Here at the (Implicit) Fitness Center

August 12, 2014

It's fair to say that the filmmaker Alexander Payne takes a grim view of aging in America. In last year's darkly comedic road film *Nebraska*, the highly praised Bruce Dern plays the alcoholic and incompetent Woody Grant, who suffers under the delusion he has won a million dollar sweepstakes prize. And Payne's earlier *About Schmidt* is unrivaled as the most depressing cinematic depiction of retirement ever. Jack Nicholson plays the title character with sympathy, but there's no getting around his pathetic and lonely existence. Both Grant and Schmidt are models of decrepitude as well. They embody our worst fears about the elderly body's inevitable deterioration.

This may be brilliant filmmaking, but it's not good psychology. Negative caricatures of aging are far too prevalent in our culture—and they are harmful. People, especially as they get older, assimilate such deprecating beliefs about aging, and start acting like the stereotypes, bumbling and shuffling and surrendering autonomy. These stereotypical beliefs are tough to dislodge once they are internalized. Simply telling people to think positively about aging doesn't work, because the mind is very good at thwarting such explicit lessons.

There may, however, be a more subtle way to mitigate the deleterious effects of such caricatures. Yale University psychological scientist Becca Levy has been working on a novel intervention using subliminal messages to trigger a cascade of cognitive processes. She and her colleagues wanted to see if such implicit, positive messages about aging would strengthen positive age stereotypes, which in turn would improve self-perceptions of aging, which would in the end actually improve physical functioning.

To test this idea, the scientists recruited 100 volunteers, ranging in age from 61 to 99, for an 8-week study. There were four weekly interventions, in which some of the volunteers were exposed to subliminal and positive words linked to the idea of aging. Others were explicitly asked to imagine mentally and physically healthy senior citizens. Still others, the controls, were exposed subliminally and explicitly to neutral words and thoughts.

All volunteers were then assessed three times, the last time being eight weeks after the interventions began. The scientists asked the volunteers about their images of old people in general (other than themselves), and also their images of themselves "as an old person." They also assessed each volunteer physically, using measures of gait, strength and balance that are routinely used to assess risk of disability.

The results were clear and encouraging. As reported in a forthcoming article in the journal *Psychological Science*, the implicit intervention significantly strengthened positive stereotypes of aging, and led to positive self-perceptions of aging. The intervention also weakened negative stereotypes and self-perceptions of aging. What's more, this intervention led to improved physical functioning, suggesting that the volunteers had embodied the idea of healthy aging. The explicit intervention led to no such improvements.

Importantly, the subliminal intervention showed sequential effects over time. That is, implicit exposure to positive thoughts about aging led immediately to more positive age stereotypes. These positive stereotypes then acted in effect as a second intervention, leading to more positive self-perceptions of being old. And these self-perceptions acted as yet another intervention, leading at the final assessment to further improvements in gait and balance and strength. In effect, Levy concludes, this approach has constitutes an "implicit fitness center" that might be used to reverse our culture's depressing image of life beyond the age of 60.

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