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Revisiting Successful Aging With HIV Through a Revised Biopsychosocial Model: An Update of the Literature

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Abstract

The concept of successful aging was recognized only recently by HIV researchers because people living with HIV (PLWH) in the early epidemic were not expected to survive. With the introduction of antiretrovirals that block viral replication, PLWH are now aging with HIV. Given the complex nature of HIV within the social, economic, and political climates in which it occurs, a holistic model of successful aging is needed to guide researchers and clinicians. Several overarching models exist, but must be updated for rapidly advancing HIV and aging research agendas. We provide an updated, adapted, and integrated biopsychosocial model of successful aging with HIV based on the principles of Baltes and Baltes (1998) on 8 essential components of successful aging: (a) length of life, (b) biological health, (c) mental health, (d) cognitive efficiency, (e) social competence, (f) productivity, (g) personal control, and (h) life satisfaction. Clinical practice and research implications are highlighted.

Key words: cognitive efficiency, HIV, length of life, neuroAIDS, review, successful aging

In the future, there will be an elderly population living with HIV. By 2020, nearly 70% of people living with HIV (PLWH) in the United States will be age 50 years and older, and by 2030, that number will be 73% (Smit et al., 2015; U.S. Senate Special Committee on Aging, 2013). Of this latter prediction, 84% will most likely have at least one additional comorbidity; in fact, 28% will have three comorbidities, compared with 19% of those not living with HIV infection (Smit et al., 2015). Clearly, these demographic trends highlight that this clinical population is aging and may express a frailty phenotype that could negatively affect the quality of their aging processes (Bhatia, Ryscavage, & Taiwo, 2012).

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Within this demographic, other advances in treatment and care are emerging. First, since 2012, the U.S. Department of Health and Human Services (AIDSinfo, 2012) has recommended that all PLWH should be prescribed antiretroviral medications, regardless of disease stage. Second, improvement in the continuum of care has occurred. In 2011, according to the Centers for Disease Control and Prevention (CDC), 40% of PLWH were retained in HIV care and 37% achieved viral suppression (Bradley et al., 2014); however, in 2014, 48% were retained in HIV care and 49% achieved viral suppression (Centers for Disease Control and Prevention, 2017b). In fact, older PLWH have demonstrated higher rates of engagement in HIV care services compared with their younger counterparts. These data indicate a positive treatment environment in which people will be aging with HIV. Finally, the development of new HIV medications and newer approaches to treat the systematic inflammation that accompanies HIV are being used and continue to be developed (Spitsin et al., 2017). By developing treatments to minimize inflammation, the prevalence of comorbidities often observed in those aging with HIV may be reduced. Given the growing demographics and changes in care and treatment, negotiating successful aging within this clinical population remains a priority.

In 2011, Vance, McGuinness, Musgrove, Orel, and Fazeli (2011) adapted the underlying principles of Baltes and Baltes' (1998) Selection, Optimization, and Compensation (SOC) model and proposed a biopsychosocial

model of successful aging with HIV. Since then, the research on aging with HIV has advanced. Our purpose here is to provide an updated biopsychosocial model of successful aging with HIV because it is related to the current literature. The first section of this article describes eight essential components of successful aging (e.g., biological health, mental health, and cognitive efficiency) with updates about how HIV compromises these components and to provide suggestions for prevention, intervention, or compensation (Figure 1). In the second section, implications for research and clinical practice are highlighted.

HIV in the Context of Baltes and Baltes' Model of Successful Aging

Successful aging refers to the ability to have a good perceived quality of life and well-being as one transitions through the advanced stages of life. Several models of successful aging have been presented in the gerontology literature. We have adapted the Baltes and Baltes' SOC model as the framework for successful aging with HIV for several reasons. First, the model is well accepted in the gerontology literature. Second, it provides specific and identifiable benchmarks in which to describe the healthy aging process. The model proposes that if each of these benchmarks were not met, one could select, compensate, or optimize existing abilities to successfully age. Third, it indicates that these benchmarks interact with each other to influence the ability to age successfully. For example, improvements in mental health may facilitate length of life, biological health, and other components needed to age successfully. And finally, in addition to including pathophysiology and biological health, characteristics such as spirituality, resilience, and social support can easily be incorporated into many of the other components. In this updated review, the following components of successful aging within the context of HIV are examined: (a) length of life, (b) biological health, (c) mental health, (d) cognitive efficiency, (e) social competence, (f) productivity, (g) personal control, and (h) life satisfaction (Figure 1).

