

Volume 19: No. 1, January 2005

## Aging Under Control?

by Margie E. Lachman

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***"It is our duty, my young friends, to resist old age; to compensate for its defects by a watchful care; to fight against it as we would fight against disease."***

This powerful statement could be an advertisement for any of the myriad of age-defying products and services currently on the market in the 40 billion dollar a year anti-aging industry (Business Communications Company, 2004). Alas, the words are from 44 B.C. and written by Marcus Tullius Cicero at age 62! In the remainder of the passage, Cicero gave specific advice about how to combat aging:

*"to adopt a regimen of health; to practice moderate exercise; and to take just enough food and drink to restore our strength and not to overburden it. Nor, indeed are we to give our attention solely to the body; much greater care is due to the mind and soul; for they, too, like lamps grow dim with time, unless we keep them supplied with oil"* (Cicero, trans. 1946, XI. 36).

The message implies there are things we can do to bring the aging body and mind under control. Although Cicero made these recommendations over 2000 years ago, his prescription for exercise, proper nutrition, and cognitive stimulation remains sound for promoting successful aging (Rowe & Kahn, 1998; Vaillant, 2002). Yet, there is still much to be done to encourage wider adoption of these and other adaptive behaviors. Recent data (National Center for Health Statistics, 2004) show that 40% of adults ages 18 and older do not engage in any leisure time physical activity and 50% of those over the age of 65 are physically inactive. Among adults 20 to 74 years of age, 65% are overweight and 31% are considered obese (National Center for Health Statistics, 2004). And apropos stimulating the mind, a recent national study by the National Endowment for the Arts (Mehegan, 2004) found that fewer than half (47%) of Americans ages 18 or older had read a novel, short story, play or poem in 2002.

There is evidence today that the course of aging is not completely determined by genes. Of course, there has been good progress, including increased longevity and some reduction in disability rates (National Center for Health Statistics, 2004). As Cicero believed, modifiable factors including beliefs and behaviors can make a difference. Although there are multiple determinants of lifestyle choices and aging outcomes, the sense of control is one core set of beliefs related to actions and behaviors (Bandura, 1997). Many studies show that those who believe aging-related outcomes are at least somewhat under their control are more likely to engage in adaptive behaviors (e.g., Lachman & Firth, 2004). Certainly, there are circumstances and changes with aging we cannot control, but when faced with such challenges those with a higher sense of control are typically better able to cope with obstacles and losses over the long run.

### Conceptions of Control

Those who have a high sense of control strongly believe there are things they can do to bring about desired outcomes. The focus of our research program is on individual differences in perceptions of control because expectations can influence actions. Depending on the research goals, we may use a single item or a unidimensional scale to assess either generalized or domain-specific aspects of control: How much control do you have over (fill in the blank)? In some work, we take a multidimensional approach to control (e.g., Bandura, 1997; Lachman & Weaver, 1998b; Skinner, 1996) and examine beliefs about one's ability to bring about an outcome (Is there anything I can do?) and the contingency between one's actions and outcomes (If I do something will it make a difference?).

In general, Americans have a relatively strong belief that they are in control of outcomes. The New York Times (Leland, 2004) reported the results of a 2002 Pew Center poll of 38,000 people in 44 countries using a typical control belief item: "Success in life is pretty much determined by forces outside our control." In the U.S. about 65% disagreed with the statement, as did 60% in Canada. In other countries, disagreement ranged from 10% (Bangladesh) to 50% (Japan).

We had included a similar item in the control beliefs scale for the John D. and Catherine T. MacArthur Foundation national Survey of Midlife in the U.S. (MIDUS), conducted in 1995 (Brim, Ryff, & Kessler, 2004; Lachman & Firth, 2004). This is a national probability sample of 4242 adults in the U.S., ages 25 to 75. Respondents were asked to agree or disagree with the statement, "What happens in my life is often beyond my control." We found results similar to the Pew Center results, with close to 70% disagreeing with this statement.

### **Aging and Control**

When we examined age differences in the responses to the MIDUS survey item, we found a lower sense of control for those in later life, which is consistent with other work using multi-item control scales (Lachman & Weaver, 1998a). Almost 80% of the young said they are in control (i.e., disagreed with the statement), whereas it was 71% for the middle aged, and only 62% for the older adults. These age group differences are not due to group variations in education, income, or health, although control beliefs are also related to socioeconomic status and health (Lachman & Weaver, 1998b).

