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The Risks of Ageism Model: How Ageism and Negative Attitudes toward Age Can Be a Barrier to Active Aging

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The World Health Organization's (WHO) active aging framework recognizes that age barriers and ageism need to be removed in order to increase potential for active aging. However, there has been little empirical analysis of ways in which ageism and attitudes toward age impact on active aging. This article sets out the Risks of Ageism Model (RAM) to show how ageism and attitudes toward age can impact the six proposed determinants of active aging via three pathways; (1) stereotype embodiment, the process through which stereotypes are internalized and become self-relevant, (2) stereotype threat, the perceived risk of conforming to negative stereotypes about one's group, and (3) age discrimination, unfair treatment based on age. Active aging policies are likely to be more successful if they attend to these three pathways when challenging ageism and negative attitudes toward age.

The dramatic aging of global populations and concerns about the ensuing social, economic, and policy implications has resulted in an increased emphasis on the promotion of active and healthy aging (World Health Organization (WHO), 2002, 2015). This active aging strategy recognizes that age barriers and ageism need to be reduced in order to increase potential for active aging. Active aging is

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defined as "the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age" (WHO, 2002, p. 12). The idea emphasizes older people's "continuing participation in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labor market" (WHO, 2002, p. 12), and is parallel in many ways to the concept of "successful aging" proposed by Rowe and Kahn (1997). However, there has been little empirical analysis of ways in which ageism and attitudes toward age impact on individuals' ability to actively age, therefore there has been limited incorporation of the risks of ageism in active aging policy frameworks. This article sets out a framework, the Risks of Ageism Model (RAM), to show how ageism and attitudes toward age affect the recognized determinants of active aging. We propose that in order to support active aging, policies should pay much closer attention to reducing ageism and negative attitudes toward age.

The Active Aging Framework and the RAM

Life expectancy at birth is projected to continue to rise in the coming decades in all major regions of the world (United Nations, 2013). To respond to the challenges posed by this rapid, global population aging, the WHO launched the active aging framework in 2002. The framework intended to inform discussion and debate around active aging and to aid the development of action plans and policy to promote active aging at all levels of governance. The WHO active aging policy framework outlines six sets of variables ("determinants") that impact active aging across the life span, which are considered to be particularly relevant to older people as they age. These six determinants are: (1) economic conditions (sufficient income, social security, and opportunities for employment); (2) health and social services (promoting health and preventing disease, ensuring access to health services and continuous care); (3) behavior (healthy living, such as engagement in physical activity, healthy eating, oral health, appropriate medication use, and avoidance of smoking and excessive alcohol intake); (4) personal characteristics (these refer to biological, genetic, and psychological factors); (5) social situation (sufficient social support, education and literacy, and freedom from violence and abuse); and (6) the physical environment (living in safe environments, such as safe housing, few environmental hazards, and environmental cleanliness).

The framework recognizes that, because there are both cultural and gender differences in attitudes toward aging (Abrams, Russell, Vauclair, & Swift, 2011; Vauclair, Hanke, Huang, & Abrams, 2016), cultural context (e.g., cultural values and traditions within a society) and gender cut across these determinants shaping the way we age and impacting on the potential for active aging. These six determinants are said to influence three key aspects of active aging: (1) autonomy, freedom of choice, and the perceived ability to control, cope with, and make personal decisions; (2) independence, the ability to conduct functional actions related to daily living with little to no help from others; and (3) quality of life.

Fig. 1. The Risks of Ageism Model.

The active aging framework is largely thought of as a set of structural and personality factors that either limit or enable particular life chances. It therefore captures the macro and microlevels but leaves a substantial gap at a mesolevel, precisely where psychological interventions could be most useful. Specifically, it does not attend to particular culturally embedded attitudes toward, and stereotypes of, aging, that frame the social structures and systems that are linked to age categories. These categories, in turn, create psychological barriers or enablers for active aging via ageism. In this article, we explore ways in which ageism serves to de-value and stigmatize older people and the aging process (Bugental & Hehman, 2007). We propose the RAM to clarify where and how policy strategies can address the potential of ageism and negative attitudes toward age to prevent active aging. In introducing the RAM, we outline evidence that ageism and negative attitudes toward age can operate within each active aging domain to reduce autonomy, independence, and quality of life. Figure 1 summarizes the model showing the determinants of active aging and the three important mechanisms through which ageism and negative attitudes toward age can impact on the active aging outcomes. These mechanisms are stereotype embodiment, stereotype threat, and experiences of age discrimination. We contend that in order to provide the optimal conditions for active aging, there should be an increased focus on reducing ageism and negative attitudes toward age by intervening to influence those mechanisms.

The following section introduces ageism and the content of negative attitudes toward age, and then examines these mechanisms in the RAM. We next consider how these operate in relation to each of the six WHO determinants of active aging. Finally, we summarize the key points of the RAM and offer implications for research and policy.

Ageism and Negative Attitudes toward Age

Ageism is defined as the stereotyping of and discrimination against individuals or a group of individuals because of their age (Abrams, 2010). Anyone at

any age can experience ageism and further research is needed to establish how seriously it affects younger people. However, at present, in line with the present article, most ageism research focuses on how it affects older people (Bugental & Hehman, 2007), and its potentially enduring and severe consequences for older people (Garstka, Schmitt, Branscombe, & Hummert, 2004). Applying negative stereotypes (attributing negative characteristics) to older people leads to both negative feelings (prejudice) and actions (discrimination) toward them. Together, age stereotypes, prejudice, and discrimination make up the different components of *ageism*, or the devaluing and stigmatization of an individual based on their membership within a particular age group (Abrams, 2010).

There are several explanations for the origins of ageism directed toward and experienced by older people. For example, broadly economic and sociological explanations often cite major historical events that caused society to evolve in ageist ways. One explanation, modernization theory, suggests that modern capitalist economies have marginalized older people into enforced retirement and idleness, resulting in a lowering of their economic and social status and acceptance of assumptions that older people are unproductive and contribute little to society (Cowgill, 1974; Macnicol, 2006). There are also several psychological explanations for why ageism arises. For example, self-categorization theory might suggest that age-based stereotyping and differentiation reflects a psychologically "sensible" use of age category boundaries to organize expectations about who does and does not share one's own views, interests, and identity (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). This includes the tendency to see older people as a homogenous group (Brewer, Dull, & Lui, 1981). Social identity theory further suggests that younger people are motivated to gain positive distinctiveness from older out-groups by asserting higher status and more valued characteristics for younger people (Tajfel & Turner, 1979). Intergroup threat theory suggests that older people are perceived to pose a threat to society by being a burden on health care and welfare resources (Stephan & Stephan, 2000). Alternatively, terror management theory suggests that age prejudices arise out of a fear of our own mortality (Chonody & Teater, 2016; Greenberg, Schimel, & Martens, 2002).

Manifestations of ageism in a particular context are likely to reflect the specific stereotypes and expectations of older people and the aging process. Age stereotypes and attitudes toward age tend to reflect both desirable (gains) and undesirable qualities (losses) associated with aging. The most common negative stereotypes relate to older adults' competence, whereby physical and cognitive functioning is assumed to decline with age (Fiske, Cuddy, Glick, & Xu, 2002; Lamont, Swift, & Abrams, 2015). Other commonly held perceptions are that older people lack creativity, they are unable to learn new skills, are unproductive, a burden on family and society, and they are ill, frail, dependent, asexual, and lonely and socially isolated (Hummert, Garstka, Shaner, & Strahm, 1994; Swift,

Abrams, & Marques, 2013). On the other hand, common positive stereotypes define older people as wise, generous, friendly, moral, experienced, loyal, and reliable (Hummert et al., 1994; Swift et al., 2013).

These different evaluations of older persons reflect the fact that perceptions of old age and aging are partly dependent on the social context (Kite, Stockdale, Whitley, & Johnson, 2005). Kornadt and Rothermund (2011) propose eight social contexts associated with gains and losses in old age, which result in positive and negative stereotypes respectively. For example, older people were rated more positively in social contexts of family and partnerships, religion and spirituality, and work and employment, whereas negative evaluations of older people arose in the social contexts of friends and acquaintances, leisure activities and social commitment, and physical and mental health.

