



Published in final edited form as:

Aging Ment Health. 2009 January ; 13(1): 99–105. doi:10.1080/13607860802154531.

Determinants of a sense of mastery in Korean American elders: A longitudinal assessment

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Abstract

Objectives—Given the importance of sense of mastery for physical and psychological well-being in later life, this study examined the predictors of a sense of mastery among Korean American elders.

Method—The sample included 141 community-dwelling Korean Americans aged 60 and older (M age=68.5, SD =6.40), who provided data in both 2003 and 2005. The model predicting sense of mastery at time 2 was estimated with sets of predictors that included (a) baseline sense of mastery, (b) other baseline characteristics (age, gender, education, length of stay in the United States, and baseline chronic conditions and functional disability), (c) non-health-related change (widowhood, decline in financial status and increased difficulty with transportation), (d) health-related change (increase in chronic conditions and increase in functional disability) and (e) an interaction term (increase in chronic conditions \times increase in functional disability).

Results—After adjusting for baseline mastery, we found that baseline functional disability, decline in financial status and increased functional disability posed a significant threat to subsequent levels of mastery. Additionally, the interaction between increase in chronic conditions and increase in functional disability was significant: individuals who experienced increases in both chronic conditions and functional disability were at particular risk of a diminished sense of mastery.

Conclusion—Findings underscore the need for intervention efforts to preserve and promote a sense of mastery among older adults facing health decline.

Keywords

sense of mastery; Korean American elders

Introduction

The sense of mastery, generally defined in terms of the perceived influence that individuals have over their lives and environments, has long been of interest as a source of psychological resilience (e.g. Pearlin & Schooler, 1978; Schieman, 2001; Zarit, Pearlin, & Schaie, 2003). The positive connection of sense of mastery with physical and emotional well-being has been well documented in numerous studies not only with non-Hispanic white groups but also with diverse populations (e.g. Balaswamy & Richardson, 2001; Jang, Borenstein, Chiriboga, & Mortimer, 2005; Lachman & Weaver, 1998; Roberts, Dunkle, & Haug, 1994; Schieman & Turner, 1998).

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Higher levels of perceived mastery have been associated with a number of other potential advantages besides enhanced levels of general well-being. For example, individuals with a high sense of mastery have been shown to manifest more active neuroendocrine responses and stronger immunity (Rodin & Timko, 1991; Wolinsky, Wyrwich, Babu, Kroenke, & Tierney, 2003). The associations of mastery with self-management behaviors, preventive care and proper utilization of health services provide clues as to why it is linked to favorable health outcomes (Seeman & Seeman, 1983; Skaff, Mullan, Fisher, & Chesla, 2003). Also, individuals with a high sense of mastery are likely to be more responsive to interventions for health promotion (e.g. DeSocio, Kitzman, & Cole, 2003; Skaff et al., 2003) and treatment of depression (e.g. Steunenberg, Beekman, Deeg, Bremmer, & Kerkhof, 2007).

In addition to its direct benefits, sense of mastery may facilitate adaptation to adversities in life (Jang, Haley, Small, & Mortimer, 2002; Roberts et al., 1994; Zarit et al., 2003). In studies of populations under such varied stresses as caregiving (e.g. Brown, 2007; Skaff, Pearlin, & Mullan, 1996), bereavement (e.g. Balaswamy & Richardson, 2001), medical events (e.g. Jang et al., 2002; Roberts et al., 1994), economic hardship (Pudrovskaya, Schieman, Pearlin, & Nguyen, 2005) and daily hassles (e.g. Neupert, Almeida, & Charles, 2007), a sense of mastery has served to buffer against the stressor and to protect individuals from negative consequences. Given the utility of sense of mastery as a stress modifier, its importance in later life, a time when normative experiences are increasingly likely to involve decline and loss, deserves greater attention (Zarit et al., 2003).

Most studies on the sense of mastery have been conducted in Western societies where autonomy and independence are highly valued. Sense of mastery has received less attention in Asian populations, where cultural traditions of interdependence and collectivism would suggest that personal feelings of mastery should have less importance (Ashman, Shiomura, & Levy, 2006; Skaff & Gardiner, 2003). However, in keeping with the trends of industrialization and modernization, cultural and personal values in Asian societies have also undergone transformation. Recent studies have suggested that Asian elders may not only have a strong desire for independence, but value achievement and preservation of mastery as personal goals (Chou & Chi, 2001). Evidence of the beneficial role of perceived mastery in psychological well-being has also been observed in studies with elders in Korea (e.g. Jang, Haley, Small, & Reynolds, 2000; Kim, Lee, & Chung, 2000) and elderly Korean immigrants in the United States (e.g. Jang, Kim, & Chiriboga, 2006; Shin, Han, & Kim, 2007) and Canada (e.g. Noh & Avison, 1996).

