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Optimizing Aging: A Call for a New Narrative

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Abstract

Decades of research have shown that biological and psychosocial aging are not as predetermined as had been thought for a long time. Yet, despite a large and growing evidence base, most individuals still hold negative views of aging that keep them from optimizing their chances for healthy and productive aging. Given this general background, this article has three major objectives: (1) To show that the three big misconceptions at the heart of the public's negative views of aging can be refuted based on scientific evidence. (2) To illustrate that changing individuals' views of aging calls for the development of a new narrative on aging—one that incorporates the increasing diversity of the aging population. (3) To discuss how psychologists can contribute to creating this new narrative on aging. We argue that growing old(er) in the U.S. is not the same old business anymore and that psychologists are uniquely positioned to contribute to the social and cultural transformation that population aging and increasing diversity in the U.S. society require.

Keywords

misconceptions about aging; views of aging; human capital; narrative on aging; diversity

Popular slogans like "60 is the new 40" suggest that compared to previous generations, current cohorts of middle-aged and older adults may feel younger and may approach their own aging with more positive attitudes and expectations. Although this conclusion seems logical, the general public's actual views of aging as a process and of older adults as a social group, however, are still mostly negative and pessimistic (Lindland, Fond, Haydon, & Kendall-Taylor, 2015). These negative views persist despite the fact that decades of biomedical and psychological research on human aging have shown that there are very strong reasons for more positive views of aging—both at the individual and the societal level (Levy, 2017). Given this general background, this article has three major objectives: (1) To

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show that scientific evidence refutes the three big misconceptions at the heart of the public's negative views of aging. (2) To illustrate that changing individuals' views of aging calls for the development of a new narrative on aging—one that incorporates the increasing diversity of the aging population. (3) To discuss how psychologists can contribute to creating the new narrative on aging. Along with other authors (e.g., Carstensen, 2011; James, Matz-Costa, & Smyer, 2016), we argue that growing old(er) in the 21st century is not the same old business anymore and that psychologists are uniquely positioned to contribute to the social and cultural transformation that population aging and increasing diversity in the U.S. society require.

Adult Development and Aging: An Increasingly "Open Enterprise"

A number of advances have benefitted cohorts of middle-aged and older adults since the 1950s. For example, the average life expectancy in the U.S. has steadily risen over the past century and never before in human history have adults had so many years of life (Crimmins, 2015). Moreover, advances in the treatment of age-related chronic diseases have resulted in a great extension of years of disability-free life expectancy (Crimmins, Zhang, & Saito, 2016), referred to as "longevity dividend" (Olshansky, Perry, Miller, & Butler, 2006). This dividend, along with other changes like better education (Census Bureau, 2015), more flexible age norms related to family formation, work and retirement (James et al., 2016), greater financial security, and greater opportunities for older adults to be involved in their communities (Anderson, et al., 2014), should be reasons for a more positive view of aging, especially for young-old adults (age 60–75) who are considered to be in their third age (Baltes & Smith, 2003).

Yet, a report titled "Gauging Aging: Mapping Gaps between Expert and Public Understandings of Aging in America" (Lindland et al., 2015) found a wide gap between the public's views of aging, and what social science experts know based on decades of research findings. In particular, three major misconceptions about aging are at the heart of the public's negative views of aging: (1) For most adults, growing old(er) involves primarily loss and decline; (2) changes that happen with aging are beyond a person's control; and (3) age-related losses are permanent and irreversible. These three misconceptions are often complemented by a fourth one about older adults as a social group, namely: Older adults are a burden on society.

Addressing these misconceptions and debunking the underlying narrative will help the public understand that aging in the U.S. in the 21st century is not the same old business anymore and that growing older has become a more open experience with unique challenges but also unique opportunities and responsibilities. Refuting these misconceptions is important because they do a great deal of harm to individuals and to the larger society (Levy, 2009, 2017).

Debunking Three Common Misconceptions About Aging

Before we debunk the three big misconceptions that underlie adults' negative views of aging, it is important that we acknowledge certain realities that are part of aging in the U.S. That is, it is essential to understand that older adults are the most heterogeneous age group