Adopting a more generalist approach, the stereotype content model provides a single framework and summarizes a general view of older adults across social contexts (Cuddy, Norton, & Fiske, 2005; Fiske et al., 2002) as less competent (negative), but more warm and friendly (positive). It suggests, this mixed combination of positive and negative stereotype content elicits feelings of pity toward older people and leads to patronizing and protective paternalism, for example, views that older people should be helped or protected. Evidence suggests that this mixed stereotype content of older adults is pervasive across cultures (Abrams et al., 2011; Cuddy et al., 2009; North & Fiske, 2015; Vauclair et al., 2016). Protective paternalism and paternalistic emotions elicited from the combination of positive and negative stereotype content are particularly problematic. Although such attitudes appear to be positive, they are unlikely to be sufficient to prevent discrimination as they can underpin benevolent ageism (Cary, Chasteen, & Remedios, 2016) and they can often be at the root of unhelpful policies (Cary et al., 2016). Moreover, expressions of benevolent age prejudices are difficult to legislate against, because of their subtle nature (Abrams, Swift, & Mahmood, 2016; Cary et al., 2016). For example, it is difficult to legislate against counterproductive attempts to help an older person, or the use of patronizing or disrespectful language.

A powerful illustration of this phenomenon comes from evidence in the European Social Survey (ESS, Round 4), which included a module on attitudes toward age. Across the 28 countries in the European region assessed in the 2008–2009 ESS, a higher percentage of respondents (34%) reported that they had experienced prejudice against themselves due to their age than did so due to their gender (24%), or race or ethnicity (16%). Furthermore, in all ESS countries ageism was more likely to be experienced in subtle forms, such as being treated with a lack of respect and being ignored or patronized, than more overt or hostile forms, such as being treated badly by others, insulted or abused (Abrams et al., 2011).

These benevolent and hostile forms of ageism can be captured by the recently developed Ambivalent Ageism Scale (Cary et al., 2016). Using the Ambivalent

Ageism Scale, Cary et al. (2016) explored the association between hostile and benevolent forms of ageism with evaluations of older people as competent and warm. The study, which recruited participants via Amazon Mechanical Turk (aged 18–57, with a mean of 25 years), revealed that hostile ageism (i.e., agreement that older people are a drain on the health care system and the economy, or exaggerate problems at work) was related to evaluations that older people lack competence and warmth, while benevolent ageism was related to evaluations of increased warmth, but not competence. Indeed, even among those who were low in hostile ageism, those who were higher in benevolent ageism were more likely to view older adults as less competent. Thus, someone low in hostile ageism, but high in benevolent ageism is likely to view older adults as warm, but incompetent.

The RAM

There are three pathways through which ageism and negative attitudes toward age can influence the potential for both healthy (Nelson, 2016) and active aging. The first is via stereotype embodiment, which occurs when stereotypes that were once focused on "other" older people become applied and relevant to the self (Levy, 2009). For example, evidence suggest that people who hold more negative stereotypes of older people may also expect worse outcomes from their own experience of aging (Levy, 2009). The second is via stereotype threat, which refers to the threat experienced by an individual when they feel a situation puts them at risk of confirming a negative stereotype about their group (Steele & Aronson, 1995; Steele, 2010). Both stereotype embodiment and stereotype threat can influence older people's actions and behaviors, resulting in deficits that contribute to the self-fulfilling nature of age stereotypes. The final pathway is being a target of ageism itself. Moreover, the subjective flexibility of age categorization (Abrams et al., 2011; Kornadt & Rothermund, 2011), means that vulnerability to stereotype embodiment, stereotype threat and ageism, can fluctuate or vary within and between individuals and can affect individuals even when others do not perceive them as belonging to the "old" age group. It is through the combination of these pathways that culturally or situationally embedded ageism and negative attitudes toward age can impede individuals' potential for active aging throughout the life course.

Stereotype Embodiment

The inevitability of aging means that for most people negative attitudes toward age and aging eventually become self-relevant. Stereotypes that were once focused on "other" older people ultimately at some point can be applied to the self. Levy's (2009) stereotype embodiment theory proposes a model of how stereotypes and

societal representations of old age are implicitly internalized over the lifespan, molding self-perceptions of aging (the view an individual has regarding his or her own aging process). The idea is that we learn about age stereotypes when we are young, and that these are internalized, gain meaning, and become self-relevant through the aging process. Evidence suggests that children as young as 6 years old hold age stereotypes (Mendonça, Marques, & Abrams, under review). Although the social identity of younger adults may benefit from holding negative age stereotypes that positively differentiate themselves from older adults (cf. Tajfel & Turner, 1986), eventually they can become harmful to these individuals if they are carried into old age and become self-relevant.

The internalization of age stereotypes means that both societal and self-perceptions of aging are largely intertwined, as too are their consequences. Both have been shown to be predictive of outcomes related to active aging, including various health and well-being outcomes, such as life satisfaction (Kornadt & Rothermund, 2011; Mock & Eibach, 2011), physical health and functioning (Levy, Slade, & Kasl, 2002; Sargent-Cox, Anstey, & Luszcz, 2012; Wurm, Tesch-Römer, & Tomasik, 2007), physical activity (Sarkisian, Prohaska, Wong, Hirsch, & Mangion, 2005), and mortality (Kotter-Grühn, Kleinspehn-Ammerlahn, Gerstorf, & Smith, 2009; Levy, Slade, Kunkel, & Kasl, 2002). For instance, in a study of 700 residents from East and West Germany aged between 33 and 82, Kornadt and Rothermund (2011) demonstrated that personally held stereotypes of older adults in eight life domains, predicted participants' life satisfaction in the respective domain, such that more positive (negative) evaluations of older people in a domain were associated with higher (lower) life satisfaction in the corresponding domain. For five of these domains (friends and acquaintances, family and partnerships, religion and spirituality, leisure and social commitments, and physical and mental health), the strength of the association between the age stereotype and life satisfaction was greater for older participants than for younger participants.

Mock and Eibach's (2011) analysis of longitudinal data over a 10-year period from the National Survey of Midlife Development in the United States, revealed that participants (mean age 54) with higher expectations regarding the quality of life of older adults (relative to younger adults) reported higher life satisfaction, higher positive affect, and lower negative affect. These studies, combined with others, suggest that both positive age stereotypes and self-perceptions of aging are beneficial for active aging outcomes (physical functioning, health, and quality of later life), but that negative age stereotypes and self-perceptions are likely to hamper active aging.

Age stereotypes that have been internalized can exert their influence and even become self-fulfilling via three routes; the psychological route, the behavioral route, and the physiological route (Levy, 2009). In the psychological route, expectations regarding aging become self-fulfilling through unconscious automatic

processes when the content of the activated stereotypes (these can be implicitly or explicitly activated) correspond to domains of the outcomes being tested (Levy & Leifheit-Limson, 2009). The behavioral route is illustrated by behavioral choices and life-style decisions people make, for example, if people assume that health problems are an inevitable consequence of growing old, then they might be less motivated to maintain a healthy lifestyle (e.g., Levy & Myers, 2004; Wurm, Tomasik, & Tesch-Römer, 2010) or seek health-related care (Sarkisian, Hays, & Mangione, 2002).

The physiological route involves the autonomic nervous system, which is the branch of the central nervous system that responds to environmental stress. Research suggests that subliminal exposure (i.e., exposure below conscious awareness) to negative age stereotypes (e.g., words such as, confused, decrepit, dependent, forgetful) results in heightened physiological responses, indicating heightened stress (Levy, Hausdorff, Hencke, & Wei, 2000). In Levy et al.'s (2000) study, the physiological responses (systolic and diastolic blood pressure, heart rate, and skin conductance) of participants aged 62–82 were measured before and after exposure to subliminal stimuli that were either positive (e.g., accomplished, enlightened, wise) or negative age stereotype primes. Participants who were subliminally exposed to the negative age stereotype words showed a significant increase in all of the physiological responses, except heart rate. Increased cardiovascular reactivity and negative cardiovascular outcomes have also been linked to the activation of negative age stereotypes and negative attitudes toward aging in other research (e.g., Auman, Bosworth, & Hess, 2005; Levy, Zonderman, Slade, & Ferrucci, 2009).