Given the vulnerability of immigrant elders, intervention strategies are needed that preserve and promote their feelings of mastery as a way to enhance their quality of life. However, little information is available concerning what strategies might be effective with such populations. Previous studies have identified several critical factors that in general may affect an individual's sense of mastery. It has been found, for example, that mastery in later life is inversely correlated with characteristics such as advanced age, female gender, unmarried status, and lower education (e.g. Lachman & Weaver, 1998; Mirowsky & Ross, 1998; Schieman, 2001). Because a lack of financial resources limits an individual's ability to purchase goods and services and puts him or her at greater risk when exposed to other stressors (Chiriboga, Black, Aranda, & Markides, 2002; Mirowsky & Ross, 1998), financial status is an important factor for psychological functions such as feelings of security and sense of mastery.

Physical health constraints are a major concern of older adults and a critical determinant of sense of mastery (Lachman & Weaver, 1998; Roberts et al., 1994; Schieman, 2001). Chronic conditions and functional disability often lead to limited participation in social and leisure activities and increased needs for assistance, which in turn may create a greater sense of helplessness and fatalism (Lachman & Weaver, 1998; Roberts et al., 1994; Schieman, 2001).

With respect to immigrant populations, it is suggested that a lack of acculturation and transportation difficulty pose a threat to sense of mastery among elders (Glasgow, 2000; Jang et al., 2006; Schaie & Pietrucha, 2000). One can expect that high levels of acculturation attained in a host culture may translate into greater self-reliance and feelings of mastery, whereas low acculturation may erode personal feelings of independence and control. Ethnic immigrant elders who do not or cannot drive themselves often depend on family and friends for their transportation needs rather than on public transportation services due to their limited language proficiency and unfamiliarity with the public transportation system. Reliance on others for mobility needs has been shown to undermine sense of mastery among immigrant elders (Jang et al., 2006).

The studies reviewed above were primarily based on cross-sectional data. Longitudinal studies of sense of mastery do in fact exist (e.g. Brandstädter & Rothermund, 1994; Mausbach et al., 2007; Skaff et al., 1996; Wolinsky et al., 2003), but research on how changes in personal characteristics and resources predict subsequent levels of sense of mastery remains scarce. Based on our review, we focused on non-health-related change (e.g. widowhood, decline in financial status and increased difficulty with transportation) and health-related change (e.g. increase in chronic conditions and increase in functional disability) as determinants of the subsequent level of sense of mastery. Given that chronic conditions may accompany functional dependency and that the combined effects of chronic conditions and functional disability may induce even more detrimental effects (Boult, Kane, Louis, Boult, & McCaffrey, 1994; Zeiss, Lewinsohn, Rohde, & Seeley, 1996), we also investigated the interaction between an increase in chronic conditions and an increase in functional disability.

In order to test the hypotheses, the present investigation examined the predictors of a sense of mastery among Korean American elders using data from two time points. Sense of mastery at the second time point served as an outcome criterion. The array of predictive variables included (a) baseline sense of mastery, (b) other baseline characteristics (age, gender, education, length of stay in the United States, and baseline chronic conditions and functional disability), (c) non-health related change (widowhood, decline in financial status, and increased difficulty with transportation), (d) health-related change (increase in chronic conditions and increase in functional disability) and (e) an interaction term (increase in chronic conditions \times increase in functional disability). We hypothesized that negative changes in personal characteristics and resources would predict a diminished sense of mastery at the subsequent time point.

Methods

Participants and data collection

The sample was drawn from two studies of Korean American elders conducted by the same research team. The initial study was conducted in 2003 with 230 older Korean Americans residing in two cities in Florida (Tampa and Orlando). In a subsequent study conducted in 2005, 472 older Korean Americans were surveyed in the same geographical areas. Although the two projects were not initially designed as a follow-up study, they had considerable overlap in survey items and participants. In all, 141 individuals were common participants to both data sets, and their information was used in the present analysis. Hereafter, information from the 2003 and the 2005 surveys will be referred to as time 1 (T1) and time 2 (T2) data, respectively.

Sampling procedures for the two studies were similar. Participants were required to be Korean Americans aged 60 or older with sufficient cognitive ability to understand and complete the survey. Given that minority elders are often difficult to recruit from any one source or using any one strategy (Curry & Jackson, 2003), participants were recruited from multiple sources including local Korean churches, senior centers, elder associations and telephone directories

of Korean residents. Data were collected through both visits to the sites and mail surveys using structured questionnaires in Korean developed using a back-translation method.