with regard to physical, psychological, and social functioning. This heterogeneity implies that there is a certain percentage of individuals for whom aging brings some real and serious challenges that affect their lives in profound ways, especially during the Fourth Age (age 80 and older) when cognitive and health-related losses often threaten individuals' quality of life (Baltes & Smith, 2003). In terms of physical health, for example, all chronic diseases are age-related: six in ten adults in the U.S. have one chronic disease; and four in ten U.S. adults have two or more chronic conditions (National Center for Chronic Disease Prevention and Health Promotion, 2019). Similarly, large performance differences in older adults' cognitive functioning exist among individuals of the same age, ranging from being impaired to very high functioning and affecting how these individuals change over time, and when they fall below a functional threshold (Hertzog, Kramer, Wilson, & Lindenberger, 2009; Schaie, 2013). These large between-person differences also exist in life satisfaction and well-being (Gerstorf et al., 2010), control beliefs (Infurna & Okun, 2015; Robinson & Lachman, 2017), and social connectedness (Cornwell, Laumann, & Schumm, 2008) and often persist into very late life (Gerstorf et al., 2010). In brief, by advocating for a more positive view of aging, we are not ignoring that (a) adult development and aging, in general, is characterized by large interindividual differences, or (b) that growing older can be associated with major physical, psychological, and social challenges for a certain percentage of middle-aged and older adults. Moreover, we are also not ignoring that the increase in active life expectancy has primarily benefited the young-old (third age), whereas increased vulnerability and the threats inherent in terminal decline (Baltes & Smith, 2003) often challenge the quality of life of old-old adults (fourth age). Thus, it is important to keep these qualifications in mind for the remainder of this article.

Aging is not all loss and decline.—Several areas of psychological research provide evidence that aging, especially during the third age, is not all loss and decline. Specifically, evidence related to intellectual and personality development, emotion experience and regulation, and from the area of mental health disorders and life satisfaction shows that there are many positive changes and improvements that happen as individuals age. In the area of intellectual aging, for example, extensive data from the Seattle Longitudinal Study (SLS; Schaie, 2013) have shown that for most primary mental abilities reliable age-related decline commonly does not occur before the age of 60, and marked decline does not occur until individuals reach their 80s. Exceptions to this rule are numerical ability and processing speed for which reliable decline starts in the mid-50s (Schaie, 2013). Thus, based on this extensive longitudinal data set, the notion that intellectual decline starts for most adults in their early- to mid-30s can be refuted.

Findings in the area of personality development mirror the good news from intelligence research. Based on a meta-analysis of 92 longitudinal studies, Roberts and Mroczek (2008) showed that there were significant and meaningful mean-level improvements in the Big Five traits of agreeableness, conscientiousness, and emotional stability (the inverse of neuroticism) from age 20 to about age 70. The other two traits, extraversion and openness to experience, remained mostly stable over the course of adulthood with declines not happening before the age of 60. Thus, these findings suggest that over the course of adulthood and into old age, most individuals' personality changes in positive and adaptive

ways, potentially influencing positive changes in other areas of functioning. Nevertheless, evidence also suggests that adults' adaptive personality characteristics may be challenged very late in life when cognitive and health-related losses are more likely to occur (Diehl, Chui, Hay, Lumley, Grühn, & Labouvie-Vief, 2014).

Third, there are also positive age-related changes in emotion experience and emotion regulation (Carstensen et al., 2011; Charles & Carstensen, 2014). Using a combined experience sampling and longitudinal design, Carstensen et al. (2011) showed that over a 10-year period, aging was associated with more positive overall emotional well-being, greater emotional stability, and greater emotional complexity. These findings held after accounting for the effects of competing variables, such as physical health, personality, and demographic factors. Moreover, emotional experience also predicted mortality: individuals who experienced relatively more positive than negative emotions in daily life were more likely to be alive 13 years later. Other independent data are consistent with these findings (Hay & Diehl, 2011). In summary, considerable evidence suggests that emotion experience and regulation improve for a majority of individuals as they age (Charles & Carstensen, 2014).

Finally, a large body of research shows that older adults report higher levels of subjective well-being, life satisfaction, and positive over negative affect compared to younger adults, and life satisfaction and subjective well-being tend to improve with age (Charles, Reynolds, & Gatz, 2001; Mroczek & Kolarz, 1998). These findings complement research showing that the prevalence rates of all major psychiatric disorders (e.g., depression, anxiety disorders, etc.) are significantly lower in individuals age 60 and older compared to younger individuals (Kessler, Berglund, Demler, Jin, Merakangas, & Walters, 2005).

In summary, although age is a risk factor for a number of health-related and social losses, findings in the areas of intellectual and personality development, emotional development, subjective well-being and mental health provide evidence that aging, at least until very late life (the fourth age), is not all downhill. Rather, a number of important age-related improvements occur. This evidence debunks the misconception that aging is all loss and decline.

Adults have more control over their aging than they believe.—The second major misconception about adult development and aging is that age-related changes are beyond a person's control. This misconception is dangerous because it leads many middle-aged and older adults to the conclusion that there is nothing they can do to age in a more positive way. Yet a growing body of evidence indicates that lifestyle factors and behavior account for more variance in health-related and psychological outcomes than genetics. Although genetics are important for longevity (Martin, Bergman, & Barzilai, 2007), research also shows that the influence of genetics on psychological aging is often overestimated by the general public. For example, a meta-analysis by Tucker-Drob and Briley (2014) showed for identical twins that genetics accounted for only 30% of the variance in age-related memory changes. This means that non-genetic influences accountef for 70% of the variance, including the effects of environment and lifestyle. Findings like these are consistent with research documenting a great, but not unlimited, amount of behavioral plasticity, including neuroplasticity, as individuals age (Hertzog et al., 2009; Lindenberger, 2014).