According to the stereotype embodiment model, internalized age stereotypes can exert their influence through these pathways unconsciously, and can gain salience through increasing self-relevance (Levy, 2009). Self-relevance can be facilitated not only by older age, but also psychological (e.g., age group identification, stereotype awareness), interpersonal, and social cues (e.g., patronizing speech, exclusion, age-based assumptions), or contextual cues (e.g., stereotypically "young" contexts) that indicate or categorize individuals as "old" or transitioning from one life stage to another. Currently, evidence indicates that stereotype embodiment and self-stereotyping processes can adversely affect four of the determinants of active aging: economic, behavioral, personal, and social. Studies exploring the consequences of positive and negative age stereotypes have conceptualized, measured, and categorized age stereotypes in a variety of ways, such as, aging attitudes (Mock & Eibach, 2011), attitudes toward older adults (Abrams et al., 2011), views on aging (Wurm et al., 2007; Wurm et al., 2010), expectations regarding aging (e.g., Sarkisian et al., 2002), or (self-) perceptions of aging (e.g., Levy et al., 2002b). Despite this, there is convergence between studies, and so in this article we refer to these terms collectively as stereotypes of, or attitudes toward, age.

Stereotype Threat

Stereotype threat refers to the threat experienced by an individual when they are in a situation that puts them at risk of confirming a negative stereotype about their group (Steele & Aronson, 1995; Steele, 2010). When the stereotype is related to age, it is known as age-based stereotype threat. Stereotype threat, is theorized to operate through motivation-based mechanisms often linked to emotion (as opposed to being automatic or "cold" like priming effects, see Wheeler & Petty, 2001). These mechanisms then undermine performance and make it more likely that the individual acts in line with negative stereotypes. We recently conducted a meta-analytic review of 37 published and unpublished studies of age-based stereotype threat ($N = 3882$). This established that the effect of stereotype threat on older adults' performance in cognitive domains is reliable and relatively robust ($d = .28$) (Lamont et al., 2015).

There are some important characteristics of stereotype threat. First, stereotype threat only occurs for those who see the stereotype as self-relevant. The individual must recognize that they belong to the stereotyped group and be mindful of the stigma attached to that social group, even if they do not necessarily endorse it (Steele & Aronson, 1995). Second, stereotype threat is a fluid, situational threat. Not only does a self-relevant stereotype need to be activated, but this must also occur in a situation that presents a risk of confirming the stereotype. Together, these factors present a threat to one's identity by bringing into question the value and positive distinctiveness of age-based social identity (see Abrams, 2015; Tajfel & Turner, 1979). Anxiety is often offered as an explanation for negative effects of age-based stereotype threat on performance outcomes (Abrams, Eller, & Bryant, 2006; Swift et al., 2013), however, research suggests that anxiety is not a sole or necessary mediator between threat and performance (Chasteen, Bhattacharyya, Horhota, Tam, & Hasher, 2005; Hess, Auman, Colcombe, & Rahhal, 2003). Other possible mechanisms have been suggested. For example, recent research has found that age-based stereotype threat can change the way people approach the task, taking a more cautious approach, which limits their performance (Barber & Mather, 2013; Popham & Hess, 2013).

Age-based stereotype threat studies tend to employ between-participant experimental designs, which compare a threat condition (either fact-based or stereotype-based) with a baseline condition (control or nullification). Fact-based threat manipulations present participants with factual statements of age-based differences in a performance outcome that is subsequently tested. Stereotype-based manipulations use subtler age cues, such as age comparisons, or framing the performance task to be age relevant. Control baseline conditions do not mention the age/stereotype relevance of the task, whereas nullification baseline conditions attempt to challenge or counter the relevant negative age stereotype (see Lamont et al., 2015 for a full review). Using this paradigm, fact and stereotype-based stereotype threat

have caused deficits or decrements in a number of performance domains that are relevant to the determinants of active aging. These include memory and wider cognitive performance (e.g., Abrams et al., 2008; Hess et al., 2003), but also driving skills and physical strength (e.g., Joanisse, Gagnon, & Voloaca, 2012; Swift, Lamont, & Abrams, 2012). As one example, we found that older people (mean age 82 years) who were informed that their performance on a test would be compared with the young (eliciting age stereotypes of reduced physical competence) performed half as well on a grip strength test compared to those who were not introduced to this comparison (Swift et al., 2012). Finally, although the majority of age-based stereotype threat research has explored the consequences for "older adults," some evidence suggests that it may be the younger–older adults who are most vulnerable. For example, Hess Hinson, and Hodges (2009) found that stereotype threat had a greater impact on performance of adults aged 60–70, than those aged 71–82.

Experiences of Age Discrimination

Since the term ageism was introduced almost 50 years ago, research has explored the origins of ageism (Bugental & Hehman, 2007), manifestations of ageism (North & Fiske, 2013), and its consequences (Minichiello, Browne, & Kendig, 2000). However, despite being a widely experienced form of prejudice and discrimination, the prevalence of experiences of ageism remains relatively under-researched (Abrams, Swift, Lamont, & Drury, 2015). It seems commonly to exist as a form of prejudice that is widely tolerated and deemed to be an inevitable consequence of the aging process (Nelson, 2005; 2016). Age discrimination is prevalent in contexts where older people can be excluded or denied access to a product, service, or treatment (Abrams, 2010), such as employment or in health and social care, and can be direct or indirect in nature. Direct age discrimination happens when someone treats another less favorably because of their age, whereas, indirect age discrimination happens when a custom, policy or an established practice or procedure shared by a group or organization puts someone at a disadvantage because of their age (Centre for Policy on Ageing (CPA), 2009). A common analogy used to describe indirect discrimination is to imagine an entrance to a building with steps leading to it, the entrance is the same for everyone. Everyone has to walk up the steps to get access to the building, yet the steps disadvantage those with physical disabilities. Thus, despite everyone having the same access to the building, the nature of the access disadvantages particular individuals.

Numerous studies have examined the detrimental effect of perceived discrimination on physical and mental health in different societies (for a meta-analytical review, see Pascoe & Smart Richman, 2009). Although this research has generally focused on racism and sexism, the conclusion is that perceiving discrimination is a stressor that affects the health of low status and minority group members (after

controlling for gender, education, socioeconomic status and social support). A few studies also suggest that perceived *age* discrimination (i.e., the self-reported experience of age discrimination) is negatively associated with subjective well-being (Jang, Chiriboga, & Small, 2008; Vogt Yuan, 2007) and self-reported health. For example, using data from the ESS, Vauclair, Marques, Lima, Abrams, Swift, and Bratt (2015), revealed that perceived age discrimination mediates the relationship between a country's income inequality and older people's self-reported health. The research, which analyzed responses from people aged 70 and over, revealed evidence consistent with the hypothesis that perceptions of age discrimination are an important psychosocial stressor that impacts negatively on self-reported health, particularly in unequal societies where prejudice and discrimination against low-status groups is more prevalent (Wilkinson & Pickett, 2007). Thus, being a target of ageism and discrimination may not only deny people access to resources that contribute to active aging, it can also influence individuals' perceived health and well-being, which are indicators of active aging.

In sum, ageism and negative attitudes toward age can have implications for individuals and societies as they age. There are three pathways through which this can occur. The first, stereotype embodiment, has the propensity to affect individuals moving through the life course, through the internalization of stereotypes that can shape people's approach to and experiences in later life. The second, stereotype threat, arises because there are contexts in which older adults perceive a risk of confirming negative stereotypes of aging and experience threat and performance decrements due to this. The third is by being a target of ageism and age discrimination, which can result in the unequal and unfair treatment of older people. The next sections review how these pathways can occur and form part of the different WHO "determinants" of active aging.

Risks of Ageism and Determinants of Active Aging

For each determinant in the WHO active aging framework, we describe how ageism and negative attitudes toward age affect the process of active aging. The proposed RAM, summarized in Figure 1, is intended to make explicit the ways that ageism and attitudes toward age manifest in each of these domains, and this should enable policies and programs to better target and optimize opportunities for active aging. Table 1 summarizes the evidence from the following review showing which mechanisms of ageism in the RAM operate within each of the six determinants of active aging.