Among the participants in the 2005 survey, 47% of the sample was recruited through site visits, and approximately 53% was through mail surveys. We conducted a series of comparative analyses to determine whether there were differences in sample characteristics across recruitment methods. No significant difference was found in age and gender. However, compared with the individuals whose data were collected by mail surveys, participants recruited by site visits were less likely to be married ($\chi^2=16.5, p<0.001$) and were less educated ($\chi^2=9.97, p<0.01$). The finding suggests that sole reliance on a mail survey might have limited the proportion of individuals with more vulnerable characteristics. All respondents were paid \$10 for their participation.

Measures

Individuals' feelings of mastery was measured with Pearlin's seven-item Mastery Scale (Pearlin & Schooler, 1978). Respondents described their feelings about each item (e.g. 'I cannot solve my problems' and 'My future mostly depends on me') on a four-point scale ranging from 1 (strongly disagree) to 4 (strongly agree). Responses to negatively worded items were reverse-coded. Summary scores ranged from 7 (low sense of mastery) to 28 (high sense of mastery). Internal consistency (Cronbach's alpha) for the scale was 0.72 at T1 and 0.83 at T2.

Sociodemographic variables included age (in years), gender (1=male, 2=female), marital status (1=not married, 2=married), education (1=less than a high school education, 2=high school education or more), length of stay in the United States (in years) and financial status (1=below average, 2=average, 3=above average). In addition, difficulty with transportation was reported with a response format of 0 (no difficulty at all), 1 (some difficulty) or 2 (a lot of difficulty).

For chronic conditions, individuals were asked to report the presence or absence of medical conditions using a nine-item checklist of chronic diseases and conditions commonly found among older populations (e.g. arthritis, stroke, heart problems, diabetes and cancer).

Functional status was assessed with a composite measure based on four scales: the Physical Activities of Daily Living Scale (Fillenbaum, 1988), the Instrumental Activities of Daily Living Scale (Fillenbaum, 1988), Physical Performance Scale (Nagi, 1976) and Functional Health Scale (Rosow & Breslau, 1966). The 20 items covered a wide range of activities including eating, dressing, traveling, managing money, carrying a bag of groceries and reaching out above the head with the arms. Participants were asked whether they could perform each activity. The responses were coded as 0 (without help), 1 (with some help) or 2 (unable to do). Responses to individual items were summed for a total score. The possible range for functional status was 0 (no disability) to 40 (severe disability). Internal consistencies for the measure were high at both time points ($\alpha_{T1}=0.87, \alpha_{T2}=0.93$).

A set of binary variables were created to indicate changes in marital status, financial status and difficulty with transportation. Individuals whose marital status changed from married to widowed between T1 and T2 were coded as having been widowed. Individuals whose report of financial status was downgraded between the two data points were identified with the variable, decline in financial status. Individuals whose report of difficulty with transportation increased were coded as having increased difficulty with transportation.

Binary change scores were also computed to indicate changes in chronic conditions and functional disability. First, we subtracted T1 scores from T2 scores. If the computed value was greater than 0, it indicated worsening of chronic conditions or functional disability.

Dichotomized scores were used in the analysis: 1 (increase in chronic conditions or functional disability) and 0 (otherwise).

Analytic strategies

Sense of mastery at T2 served as an outcome criterion, and its predictive model was estimated by entering blocks of variables in the following order: (a) baseline sense of mastery; (b) other baseline characteristics (age, gender, education, length of stay in the United States and baseline chronic conditions and functional disability); (c) non-health related change since T1 (widowhood, decline in financial status and increase in difficulty with transportation); (d) health-related change since T1 (increase in chronic conditions and increase in functional disability); and (e) an interaction term (increase in chronic conditions \times increase in functional disability). Prior to the regression analysis, intercorrelations among study variables and variance inflation factors were assessed to check for the presence of collinearity.

Results

Characteristics of the sample

Of the 230 participants at T1, 141 were also included in the T2 survey; this was an inclusion rate of 61%. Descriptive analysis (*t*-tests and chi-square tests) was conducted (results are not shown in tabular form) to examine whether there were any differences in baseline characteristics between the people who participated in both surveys ($n=141$) and those who were not included in the later survey ($n=89$). Those who participated at both time points and included in the present analysis were younger, $t=3.61$, $p<0.001$; more likely to be married, $\chi^2=0.06$, $p<0.05$; and better educated, $\chi^2=0.60$, $p<0.05$, than those who were not included in the T2 survey. Although there was no gender difference between the groups, $\chi^2=0.47$, $p>0.05$, the overall selection biases called for a cautious interpretation of the findings.