Length of Life

Length of life is a fundamental component of successful aging. Prognostication models identify factors to consider in predicting life expectancy for PLWH. For a 35-year-old Danish patient living with HIV, Helleberg et al. (2013) calculated different life expectancies between smokers and nonsmokers living with HIV. Life expectancy for a smoker living with HIV was approximately 62.6 years; however, life expectancy for a nonsmoker living with HIV was much greater at approximately 78.4 years.

Using U.S. population-based surveillance data, Siddiqi, Hall, Hu, and Song (2016) found that a man diagnosed with HIV at 20 years of age in 2010 had an estimated life expectancy of 59.53 years and a loss of 17.57 years of life due to HIV (normal life expectancy for men = 77.1 years). Women in that same cohort faced an even shorter life expectancy; a woman diagnosed with HIV at 20 years of age had an estimated life expectancy of 57.17 years and a loss of 24.53 years of life due to HIV (normal life expectancy for women = 81.7 years). A limitation of the Siddiqi et al. (2016) study was that it did not take into account the effect of comorbidities, HIV treatment, or viral load suppression on life expectancy.

The effect of combination antiretroviral therapy (cART) on life expectancy was examined by evaluating mortality from 2000 to 2007 using data from the North American AIDS Cohort Collaboration on Research and Design. With these data, Samji et al. (2013) found that a person diagnosed with HIV at age 20 years had a life expectancy of 71.4 years. Others have found that PLWH had life expectancies similar to uninfected people (Rodger et al., 2013).

Although HIV compromises length of life, a high degree of variability and individual difference remain and must be considered when evaluating life expectancy on the ability to age successfully. The studies cited above varied by nationality, where the levels of health care were different, and used different statistical methods, which could account for some of the differences in life expectancy observed. Clearly, these estimates would be different for someone who physically exercised, maintained a positive attitude, and had a good social network compared with someone who injected drugs, was sedentary, and smoked heavily. In fact, some behavioral and lifestyle factors (i.e., smoking cessation) might serve as a way to improve biological health and extend lifespan and quality of life for PLWH.

Biological Health

Compared with the general population, successful aging may be more challenging for PLWH because they develop age-related diseases and phenotypes sooner (Bhatia et al., 2012) and are at an increased risk of multiple comorbidities over time (Escota, O'Halloran, Powderly, & Presti, 2018). Compared with the general population, PLWH may have increased rates of osteoporosis; functional limitations and frailty; endocrinopathies including diabetes, lipodystrophy, and dyslipidemia; malignancy;