Evidence suggesting that individuals have more control over their aging than they believe comes from a growing body of biomedical and psychological research showing great physiological, cognitive, and behavioral plasticity (Hertzog et al., 2009; Lindenberger, 2014). In this context, *plasticity* is defined as a person's capacity to develop qualitatively new forms of behavior and performance (i.e., behavioral plasticity) or the long-lasting alteration of physiological processes or neural structures in the human body (i.e., neuroplasticity; Lövdén, Bäckman, Lindenberger, Schaefer, & Schmiedek, 2010). To illustrate, several systematic literature reviews report that half of the risk of developing Alzheimer's disease is explained by seven lifestyle-related factors, which are: hypertension, diabetes, obesity, smoking, depression, cognitive inactivity/low education, and physical inactivity (Barnett, Hachinski, & Blackwell, 2013; Baumgart, Snyder, Carillo, Fazio, Kim, & Johns, 2015). Although not all of these factors (e.g., depression) may be under a person's control, most of them are and they can slow down cognitive decline or delay the onset of dementia. Thus, becoming physically active, eating a healthy diet (e.g., Mediterranean diet), maintaining normal body weight, abstaining from smoking, and engaging in cognitively stimulating activities are under individuals' control and are critical for optimizing their chances for healthy physical and cognitive aging (Hertzog et al., 2009).

In particular, engaging in regular physical activity (i.e., 30 minutes of moderate physical activity on 5 days per week) has well-documented health benefits. These benefits include better cardiovascular, respiratory, and musculoskeletal health (DiPietro, 2001), improved resistance to Type 2 diabetes (Sigal, Kenny, Wasserman, Castaneda-Sceppa, & White, 2006) and cancers (Holmes, Chen, Feskanich, Kroenke, & Colditz, 2005), improved affect and cognitive function (Kramer & Erickson, 2007), and lower risk for depression (DiPietro, 2001). These beneficial effects of physical activity on a wide range of health outcomes led Lachman, Lipsitz, Lubben, Castaneda-Sceppa, and Jette (2018) to the conclusion that "Physical activity is arguably the most promising non-pharmacological, noninvasive, and cost-effective method of health promotion, that is, to the extent that people do it" (p. 2).

Evidence for the malleability of age-related changes comes also from cognitive training and intervention research (Willis & Belleville, 2016). Findings from the Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE) trial, for example, showed that cognitive training in speed of processing, inductive reasoning, and episodic memory resulted in significant improvements in older adults' cognitive functioning (Ball et al., 2002). Although the observed gains were limited to the trained domain, they were mostly maintained at the 5-year follow-up (Willis et al., 2006) and to a lesser extent at the 10-year follow up (Rebok et al., 2014). At the 10-year follow-up, participants in the intervention groups also reported greater independence in instrumental activities of daily living (IADLs) compared to participants in the control group (Rebok et al., 2014). Thus, findings from the ACTIVE trial suggest that cognitive training can improve long-term cognitive functioning and maintenance of independence in IADLs among adults with normal cognition.

Because cognitive training studies have usually produced very narrow, ability-specific training effects (Lindenberger, 2014), researchers have started to ask whether other forms of engagement might be more effective in maintaining adults' cognitive abilities. Studies examining the effects of complex cognitive or social engagement (Carlson et al., 2009; Park

et al., 2014; Stine-Morrow, Parisi, Morrow, & Park, 2008) or engagement in physical activity (Erickson et al., 2011) have tried to answer this question. In terms of complex cognitive engagement, Stine-Morrow et al. (2008) showed that participants in an engaged lifestyle group showed positive change in a composite measure of fluid ability over a six-month observation period compared to individuals in a social contact group. Similar results were reported by Park et al. (2014) with regard to the effects of a cognitively demanding intervention (e.g., learning how to quilt, learning digital photography) on participants' episodic memory. Thus, findings from both of these studies suggest that sustained engagement in cognitively demanding and novel activities enhances memory and fluid cognitive abilities in older adults.

Although a meta-analysis by Colcombe and Kramer (2003) already provided evidence of the positive effects of engagement in physical activity on several cognitive functions, the study by Erickson et al. (2011) was the first one to document significant associations of physical exercise with markers of *neuroplasticity* (Lindenberger, 2014). Specifically, this study showed that regular engagement in aerobic exercise over a 12-months period increased the level of brain-derived neurotrophic factor (BDNF), a protein involved in neurogenesis and neuroplasticity, and the hippocampal volume in previously sedentary older adults. Participants in the aerobic exercise condition also showed significant improvements on several memory tests. Importantly, these effects were only observed in participants who engaged in aerobic exercise and not in participants who did stretching and toning exercises for the same amount of time. This suggests that neuroplasticity in the hippocampus was specifically due to the effects of aerobic exercise. Replications of these findings have been reported by several other research groups (see the review by Stillman, Cohen, Lehman, & Erickson, 2016).