Descriptive characteristics of the longitudinal sample are presented in Table 1. At T1, the sample ranged in age from 60 to 94, with an average age of 68.5 years ($SD=6.40$). More than half of the sample (54.6%) was female, and about 65% had received a high school education or more. The length of stay in the United States assessed in 2003 averaged 24.2 years ($SD=10.4$) with a range of 1–49 years.

Changes between the two contacts suggested a gradual erosion of resources. At baseline, more than three-quarters of the sample (78%) was married. At T2, 6.4% of the sample was identified as having been widowed since T1. The percentage of individuals who rated their financial status as below average increased from 21.4% at T1 to 24.3% at T2. Approximately 10% of the sample experienced a decline in financial status. About 11% of the sample reported that they had a lot of difficulty with transportation at T1, and the corresponding figure was 12.8% at T2. Approximately 11% of the sample was identified as having an increased level of difficulty with transportation.

No difference in mean score for chronic conditions was found between the two time points, but the score for functional disability was significantly higher at T2 compared with T1, $t=2.56$, $p<0.05$. More than 25% of the sample was identified as having an increase in chronic conditions. The proportion of individuals who were categorized as having an increase in functional disability was 29.1%. In contrast, average scores for sense of mastery were similar at T1 ($M=19.6$, $SD=3.09$) and T2 ($M=19.3$, $SD=4.20$).

Predictors of sense of mastery at T2

In preparing the regression models, one concern was whether collinearity might affect the results. However, all zero-order correlations (results are not shown in tabular form) were below

0.30. The absence of collinearity was also confirmed in the regression by the absence of variance inflation factors greater than 1.78.

Table 2 summarizes the results of the estimated hierarchical regression model of sense of mastery at T2 on predictors. The sequence of models was based primarily on chronology, with antecedent sets entered earlier and change scores later. In the initial model, baseline sense of mastery explained 6% of the variance. The initial sense of mastery was adjusted for all subsequent models. At the second step, other baseline characteristics (age, gender, education, length of stay in the United States and baseline chronic conditions and functional disability) explained an additional 7% of the variance, with only baseline functional disability making a significant contribution. Inclusion of variables for non-health-related change since T1 increased the explanatory power of the model by 3%. Those who had experienced decline in financial status were likely to have a lowered sense of mastery at T2. The addition of variables for health-related change since T1 added 3% of explained variance, and increase in functional disability was identified as a risk for sense of mastery at T2. In the final step, the interaction between increase in chronic conditions and increase in functional disability accounted for an additional 10% of the variance, resulting in a total of 29% of the variance explained by the estimated model.

In order to help interpret the interaction effect, we divided the sample into four groups on the basis of change in chronic conditions and functional disability, and we then compared their mean scores for sense of mastery at T2. Individuals with no increase in either chronic conditions or functional disability ($n=71$), individuals with no increase in chronic conditions but an increase in functional disability ($n=29$), and individuals with an increase in chronic conditions but no increase in functional disability ($n=23$) reported similar levels of sense of mastery at T2; their scores averaged 19.6 ($SD=4.41$), 19.2 ($SD=3.17$) and 20.6 ($SD=3.27$), respectively. The mean score for those few individuals ($n=10$) who experienced an increase in both chronic conditions and functional disability was notably low ($M=14.8$, $SD=3.14$), and their mean was statistically different from the scores of the other groups, $F=5.49$, $p<0.01$. Group mean differences are summarized in Figure 1. We also checked mean differences for the four groups on initial sense of mastery, but interestingly no significant difference was observed, $F=0.87$, $p>0.05$. The findings suggest that experiencing an increase in chronic conditions coupled with an increase in functional disability poses a detrimental effect on one's subsequent sense of mastery.

Discussion

The goal of the present investigation was to assess the extent to which baseline characteristics and their changes are associated with the subsequent level of sense of mastery. The sample, which consisted of Korean American elders, was selected in part because of the potentially critical role of mastery in the lives of persons facing the prospect of increasing social and physical decline, and in part because the importance of sense of mastery for Asian populations has not received much attention to date. The estimated hierarchical regression model explained a significant amount of variance and identified important determinants of sense of mastery.