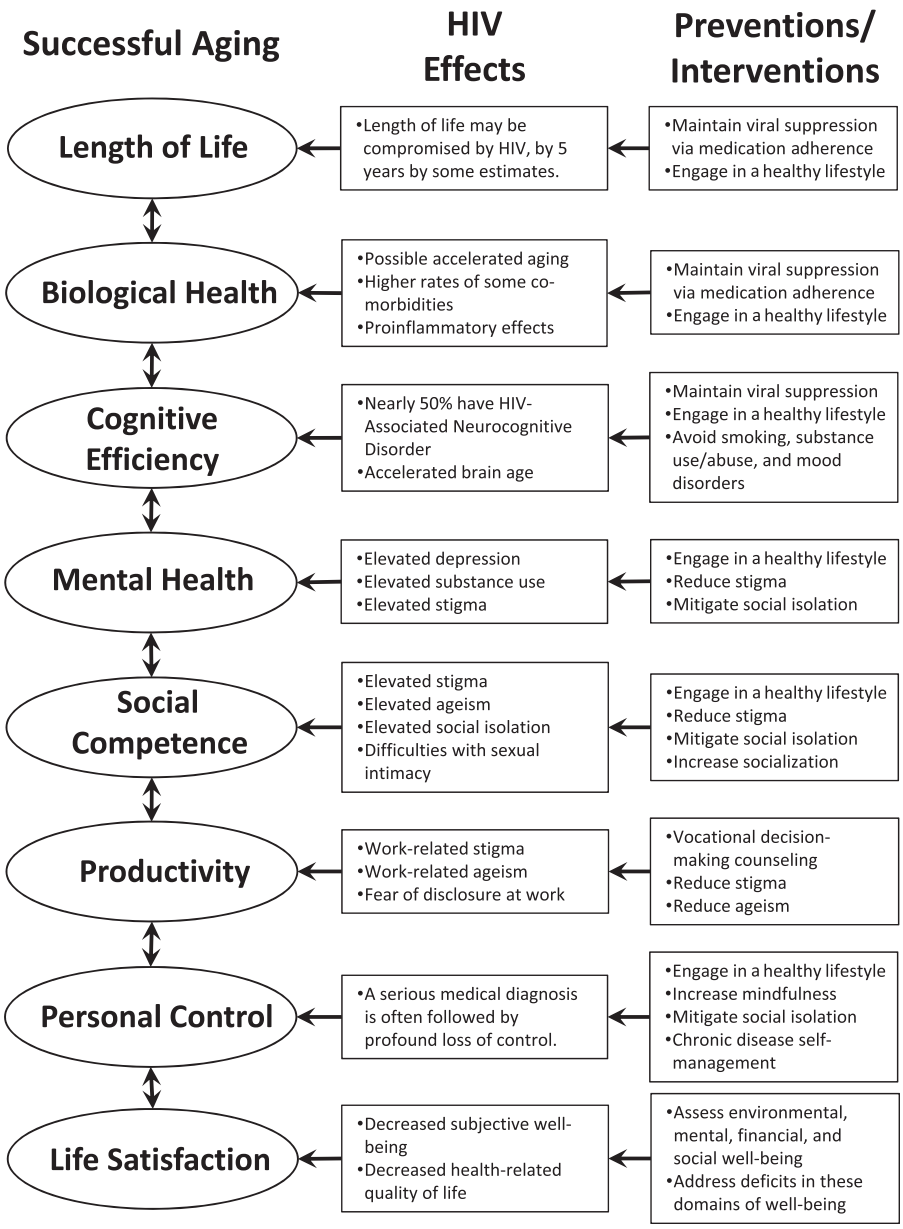

Figure 1. HIV within the context of Baltes and Baltes' (1998) model of successful aging with possible prevention/intervention strategies.

chronic kidney, liver and cardiovascular disease; and polypharmacy and drug-drug interactions (Escota et al., 2018).

Those who acquired HIV at a younger age generally have a proinflammatory phenotype similar to that seen in other chronic infections and inflammatory diseases (Kaplan-Lewis, Aberg, & Lee, 2017), potentiating the biological mechanisms of aging (Bhatia et al., 2012). Consequently, this population of PLWH manifests multiple comorbidities at earlier ages and occasionally with a more aggressive phenotype (Bhatia et al., 2012). In contrast, those acquiring HIV later in life frequently have an immunodeficiency phenotype associated with age-related immune senescence and diminished immune reconstitution, even with cART (Kaplan-Lewis et al., 2017). In a recent epigenetic study examining methylation patterns to determine biological versus chronological age, Gross et al. (2016) identified a 4.9-year increase in biological age both in cART-treated PLWH with recent (<5 years) or chronic (>12 years) HIV infection. This suggests that HIV infection alone, rather than time with HIV infection, may be linked to hypothesized accelerated aging among PLWH.

Although the immunopathologic changes associated with HIV infection (chronic inflammation) increases the risk of comorbidities, other causes should be considered.