In summary, the reviewed research findings refute the misconception that age-related changes are beyond a person's control. Although individuals may not have complete control over their aging process (e.g., susceptibility to develop a chronic disease due to hereditary factors), findings from psychological research indicate that age-related changes are also not completely pre-programmed and can be influenced through behavior and lifestyle. This is another reason why aging is not the same old business anymore because middle-aged and older adults have the opportunity and the personal responsibility to take control of their own aging—unless their misconceptions about aging are holding them back (Levy & Myers, 2004).

Age-related losses may be reversible.—Aside from the evidence showing a considerable amount of physiological and behavioral plasticity across the adult lifespan, there is also evidence indicating that not all age-related losses are permanent and irreversible. Indeed, growing evidence suggests that many age-related losses should be perceived as potentially modifiable factors. Using data from the Seattle Longitudinal Study, Schaie and Willis (1986) showed that reliable cognitive decline that had occurred in participants over a 14-year period in the abilities of inductive reasoning and spatial orientation (i.e., fluid abilities) could be reversed by taking part in a 5-hour training program. Specifically, the results showed that the cognitive training reversed the reliably documented decline in inductive reasoning and spatial orientation in 62% of the participants,

and also improved the performance in participants who had remained stable. Also, training improvements were greater for women than for men. These findings are remarkable because they suggest that engaging in cognitively stimulating activities, as long as they are sufficiently novel and complex (Park et al., 2014; Stine-Morrow et al. 2008), may be an effective way of reversing age-related decline or, at a minimum, an effective way of maintaining the current level of cognitive functioning.

Evidence that age-related losses can be minimized, delayed, or reversed come from two other areas of aging research. The first area is research on osteoporosis (i.e., age-related loss of bone mineral density) and sarcopenia (i.e., age-related decrease in skeletal muscle mass, function, and strength; Hong & Kim, 2018). The second area is research on the transient and dynamic nature of age-related disabilities (Gill, Murphy, Barry, & Allore, 2009).

Loss of muscle mass and loss of bone density are age-related, and a combination of age-related physiological changes, inactivity, and inadequate nutrition cause a gradual loss of bone mass, at a rate of 1% per year after the age of 40, and loss of muscle mass at a rate of 3–5% per decade after age 30. This means that both women and men need to be concerned about osteoporosis and sarcopenia because these conditions are progressive if untreated and may jeopardize a person's mobility and increase the risk of falls and fractures. Fortunately, since the mid-90s, aging researchers have systematically examined the effects of resistance training on bone and muscle health and several meta-analyses have shown that resistance exercise at about 70% of a person's maximum load can slow down the process of sarcopenia and osteoporosis and can even reverse these processes (Hong & Kim, 2018). Although the specific mechanisms and dose-response relationships creating these effects are not yet completely understood, the findings have been very consistent and are of particular importance for post-menopausal women, who are at an elevated risk of developing osteoporosis.

Disability is another area with a growing evidence base regarding the possible reversibility of negative age-related changes. Although disability rates in later adulthood have been declining for several decades (Crimmins et al., 2016), there are still a certain percentage of individuals who are at risk of becoming frail and disabled during old age. A major question with regard to this subpopulation is: What are the pathways into long-term disability and are there individuals who recover from a state of disability? Hardy and Gill (2004) addressed this question in a prospective cohort study of 754 initially non-disabled, community-dwelling persons aged 70 years or older. Individuals were assessed on a monthly basis for over 4 years in terms of their ability to perform activities of daily living (ADLs). During this observation period, a total of 420 participants (56%) experienced disability and of these participants, 399 (81%) regained independence within 12 months of their initial disability episode. A majority (57%) of these adults maintained independence for at least 6 months. Subsequent findings from this prospective study showed that distinct subtypes of disability can be identified (Gill, Guo, & Allore, 2008) and that there are a number of moderating factors (e.g., depressive symptoms) determining whether individuals are likely to fall into the transient or short-term subgroup or into the long-term subgroup. Moreover, a study by Levy, Slade, Murphy, and Gill (2012) showed that older adults with positive views of aging were 44% more likely to fully recover from severe disability compared to older adults with

negative views of aging. This finding suggests that individuals' views of aging may play an important role in whether an age-related loss can be reversed or not.

In summary, the big three misconceptions that underlie the general public's negative views of aging can be debunked based on evidence from decades of scientific research. More importantly, knowing that positive aging can be achieved through individuals' own choices and actions calls for a change of the overall narrative on aging, switching from a narrative focused on loss and decline to a narrative focused on opportunities and challenges.