The results revealed a general erosion of personal resources over the 2-year period, but mean scores for sense of mastery did not reveal a significant decline. About 6% of the sample became widowed, and more than 10% of the sample reported a decline in financial status or increased difficulty with transportation over the 2-year period. The overall mean score for chronic conditions remained the same between T1 and T2, but that for functional disability was significantly higher at T2. The proportion of the sample that experienced increases in chronic conditions and functional disability was 25.2 and 29.1%, respectively.

After we adjusted for baseline sense of mastery, the multivariate analyses indicated that baseline functional disability and changes in financial status and physical function had significant direct effects on sense of mastery at T2. Among the variables for non-health related change, only decline in financial status reached statistical significance in its prediction of the subsequent level of sense of mastery. This finding is in line with previous studies of non-Asian samples showing that financial insecurity and unmet needs undermine older individuals' feelings of independence and mastery and limit their ability to handle other types of stressors (e.g. Chiriboga et al., 2002; Mirowsky & Ross, 1998). Adverse changes in financial status as perceived by older individuals seem to pose a particular threat to their subsequent level of sense of mastery.

Numerous cross-sectional studies have shown that functional disability is a significant risk factor for a diminished sense of mastery (e.g. Lachman & Weaver, 1998; Roberts et al., 1994; Schieman & Turner, 1998). The present longitudinal assessment found that not only functional disability but also negative change in physical function has independent and detrimental effects on sense of mastery. Recent experience with increased disability not only indicates restrictions in social and leisure activities but also emphasizes to individuals their greater level of dependency on others. This perception of dependency in turn may lead to a negative self-perception of power and mastery. Supporting the symbolic significance of decline is the interaction between increase in chronic conditions and increase in functional disability. The interaction was significant, accounting for a substantial amount of the variance in the subsequent level of sense of mastery. Although small in size, the group that experienced increases in both chronic conditions and functional disability exhibited substantially lower levels of sense of mastery by T2, even though that group's sense of mastery at T1 was not different from that of other groups. This finding is in line with studies showing that the negative consequences of chronic conditions are exacerbated when accompanied by functional disability (e.g. Zeiss et al., 1996).

Our finding calls attention to the potential vulnerability of older individuals who experience increases in both chronic conditions and functional disability, as they are at particular risk for a diminished sense of mastery. Given previous findings that individuals with a higher sense of mastery are more likely than those with a lower sense of mastery to make positive adaptations to disability and protect themselves from negative consequences such as further disablement and mental health problems than those with a lower sense of mastery (e.g. Jang et al., 2002; Roberts et al., 1994), experts need to pay attention to ways to preserve and promote feelings of mastery among older adults facing health decline.

Some limitations to the present study should be noted. Because of the geographically defined and nonrandom nature of the sample, caution should be exercised in interpreting the research findings. The 2-year interval may not have been sufficient to fully capture dynamic changes in personal characteristics and sense of mastery. An additional limitation is the fact that the variables were based on self-report. These findings are therefore only suggestive and invite further investigation. Given that the present study only focused on the general sense of mastery, future research also needs to explore health-specific aspects of mastery.

Despite these limitations, the present study has implications for research and practice. The fact that the identified determinants of sense of mastery represent normative experiences in later life (i.e. reduction in income and health deterioration are relatively common during the later stages of life) suggests a need for intervention efforts designed to promote a sense of mastery in older populations. Previous studies have provided empirical evidence that older individuals' feelings of mastery can be improved via psychoeducational interventions (e.g. Reich & Zautra, 1989). In particular, in order to protect older individuals from negative consequences associated with disability, we strongly recommend using sense of mastery as a target agent. Intervention

efforts to enhance sense of mastery and foster psychological empowerment will help older individuals make a healthy adjustment to various challenges in later life.

Acknowledgments

The project was partially supported by the National Institute on Aging Research Grant Program (IR03 AG 26332-01).