Economic Determinants

Economic determinants of active aging include income and opportunities to engage in labor markets. In EU countries, population aging, coupled with falling

Table 1. The Associations between the Determinants of Active Aging and the Mechanisms of Ageism

	Mechanisms of ageism		
Determinants of active aging	Stereotype embodiment	Stereotype threat	Being a target of age discrimination
Economic	√	√	√
Health and social care			√
Behavioral	√	√	
Personal	√	√	
Social	√	√	√
Physical environment			√

birth rates, has encouraged policies to promote the labor market participation of older workers (defined as those aged 50 and over; Sigg & De-Luigi, 2007). Yet, there are considerable barriers to the inclusion of older workers in labor markets. These include lack of flexible working practices, lack of training opportunities for older workers and negative attitudes held by employers (Gringart, Helmes, & Speelman, 2005). Despite the existence of equality legislation to outlaw age discrimination in employment in some countries, ageism continues to affect older workers at an organizational and interpersonal level, both through insufficient retirement incomes and via stereotype threat and stereotype embodiment.

Although many employers consider their older workers to be a valuable asset, and attribute to them many positive characteristics including reliability, loyalty, and institutional memory (Posthuma & Campion, 2008), these are often outweighed by negative stereotypes about older workers. Common perceptions are that older workers are more expensive (e.g., they expect higher salary and incur greater training and health costs), and less productive than younger workers, less adaptable, energetic, motivated, or creative, less committed to their careers, technologically savvy, or trainable (Abrams, Swift, & Drury, 2016; Finkelstein, Ryan, & King, 2013; Posthuma & Campion, 2008). These assumptions, which are largely unfounded by evidence, underpin discrimination and age bias against older workers because the strengths and abilities of older workers are underutilized or unrecognized by managers, supervisors, and employers (Posthuma & Campion, 2008). Evidence suggests that older workers tend to be judged less favorably compared with younger counterparts (Bendick, Jackson, & Romero, 1996; Shore, Cleveland, & Goldberg, 2003), are devalued (Finkelstein, Burke, & Raju, 1995), receive lower ratings in interviews and performance appraisals (see Posthuma & Campion, 2008 for review), are excluded from participating in work-based teams (McCann & Giles, 2005), are less likely to receive opportunities for training (North

& Fiske, 2016), or are excluded from the workforce altogether (Finkelstein, 2015; Gordon & Arvey, 2004).

In contrast, younger workers benefit from assumptions that they are good at learning new skills, being creative, using technology and social media, and are open to new ideas (Abrams et al., 2016a). In three studies, Abrams et al. (2016a) demonstrated that two equally valued skill sets, one associated with younger people (good at learning new skills, being creative, using technology, rapid decision making, being open to new ideas, using social media) and one associated with older people (good at settling arguments, understanding other's viewpoints, dealing with people politely, problem solving, being an effective complainer, using a library), can influence hiring preferences. In each of the studies, participants were presented with profiles of two potential candidates. The candidates had similar qualifications and neither had previous experience of the job, however, Candidate A was presented as possessing the positive "old" traits while Candidate B was presented with the positive "young" traits. In all studies, participants more often selected Candidate B, who possessed the young traits as a potential job candidate and estimated the age of this individual as younger than Candidate A, thereby demonstrating that age stereotypes or characteristics associated with older and younger people can influence hiring decisions against workers who are perceived to be older.

Perceived ageism can also influence individual's decisions to exit an organization or the labor market altogether (Thorsen et al., 2012). For example, Thorsen et al. (2012) examined the association between ageism (defined as perceived fit, or lack of, and space for older workers within the organization) and older workers' retirement plans, while taking health and workability of the employee into account. The study, which analyzed a representative sample of over 3,000 Danish employees, revealed that ageism, lack of recognition, and lack of development opportunities were associated with older male workers' plans to retire earlier (Thorsen et al., 2012). Lack of perceived "fit" with the organization, lack of respect, and appreciation of older workers, therefore appear to be important factors that push older workers out of the labor market.

Perceived "fit" with an organization is informed by age stereotypes, prescriptive norms, self-perceptions, organizational identity, and the perceived age-diversity within the organization (Posthuma & Campion, 2008; North & Fiske, 2016). That is, there is sometimes a perception that certain jobs should be held by employees of a certain age. Research suggests that when there is lack of perceived fit (i.e., when the perceived correct age of a person holding or applying for a particular job does not match the candidate's or existing workers' age), age stereotypes are more salient and more likely to influence individual decisions (e.g., when to retire, if to apply for a job), but also organization decision-making processes (e.g., hiring and firing). Age stereotypes that tend to favor younger workers are particularly prevalent in certain industries, such as finance, insurance, advertising,

retail, and information technology/computing (Posthuma & Campion, 2008). In these industries workers may stereotype themselves as "too old" to apply for job positions or find themselves pushed out of the job earlier than they expected. It also could mean that workers in these industries where age is a salient factor are more likely to experience threats to their identity if they are perceived as "too old," as posited by stereotype threat theory (Steele, 2010).

Training and test performance situations within the workplace have the potential to put workers at risk of experiencing stereotype threat if the performance indicator is synonymous with a negative age stereotype. This is a critical issue because training has an important role to play in extending working lives, yet there is a sharp decrease in participation in training once workers reach their mid-50s (Vickerstaff, Loretto, & White, 2007). Lack of training opportunities for older workers could reflect beliefs that employers will not get a good return on their investment in training older workers because of expectations that they will retire or be less quick to learn (Vickerstaff et al., 2007). If resources are deemed to be scarce, people may tend to invest and allocate training resources to younger workers (North & Fiske, 2016). But even when opportunities are available, the attitudes of the workers themselves can be a barrier. Older workers' willingness to undertake training may depend on a number of pragmatic factors such as, perceived usefulness, cost and time, but crucially it may depend on the individual's self-confidence in acquiring new skills and the method of delivery, which can be affected by stereotypes denoting declining competence, inability to learn new skills and lack of technological knowhow in later life.

It is clear that negative age stereotypes regarding older workers underpin discrimination in employment, but they can also inform norms within particular industries regarding perceived "fit." Moreover, the workplace is a context in which test-like situations are likely to arise, increasing older adult's vulnerability to stereotype threat effects. Over time, older adults may become sensitized to cues that their cognitive and physical capabilities will be noticed and evaluated, or that deficits in performance will be attributed to their age. Like other age groups, exclusion from labor markets impacts negatively on older people's economic circumstances and ability to financially support themselves. For example, reduced income increases poverty (Gallie, Paugam, & Jacobs, 2003), reduces access to adequate food, housing and health care, and thereby increases the risk of ill-health (Alavinia & Burdof, 2008; WHO, 2002). Furthermore, exclusion from labor markets impacts overall well-being (Angus & Reeve, 2006; Brand, Levy, & Gallo, 2008), which has significant detrimental impacts on active aging.

Health and Social Services

The active aging framework recognizes that ageism is a barrier to health care and states "there must be no age discrimination in the provision of services and

service providers need to treat people of all ages with dignity and respect" (WHO, 2002, p. 21). Ageism in health and social care services prevents active aging by reducing older people's access to health services and increasing their risk of ill-health (Kane & Kane, 2005).

There is evidence that some professionals (e.g., nurses and nursing students) hold negative attitudes toward older people, but there is also research suggesting this is not always the case among health care providers (see Swift, Abrams, Drury, & Lamont, 2016 for review). For example, radiation therapists, who are at the forefront of caring for older adults with cancer, do not report ageist attitudes (O'Donovan, O'Herlihy, & Cunningham, 2015). Based on intergroup contact theory (Allport, 1954), it is likely that differences in attitudes held by health care professionals depend upon the quality of contact they experience with older patients (Drury, Abrams, & Swift, in press; Drury, Hutchison, & Abrams, 2016). Due to the intense caring nature of their role, the radiation therapists in O'Donovan et al.'s (2015) study, experienced a high degree of the more intimate, good quality contact that facilitates favorable attitudes (Pettigrew & Tropp, 2006).