### **Relationship Between Control and Successful Aging**

Some believe that the decrements associated with aging are inevitable or irreversible and others believe they are preventable or modifiable. We are interested in examining the differences between those who believe they are in control and those who do not. There is a great deal of evidence that control beliefs are associated with successful aging (Baltes & Baltes, 1990; Rowe & Kahn, 1998). A high sense of control is typically associated with being happy, healthy, wealthy, and wise. In the MIDUS sample, those with a higher sense of control had a more optimistic view of adulthood; they reported that things were going well and expected them to either stay that way or even to get better in the future (see Lachman & Firth, 2004). Complaints about memory are common throughout adulthood (Lachman, 2004), and those who have a higher sense of control are less likely to report memory problems (Pearman & Lachman, 2004).

Although relationships between control beliefs and memory or health are fairly well established (Lachman & Weaver, 1998a), there is little work examining the processes linking control beliefs with outcomes in these domains. We have begun to consider some of the possible mechanisms (Lachman & Andreoletti, 2004). The conceptual framework we use to guide this work assumes that the processes are reciprocal and cyclical in that outcomes and experiences (e.g., memory or health declines) can have an impact on control beliefs, which in turn can affect behavioral or physiological mediators as well as future outcomes (Bandura, 1997; Miller & Lachman, 2000).

### **Control, Strategy Use, and Memory**

In a study of 335 adults aged 20 to 85, control beliefs were positively related to effective strategy use and to recall performance on a categorizable list for middle-aged and older adults, but not for young adults (Lachman & Andreoletti, 2004). Moreover, the relationship between control beliefs and recall was mediated by strategy use for the middle-aged and partially mediated for older adults. Those who had a higher sense of control were more likely to use an effective strategy, in this case categorizing the words, and they in turn had better recall.

We have examined anxiety and stress in relation to control beliefs and cognitive performance. Anticipatory anxiety was negatively related to the memory performance of older adults (Andreoletti, Veratti, & Lachman, 2004). Moreover, we found that older adults were more reactive than younger adults on measures of cortisol taken during cognitive testing (Neupert, Miller & Lachman, 2004). We are currently examining the role of stress as another potential mediator of the relationship between control beliefs and memory performance.

### **Control, Exercise, and Health**

In MIDUS, 92% agreed there are things they can do to keep healthy, but only 27% overall (19% among those over 60) reported regular vigorous exercise (enough to work up a sweat) three or more times a week. Our data (Lachman & Firth, 2004) show that those who have a higher sense of control indeed are more likely to exercise regularly and have better health (e.g., fewer chronic problems and fewer functional limitations).

### **Intervention Studies**

We have conducted several interventions that all have in common a joint focus on modifying beliefs (e.g., memory control beliefs, fear of falling) and behaviors (e.g., strategy use, physical activity; Lachman, Jette, Tennstedt, Howland, Harris, & Peterson, 1997). Although the changes in beliefs and behaviors are not always linked, the results have been promising. In one study, we administered a home-based resistance training program in conjunction with cognitive restructuring of beliefs about the ability to engage in exercise and whether doing exercise would make a difference for health and well-being (Jette, Lachman, Giorgetti, Assmann, Harris, Levenson, Wernick, & Krebs, 1999). We found improvements in strength for older adults, and participation and adherence rates were higher than in previous studies, but control beliefs did not increase significantly more in the treatment group. Nevertheless, those who had higher exercise control beliefs during the intervention increased their resistance level significantly more than those with lower control beliefs and were more likely to be exercising three to six months after the intervention was completed (Neupert, Lachman, Whitbourne, &

Jette, 2005).

### Summary

The sense of control is relatively high among Americans, yet a substantial number report low control, especially in later life and for some domains of life. Individual differences in control beliefs are related to well-being, memory, and health, especially for older adults. Adults with a lower sense of control may be more vulnerable to memory and health problems in later life, in part, because they are less likely to use compensatory strategies or adopt preventative behaviors. There is the potential to reduce age differences in cognition and physical functioning by instilling more adaptive beliefs. We need further research to establish clear links between belief changes and the substantial behavioral changes required to help bring aging under control, as Cicero recommended long ago.

### Acknowledgements

Preparation of this article, and the research reported, was supported in part by grants RO1 AG17920 and PO1 AG20166 from the National Institute on Aging and by the John D. and Catherine T. Mac Arthur Foundation Research Network on Successful Midlife Development. I also would like to thank the many current and former members of the Lifespan Developmental Psychology Lab at Brandeis University for their contributions to this research and Ron Spiro for his helpful comments on this article.

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