Changing the Narrative on Aging

Changing the current narrative on aging with its focus on loss and decline is not an easy task because societal and personal views of aging are extremely entrenched. In terms of personal views of aging, Levy (2009) elaborated in her *Stereotype Embodiment Theory* that individuals internalize negative age stereotypes from the surrounding culture from an early age. These negative age stereotypes become increasingly self-relevant in midlife and later adulthood and become dangerous because they undermine individuals' behavior in the form of *negative self-stereotypes*. Specifically, holding negative age stereotypes has been shown to be associated with poorer cognitive and physical functioning (Hess, Hinson, & Statham, 2004; Sargent-Cox, Anstey, & Luszcz, 2012), greater morbidity (Kotter-Grühn, Kleinspehn-Ammerlahn, & Gerstorf, 2009), less engagement in preventive health behaviors (Levy & Myers, 2004), slower recovery from disability (Levy et al., 2012), and an increased risk of dying earlier (Levy, Slade, Kunkel, & Kasl, 2002). Thus, a person's negative views of aging are a major risk factor affecting his/her physical and mental health via the process of negative self-stereotyping and by becoming a negative self-fulfilling prophecy (Levy, 2009).

At the societal level, still rampant negative age stereotypes and negative views of aging are the cause for prejudice and discrimination against older adults (Nelson, 2016). Recently, Levy (2017) coined the term *Age-Stereotype Paradox* to refer to the fact that age stereotypes have actually become more negative in the U.S. in recent decades despite all the evidence showing that more positive views of aging are warranted. The main reason why this is important is that the continued existence of negative age stereotypes at the personal and societal level represents probably the biggest barrier toward developing a more positive narrative on aging. Thus, the question becomes: How can a new narrative on aging, consistent with the previously presented research findings, be developed and promoted to benefit of individuals and the larger society?

Promoting a New Narrative on Aging

The Reframing Aging initiative.—Consistent with the scientific evidence that helped to debunk the three major misconceptions held by the general public, several organizations in the U.S. have recognized that ageism continues to be a highly prevalent form of institutionalized prejudice domestically and around the world (Officer & de la Fuente-Núñez, 2018). Collectively, these organizations have initiated the *Reframing Aging* initiative (www.reframingaging.org) to fight ageism and implicit bias against older adults by reframing the current narrative on aging. The initiative builds on the "Gauging Aging" report (Lindland et al., 2015) and represents a long-term social change initiative with the goal of

improving the public's understanding about what aging really looks like based on research findings. Specifically, the 'Reframing Aging' initiative provides a number of evidence-informed tools that professionals, who work with organizations serving older adults or with older adults directly, can use to engage in informed and positive conversations about aging as a process and about older adults as a social group. Because this is a recent initiative, there are no data on the program's efficacy and/or long-term effects. However, findings of a recent study by Busso, Volmert, and Kendall-Taylor (2019) give reason for optimism. Specifically, this controlled experiment showed that positive reframing of age-related messages reduced study participants' negative implicit bias against older adults.

Changing the messaging in public debates and the media.—Although the Reframing Aging initiative is a promising step in the right direction, there are a number of other important avenues for changing the societal narrative on aging. Because the media and public debates often portray older adults as a burden on society and as drainers of scarce resources (Löckenhoff et al, 2009), it is crucial that media and public messaging counteract the widespread stereotype of the "greedy geezers" (Lieberman, 2013). Evidence that disproves this negative stereotype comes from at least three areas: work, caregiving, and volunteering.

In terms of work, it is well-documented that older workers are as productive and capable of using technology as younger workers (DeNisco, 2016), and more agreeable to be part of an intergenerational workforce (Hedge, Borman, & Lammlein, 2006). Despite this evidence and despite existing laws against age discrimination in the workplace, discrimination against older adults is still very common in hiring, promotion, and retention (Perron, 2018). In terms of caregiving, about 9 million adults over the age of 65 serve as caregivers to an adult or child with functional impairment (National Alliance for Caregiving & AARP, 2015), and custodial grandparents care for about 3 million children in the U.S. (Pew Research Center, 2013). Most of these caregiving activities are unpaid and the total economic value of caregiving is estimated at several hundred billion dollars annually. In terms of volunteering, the Corporation for National and Community Service (2016) reported that in 2016 about 25% of older adults volunteered in their communities, providing about 3.3 billion hours of service and producing economic value estimated at $77 billion. Taken together, all of these data indicate that older adults are not a burden on society, but contribute in very productive and meaningful ways (Gonzales, Matz-Costa, Morrow-Howell, 2015).