References

- Ashman O, Shiomura K, Levy BR. Influence of culture and age on mastery beliefs: The missing link of interdependence. *International Journal of Aging and Human Development* 2006;62:143–157. [PubMed: 16541927]
- Balaswamy S, Richardson VE. The cumulative effects of life event, personal and social resources on subjective well-being of elderly widowers. *International Journal of Aging and Human Development* 2001;53:311–327. [PubMed: 11890172]
- Boult C, Kane RL, Louis TA, Boult L, McCaffrey D. Chronic conditions that lead to functional limitation in the elderly. *Journal of Gerontology: Medical Sciences* 1994;49:M28–36.
- Brandtstädter J, Rothermund K. Self-percepts of mastery in middle and later adulthood: Buffering losses by rescaling goals. *Psychology and Aging* 1994;9:265–273. [PubMed: 8054175]
- Brown E. Care recipients' psychological well-being: The role of sense of mastery and caregiver type. *Aging & Mental Health* 2007;11:405–414. [PubMed: 17612804]
- Chiriboga DA, Black SA, Aranda M, Markides K. Stress and depressive symptoms among Mexican American elders. *Journal of Gerontology: Psychological Sciences* 2002;57B:P559–P568.
- Chou KL, Chi I. Stressful life events and depressive symptoms: Social support and sense of mastery as mediators or moderators? *International Journal of Aging and Human Development* 2001;52:155–171. [PubMed: 11352200]
- Curry, L.; Jackson, J. *The science of inclusion: Recruiting and retaining racial and ethnic elders in health research*. Washington, DC: The Gerontological Society of America; 2003.
- DeSocio J, Kitzman H, Cole R. Testing the relationship between self-agency and enactment of health behaviors. *Research in Nursing and Health* 2003;26:20–29. [PubMed: 12532364]
- Fillenbaum, G. *Multidimensional functional assessment: The Duke older Americans resources and services procedure*. Hillsdale, NJ: Erlbaum; 1988.
- Glasgow, N. Transportation transitions and social integration of nonmetropolitan older persons. In: Pillemer, K.; Moen, P.; Wethington, E.; Glasgow, N., editors. *Social integration in the second half of life*. Baltimore, MD: The Johns Hopkins University Press; 2000. p. 108-131.
- Jang Y, Haley WE, Small BJ, Mortimer JA. The role of mastery and social resources in the associations between disability and depression in later life. *The Gerontologist* 2002;42:807–813. [PubMed: 12451162]
- Jang Y, Haley WE, Small BJ, Reynolds SL. Psychosocial resources as predictors of depression among older adults in Korea: The role of sense of mastery, social network, and social support. *Hallym International Journal of Aging* 2000;2:26–35.
- Jang Y, Kim G, Chiriboga DA. Health, health care utilization, and satisfaction with service: Barriers and facilitators among Korean-American older adults. *Journal of the American Geriatrics Society* 2005;53:1613–1617. [PubMed: 16137296]
- Jang Y, Kim G, Hansen L, Chiriboga DA. Attitudes of older Korean Americans toward mental health services. *Journal of the American Geriatrics Society* 2006;55:616–620. [PubMed: 17397442]
- Kim MH, Lee GY, Chung S. A path analysis on depression among the elderly. *Journal of the Korea Gerontological Society* 2000;20:211–226.
- Lachman ME, Weaver SL. The sense of mastery as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology* 1998;74:763–773. [PubMed: 9523418]
- Mausbach BT, Patterson TL, Kanel RV, Mills PJ, Dimsdale JE, Ancoli-Israel S, et al. The attenuating effect of personal mastery on the relations between stress and Alzheimer caregiver health: A five-year longitudinal analysis. *Aging & Mental Health* 2007;11:637–644. [PubMed: 18074251]