Research from the United States, United Kingdom, and across Europe has continued to suggest that older people are stereotyped as frail, ill, dependent, and incompetent (Coudin & Alexopoulos, 2010; Levy, 2009; Marques, Lima, Abrams, & Swift, 2014;). Unfortunately, in health care contexts, these stereotypes are likely to be confirmed, because most patients will be ill or in temporary dependent states. This is likely to reinforce health care professionals' acceptance and internalization of negative attitudes toward age. Indeed, although research suggests that health care workers' explicit attitudes are not affected by increased contact with older patients, there is evidence that their implicit attitudes toward older people may become increasingly negative if they have more encounters with older patients (Nash, Stuart-Hamilton, & Mayer, 2014).

A recent review of research on health and social care professionals' attitudes toward older adults indicated that although more contact with older patients was linked to more positive attitudes it was also related to benevolent stereotyping (i.e., increased perceptions of older people as warm but not competent; Drury et al., in press). Furthermore, a study of social care workers in the United Kingdom found that the quality of contact between service users (older adults receiving care) and social care workers affected their attitudes toward older people receiving care, and that these attitudes further generalized to attitudes toward other older adults in society (Drury, Abrams, Swift, Lamont, & Gerocova, in press). Specifically, social care workers who had poor quality (negative) interactions with service users held more negative attitudes toward service users (captured by the denial of humanness traits to service users), which, in turn, generalized to more negative attitudes toward other older adults.

In health care settings, age prejudice can be expressed through language used and in the way medical professionals communicate with older people. For example,

a qualitative study revealed linguistic age bias, whereby nurses described older patients recovering from anesthetic as "confused" or "wandering," compared to younger counterparts who were described as "disorientated" (McLafferty & Morrison, 2004). The use of "elder speak," a form of patronizing communication, is also commonly reported by older adults in health care settings. Elder speak is similar to displaced baby talk, denoted by high pitch, slow rate of speaking, and simpler sentence structures (Pasupathi & Lockenhoff, 2002). Evidence suggests that people who use this mode of communication can become over-accommodating, and presume the needs and response of the person they are communicating with, rather than letting them communicate their needs and wants themselves (Harwood, Giles, & Ryan, 1995). When directed at older adults, over-accommodation has several other negative consequences, such as reduced independence, self-esteem, confidence, motivation, and feelings of control (Baltes & Wahl, 1996; Hehman & Bugental, 2015; Kemper, Othick, Warren, Gubarchuk, & Gerhing, 2011). Ageist beliefs can significantly interfere with a health care provider's ability to communicate effectively and respectfully (Touhy & Jett, 2011; Storlie, 2015). For example, nurses who expressed negative attitudes toward older adults also reported feeling uncomfortable around older adults (Armstrong-Esther, Sandilands, & Miller, 1989; Lookinland & Anson, 1995). Moreover, using patronizing communication and presuming the needs of older patients reduces their autonomy and perceived control, which is a barrier to the active participation of the patient in making decisions about their own health care (Storlie, 2015).

Age discrimination in health care can occur when age is erroneously used to exclude or deny treatments or is used as a proxy for making a decision. In the United States, only 10% of people aged 65 and over receive appropriate screening tests (National Center for Chronic Disease Prevention and Health Promotion, 2003). In one randomized control trial, 121 physicians were asked to assess, diagnose, and prescribe treatment for two identical patients (via case studies) presenting with depression, who differed only by age (39 or 81). Not only did physicians take longer to reach decisions for the older patients, but their diagnoses and the treatment recommended differed from those for younger patients. Younger patients were more likely to be diagnosed with depression and anxiety, whilst the older cases were diagnosed with dementia or a physical illness. The younger patients were then more likely to be prescribed a wide range of relevant therapies including psychotherapy, pharmacotherapy and referred to inpatient or specialist treatment. In contrast, older adults were prescribed supportive counseling. Thus, perceptions of aging affected the physicians' decisions, leading them to be less likely to diagnose the appropriate disorder and treatment for older patients (Linden & Kurtz, 2009).

Even among patients with the same diagnosis, differences in treatment based on age are apparent (The Royal College of Surgeons and Age UK, 2014). Sixty percent of Americans over the age of 65 do not receive the recommended preventative

services (National Center for Chronic Disease Prevention and Health Promotion, 2004), while those with diagnoses of a mental health problem may struggle to get access to mental health services, which tend to focus mainly on young people. Older people's underuse of mental health services could be due to lack of resources, but is mostly due to lack of referrals and lack of recognition of a problem due to perceptions that depression, sadness and loss are inevitable burdens in later life (CPA, 2009).

Differences in the treatment options offered to younger and older individuals can be the result of indirect ageism, particularly if limited resources are distributed based on cost-benefit analysis, which disproportionately disadvantages older adults (Forder, 2008; CPA, 2009). These analyses tend to use Quality Adjusted Life Years (QALY) to assess the relative cost effectiveness of treatments and procedures for Alzheimer's disease, osteoarthritis, osteoporosis, or age-related macular degeneration, however, such analyses can be problematic and tend to work against people for whom it is estimated have fewer remaining years (CPA, 2009). There is also evidence that older patients are underrepresented in therapeutic clinical trials (Cruz-Jentoft, Carpena-Ruiz, Montero-Errasquín, Sánchez-Castellano, & Sánchez-García, 2013), due to assumptions that they are unable to tolerate the clinical procedures and medications (Murthy, Krumholz, & Gross, 2004). Thus not only are older people being denied the medical benefits of clinical trials, the generalizability of clinical trial results to older people are limited and may contribute to a lack of understanding and knowledge regarding the effectiveness of treatments for older people, resulting in indirect ageism.

Together these studies suggest that health care settings can perpetuate negative representations of aging, because health care professionals may be particularly prone to implicit ageism or age biases that devalue older patients. However, there is evidence to suggest that improving the quality of positive contact between service users and health care professionals can negate the potential detrimental impact of negative contact on health care professional's attitudes toward age (Cuthbert & Abrams, 2013). Expressions of prejudice, such as patronizing communication can serve to exclude older adults from participating fully in their own health care, while age discrimination can deny treatment to patients, if erroneously based on age or expectations about later life.

Behavioral Determinants

Behavioral determinants of active aging refer to health behaviors and the adoption of healthy lifestyles that can extend life expectancy and enhance quality of life (WHO, 2002). Several studies suggest the benefits of being physically active, including reduced likelihood of chronic diseases (Berlin & Colditz, 1990), cognitive decline (Lautenschlager et al., 2008; Rovio et al., 2005), and

mental health issues (Lawlor & Hopker, 2001; Netz, Wu, Becker, & Tenenhaum, 2005). For this reason, the WHO (2010) recommends that individuals aged 65 and over should engage in 150 minutes of moderate or 75 minutes of vigorous aerobic physical activity every week. Despite the benefits of physical activity, many older people lead sedentary lives and so here we discuss the largely unrecognized influence of attitudes toward age on health behaviors.

Age stereotypes that define older people as slow, ill, frail, and dependent can impact on medical decision-making processes if activated by a social cue or context. For instance, in one study older people who were made aware of negative stereotypes of aging reported feeling lonelier and displayed more frequent help-seeking and dependent behaviors (Coudin & Alexopoulos, 2010). Abrams et al. (2011) have shown that across 28 European countries, the oldest age groups more strongly agreed that older people were a burden on health care resources. Similarly, Kruse and Schmitt (2006) reported that the oldest group of people in their sample aged 65–75 also more strongly agreed that older people were a burden on society. This negative self-stereotyping can make people vulnerable to stereotype threat but also implicitly impact on individuals. For example, Marques Lima, Abrams, and Swift (2014) and Levy, Ashman, and Dror (1999–2000) have also found that among older adults (mean age 70), triggering negative old age stereotypes by implicitly priming individuals with words representing common age stereotypes (e.g., burden, slow, frail), can be sufficient to reduce older adults' motivation for a longer life, known as "will-to-live."