Telomere attrition, cellular senescence, epigenetic changes, free radical generation, and stem cell exhaustion may also contribute to accelerated aging at the cellular level (Cupit-Link et al., 2017). Furthermore, the interaction of demographics (gender, race), socioeconomic status (poverty), higher rates of behavioral risk factors (substance use and injection drug use), coinfections (hepatitis B virus, hepatitis c virus), opportunistic infections, and cART affect the rates of comorbid illness in PLWH (Burch et al., 2016).

Mental Health

Much of the work on mental health in older PLWH has focused on depressive symptoms. At present, there is poor understanding of the etiology of depression in PLWH, although it is undoubtedly a combination of mood disorders that pre-existed the HIV diagnosis, reactivity to the HIV diagnosis and concomitant stigma, and/or the effects of other contemporaneous factors after diagnosis (Arseniou, Avaniti, & Samakouri, 2014). In some studies, older PLWH have rates of depression that are greater compared with uninfected age peers or younger PLWH (Pantalone, Czajkowski, & Taylor, 2017).

Levels of depressive symptoms in older PLWH have also been linked to psychosocial issues, such as loneliness, social isolation, and HIV stigma (Arseniou et al., 2014; Brennan-Ing, Seidel, & Karpiak, 2017). The link between depressive symptoms and health comorbidities is well documented in the gerontology literature and is also observed in people aging with HIV. Besides depression, a past history and/or current use of alcohol and illicit drugs is prevalent in this population. One study found that 84% of adults ages 50 years and older reported using alcohol and/or other illicit substances within the past 30 days (Parsons, Starks, Millar, Boonrai, & Marcotte, 2014).

Depression and substance use negatively affect everyday function in this population and both may decrease adherence of cART (Sinha et al., 2017). Also, depression and substance use have been associated with sexual risk behaviors that promote HIV transmission, such as having unprotected sex (Brennan-Ing, Porter, Seidel, & Karpiak, 2014).

Stigma related to mental illness prevents many from seeking help (Clement et al., 2015). Innovative interventions are needed to address the psychosocial issues that exacerbate mental health problems. For example, Brennan-Ing, Seidel, Geddes, et al. (2017) adapted a telephone-based social support intervention in conjunction with treatment as usual for depression that acted to reduce social isolation in older PLWH. The average level of depressive symptoms for participants who completed the intervention was reduced by half during a 6-month period. Thus, strategies to reduce the mental health burden in older PLWH may include addressing factors that contribute to and exacerbate these conditions, such as improving health, reducing stigma, and mitigating social isolation.

Cognitive Efficiency

Since the beginning of the HIV epidemic, the manifestation of cognitive and neurological problems have been ubiquitous. Cognitive problems manifest in various cognitive domains (e.g., executive function) and are often referred to as HIV-associated neurocognitive disorder. In a U.S. sample of 1,555 PLWH, Heaton et al. (2010) observed that 52% met the neurocognitive criteria for various stages of HIV-associated neurocognitive disorder; 33% had asymptomatic neurocognitive impairment, 12% had mild neurocognitive disorder, 2% had HIV-associated dementia, and 12% had mixed diagnoses.

The prevalence of HIV-associated dementia was 14% before the advent of cART, but currently stands at 2% (Heaton et al., 2010). Although the severity of cognitive problems has decreased because of cART and improved care, milder and moderate cognitive problems persist. With a growing population of older PLWH, the concern for dementia grows. In the Multicenter AIDS Cohort Study, a longitudinal study of more than 5,000 men with and without HIV, Goodkin et al. (2017) found that after controlling for comorbidities and time since seroconversion, age itself had a significant effect on cognitive function in all domains, and deleterious interactions between advanced age and late-stage HIV disease were observed, especially in motor function and episodic memory (i.e., the ability to remember events).

