older adults.[176] Other behaviors like gardening and cooking at home, both of which can help people adopt healthier eating habits, are also associated with better mental health.[177,178]

Opportunities to Address Mental Health Specialist Shortages by Supporting the Broader Public Mental Health Workforce

Expanding the roles of nurses, caregivers, and even workplaces is an effective strategy to increase access to mental health care and support for older adults.[179–181] Potential roles of these non-physician mental health workforce in supporting the prevention and management of depression among retirees are summarized in Table 4. Key attributes of successful workforce-expansion interventions include: 1) identifying workers with appropriate access to communities and inclination to offer mental health services; 2) training these individuals to identify psychiatric symptoms and respond appropriately; and 3) building adequate capacity to ensure the program's sustainability and avoid workforce burnout and turnover.

Expanding the Non-Physician Public Mental Health Workforce

Non-physician staff have successfully performed many clinical functions traditionally reserved for physicians. Evidence from US Medicare claims suggests that nurses and social workers often diagnose mood disorders like depression,[182] suggesting that they may be able to share in the burden of primary care screening. The non-physician workforce can even be used to administer treatments. Under the supervision of clinicians, non-licensed mental health providers (eg, nurses, social workers, case managers) may deliver counseling-based interventions like cognitive behavioral therapy. Research has shown that treatment by these supervised but non-licensed providers is equally effective at improving depressive symptomatology, often with substantial cost savings.[183,184] A major opportunity to engage the non-physician workforce exists in long-term care facilities and age-restricted and retirement communities. Although 35% of residents in such facilities experience depressive symptoms,[50] facility staff are often untrained in identifying and managing these symptoms.[185,186] Programs that invest in educating and empowering long-term care workers have seen improvements in depression diagnosis and staff knowledge, importantly combating the misperception that depression is a normal phenomenon in later life.[187,188]

In cultures where mental health is more stigmatized, community health workers (CHW) may play an important role in disseminating information about depression and providing entry points to mental health care. In Latin America,

Table 4 Potential Roles of the Non-Physician Mental Health Workforce in Supporting the Prevention and Management of Depression Among Retirees

Non-Physician Professional	Potential Roles
Nurses (eg, registered nurses, nurse practitioners)	• Screen for depression and assess patients' needs • Coordinate depression care between the primary care practice and services • Deliver depression interventions (eg, home-based care) • Evaluate treatment effectiveness and adherence • Educate patients and their families/caregivers on depression, treatments, etc
Psychologists, social workers, mental health counselors	• Serve as clinical case manager (eg, assess patients' needs, coordinate care, educate patients about depression and/or treatments) • Offer psychotherapy and behavioral counseling
Allied health professionals (eg, nutritionist, dietician, physical therapist, physician assistants)	• Assist health providers in delivering treatments for depression as well as medical comorbidities • Offer behavior change lifestyle (eg, diet, exercise, sleep) and mind-body interventions (eg, mindfulness-based techniques, movement therapies)
Community health workers, faith-based counselors	• Partner in community-based interventions (eg, Experience Corps, SilverSneakers) and church-based interventions (eg, faith-based cognitive behavioral therapy)
Family and caregivers	• Play essential role in mental health services engagement (eg, schedule and accompany to medical appointments, de-stigmatize depression) • Support and monitor treatment responses and adherence • Engage in depression care decision-making

promotoras provide basic health services (eg, screenings, education, prevention programs) in underserved areas.[189] Since promotoras are often the de facto resource for community members with health problems, they inadvertently offer informal mental health support (eg, listening to patients), even when it is not their primary function. However, when trained, they can educate their clients, destigmatize mental health problems in their community, offer referrals to mental health care, help support antidepressant medication compliance, and implement depression prevention programs focused on mitigating psychosocial risk factors.[189] In India, *anganwadi* and *balwadi* workers serve a similar function; although their stated role is often to work with children, they are able to offer a range of services to older family members.[190,191] In the US, the wider adoption of CHWs for multiple chronic conditions common among older adults, including efforts to reimburse their sessions through insurance, is reflective of the versatility of this sector of the workforce.[192,193]

Expand Settings for Mental Health Promotion and Intervention

Several programs have successfully used non-traditional delivery modes to improve access to mental health care. For example, the Psychogeriatric Assessment and Treatment in City Housing (PATCH) offers mobile treatment to older adults in Baltimore, MD, US via at-home and video visits. In a randomized controlled trial of PATCH, participants in this program had higher compliance with medication regimes and experienced fewer depressive symptoms compared to usual care.[194] In the PEARLS programs, allied health professionals offered home-based coaching, lifestyle support, activity planning, and educational services to older adults to support their mental health through behavioral activation.[195] Telehealth is another promising way for physicians and non-physician healthcare workers to reach older adults who are homebound or who lack accessible medical care in their communities.[167] For example, in one randomized controlled trial comparing telehealth to in-person problem solving therapy appointments, low income older adults enrolled in video visits experienced similar improvements in depressive symptoms during the 12-week trial and then had more enduring reductions in symptoms in the 6 months following treatment.[196,197]

Other community institutions can also play a role in expanding awareness around mental health issues over the life course. Older adults frequently turn to houses of faith, religious leaders, senior centers, and mutual aid groups when they are experiencing mental health problems.[183,198–200] Training staff in these facilities to make appropriate mental health referrals, and even embedding healthcare workers like nurses, could be an effective way to improve access to mental health care.

Engaging Family Members in Depression Care

Beyond healthcare and social services workers, family members can play an important role in supporting the mental health of older adults. Family caregivers can help improve medication adherence, and family support is linked to lower risk of hospitalization and institutionalization.[201] However, many health systems make it difficult for families to support older adults in receiving mental health treatment. Transitioning from person-based to family-centered treatment plans, which recognize the role of families in medical treatment and decision-making and formalize the use of informal support systems, is thought to be especially effective for older adults with comorbid illness who may require a trusted advocate to navigate the healthcare system.[202–204]

Systematically expanding the role of the non-physician workforce can also improve access for underserved communities. Health clinics in rural areas tend to rely more heavily on a non-physician workforce,[182,205] suggesting that such shifts can expand access to mental health care in hard-to-reach areas. The nursing and allied health workforce is more racially and ethnically diverse than that of physicians, so increased engagement with staff may provide older adults a higher degree of culturally and linguistically competent care.[184]

Conclusion

Depression can occur during the retirement transition, although it should not be treated as a normative part of this transition. Programs that help workers adequately prepare for retirement can help prevent the types of challenges that lead to depression during this transition. Retirement planning allows individuals to better prepare for this financial transition, and improves life satisfaction, self-efficacy, mental health outcomes in retirement.[58,206] Workplaces can also promote healthy pathways to retirement by creating age-friendly workplaces with policies and practices that support

older workers in developing skills, maintaining health, and feeling included in the workplace.[36] Since workplaces already offer successful mental health interventions for employees,[207] they are well-positioned to provide such programs.

Depression following retirement is highly preventable and treatable, though management of depression relating to retirement is challenging due to complex interactions between many psychological, biological, and social risk factors, barriers to appropriate diagnosis and treatments, and shortages in the geriatric mental health workforce. Due to these challenges, successful interventions require an integrated, patient-centered approach that fosters an effective collaboration between multidisciplinary professionals, including clinicians, non-clinical professionals, and community health partners.

Author Contributions

All authors contributed to data analysis, drafting or revising the article, have agreed on the journal to which the article has been submitted, gave final approval of the version to be published, and agree to be accountable for all aspects of the work. Joint first-authors: Linh Dang and Aparna Ananthasubramaniam.

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