13 Aging and Stereotype Threat

Development, Process, and Interventions

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Age stereotypes are widespread and, although they contain some positive elements, they are primarily negative. It is likely that age stereotypes become internalized at an early age, only to negatively impact individuals when they themselves grow old. Negative views of aging can operate either explicitly or implicitly, affecting both physical and cognitive health. Thus, it is not surprising that older adults, like many other negatively stereotyped groups, experience stereotype threat. In the case of age-related stereotype threat, consequences have been observed primarily in the domain of memory. Similar to stereotype threat effects among other groups, domain and group identification moderate age-based stereotype threat effects. In addition, task demands, memory self-efficacy, and age (young-old vs. old-old) also determine who is most affected by stereotype threat. In terms of mediators, a unique set of mechanisms including lowered performance expectations and disrupted strategy use help explain how stereotype threat decreases memory performance in older adults. Initial work on interventions to combat the negative effects of aging stereotypes has shown some promising results with respect to intergenerational contact and exposure to positive aspects of aging. Although we have learned much about the effects of negative aging stereotypes on older adults, further research is required to determine the breadth of stereotype threat effects across domains, pinpoint which mechanisms best account for these effects, and test the efficacy of a wider variety of interventions.

Keywords: Stereotype threat, elderly, aging, memory, cognitive decline

> Of all the self-fulfilling prophecies in our culture, the assumption that aging means decline and poor health is probably the deadliest.
>
> MARILYN FERGUSON, *The Aquarian Conspiracy*, 1980

Negative views of aging can be particularly damaging, as they not only influence today's older adults, but can also affect the outlook of younger generations as they age. Indeed, the fact that most individuals will one day be old themselves makes

understanding the impact of age stereotypes particularly important. In the United States, the proportion of the population aged 65 and over is expected to increase from 13% in 2010 to 20% by 2050 (United States Census Bureau, 2008). A similar trend is projected for Canada, where an increase of people aged 65 and older from 13% in 2006 to 23% in 2031 is expected (Statistics Canada, 2006). In addition to the projection that the number of older adults will double over the next 30 to 40 years in both countries, it is also expected that the number of older workers will rise (Statistics Canada, 2006). The increasing numbers of older adults who are working beyond the traditional retirement age are vulnerable to the deleterious effects of negative aging stereotypes in the workplace as well as in other spheres of life (e.g., health care). Thus, learning more about how age stereotypes affect today's seniors in a variety of settings is imperative for improving conditions for them as well as for future generations of elderly people. In this chapter, we will examine the influence of age stereotypes on older adults, particularly with respect to physical and cognitive health. We draw on literature from both the fields of social psychology and gerontology to better understand the content of aging stereotypes and how exposure to these stereotypes affects seniors' function in everyday life.

■ THE CONTENT OF AGE STEREOTYPES

Compared to stereotypes about other groups, one unique aspect of age stereotypes is the relatively normative and institutionalized existence of negative attitudes toward aging and older adults in general (for reviews see Pasupathi & Lockenhoff, 2002; Wilkinson & Ferraro, 2002). Although racism and sexism are widely considered unacceptable, ageism is ubiquitous and readily accepted by young and old individuals alike. Indeed, ageism can be found within our language and literature (Coupland & Coupland, 1993; Ryan, Hamilton, & Kwong See, 1994), humor (Dillon & Jones, 1981), music (Cohen & Kruschwitz, 1990), and television and advertising (Robinson & Skill, 1995). Unlike members of other devalued groups, furthermore, older adults are as likely to endorse age stereotypes as are younger age groups (Levy, 2003).

According to the Stereotype Content Model (SCM; Fiske, Cuddy, Glick, & Xu, 2002), a stereotyped group may be described as either warm or cold, and either competent or incompetent. Research on the perception of older adults reveals that aging stereotypes are mixed, describing older adults as warm but incompetent, reflecting the simultaneous existence of both positive and negative perceptions (Cuddy, Norton, & Fiske, 2005; Fiske et al., 2002; Hummert, Garstka, Shaner, & Strahm, 1994).