These observed cognitive problems were directly related to physiological changes in brain aging. Using brain tissue from PLWH, Horvath and Levine (2015) applied DNA methylation modeling and found that the epigenetic age of the brain was 7.4 years older than those without HIV. In a sample of virally controlled PLWH ($n = 162$; $M_{age} = 56$) and adults without HIV ($n = 105$; $M_{age} = 55.8$), Cole et al. (2017) used T1-weighted magnetic resonance imaging scans of the PLWH participants and compared them with an independent cohort ($n = 2{,}001$; ages 18–90 years) to estimate brain-predicted age. The researchers found that PLWH had a significantly greater brain age of 2.15 years (standard deviation = 7.79) compared with adults without HIV. Furthermore, increased brain age was associated with poorer neurocognitive performance on measures of memory, executive function, and information speed of processing.

From the neuroscience literature, many lifestyle and behavioral factors maintain or improve cognition over the lifespan, such as higher education, physical exercise, good nutrition (i.e., low fat diet), and acquiring new skills (i.e., learning Spanish; Cody & Vance, 2016). Unfortunately, in addition to HIV and aging, other factors have been related to increased cognitive problems including smoking, substance use/abuse, lower CD4+ T cell nadir, a diagnosis of AIDS, depression/anxiety, and posttraumatic stress disorder (Cody & Vance, 2016; Cole et al., 2018). Thus, interventions to improve health behaviors may be a way to protect and preserve cognitive function as people age with HIV (Cody & Vance, 2016).

Social Competence

Social competence refers to the ability to constructively process social interactions to meet physical, emotional, and intimacy needs (Vance et al., 2011). Older PLWH often deal with multiple stigmatized and discredited identities based on sexual orientation, gender identity, history of substance use, and older age, as well as from race, ethnicity, class, and gender. These intersectional stigmas may result in failure to disclose one's HIV status, rejection, and discrimination from social network members and self-protective withdrawal.

Given the toxic effects of intersectional stigmas, a high prevalence of social isolation occurs in older PLWH. Brennan-Ing, Seidel, and Karpiak (2017) developed a typology of social networks in a sample of 914 older PLWH and observed three configurations: isolated (31%), friend-centered (35%), and integrated (34%). Those who were socially isolated had higher levels of HIV stigma, depressive symptoms, and loneliness compared with other network types. Furthermore, those with isolated networks had greater unmet social support needs to help them address the challenges of aging with HIV; yet, social support resources may become activated in response to HIV infection in older adults. In a study of gay and bisexual men age 50 and older, PLWH received significantly greater support from their families compared with those without HIV (Brennan-Ing, Seidel, Larson, & Karpiak, 2017).

Another challenge for the older adult with HIV lies with expressions of intimacy, given the transmission of HIV through sexual activity. Older adults, including older PLWH, remain sexually active (Brennan-Ing et al., 2014). Sexually active older PLWH may manage risk through the use of barrier protections (condoms), although condom use in this group is low (Golub et al., 2013). Older men may face challenges while using condoms because of erectile dysfunction. Pre-exposure prophylaxis (PrEP) is an alternative for uninfected sexual partners when condom use is difficult. PrEP medication uses one of the components of cART to prevent HIV infection in uninfected sexual partners and has been found to be extremely effective if taken at recommended doses (Grant et al., 2014). In addition, recent studies have found that PLWH who have undetectable viral loads from successful cART are largely noninfectious and cannot transmit HIV to others (CDC, 2017a). Although neither PrEP nor undetectable viral loads prevent the spread of other sexually transmitted infections, they provide reliable HIV prevention.

The various forms of HIV-related stigma and intersectional stigmas remain a powerful obstacle to social competence for those aging with HIV. In the fourth decade of the epidemic, better public education is still needed to change mistaken beliefs about HIV being spread through casual contact, as well as the lack of risk posed by PLWH with undetectable viral loads. From a programmatic perspective, some older PLWH clearly need interventions to help them invigorate their social support networks and resources, whereas others may require greater opportunities for socialization to reduce isolation and support successful aging.