One of the most common myths of aging is that it is too late to adopt a healthy lifestyle or to rehabilitate and recover from illness or diseases in later life (Erber & Szuchman, 2014). This is connected to beliefs that age-related declines in health are inevitable, which in themselves have been shown to be related to lower uptake of healthy lifestyles (e.g., Wurm et al., 2010), and to the underinclusion of older adults in clinical trials (Cruz-Jentoft et al., 2013; Murthy et al., 2004). Sarkisian et al. (2002) and Sarkisian et al. (2005) showed that older adults holding more negative views on aging were less likely to seek health care and exercised less often, respectively. In addition, Wurm et al. (2010) found that older adults with more negative self-perceptions of aging reported lower physical activity levels than those with more positive self-perceptions of aging. They were also more likely to report decreasing levels of physical activity over time. Using longitudinal data from 309 people (aged 65 and over) with two measurement points over a 6-month period, Wurm, Warner, Ziegelmann, Wolff and Schüz (2013) showed that people with less negative self-perceptions of aging were more likely to use adapted self-regulation strategies promoting a healthy lifestyle after the incidence of a serious health event, whereas the perception that aging is associated with physical loss led to lower use of regulation strategies promoting a healthy lifestyle. The findings suggest that negative self-perceptions of aging associated with physical losses impair health-related

strategies, such as seeking health care, keeping physically active, and deciding to undergo health care treatment, that are important for maintaining an active, healthy lifestyle.

More recently, Wolff, Warner, Ziegelmann, and Wurm (2014) extended these findings by testing an intervention designed to improve physical activity levels. Using a randomized control trial design with three groups of people aged 65 and over, an intervention for physical activity (containing several behavior change techniques to prompt physical activity including: information about the benefits of physical activity, focus on mastery, goal setting, self-monitoring, and action planning), was tested with an additional component to improve attitudes toward age. The additional component contained two elements: participants were informed of false beliefs or misconceptions of aging, and also trained in a technique to challenge negative, automatic thoughts on aging and replace them with positive or neutral ones. The effects of the combined intervention were compared to two other groups: one with the physical activity intervention only and the other an active control intervention for volunteering. The study revealed that challenging negative views on aging improved attitudes toward older adults, which, in turn, increased physical activity levels, compared to the physical activity only intervention and the control condition. Not only does the study reveal that self-perceptions of aging can change, it reveals the positive impact this can have on the uptake of physical activity.

The uptake of activities beneficial for health and well-being could also be affected by stereotype threat processes because people may avoid situations that put them at risk of confirming a negative stereotype about their group. As Steele (2010) describes: "They know at some level, that they are in a predicament: Their performance could confirm a bad view of their group and of themselves, as members of that group" (p. 59). This threat to identity results in underperformance on both cognitive (Lamont et al., 2015) and physical tasks (Swift et al., 2012), and may in the long run lead to disengagement with tasks in which a threat is implied (e.g., Major, Spencer, Schmader, Wolfe, & Crocker, 1998; von Hippel, Kalokerinos, & Henry, 2013). Given the application of stereotypes of incompetence to multiple life domains, age-based stereotype threat has the potential to have a negative impact on a wide range of activities conducive to a healthy lifestyle.

Personal Determinants

Personal determinants of active aging refer to biology and genetics, and psychological factors, such as memory, intelligence, and cognitive capacity. Because of their association to the pervasive age stereotype that memory and cognitive functions decline with age, these psychological determinants may be vulnerable to both stereotype embodiment and stereotype threat effects.

Longitudinal research has found that negative attitudes toward aging are linked to greater cognitive decline among older people (Robertson, King-Kallimanis, & Kenny, 2016). Age-based stereotype threat effects have also been shown in memory and wider cognitive testing (see Lamont et al., 2015), but also on tests similar to those used in medical assessments such as the Mini-Mental State Examination (MMSE) and the Critical Word List Memory Test from the Consortium to Establish a Registry on Alzheimer's Disease (CERAD, Barber, Mather, & Gatz, 2015; Haslam et al., 2012; Scholl & Sabat, 2008). While it is recognized that these types of tests are rarely used in isolation for diagnosis, bias in the settings and conduct of such tests may contribute toward less accurate assessment of the deficiencies and support needs of older adults.

People living with Alzheimer's disease or other forms of dementia are not only affected by brain neuropathology, but also by the environments in which they live, and how they are treated by others (Kitwood, 1997). These relatively neglected social influences include negative stereotyping, negative self-stereotyping and stereotype threat. A review of the evidence by Scholl and Sabat (2008) concluded that people living with dementia are vulnerable to debilitating effects of negative self-stereotyping and stereotypes because people living with dementia are: (1) keenly aware of their losses, (2) react to those losses with frustration and anger, (3) seek to avoid situations in which they feel threatened, embarrassed or humiliated as a result of their losses, and finally, (4) experience heightened anxiety when placed in situations that compromise their abilities. Understanding that people living with dementia are vulnerable to stereotype threat effects can help health care professionals understand potential reactions to or withdrawal from situations perceived to be threatening, which could otherwise be viewed as unsociable, uncooperative or difficult behavior (Scholl & Sabat, 2008).

Only very recently has research explored the interplay between attitudes toward aging and biology and genetics. A recent study by Levy et al. (2016) explored the impact of age stereotypes on known biomarkers for Alzheimer's disease (neurofibrillary tangles and amyloid plaques). Analysis of the Baltimore Longitudinal Study of Aging revealed that even when controlling for relevant health and demographic variables, those holding more negative age stereotypes earlier in life (over 20 years earlier) had significantly steeper decline of hippocampal-volume and significantly greater accumulation of neurofibrillary tangles and amyloid plaques than those holding more positive age stereotypes (Levy et al., 2016). Neurofibrillary tangles and amyloid plaques are thought to be the main contributors to the damage of neurons within the brain in Alzheimer's disease, resulting in cognitive impairment. The research provides further evidence for the utilization of the physiological route through which negative attitudes toward age can sustain their influence on active aging.

Social Determinants

Social determinants include factors such as social support, violence and abuse, education, and literacy (WHO, 2002). Ageism, as a form of social exclusion can influence these social determinants by increasing older adult's risk of social isolation and loneliness, and by underpinning the lack of opportunities for education and training throughout the life course (see earlier discussion on lack of training opportunities for older workers). Inadequate social support and loneliness are associated with an increase in mortality (Holt-Lunstad, Smith, & Layton, 2010; Luo, Hawkley, Waite, & Cacioppo, 2012), morbidity (Hawkley, Masi, Berry, & Cacioppo, 2006; Uchino, 2006), psychological distress (Cohen & Willis, 1985; Paul, Ayis, & Ebrahim, 2006), and depression (Adams, Sanders, & Auth, 2004; Beeson, Horton-Deutsch, Farran, & Neundorfer, 2000; Golden et al., 2009). While supportive social connections and intimate relations are vital sources of emotional strength and resilience, a meta-analytic study that combined the findings of 148 studies ($n = 308{,}849$) revealed that participants with stronger social relationships and ties had a 50% decreased risk of mortality (Holt-Lunstad et al., 2010). Indeed, many older people report that friends, family, and community are vital for maintaining a good quality of living in later life.

Across Europe, in countries that accorded relatively lower status to people aged 70 and over, those older individuals who highly identified with their age group perceived their health to be worse (Marques et al., 2015). Group memberships provide a sense of belonging, meaning and opportunities for interaction and social support (Sani, 2012). Thus, the extent to which people are members of different social groups, and the extent to which they identify with those groups, is associated with increased social support and reduced feelings of loneliness (Tomaka, Thompson, & Palacios, 2006; Sani, 2012). Self-exclusion from engaging with groups can occur if people perceive themselves to be "too-old" or perceive a lack of fit with other members. Such self-exclusion may also be driven by a motivation to avoid potentially ageist, negative social situations as posited by socioemotional selectivity theory (Carstensen, Isaacowitz, & Charles, 1999).