- Mirowsky J, Ross CE. Education, personal mastery, lifestyle and health: A human capital hypothesis. *Research on Aging* 1998;20:415–449.
- Nagi SZ. An epidemiology of disability among adults in the United States. *Milbank Memorial Fund Quarterly* 1976;54:439–467.
- Neupert SD, Almeida DM, Charles ST. Age differences in reactivity to daily stressors: The role of personal mastery. *Journal of Gerontology: Psychological Sciences* 2007;62B:P216–P225.
- Noh S, Avison W. Asian immigrants and the stress process: A study of Koreans in Canada. *Journal of Health and Social Behavior* 1996;37:192–206. [PubMed: 8690879]
- Pearlin LI, Schooler C. The structure of coping. *Journal of Health and Social Behavior* 1978;19:2–21. [PubMed: 649936]
- Pudrovska T, Schieman S, Pearlin LI, Nguyen K. The sense of mastery as a mediator and moderator in the association between economic hardship and health in late life. *Journal of Aging and Health* 2005;17:634–660. [PubMed: 16177454]
- Reich JW, Zautra AJ. A perceived mastery intervention for at-risk older adults. *Psychology and Aging* 1989;4:415–424. [PubMed: 2533509]
- Roberts BL, Dunkle R, Haug M. Physical, psychological, and social resources as moderators of the relationship of stress to mental health of the very old. *Journal of Gerontology: Social Sciences* 1994;49:S35–S43.
- Rodin, J.; Timko, C. Sense of mastery, aging, and health. In: Ory, MG.; Abeles, RP., editors. *Aging, health, and behavior*. Thousand Oaks, CA: Sage; 1991. p. 174–206.
- Rosow I, Breslau N. A Guttman Health Scale for the aged. *Journal of Gerontology* 1966;21:556–559. [PubMed: 5918309]
- Schaie, W.; Pietrucha, M. *Mobility and transportation in the elderly*. New York: Springer; 2000.
- Schieman S. Age, education and the sense of mastery: A test of the cumulative advantage hypothesis. *Research on Aging* 2001;23:153–178.
- Schieman S, Turner HA. Age, disability, and the sense of mastery. *Journal of Health and Social Behavior* 1998;39:169–186. [PubMed: 9785691]
- Seeman M, Seeman TE. Health behavior and personal autonomy: A longitudinal study of the sense of mastery in illness. *Journal of Health and Social Behavior* 1983;24:144–160. [PubMed: 6886369]
- Shin HS, Han HR, Kim MT. Predictors of psychological well-being amongst Korean immigrants to the United States: A structured interview survey. *International Journal of Nursing Studies* 2007;44:415–426. [PubMed: 16806219]
- Skaff, MM.; Gardiner, P. Cultural variations in meaning of mastery. In: Zarit, SH.; Pearlin, LI.; Schaie, KW., editors. *Personal mastery in social and life course contexts*. New York: Springer; 2003. p. 83–106.
- Skaff MM, Mullan JT, Fisher L, Chesla CA. A contextual model of mastery beliefs, behavior, and health: Latino and European Americans with type 2 diabetes. *Psychology and Health* 2003;18:295–312.
- Skaff MM, Pearlin LI, Mullan JT. Transitions in the caregiving career: Effects on sense of mastery. *Psychology and Aging* 1996;11:247–257. [PubMed: 8795053]
- Steunenberg B, Beekman ATF, Deeg DJH, Bremmer MA, Kerkhof JFM. Mastery and neuroticism predict recovery of depression in later life. *American Journal of Geriatric Psychiatry* 2007;15:234–242. [PubMed: 17322134]
- Wolinsky FD, Wyrwich KW, Babu AN, Kroenke K, Tierney WM. Age, aging, and the sense of mastery among older adults: A longitudinal reconsideration. *Journal of Gerontology: Social Sciences* 2003;58B:S212–S220.
- Zarit, SH.; Pearlin, LI.; Schaie, KW. *Personal mastery in social and life course contexts*. New York: Springer; 2003.
- Zeiss AM, Lewinsohn PM, Rohde P, Seeley JR. Relationship of physical disease and functional impairment to depression in older people. *Psychology and Aging* 1996;11:572–581. [PubMed: 9000290]