Productivity

As life expectancies have increased, conceptualizations that associated aging with HIV to disability, forced early retirement, diminished productivity, and premature death have become obsolete. Instead, there is a need to reframe old conceptualizations to envision productive aging with HIV. Regardless of HIV status, participating in a society and having a job are integral elements to being productive and having a decent quality of life (Rueda et al., 2011; Wagener et al., 2018). Among PLWH, social participation and working have been shown to help structure life, promote social contacts, provide identity and status, and assist in setting targets and obtaining resources (Vance, Cody, Yoo-Jeong, Jones, & Nicholson, 2015). Whether seeking employment for the first time, exploring a return to work, evaluating the ability to remain employed, and/or assessing the impact of employment on health, several important factors must be considered for PLWH (Conyers & Boomer, 2017). Factors influencing vocational decisions by PLWH include unstable health trajectories, gaps in work history, stigma, financial disincentives, health inequities, and poverty.

To understand productivity in relation to the work involvement, Goldblum and Kohlenberg (2005) suggested that four main domains of influence—medical,

psychosocial, financial/legal, and vocational—typically motivate and/or inhibit vocational decision making by PLWH. In this model, it is theorized that by contemplating these four domains, PLWH "considering work increase their ability to make well-informed decisions that maximize individual outcomes and minimize the undesirable costs, even if the outcome should result in an active decision not to work" (Goldblum & Kohlenberg, 2005, p. 1088). Importantly, this model recognized that PLWH initiate the desire for change involving contemplation, preparation, action, and resolution. The internal desire for change may be the result of improved health (medical), boredom or a need for increased social interaction (psychosocial), economic need or release from a prison (financial/legal), and/or a need for a new identity (vocational).

HIV nurses, encountering patients who report that they are having problems at work, often lack the knowledge to provide assistance (Wagener, Miedema, Kleijn, van Gorp, & Roelofs, 2015); however, referral to vocational decision-making counseling may be helpful to those considering what to do about employment. Fear of stigma and discrimination by the employer (97.7%) and colleagues (97.7%) were reported as the most frequent concerns for PLWH, followed by fear of disclosure (95.5%), concerns of reduced capability due to fatigue (95.5%), and medication side effects (93.2%). Of 508 PLWH from 20 US cities who were employed and taking cART, treatment side effects were associated with a substantial increase in workplace absenteeism (percentage of work time missed because of health in the past 7 days), presenteeism (percentage of impairment experienced at work in the past 7 days because of health), and overall work impairment (total work impairment experienced in the past 7 days because of either absenteeism or presenteeism; daCosta DiBonaventuraa, Guptaa, Cho, & Mrus, 2012). Thus, given the role of employment on daily routine, financial security, access to health care, and preparation for retirement, its role on successful aging with HIV requires more investigation.

Personal Control

People who have been diagnosed with HIV often feel that they have little or no control over their physical health or social circumstances (Solomon, O'Brien, Wilkins, & Gervais, 2014). Although many experience despair, others may have or develop resilience or hardiness characteristics that restore a sense of life mastery or personal control (Harris, Emlet, Pierpaoli Parker, & Furlotte, 2018). Resiliency and hardiness are traits that an individual develops or acquires after experiencing an adverse or stressful event, whereas mastery can be fostered without an unfavorable experience (Emlet, Shiu, Kim, & Fredriksen-Goldsen, 2017). For people aging with HIV, besides their physical health, psychological well-being is affected by personal control. Acquiring mastery and a sense of self-efficacy have been found to improve mental health and decrease depressive symptoms in PLWH (Rueda et al., 2012).

The use of mindfulness for personal management of the stress of living with HIV is a recent non–pharmacological approach. The practice of mindfulness allows an individual to maintain a nonjudgmental moment-by-moment awareness of thoughts, emotions, or experiences, allowing one to develop mastery and gain personal control of the situation (Williams, Simmons, & Tanabe, 2015). Mindfulness has been found to promote self-management, enhance the ability to reflect on personal choices; reduce stress, anxiety, and depression; increase motivation for lifestyle changes; and alter biologic pathways that can improve the immune system (Crowe et al., 2016).