Kite and her colleagues conducted a meta-analytic review of North American research on attitudes toward younger and older adults (Kite, Stockdale, Whitley, & Johnson, 2005; for an earlier review, see Kite & Johnson, 1988). Across 232 effect sizes from 131 articles, the review analyzed how older adults are evaluated differently from younger adults in five categories: age stereotype (e.g., old-fashioned, talks a lot about the past), attractiveness (e.g., pretty, wrinkled), competence (e.g., intelligent,

good memory), behavior (e.g., willingness to interact with, make a phone call to), and evaluation (e.g., generous, friendly). Across all of these categories, older adults were consistently judged more negatively than younger adults. Thus, a great deal of evidence shows the pervasive nature of negative perceptions of seniors, often including potentially damaging views of their cognitive abilities. It is not surprising, then, that adults of all ages expect memory to decline with age (e.g., Lineweaver & Hertzog, 1998; Lineweaver, Berger, & Hertzog, 2009; Ryan, 1992; Ryan & Kwong See, 1993), and that these negative expectations may act as self-fulfilling prophecies for cognitive performance. Future examinations of ethnic and cultural variability in the content and experience of age-based stereotypes are necessary to gain an understanding of these phenomena across cultures and ethnic groups.

In the following sections, we discuss how age stereotypes influence older adults in terms of their physical and cognitive function. We focus on how older adults are affected by their own views of aging, as well as how stereotype threat regarding aging and memory influences seniors' cognitive performance. Finally, we examine the efficacy of different techniques that have been used to help older adults combat the effects of negative aging stereotypes.

■ AGE STEREOTYPES AS INTERNALIZED VIEWS OF AGING

As noted earlier, age stereotypes are distinct from stereotypes applied to other groups. For example, unlike race and gender stereotypes, individuals acquire generalized beliefs about aging long before they join the older adult group. This notion is critical to understanding why age stereotypes affect seniors differently from how stereotypes affect members of other devalued groups. Some people, like women and racial minorities, live their entire lives as members of stigmatized groups and, unlike older adults, possess a lifetime of experience challenging the stereotypes by which they are targeted. During youth, however, all individuals are exposed to elderly stereotypes that do not currently apply to them and, as a result, tend to accept these stereotypes as valid. Furthermore, individuals continue to accept the truth of these stereotypes as they age (Levy, Slade, Kunkel, & Kasl, 2002). Researchers have argued, therefore, that stereotypes about aging affect the self through a process of *internalization*, in which older adults endorse stereotypical views of aging (e.g., beliefs about health and function in old age; Levy, 2003). As a result, older adults may experience stereotype threat very differently than do women and racial minorities. Whereas gender- and race-based stereotype threat involves worrying about confirming stereotypes that targets recognize as false, targets of age-based stereotype threat worry about confirming stereotypes that they believe to be true, making them particularly vulnerable to self-concept threats (see Shapiro, 2011, Chapter 5, this volume). According to Shapiro and Neuberg (2007), self-concept threat affects individuals who worry that their behavior will confirm that the negative group

stereotypes are true of the self. Subsequently, a large portion of the aging stereotypes literature has been devoted to understanding how internalized views of aging affect older adults.

How Are Older Adults Affected by Internalized Negative Age Stereotypes?

Levy and her colleagues have examined this question extensively by exposing older adults to words related to aging stereotypes (see Levy, 1996). Older adults subliminally primed with negative age stereotypes have shown elevated cardiovascular responses to stress (Levy, Hausdorff, Hencke, & Wei, 2000; Levy et al., 2008), impaired physical balance (Levy & Leifheit-Limson, 2009), decrements in memory performance (Levy, 1996; Levy & Leifheit-Limson, 2009), and shaky, sloppy handwriting (Levy, 2000). In another study, Levy, Slade, and Gill (2006a) measured explicit age stereotypes by asking elderly individuals what words or phrases they associate with older adults in general. Elderly people who held mostly negative stereotypic views about aging experienced more hearing decline than others in their age group. Thus, across a variety of outcomes, both physical and cognitive, researchers have found that exposure to negative aging stereotypes, whether implicit or explicit, has a detrimental impact on older adults.