In conclusion, data on the contributions of older adults in the areas of work, caregiving, and volunteering clearly show that older adults represent an important source of *human capital* in the U.S. The new narrative on aging needs to incorporate this fact, with the goal of refuting the common misconception that older adults are a major drain on societal resources (Lieberman, 2013). Media should avoid terms such as "silver tsunami" (Canadian Broadcasting Company, 2017) because this term implies that population aging represents a threat to society comparable to a natural disaster. Instead, older adults should be seen as a valuable "natural resource" (Corporation for National and Community Service, 2016).

Workplace-based health and wellness programs.—Another important avenue for promoting the new narrative on aging are workplace-based health and wellness programs

(HWPs). Employers, human resource managers, and employees give these programs very favorable endorsements. Moreover, such programs can reach middle-aged and older adults in an environment where they spend time daily (Pitt-Catsouphes, James, & Matz-Costa, 2015).[1] Thus, we suggest that HWPs may be an ideal setting for disseminating information relevant to healthy and successful aging, and for motivating adults to take personal responsibility for their own aging. Integrating information on misconceptions of aging and how to optimize positive aging into HWPs points to an untapped opportunity to change individuals' implicit narrative on aging and to contribute to a workforce that is better educated about the aging process in general. Such an educated workforce may also approach the transition into retirement in a more proactive way and may continue to stay productively engaged in retirement (James et al., 2016). Moreover, workplace-based HWPs may be an ideal setting for creating situations to illustrate to individuals that the common negative age-related stereotypes may not be congruent with their own personal experiences. Creating such situations is critically important for generating attitude change because studies have shown that the debilitating effects of negative age stereotypes can be mitigated or completely eliminated if individuals perceive a mismatch between the stereotypes and how they view themselves (Levy & Leifheit-Limson, 2009). In summary, workplace-based HWPs may be another promising avenue to promote a more positive narrative on aging—for the benefit of individuals and society.

Focusing on middle-aged adults.—Lastly, we also suggest that efforts to change the narrative on aging focus more on educating middle-aged adults (age 40–64) about the process of aging. That is, middle-aged adults should become an important target group for efforts to counteract the common misconceptions of aging, getting equipped with knowledge and behavioral tools to approach aging with a positive attitude. Importantly, middle-aged adults are most susceptible to engaging in negative age self-stereotyping (Levy, 2009) because they are at a life stage when they become aware of age-related changes (Diehl & Wahl, 2010). This increased awareness might be due to subjective experiences (e.g., perceived changes in physical appearance) or due to cues from the social environment, and may create a sense of psychological uncertainty that may become the reason for negative self-stereotyping. That is, middle-aged adults are at high risk of turning negative age stereotypes against their own person—a process that happens unconsciously most of the time (Levy, 2009). In contrast, older adults often can confirm or disconfirm the veracity of negative age stereotypes based on their own experiences and may therefore be less vulnerable (Nelson, 2016).

Another reason for focusing on middle-aged adults is that they are often still in good health and not affected yet by serious chronic illnesses and/or comorbidities, and have many years of life ahead of them. Thus, middle-aged adults are the perfect audience to take advantage of opportunities to learn about optimal and healthy aging. Indeed, individuals in this age group have the most to gain from not buying into the common misconceptions on aging if they

[1]According to a 2018 survey of the Kaiser Family Foundation, 53% of small firms and 82% of large firms offer a program in at least one of the following areas: smoking cessation, weight management, and behavioral or lifestyle change (Kaiser Family Foundation, 2018)

want to stay healthy and productive as they grow older (Crimmins, 2015), and they represent the birth cohorts that will grow older in a U.S. society that is becoming increasingly diverse.

Diversity and Inclusion: Challenges and Opportunities

The discussion about forging a new societal narrative on aging would be incomplete without recognizing that this endeavor also needs to take into account another major societal transformation: the increasing diversity of the U.S. society and the shift to a *majority-minority nation* (Torres-Gil & Angel, 2018). Although the topic of diversity is often truncated to the factor of race and ethnicity, other elements of diversity deserve equal attention. Specifically, differences in socio-economic status/social class, immigration status and cultural background, gender and gender identity, sexual orientation, rural-urban location, and religious affiliations are major features of diversity. More importantly, these features are not independent of each other, but are interrelated and often create complex individual or group identities (Mehrotra & Wagner, 2019).

Diversity and group differences influence how individuals and communities approach aging, and they also determine access to resources. Two major observations support this argument. First, it is well-documented that being part of a minority group defines in fundamental ways the access individuals have to healthcare, social resources, and societal opportunity structures—often starting at birth (Whitfield, Thorpe, & Szanton, 2011). Therefore, individuals from minority backgrounds often have a lifelong history of being exposed to disparity, resulting in accumulated disadvantages in education and employment, health and healthcare, and upward social mobility over the life course (Ferraro, Kemp, & Williams, 2017; Whitfield et al., 2011).