Gonzalez-Garcia et al. (2014) conducted a randomized controlled trial to test the effectiveness of mindfulness-based cognitive therapy (MBCT) on quality of life, emotional status, and immune function in older PLWH. Their sample consisted of 40 individuals who had been diagnosed with HIV before 1996 and on cART for a minimum of 5 years (20 participants randomized to MBCT program and 20 to routine follow-up). The MBCT intervention consisted of eight weekly classes (2.5 hr/class) and homework that included meditation, yoga, and cognitive exercises. The study found that MBCT was effective in improving quality of life, emotional status, and CD4+ T cell counts in older PLWH. The positive effects were still observed 3 months after the intervention ended. The findings suggest that MBCT may promote successful aging in older PLWH.

Life Satisfaction

Subjective well-being is a term that encompasses the affective feelings and cognitive judgments people have about the quality of their lives (Steptoe, Deaton, & Stone, 2015). Life satisfaction is a form of subjective well-being that reflects the perception of whether people are content with their lives. Changes in physical health, personal relationships, social roles and activities, and materialistic possessions can occur as people age. Subjective well-being can be negatively or positively affected by changes in these domains. Therefore, it is important to monitor subjective well-being in persons aging with HIV so that the challenges they experience can be addressed and the quality of life maintained.

Because HIV disease has become a manageable chronic illness, examining health-related quality of life has become an important patient outcome. Sadly, health-related quality of life measures only examine physical and mental health and do not include other aspects of life such as social relationships, financial security, and sexual health. In a study conducted by Oberjé, Dima, van Hulzen, Prins, and de Bruin (2015), of 191 PLWH in the Netherlands, mental health and environmental well-being were the strongest predictors of subjective well-being, whereas physical health was only weakly related. To improve subjective well-being in PLWH, the researchers recommended that a comprehensive assessment of environmental, mental, financial, and social well-being be conducted and services implemented to address deficits in these domains of life.

As people age with HIV, it is important to understand the physical, mental, and psychosocial factors that influence life satisfaction in this population. Life satisfaction is a reflection of the extent to which basic needs in life are met and the extent to which other personal life goals have been attained. Research in this area should focus on the development of effective evidence-based interventions that would increase and sustain life satisfaction for people who are aging with HIV.

Implications for Practice

Moving forward, clinical care for PLWH requires a lifespan, as well as a gerontologic perspective. First, from a lifespan perspective, it is important to consider historical behaviors and lifestyle factors that affect each of the components of successful aging to produce the optimal quality-of-life outcome for each person. For example, smoking over time negatively affects biological health, cognitive efficiency, and life expectancy (Anstey et al., 2014; Nicita-Mauro et al., 2008). Similarly, engagement in physical exercise over the lifespan may have the opposite effect and may actually improve life satisfaction, productivity, and social engagement through a variety of mechanisms (Jagger & Hand, 2014). The point is that an individual cannot decide on starting to age successfully at later life; the processes start decades earlier.

Second, screening for geriatric syndromes at an earlier age is necessary because many of these syndromes occur prematurely or with more severity in PLWH, including falls, urinary incontinence, functional impairment, frailty, sensory impairment, depression, and cognitive impairment (Guaraldi & Palella, 2017). Greene et al. (2015), in a sample of 155 PLWH who were primarily men (94% of the sample; M_{age} = 57), found that prefrailty (56%), difficulty with instrumental activities of daily living (46%), and cognitive impairment (47%) were the most frequent geriatric syndromes, and an increasing number of comorbidities were associated with increased risk of having more geriatric syndromes (incidence rate ratio 1.09; 95% confidence interval, 1.03–1.15). Primary and continuous clinical education for students and providers needs to include screening in these areas at each provider contact and as early as possible after an HIV diagnosis, even when it may seem inconceivable that these problems would be developmentally appropriate by age in the general population. An important issue to consider is that although frailty, difficulty with instrumental activities of daily living, and cognitive impairment predominate as syndromes in Greene et al.'s (2015) study sample, we may not know whether they represented syndromes that women would experience because the sample was predominantly male. In fact, given the complexities of aging, a multidimensional and multiprofessional approach is needed to evaluate the older patient's physical health, mental health, cognitive efficiency, and socio-environmental circumstance, which requires a team of nurses, clinicians, social workers, psychologists, occupational therapists, clergy, and other professionals (Guaraldi & Palella, 2017).