■ STEREOTYPE THREAT AND AGING

Given the insidious effects of aging stereotypes for older adults who are subliminally exposed to them, it is likely that other situations that activate aging stereotypes might also impact elderly people. One specific way in which targets of stereotypes can be negatively affected by stereotyping is through stereotype threat (Steele & Aronson, 1995). Stereotype threat occurs when concerns about fulfilling a negative stereotype about one's group disrupt performance on tasks related to the stereotype, and it has been shown to affect members of a variety of stereotyped groups, including older adults (e.g., Chasteen, Bhattacharyya, Horhota, Tam, & Hasher, 2005; Hess, Auman, Colcombe, & Rahhal, 2003; Rahhal, Hasher, & Colcombe, 2001). To date, all of the work examining stereotype threat among older adults has focussed on consequences for memory or other cognitive processes. For example, poor memory performance has been found among older adults exposed to instructions emphasizing the memory component of a task compared to those for whom memory is not emphasized (Chasteen et al., 2005; Rahhal et al., 2001). Similarly, older adults exposed to an article discussing the finding that older adults' memory skills are worse than those of young adults performed worse on a recall memory task than did older adults exposed to an article espousing more positive views about aging and memory (Hess et al., 2003). In what follows, we discuss a variety of variables that help to explain the negative consequences of stereotype threat for older adults' cognitive performance.

How Does Stereotype Threat Interfere with Older Adults' Cognitive Performance?

Researchers have examined a number of different variables as possible mediators of age-based stereotype threat effects. Thus far, three mediators have been identified: the degree to which an individual perceives stereotype threat, disruptions in strategy use, and memory performance expectations.

Given that experiencing stereotype threat leads to cognitive decrements, the effects should be most pronounced for those who perceive threat most strongly. Indeed, the degree to which individuals perceive stereotype threat mediates the relationship between age and performance on both recall and recognition memory tasks (Chasteen et al., 2005). Older adults tend to perceive more age-related stereotype threat than do younger adults, and this explains their comparatively poor performance on memory tasks. A recently developed scale, the Age-Based Rejection Sensitivity Questionnaire, shows promise in identifying older adults who will be most likely to perceive stereotype threat (Kang & Chasteen, 2009a). Rejection sensitivity describes the degree to which individuals anxiously expect, readily perceive, and intensely react to situations in which stigma-based rejection is possible (e.g., Downey & Feldman, 1996; Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). Those identified by the scale as sensitive to rejection should be most likely to perceive, and therefore be affected by, stereotype threat in a given situation. In this way, perceived threat can both mediate and moderate the stereotype threat effect. More specifically, those who are more prone to perceive threat are more likely to be susceptible to its effects and, further, the attentional and emotional consequences of perceiving threat go on to contribute to the mechanisms underlying stereotype threat (see Schmader & Beilock, 2011, Chapter 3, this volume).

In addition to perceived stereotype threat, disrupted strategy use has been proposed as a mechanism underlying age-based stereotype threat effects. In one study (Hess et al., 2003), young and old participants completed a memory task under varying levels of stereotype threat. As expected, younger adults outperformed older adults on a 30-word free-recall task. Interestingly, the researchers also examined the degree to which semantically related words were recalled together, a strategy referred to as *clustering*. Analyses revealed that 58% of the variance associated with stereotype threat–related decline in recall was explained by decreases in clustering among those who experienced stereotype threat. These results are supported by another study showing that middle-aged and older adults who perceived greater control over their cognitive functioning were more likely to use the clustering strategy and therefore showed better performance on the recall task (Lachman & Andreoletti, 2006). Although this latter study did not measure the effects of stereotype threat, per se, it provides additional evidence that memory decrements among older adults may be explained, at least in part, by decreased use of a clustering or similar strategy during cognitive tasks.

Finally, researchers have identified performance expectations as a mechanism underlying age-related stereotype threat effects. Previous research has shown that

older adults expect to perform worse than young adults on cognitive tasks (Berry & West, 1993; Cavanaugh, 1996), and researchers hypothesized that these low performance expectations might explain older adults' reduced cognitive performance under threat. For example, one study asked young and old participants to evaluate how they expected to perform on each of three memory tests (Desrichard & Köpetz, 2005, Study 2). Among older participants, emphasizing the memory-related aspects of the task led to performance decrements. This deficit was mediated by lowered task performance expectations. Essentially, when older adults were faced with task instructions emphasizing memory performance, their performance expectations decreased, thereby decreasing their actual performance on the memory task. Performance expectations were also found to explain the relationship between stereotype threat and decreased memory performance among older adults in an examination of a variety of possible mediators and moderators of the effect (Hess, Hinson, & Hodges, 2009).