Ageism, threat, and self-stereotyping processes may also interfere with the extent to which older people seek social contact, by increasing intergroup anxiety (e.g., Abrams et al., 2006, 2008). Intergroup anxiety arises from being uncertain about how members of other groups think, feel, and act, and can lead to apprehension that the interaction will be difficult, discriminatory, or lead to misunderstandings or rejection (Greenland & Brown, 1999; Stephan & Stephan, 1985). Stereotypes provide expectations about group members to smooth the interaction process, but if these are negative they could increase anxiety and increase risk of discrimination and rejection from others. Indeed, there is evidence that lonely adults are more likely to express anxiety when anticipating social interaction

(Masi, Chen, Hawkley, & Cacioppo, 2010). This anxiety could be a product of stereotype threat or intergroup anxiety.

Researchers have suggested that ageism, attitudes toward age, and the dehumanization of older people are contributory factors in elder abuse (Nelson, 2005; Phelam, 2008). Elder abuse can take many forms, including physical abuse and neglect, emotional or psychological abuse, material abuse, financial abuse, and the exploitation of older people's rights, and usually occurs between a caregiver and care recipient (Harris, 2005). It may be a form of ageism in the sense that caregivers feel able to vent their frustration and aggression on the care recipient/s because they are old and vulnerable (Harris, 2005). Dehumanization may play a role in this process. Dehumanization is "the denial of full humanness to others" (Haslam, 2006, p. 252). In the case of older people, it places them "outside the boundary in which moral values, rules, and considerations of fairness apply" and ultimately situates them as "nonentities, expendable, or undeserving" (Opotow, 1990, p. 1). When denied their humanness, older people are vulnerable to discrimination, elder speak, cruelty, harm, and abuse (Storlie, 2015). Despite evidence that health care settings and care workers can be dehumanizing (Berdes, 1987; Drury et al., in press), there is little empirical research that has explored the role of ageist attitudes and dehumanizing attitudes in elder abuse, although many consider them linked.

Thus, ageism, as a form of social exclusion, can create social environments that impede active aging for older people through inadequate social support, which can increase vulnerability to loneliness and social isolation. Moreover, ageism in the form of dehumanization can be linked to elder abuse in care settings. Further, ageism and negative age stereotypes can result in older people withdrawing themselves from social situations deemed threatening or due to self-stereotyping processes.

Physical Environmental Determinants

Aspects of the physical environment that impinge on active aging relate to safe housing, falls, absence of pollution, and the extent to which physical environments are age-friendly (WHO, 2002). The modifications required to make existing communities age-friendly are based on the determinants of active aging (WHO, 2007). The principles of age-friendly environments can make the difference between independence and dependence for all individuals, not just older people. People who live in an unsafe environment or face multiple physical barriers are less likely to get out and therefore more prone to isolation, depression, reduced fitness, and increased mobility problems (WHO, 2002, 2007). Age friendly environments are those that enable residents to grow older actively, with autonomy, independence, and plenty of opportunities for their participation in the community (Alley, Liebig,

Pynoos, Banerjee, & Choi, 2007), and for intergenerational interaction (Van Vliet, 2011).

Age-friendly initiatives involve the combination of physical aspects of the environment and social aspects to create spaces that offer opportunities for active aging and improvement in quality of life. However, the design of the built environment (homes, outdoor spaces, buildings), as with the design of most everyday products and services, can be designed in ways that ignore the needs of an aging population, and tend to be youth-centric (Wright, 2004). When designing environments for aging populations or older consumers, younger designers may be tempted to base their designs on their own expectations about aging but also the perceived expectations of older consumers. Any gaps in their knowledge and experience may be unconsciously filled by stereotypes, resulting in insensitive designs that may be rejected by potential users (Wright, 2004). The challenge then for designers is to overcome the cognitive shortcuts that age stereotypes provide and to design for "inclusivity." The key is to "design a built environment, products and services that both cater for the specific requirements of older people and also appeal to other age groups" (Foresight, 2000, p. 20). The involvement of both young and older people in the planning and design process may overcome these challenges and fill the gaps in knowledge and experience, thereby ensuring that products, spaces and buildings meet the needs of the aging populations. They can help to identify challenges and barriers for older people in current structures, contribute to the implementation or monitoring of age-friendly changes, and make recommendations for future spaces (Neal, DeLaTorre, & Carder, 2016). Knowledge of aging and older people's needs among city planners, architects, and property developers is also crucial to ensure that renovation and development of new spaces meet the needs of the aging population (Fitzgerald & Caro, 2014).

Stereotypes can also contribute to people's perceptions of an environment and impact upon their utilization of the environment as a resource for active aging. For instance, stereotypes that denote decline and increased vulnerability with age can inflate older people's perceived risk of crime that, in turn, can lead to further disengagement and isolation in an environment (Pain, 1997; Jackson, 2009). As part of an age-friendly community, creating opportunities for intergenerational contact in community settings has several benefits at interpersonal and community levels. At the interpersonal level there is a long standing literature showing that intergenerational contact, that adheres to Allport's (1954) conditions of contact (e.g., equal status, working toward a common goal), can reduce ageism, age stereotypes, intergroup anxiety, and bias (Drury et al., in press). Intergenerational contact also has the potential to reduce tensions and conflict between generations (Drury et al., in press). Benefits for the wider community include reduced fear of crime and social exclusion, and an increase in feelings of community safety (Springate, Atkinson, & Martin, 2008).

In sum, personal perceptions, if based on negative stereotypes, may prejudice the design process and result in the design of products, services, and the built environment in ways that ignore the needs of older people. If designers, policy makers, and practitioners remain unaware of the need to challenge their assumptions, then the design process and the design approach will unconsciously favor the young and will not provide sustainable solutions for future generations.

Summary of the RAM

The review of the evidence on stereotype embodiment, stereotype threat, and age discrimination reveals that collectively, ageism and negative attitudes toward age have the propensity to negatively influence the six WHO determinants of active aging. Our analysis and model is summarized in Figure 1. Table 1 also shows which determinants of active aging are associated with each of the three pathways that comprise the "Mechanisms of Ageism."

Stereotype embodiment, the process through which age stereotypes are internalized and become self-relevant impacts on aspects that relate to four of the six determinants of active aging including, economic, behavioral, personal, and social determinants. The evidence reveals that the perceived lack of "fit" of older people within an organization can be a significant determinant of older male workers' intentions to retire (Thorsen et al., 2012), and can cause people to self-exclude themselves from social groups, increasing the risk of social isolation and loneliness. Those who hold more negative attitudes toward age are less likely to seek health care (Sarkisian et al., 2002, 2005), are less physically active (Wurm et al., 2010), and have an increased risk for biomarkers of Alzheimer's disease (Levy et al., 2016). Moreover, people who are primed with negative age stereotypes show reduced motivation for longer life (will-to-live) (Marques et al., 2015; Levy et al., 1999–2000). These outcomes in one way or another impact on individuals' independence, autonomy, and quality of life.

Stereotype threat describes the threat to identity that individuals experience when they inhabit situations and contexts that put them at risk of confirming a negative stereotype about a group to which they belong (Steele, 2010). Age-based stereotype threat bears on the same four determinants that are vulnerable to self-stereotyping effects (economic, behavioral, personal, and social). Test-like situations may arise at consequential times in the lives of older adults, for example, within employment, further education, or the medical/care/support setting, which correspond to domains and determinants of active aging. In addition, memory, cognition, and intelligence are considered to be personal determinants of active aging. Being threatened by the possibility of confirming a negative stereotype and experiencing heightened anxiety can contribute to further decline in performance in these negatively stereotyped domains (Abrams et al., 2006, 2008; Swift et al., 2013). Aged-based stereotype threat might further contribute to misleading results

in clinical assessments of cognitive impairment, or work-place assessments of adult learning.

The wider literature on stereotype threat suggests that stigmatized individuals avoid the negative experience of stereotype threat by disengaging from important activities (Major et al., 1998; von Hippel et al., 2013). Although the age-based stereotype threat research has yet to test this, von Hippel et al.'s (2013) research has shown that self-reported stereotype threat is linked to higher turn-over intentions in the workplace. Moreover, the social identity perspective, which highlights that individuals seek to maintain positive social identities would support the idea that stereotype threat can lead to disengagement and avoidance of a wide variety of potentially threatening everyday settings (Tajfel & Turner, 1979). Thus, we contend that stereotype threat might also lead individuals to self-exclude from beneficial activities and social situations that they regard as potentially threatening. Research tends to use experimental designs with performance based outcomes that specifically match the salient stereotype to demonstrate stereotype threat effects. However, as Steele (2010) describes, the threat to identity can be "in the air," elicited by the fear of being judged negatively by others, and therefore, can be felt and present even without the presence of performance-based outcomes.