To successfully age with HIV, PLWH need information and support to manage the disease. Chronic disease self-management occurs when an individual living with a chronic illness takes an active, informed, and personal role in managing all aspects of health and aging (Reynolds et al., 2018). The goal of chronic disease self-management is to reduce morbidity, lessen the need for acute health care services, and improve quality of life (Greene et al., 2015). Self-management programs can improve patient outcomes and reduce burden on the health care system (Davy et al., 2015). People living with HIV cannot control the aging process, but can take control of adhering to medication regimens, monitoring illness-related symptoms, managing diet, exercising, maintaining strong social networks, and committing to health-promoting mindful activities.

Implications for Research

Whether scientists are studying the effects of tenofovir on renal failure, efavirenz on central nervous system side effects, or new psychosocial therapies on reducing HIV-related stigma, much of this research is implicitly occurring within the larger historical context of successful aging with HIV. Within this context, it remains important for researchers to recognize how their work

contributes to the larger background of people aging with HIV. From this, two important points for research are posited. First, advances in one component of successful aging may have unexpected consequences in other components of successful aging. For example, adults treated for hepatitis C infection have shown improved cognitive function (Barbosa et al., 2017). Given that nearly 25% of PLWH have concurrent hepatitis C, treatment may improve cognitive efficiency in people aging with HIV. The interaction between these components is implied in the adapted SOC model by Baltes and Baltes (1998). As declines are observed in one component, the individual may need to compensate in other components; similarly, optimization in one component may benefit other components or make up for losses in other components. Thus, it is important to consider how all components interact to facilitate the process of successful aging.

Second, although a disease model of successful aging is warranted, within the context of HIV, nonbiological constructs are not often considered. In a scoping review of 35 articles on successful aging, Carver and Buchanan (2016) identified the following nonbiological constructs of successful aging that may be considered: gerotranscendence, self-esteem and/or self-efficacy, religiousness and/or spirituality, engagement, resilience, and optimism. For example, in a cross-sectional study of 100 middle-aged and older PLWH, Fazeli, Moore, and Vance (2018) found that those with higher levels of resilience performed better on measures of everyday function, as well as on a variety of cognitive measures such as verbal fluency, executive function, learning, and working memory. In this example, the component of personal control (i.e., resiliency) exerted a positive impact on the components of cognitive efficiency (i.e., cognitive function) and productivity (i.e., everyday function). From a positive psychology perspective, it is important to consider these constructs within the larger context of successful aging with HIV and to recognize the inherent strengths many patients have to help facilitate their own successful aging journeys.

Conclusion

Many of the frameworks to evaluate successful aging, especially in PLWH, automatically or implicitly adopt a deficit or disease perspective. Such a perspective is warranted because of the acceleration (i.e., multimorbidity) or accentuation (i.e., cognitive decline) of certain conditions and factors associated with aging and HIV. Yet, such frameworks often ignore or underplay positive environmental factors (e.g., welcoming clinic environment) or intra/interpersonal characteristics (e.g., hardiness and optimism), which counteract factors compromising the ability to successfully age in this clinical population. As successful aging is a lifelong process, nurses, clinicians, and other service providers must be mindful of not only the detrimental factors, but also the positive characteristics of their patients as they approach their own aging, whether they are 20, 40, or 80 years old.

Key Considerations

- By 2020, nearly 70% of PLWH in the United States will be ages 50 years and older, which requires that a gerontological perspective be considered in providing HIV care.
- Facilitating successful aging in this clinical population requires a holistic, interprofessional approach across the lifespan.
- Screening earlier for geriatric syndromes is a recommended practice for providers because PLWH may experience accelerated or accentuated aging.
- Consideration of non–pharmacologic approaches in advancing quality of life in the context of aging with HIV should be considered and could include meditation, enhancing social networks, and personal control of decision making.

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