It is important to note commonalities and distinctions between age-related stereotype threat and other types of stereotype threat in terms of mediators. For example, lowered performance expectations have also been found to mediate gender-related stereotype threat among women completing tasks involving spatial perception (Stangor, Carr, & Kiang, 1998) and negotiation (Kray, Galinsky, & Thompson, 2002). Although strategy use has not been examined directly with other groups, research has implicated reduced effort (less time spent practicing, for example) as an underlying cause of race-based stereotype threat (Stone, 2002; but see also Jamieson & Harkins, 2007 and Oswald & Harvey, 2000–2001). Practicing, of course, is an excellent strategy for anyone looking to improve their performance in a particular domain, so it is perhaps not surprising that this mechanism may be shared across groups who are targeted by stereotype threat.

On the other hand, age-related stereotype threat also seems to differ from race- or gender-based stereotype threat with regard to mediation by negative affect or working memory. Evidence from examinations of other types of stereotype threat points to decreased working memory capacity (e.g., Beilock, Rydell, & McConnell, 2007; Schmader & Johns, 2003; Schmader, Johns, & Forbes, 2008) and negative affect (e.g., Cadinu, Maass, Rosabianca, & Kiesner, 2005; Keller & Dauenheimer, 2003; Krendl, Richeson, Kelley, & Heatherton, 2008) as mechanisms of the effect. In contrast, a recent examination testing mediation by negative affect and working memory suggests that the same mechanisms do not seem to play a role in age-based stereotype threat (Hess et al., 2009), instead implicating performance expectations as a main mediating factor. Although further examinations are necessary to clarify this effect (it is of course unlikely that negative affect and working memory have *no* contribution to age-based stereotype threat), this preliminary evidence highlights the importance of expectations for the experience of age-based stigma. Given that age stereotypes seem to be more internalized than other types of stereotypes, expectations regarding aging and cognitive and physical performance in old age are likely to have an especially strong effect. Further examinations of the mediation of age-based

stereotype threat should focus on identifying situations in which emotions and working memory may play a role.

Who Is Most Susceptible to Age-Based Stereotype-Threat?

Researchers examining age-based stereotype threat have also investigated risk factors that can increase one's vulnerability to threat effects. For example, researchers have shown that older adults can be differentially affected by stereotype threat based on the degree to which they value the memory domain (e.g., Hess et al., 2003). Intuitively, it seems reasonable that negative stereotypes would only affect an individual if that individual cares about the stereotyped domain, or, at least cares about being viewed as incompetent in that domain. Hess and his colleagues show that stereotype threat in the domain of memory is more disruptive for older adults who value their memory ability more highly than those who do not value memory achievement as much.

Other research has shown that stereotype threat effects can be moderated by identification with the stereotyped group. Similar to research on gender-related stereotype threat (e.g., Pronin, Steele, & Ross, 2004; Schmader, 2002), older adults who are more identified with the older adult group as a whole are more affected by negatives stereotypes about older adults and memory ability (Kang & Chasteen, 2009b). This same study (Kang & Chasteen, 2009b) also showed moderation by state (situational) and trait (dispositional) perceived stereotype threat, such that those who perceived greater levels of stereotype threat in the current experimental situation and in general were more negatively affected by stereotype threat. Of course, those who perceive stereotype threat in a situation likely do so because stereotypes have become activated in their minds (Steele & Aronson, 1995). Others have treated stereotype activation as a moderator and have found that it moderates age-related stereotype threat effects (Hess et al., 2003).

Another interesting moderator of age-based stereotype threat is age itself. Stereotype threat appears to exert stronger effects among "young-old" (age 60–70 years) compared to "old-old" (age 71–82 years) adults (Hess, Hinson, & Hodges, 2009), presumably because old-old adults have had more time to transition to the older adult category and are no longer as threatened by comparisons to middle-aged or young adults. Also of note, middle-aged adults (~40–60 years old) have been shown to perform *better* when reminded about stereotypes linking old age with decreased memory ability (Hess & Hinson, 2006). This stereotype lift effect (Walton & Cohen, 2003) is thought to occur due to middle-aged adults making downward social comparisons to older adults, thereby enabling them to enjoy the associated performance benefits.