Age discrimination, the unfair treatment of others based on age, relates to four of the six determinants (economic, health and social care, social, and environmental). Although in many countries it is illegal to discriminate against employees, job seekers and trainees because of age, there is widespread evidence that ageism in employment and in the workplace is prevalent and is a significant barrier to older workers (Sargeant, 2011). Research has shown how age stereotypes and expectations about older workers underpin ageism in hiring practices (Abrams et al., 2016), but also in the provision of training opportunities (North & Fiske, 2016). In health and social care, there is also evidence of ageism in the form of patronizing elder speak (Pasupathi & Lockenhoff, 2002) and discriminatory practices that deny people treatment because of their age (CPA, 2009). Both have the potential to reduce individuals' autonomy and choice, but also quality of life. Ageism in the form of dehumanization is also connected with increased risk of elder abuse (Nelson, 2005; Phelam, 2008) that unfortunately exists in many countries (WHO, 2002). The application of old age stereotypes by others can also serve to exclude older people from social groups, increasing risk of social isolation and loneliness. The evidence reviewed also suggests that perceptions of aging can inform design processes (Wright, 2004) resulting in products, services, buildings, and outside spaces that are unsuitable for an aging population and the integration of age groups.

Ageism and its discriminatory outcomes can influence independence (e.g., age-unfriendly environments can exclude older people from being able to manage activities of daily living), autonomy (e.g., making stereotypical assumptions about the wants and needs of older people) and quality of life. The experience of ageism

is not only a psycho-social stressor impacting on health and well-being, but denial of treatment might adversely affect health outcomes of the individual.

Implications and Conclusions

Our model seeks to expose the mesolevel spaces in which ageism and negative attitudes toward aging can inhibit successful, active, and healthy aging. There are many useful areas in which institutional, community, and governmental strategies can be adapted to prevent or disrupt the potential effects of ageism. Here, we offer one or more suggestions for each "determinant" as illustrations of the possible focuses for policy makers and practitioners. Note that recommendations for reducing ageism, threat, and negative attitudes toward age in one context are also likely to be relevant to others.

Access to labor markets is a crucial aspect of the economic determinants of active aging. There should be wider recognition that ageism is a barrier to policies that aim to extend working lives, and wider awareness of the consequences of exposure to stereotype threat in employment contexts. In response to these challenges, employers could focus on increasing age diversity in the workplace, both in recruitment and when providing opportunities for training, but also in a range of positions (not just those positions that are stereotypically "old"). Workplace intergenerational contact can reduce age-based stereotype threat effects via the reduction of anxiety and in-group bias (Abrams et al., 2006, 2008). It may also reduce the potential threat of a "solo-status" (being the only member of a particular social group; Sekaquaptewa & Thompson, 2003), and break-down age stereotypes held by younger employees. The workplace is a setting in which institutional support can be provided for intergenerational interactions, one of the conditions that can facilitate positive intergroup relations (Allport, 1954; Drury et al., in press).

When adopting Equality and Diversity strategies, health and social care organizations should attend to health and social care professionals' attitudes and understanding of aging, but also consider the impact of situations in which they are placed. To reduce the impact of stereotype threat and internalized negative attitudes toward age, Swift, Abrams, Drury and Lamont (2016) suggest that those responsible for training health and social care professionals should be aware of potential triggers of stereotype threat and stereotype embodiment. For example, health and social care professionals should be cautious not to make a patient's age salient before administering tests and not to treat them in age-biased ways (e.g., patronizing tones, overhelping, and making assumptions based on age) that could leave them vulnerable to age-based stereotype threat effects on subsequent assessments (e.g., memory, cognitive, and physical tests). Further, poor quality interactions with patients might lead to the reinforcement of ageism among health and social care professionals. Such instances are likely to have a negative impact on health care professionals' attitudes toward not just service users, but older adults

more widely (Drury et al., in press). In professions where some negative contact with older people cannot be avoided (e.g., when disturbed behavior or extensive dependence are likely), opportunities for more positive contact with older people should be considered and emphasized as part of the caring role.

For behavioral determinants, which are mostly related to the uptake of and motivation to maintain healthy lifestyles, we suggest that health care professionals and individuals should be aware that negative attitudes toward aging can create psychological barriers to rehabilitation, motivation and response to treatment (Swift et al., 2016). Thus, more attention should be paid to treating these psychological barriers. Results from experimental studies show that it is possible to improve attitudes toward age. For instance, in the condition of Wolff et al.'s (2014) physical activity intervention that included a "views of aging" component, older people were taught to challenge negative attitudes toward age. This intervention used an adapted cognitive behavioral therapy technique (i.e., using targeted strategies to deal with negative thoughts to lessen attribution of age stereotypes to the self) and also made them aware of the facts about the realities of aging. This intervention to address myths of aging and some negative stereotypes of aging did improve attitudes toward age in adults aged 65 and over (average age 70 years), but it is not clear for how long these effects last. Thus, while these results are promising, future studies need to examine the duration of such changes.

Connected to the idea of changing attitudes, we suggest that it is important for older people themselves to challenge age stereotypes in order to counter the effects of stereotype threat and stereotype embodiment on personal determinants of active aging. Teaching older people about ageism and stereotype threat may enable them to take on this challenge perspective. For example, Johns, Schmader, and Martens (2005) found that female participants did not underperform on a math test when they were told that gender stereotypes can make women anxious on tests and that the stereotypes do not reflect actual ability. They did underperform relative to men when this preamble was not given. This type of intervention has yet to be tested on older adults.

Negative attitudes toward aging do not just appear in later years, they are adopted at an early age and manifest as negative attitudes toward an out-group before becoming self-relevant when individuals reach later life. Therefore, in education contexts children could be encouraged to develop healthy views of aging (Crawford, 2015), via an "aging education." If this is done from an early age, it should help to reduce ageism and improve that generations' own experience of aging. Crawford (2015) recommends a number of learning outcomes for education on aging around appreciating diversity between and within age groups, as well as understanding the important contributions that people of all ages make to society. Changes to the school settings could also be encouraged (e.g., pictures of people from all age groups and open discussion about aging), as well as the promotion of positive intergenerational contact.

Improving older people's access to education and promoting lifelong learning strategies could also serve to reduce the impact of ageism on social determinants of education and literacy, which currently tend to be segregated by age and contribute to the social separation of older and younger generations (Hagestad & Uhlenberg, 2005). Many of the determinants are reliant on and intertwined with the physical, structural, and environmental aspects. Thus, the age friendly city initiatives are seen as a mechanism through which active aging can be achieved. However, there is a limited understanding of how age friendly communities can go beyond reducing the social exclusion of older people to also reduce ageist attitudes. One focus could be on intergenerational spaces and removing prescriptive norms that define age-limited behavior in social spaces (North & Fiske, 2013). In the course of creating and implementing any age friendly policy, there should also be an increased focus and effort in the integration and representation of older people in decision-making processes (Neal et al., 2016).

In summary, for practitioners and policy makers, understanding the risks of ageism provides a lens through which to view the promotion of successful and active aging. Practitioners and policy makers should attend to ways that policies and practices can reduce the risks of ageism, stereotype threat and stereotype embodiment. In particular, they can: (1) reduce the propensity for negative self-stereotyping by more actively directing attention to the value of older people as a group and by questioning age-based attributions about ability or needs, (2) reduce the "threat" created in situations by avoiding comparisons between age groups, and (3) support people to interact with others in ways that avoid expressing age prejudice (i.e., patronizing language). Other useful actions would be: (4) to increase inclusion of older people in decision-making processes within governance structures, and (5) promote of age-friendly communities that increase the opportunities and support for intergenerational contact. These approaches should all reduce experiences of ageism, which should then promote better health and well-being.

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