Second, if a person with one or more characteristics of diversity lives into old age, there is an increased likelihood that he or she will be exposed to multiple risk factors. To illustrate, the health and well-being of an elderly Hispanic/Latino woman living in a small rural community in the Midwest will not only be determined by her racial/ethnic minority status, but also by the geographic location (e.g., poorer access to healthcare and social services), her gender, and her socio-economic status (education, employment, income), resulting in a fourfold jeopardy. Thus, in a society that will increase in diversity in the coming decades, it is of utmost importance to define diversity in terms of multiple factors and to recognize that these factors interact with each other in complex ways as individuals grow old(er) (Mehrotra & Wagner, 2019).

How can the transformation into a majority-minority nation inform the new societal narrative on aging in the U.S.? First, the emerging new narrative on aging will need to incorporate research findings based on minority groups, including racially and ethnically diverse adults, adults with different immigration and acculturation status, adults living in different geographic regions, and adults with diverse lifestyles, including diverse sexual orientations. Current evidence suggests that members from these diverse groups have unique physical and psychological *risk profiles* (Alvarez et al., 2019) but also unique resources and *resilience factors* (Fredriksen-Goldsen, Shiu, Bryan, Goldsen, & Kim, 2017) that require different individual and societal planning for the future. Thus, the new narrative on aging

cannot simply be a narrative based on findings from white, middle-class Americans; it needs to incorporate findings from research on minority groups.

Second, conducting systematic research with middle-aged and older adults from minority groups also presents the opportunity to learn about *resilience factors* that are unique to these groups that could possibly inform initiatives for the entire population. For example, it is well-documented that foreign-born members of racial/ethnic groups often have better mental health than their US-born counterparts, a pattern referred to as the "immigrant paradox" (Alvarez et al., 2019). Similarly, a lesson that may be learned from studies in the LGBT community is that although exposure to stigma and discrimination has its challenges and risks, under certain conditions it may also become a source for stronger identity affirmation, the formation of stronger social relationships, and the impetus for resilience (Fredriksen-Goldsen et al., 2017). Thus, by studying and recognizing the strengths of minority groups, including their cultural traditions and practices, researchers may be able to gain deeper insights into pathways of risk and resilience that could be helpful to the entire aging population (Fredriksen-Goldsen et al., 2017).

Lastly, including members from minority groups in systematic and representative research studies will also help to gain a more comprehensive understanding of the key processes of physical, cognitive, and social-emotional aging in these populations. This includes, but is not limited to, processes of physical and behavioral plasticity, the role and impact of different types of social relationships, the ways in which physical, behavioral and social factors interact to lead to certain developmental outcomes, and the specific service needs of individuals and communities (Ferraro et al., 2017; Torres-Gil & Angel, 2018). Such a comprehensive understanding will form a stronger foundation for the new narrative on aging, including the understanding that aging comes with unique challenges, opportunities, and responsibilities. Well-trained psychologists have a particular role to play in making these opportunities accessible—including accessibility for aging individuals in minority groups.

The Role of Psychologists in Creating the New Narrative on Aging

This section discusses the role psychologists can play in establishing the new narrative on aging, with a strong focus on promoting healthy and productive aging. In brief, we propose that psychologists play a key role in getting the message across that growing old(er) in the U.S. in the 21st century is not the same old business anymore, and that individuals have more control over their aging than they believe.

Several reasons underscore the unique role of psychologists in establishing a new narrative on aging—a narrative that applies to individuals and society alike. First, psychologists have been on the forefront of generating much of the scientific evidence that debunked the three most important misconceptions the general public holds with regard to aging. This evidence includes, but is not limited to, research that documents (a) the tremendous amount of behavioral (Hertzog et al., 2009; Schaie & Willis, 1986) and neural plasticity in adulthood (Erickson et al., 2011; Lindenberger, 2014; Stillman et al., 2016); (b) the undermining effects of negative age stereotypes (Levy, 2009); and (c) the positive socio-emotional and personality development across the adult lifespan (Carstensen et al., 2011; Roberts &

Mroczek, 2008). Furthermore, cognitive and human factors psychologists have been instrumental in creating technologies that empower older adults, support psychological well-being, and extend independent living (Rogers & Fiske, 2010).

We suggest that psychologists play a particularly important role in the area of health promotion and behavior change research. Not only have psychologists been instrumental in developing major theories of behavior change and behavior change techniques (Schwarzer, Lippke, & Luszczynska, 2011), but these theories and techniques can also be applied to optimize healthy aging. Lachman and colleagues (2018) illustrate how findings from psychological research on control beliefs, goal planning, self-regulation, and social support are critical elements in designing, implementing, and evaluating personalized intervention programs to increase adults' engagement in physical activity and other healthy behaviors. This kind of translational research will be instrumental in changing the narrative on aging.