Finally, memory self-efficacy (Desrichard & Köpetz, 2005, Study 1) and task demands (Hess, Emery, & Queen, 2009) have been shown to moderate age-related stereotype threat effects. The moderation by memory self-efficacy is such that those with low memory self-efficacy are more negatively impacted by stereotype threat,

presumably because these individuals have lower performance expectations (Desrichard & Köpetz, 2005, Study 2).

Thus far, the moderators we have discussed have been situated within the individual; task demands represent a moderator situated outside of the individual. An examination of task demands shows that older adults are negatively impacted by stereotype threat only when task demands are high, but not when task demands are low (Hess, Emery, & Queen, 2009). Specifically, when forced to respond to a recognition memory test within a certain time frame (high task demand), older adults in a threat condition performed worse than those in a nonthreat condition; this same threat-based underperformance effect was not found when responses did not have to be made within a limited time frame (low task demand). Thus, as with other types of stereotype threat, a number of factors have been identified that help us to predict who will be more or less vulnerable to the consequences of exposure to negative age stereotypes.

Policy Box

It is expected that the number of people aged 65 and older in North America will double over the next few decades. With such a dramatic change in age distribution forthcoming, it is imperative to begin work on finding ways to improve the cognitive and physical function of both today's and tomorrow's seniors. Research has already begun to determine how negative aging stereotypes affect older adults, with many studies demonstrating that exposure to negative aging stereotypes decreases both cognitive and physical health. In particular, research on the effects of stereotype threat has found that older adults experience a decline in a variety of types of memory when in threatening situations. Given the prevalence of negative aging stereotypes in North America, developing interventions to assist older adults with combating the consequences of these negative stereotypes is particularly important. Teaching seniors about stereotype threat, for example, could prove effective. It is equally important to find ways to prevent the internalization of negative aging stereotypes in younger generations, so that they are less vulnerable to these stereotypes when they themselves grow old. Positive intergenerational contact may help to challenge negative aging stereotypes and thus inoculate younger age groups against these stereotypes, as well as reduce anxiety in older people. By testing the efficacy of different intervention techniques, policies can be developed to help ensure that current and future generations of older adults maintain active, independent, and healthy lifestyles for as long as possible.

■ INTERVENTIONS: REDUCING THE EFFECTS OF NEGATIVE AGE STEREOTYPES ON OLDER ADULTS

As the mechanisms and moderators of stereotype threat among older adults become better understood, researchers will likely turn their attention toward developing interventions to reduce the impact of negative age stereotypes for this group. Abrams and his colleagues (Abrams, Eller, & Bryant, 2006; Abrams et al., 2008) are at the

forefront of this movement, and have identified positive intergenerational contact as one possible intervention to inoculate older adults against stereotype threat effects. Promisingly, positive intergenerational contact reduces vulnerability to stereotype threat, whether this contact is real (Abrams et al., 2006; Abrams et al., 2008, Study 1) or imagined (Abrams et al., 2008, Study 2). The inoculating effects of intergenerational contact appear to be mediated by reduced anxiety, suggesting that future intervention attempts aimed at reducing performance-related anxiety should also be successful.

Earlier in the chapter, we discussed the ubiquity of aging stereotypes on television and in advertising. This fact can be particularly harmful for older adults, who often use television as a replacement for reduced social contact (Graney, 1974; Rubin, 1986). Indeed, older adults with more lifetime television exposure report the highest level of negative age stereotypes (Donlon, Ashman, & Levy, 2005). To make older adults more aware of the negative and infrequent portrayal of elders on television programming, an intervention study instructed older adults to keep a viewing diary outlining how older characters were presented on television each day of the week (Donlon et al., 2005). The results of this study show that keeping a viewing diary increased both the awareness of infrequent and negative portrayals of older adults on television and the intention to decrease future television viewing. Increasing individuals' awareness of domains in which their group is negatively stereotyped allows (and apparently motivates) individuals to avoid these domains in the future, likely decreasing the impact of these negative stereotypes and, consequently, stereotype threat.