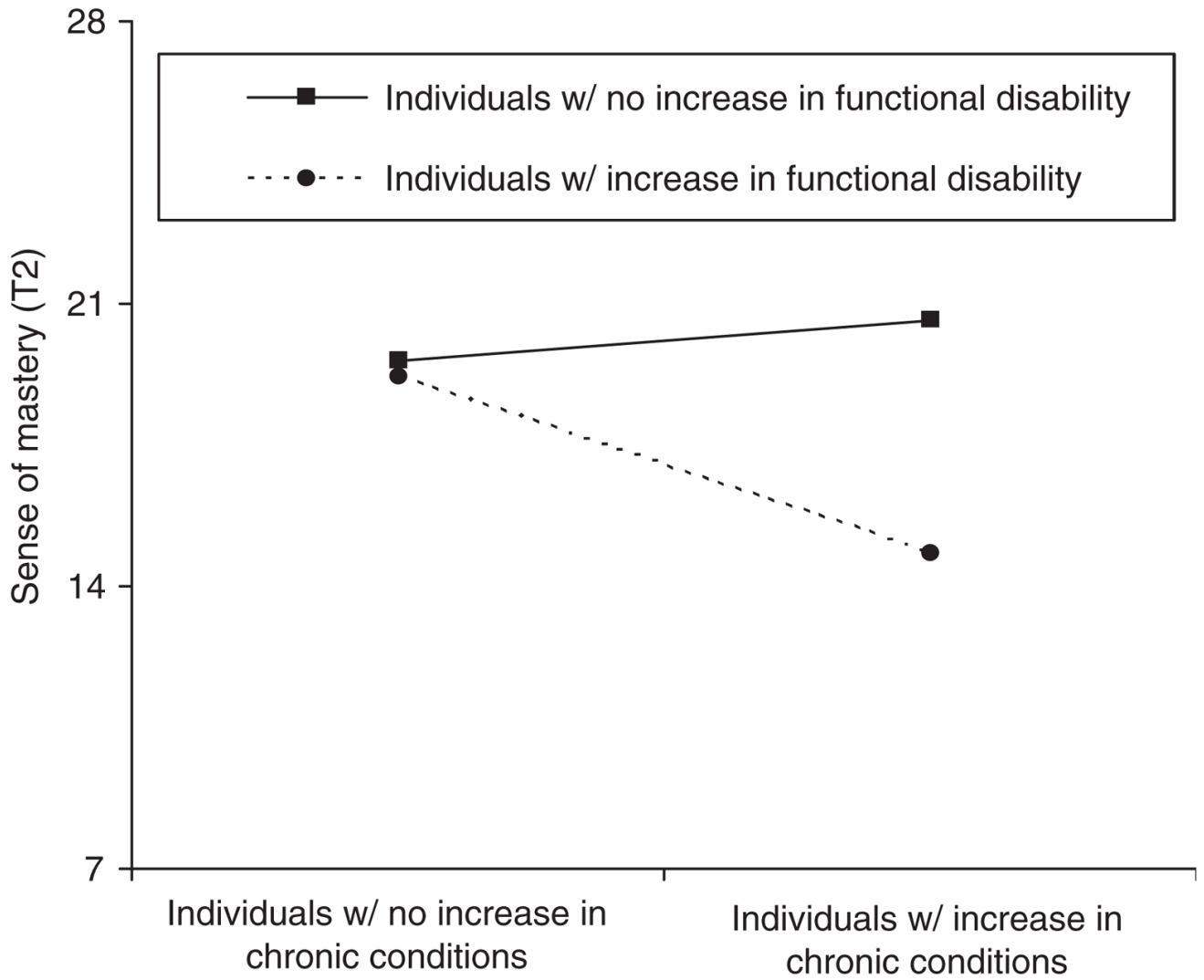


Figure 1. Interaction between increase in chronic conditions and increase in functional disability in predicting sense of mastery at time 2 (T2).

Table 1Description of the sample at T1 and T2 ($n=141$).

Variable	M/SD (%)		
	T1	T2	Change since baseline
Age	68.5/6.40		
Female	(54.6%)		
High school education or more	(64.7%)		
Length of stay in the United States	24.2/10.4		
Married	(78.0%)	(72.9%)	
Widowed since T1			(6.4%)
Below average financial status	(21.4%)	(24.3%)	
Decline in financial status			(10.1%)
A lot of difficulty with transportation	(11.4%)	(12.8%)	
Increased difficulty with transportation			(10.7%)
Chronic conditions	1.30/1.09	1.41/1.15	
Increase in chronic condition			(25.2%)
Functional disability ^a	1.16/2.77	2.05/4.71	
Increase in functional disability			(29.1%)
Sense of mastery	19.6/3.09	19.3/4.20	

Note: T1=time 1; T2=time 2.

^a A significant mean difference was observed between T1 and T2, $t=2.56$, $p<0.05$.

Table 2

Regression model of sense of mastery at T2.

Predictor	Model 1		Model 2		Model 3		Model 4		Model 5	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Baseline sense of mastery	0.25	2.91**	0.21	2.14*	0.19	2.07*	0.19	2.00*	0.19	2.12*
Baseline characteristics										
Age			0.09	1.02	0.10	1.12	0.15	1.60	0.20	2.25*
Female			0.14	1.56	0.14	1.45	0.14	1.49	0.15	1.76
High school education or more			0.02	0.23	0.01	.12	0.05	0.55	0.06	0.62
Length of stay in the United States			0.15	1.64	0.16	1.70	0.14	1.48	0.14	1.59
Chronic conditions			-0.01	-0.11	-0.01	-0.17	-0.05	-0.15	-0.00	-0.03
Functional disability			-0.19	-2.05*	-0.22	-2.29*	-0.22	-2.34*	-0.23	-2.58*
Non-health related change since T1										
Widowed					0.04	0.49	0.04	0.47	0.02	0.23
Decline in financial status					-0.17	-2.00*	-0.17	-2.10*	-0.15	-1.90
Increased difficulty with transportation					0.07	0.79	0.05	0.62	0.04	0.34
Health-related change since T1										
Increase in chronic conditions							-0.07	-0.78	0.12	1.27
Increase in functional disability							-0.19	-1.99*	-0.02	-0.18
Interaction term										
Increase in chronic conditions \times increase in functional disability									-0.41	-3.91***
R^2	0.06		0.13		0.16		0.19		0.29	
F	8.50**		2.60*		2.28*		2.34*		3.60***	

Note: T1=time 1; T2=time 2.

* $p < 0.05$,** $p < 0.01$,*** $p < 0.001$.

 $p < 0.001$