Moreover, psychologists are well versed in the application of "slice of life methods," such as ecological momentary assessment or experience sampling, that may revolutionize how behavior change programs are delivered in real life and evaluated in the future (Smyth, Juth, Ma, & Sliwinksi, 2017). In combination with statistical expertise in the analysis of intensive repeated measures data and complex longitudinal data, research psychologists are extremely well equipped to lead the multidisciplinary teams that are needed to generate the data that can inform how individuals can optimize their aging in the 21st century.

Second, psychologists are particularly qualified to do research on how implicit or explicit interventions can modify negative age stereotypes and on how the effects of such interventions may support positive behavior change. Several studies provide evidence that this represents a promising avenue. For example, Levy, Pilver, Chung, and Slade (2014) showed that an implicit-age-stereotype intervention made older adults' age stereotypes more positive and this change, in turn, predicted improved physical functioning. Similarly, Brothers and Diehl (2017) showed that an explicit views-of-aging intervention significantly improved participants' negative views of aging and increased their engagement in physical activity. In sum, there is good reason to believe that adults' negative age stereotypes and negative views of aging are not immutable; they can be modified with potentially great benefits for individuals' long-term health and well-being.

Third, psychologists serve important roles in education and training of a variety of health professions, including their own, and, therefore, have the opportunity to influence the content of curricula and practices in institutions of higher education and in applied settings. In particular, the training of geropsychologists (Knight, Karel, Hinrichsen, Qualls, & Duffy, 2009) and health psychologists is critically important because the majority of age-related chronic diseases can be avoided or reduced through healthy lifestyles (Johnson & Acabchuk, 2018), and mental health issues in late-life can often be successfully addressed through psychological counseling (Segal, Qualls, & Smyer, 2011). Moreover, because of their knowledge and understanding of minority aging, psychologists are also in an excellent position to address the unique needs, resources and resilience factors of older adults in different ethnic and cultural groups, as well as the specific disparities and challenges these groups experience (Mehrotra & Wagner, 2019).

Fourth, psychologists also play a key role as members of integrated healthcare teams, including teams that serve aging individuals, families, and communities (Areán & Gum, 2013). Therefore, psychologists are uniquely positioned to infuse the preventative and clinical healthcare of middle-aged and older adults with up-to-date knowledge, including information on the role of lifestyle factors in preventing or delaying chronic disease (Areán & Gum, 2013).

Lastly, psychologists can also play a critical role in the planning and implementing of public health initiatives (Leviton, 1996) related to healthy adult development and aging, and informing social policies that affect the lives of adults (Halpern, 2015; McKnight, Sechrest, & McKnight, 2005). Because the implementation of public health initiatives and social policies requires an evidence base, psychologists play a critical role in the generation, interpretation, and translation of the needed evidence. For example, psychologists have researched how message framing influences individuals' responses to health care messages (Akl et al., 2011). Findings from this research can be used to design and implement public health initiatives related to the optimization of positive aging and in support of a new narrative on aging.

Conclusion

The major objective of this article was to show that middle-aged and older adults have plenty of reasons to be optimistic and proactive about their aging. In a good sense, growing old(er) is not the same old business anymore. Although a unique combination of genetic, environmental, behaviors, and socio-cultural factors shapes each person's aging process, decades of biomedical and psychological research have shown that growing old(er) is developmentally more open than previously thought (Hertzog et al., 2009; Lindenberger, 2014). This also means that, more than ever before, individuals have the opportunity and the personal responsibility to take control of their own aging.

The general public's views of aging do not reflect these good news based on scientific evidence, however; they have remained mostly negative and pessimistic (Levy, 2017; Lindland et al., 2015). Negative views of aging are dangerous because they are associated with a host of negative outcomes and they keep individuals from engaging in health-promoting behaviors (Levy & Myers, 2004). Because of this overall situation, a new narrative on aging is needed. The main purpose of this new narrative on aging is to show individuals the choices and opportunities they have without downplaying the challenges that accompany the process of growing old(er). Moreover, such a new narrative on aging also needs to take into account the increasing diversity of the U.S. society. This latter point is important because in the second half of the 21st century, individuals from previous minority groups will become the majority in U.S. society and a large number of these individuals will grow into old age (Torres-Gil & Angel, 2018).

Of course, changing the current loss- and decline-oriented narrative on aging will not happen overnight. Cultural and social change takes time, as other socio-cultural movements in the U.S. have shown. However, we are optimistic that initiatives like 'Reframing Aging' will gain momentum and will facilitate the adoption of more positive views of aging. Well-

trained psychologists, especially psychologists who are actively involved in aging research and interdisciplinary work, will be critically important for the success of establishing the new narrative on aging.

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Public Significance Statement:

This article shows that the general public's negative views of aging reflect three big misconceptions that are not supported by scientific evidence. To change the general public's views of aging will require changing individuals' views of aging and developing a new societal narrative on aging—a narrative that incorporates the increasing diversity of the general population. Psychologists have a great deal to contribute to this long-term effort.