Finding ways to help seniors focus on more positive aspects of aging may be another promising route to improving their physical and cognitive health. Research has shown that, just as negative stereotypes operate to the detriment of older adults' health and functioning, positive aging stereotypes beneficially impact the behaviors and self-concepts of the elderly. Older adults primed with positive age stereotypes show reduced cardiovascular responses to stress (Levy et al., 2000, 2008), improved balance (Levy & Leifheit-Limson, 2009), and superior memory performance (Levy, 1996; Levy & Leifheit-Limson, 2009). Research has also shown that, compared to individuals with more negative self-stereotypes, older adults with positive self-stereotypes and self-perceptions of aging demonstrate faster recovery following a life-threatening event (Levy, Slade, May, & Caracciolo, 2006b), better functional health (Levy, Slade, & Kasl, 2002a), and an increased tendency to engage in preventive health behaviors (Levy & Myers, 2004). Incredibly, other studies have revealed that older adults who viewed their own aging in a positive light lived, on average, 7.5 years longer (Levy et al., 2002b) and were less likely to die of respiratory causes (Levy & Myers, 2005) than did individuals with negative self-views. The power of positive aging expectations is particularly impressive when compared to the longevity increases afforded by exercise (3.5 years; Franco et al., 2005), a more commonly recognized and encouraged health behavior. These data provide compelling evidence that helping older adults embrace a more positive view of aging can have tremendously beneficial results.

CONCLUSION

Age stereotypes are widespread, and although they contain some positive elements, they are primarily negative. Because adults of all ages apply these stereotypes, it is likely that age stereotypes become internalized at an early age, only to negatively impact individuals when they themselves grow old. These negative views of aging can operate either explicitly or implicitly, affecting both physical and cognitive health. Thus, it is not surprising that, like many other negatively stereotyped groups, older adults also experience stereotype threat. In the case of older adults, stereotype threat effects have mostly been observed in the domain of memory. However, a set of mechanisms that is different from those identified with other groups has been found regarding stereotype threat, aging, and memory. Both decreased performance expectations and disrupted strategy use help account for how stereotype threat decreases memory performance in older adults. Similar to stereotype threat with other groups, however, both domain identification and group identification moderate those effects. In addition, task demands, memory self-efficacy, and age (young-old vs. old-old) also determine who is most affected by stereotype threat. Last, some initial work on interventions to combat the effects of negative aging stereotypes has shown some promising results with respect to intergenerational contact and exposure to positive aspects of aging.

FUTURE DIRECTIONS

Despite this initial work examining the effects of negative aging stereotypes on older adults, many issues remain unexplored. First, more research is needed to examine the breadth of stereotype threat effects in older adults. Although it has been well established that exposing older adults to negative age stereotypes affects a variety of physical and cognitive health indicators, only the domain of memory has received a great deal of attention in examinations of stereotype threat and aging. An obvious course for future research is to determine in what other domains we would observe stereotype threat effects in older adults. For example, paralleling the work by Levy and colleagues, might we see consequences in the domain of physical health, such as performance on a vision or hearing test? These types of tests have important implications for older adults, such as for keeping a driver's license. Similarly, would stereotype threat regarding aging and physical frailty lead older adults to be less willing to exercise or do weight training, both of which have been shown to be beneficial to physical and cognitive health (Hillman, Erickson, & Kramer, 2008)?

As well, much more work needs to be done to understand *how* stereotype threat affects older adults. Shapiro (2011, Chapter 5, this volume) has indicated a number of conditions that will or will not elicit threat effects, and many of those parameters need to be tested with seniors. Other potential mediators also require further testing, such as affect and working memory, to more fully determine whether mechanisms observed with other groups operate with older adults.

Last, a variety of interventions have been examined to determine their efficacy in reducing or preventing stereotype threat in other groups (Cohen, Purdie-Vaughns, & Garcia, 2011, Chapter 18, this volume). At present it remains to be seen whether those techniques would be effective in older adults. This last step is particularly crucial, with the proportion of adults aged 65 or older projected to double over the next few decades in North America. More must be done now to help ensure that our current and future older adults function to the best of their abilities, free from the negative effects of age stereotypes.

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