Aging and the Sense of Control[*]

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Abstract

Role gains and losses, as well as changes in health status and function are important transitions that affect the mental health and well-being of the aging population across the life course. The aging population is especially susceptible to the effects of low sense of control. Prior research on these issues, however, has often relied on cross-sectional data, and there have been inconsistent findings. Our research will examine how perceived health, life expectancy, number of chronic conditions, disability, volunteer work, and employment affect the relationships between age and the sense of control. Our study uses two waves of the Aging, Status, and Sense of Control (ASOC) Survey. Results indicate a negative relationship between number of chronic conditions one has been diagnosed with and the sense of control, and number of chronic conditions appears to explain part of the association between age and the sense of control.

Aging and the Sense of Control

The aging process is characterized by physiological, social, and psychological changes. Role gains and losses, as well as changes in health status and function are important transitions that affect the mental health of the aging population during the life course. For older adults, a greater sense of control is associated with lower rates of hospitalization and mortality (Menec and Chipperfield 1997). A feeling of control over one's life reduces depression, anxiety, physiological malaise, and alcoholism and thus indirectly reduces rates of physical illness and mortality (Ross and Mirowsky 1992).

Research results explaining the relationship between age and the sense of control have not been consistent. Variables that have been linked with the association between age and the sense of control include, but are not limited to the following: education, disability and physical health impairments, subjective life expectancy, employment, income, marital status, perceived health, and volunteer work (Mirowsky 1995, Ross and Mirowsky 1992; Grossman and Grossman 1995; Mirowsky 1995; Wolinsky and Stump 1996; Mirowsky 1997; Schieman 2001; Wolinsky et al. 2003). Research has shown that education accounts for most of the relationship between age and sense of control (Mirowsky 1995; Mirowsky 1997; Schieman 2001; Wolinsky and Stump 1996). Because education affects the relationship between age and sense of control, this research investigates the relationship between age and sense of control when education is held constant.

Due to the use of cross-sectional data, as well as inconsistent findings regarding what accounts for the relationship between age and the sense of control, our research will examine how perceived health, life expectancy, number of chronic conditions, functional health impairment, volunteer work, and employment affect the relationship between age and the

sense of control. Our study uses data from wave I (1995) and wave II (1998) of the Aging, Status, and Sense of Control (ASOC) Survey to enhance proper causal ordering.

Theoretical Background

A sense of control can be defined as a belief in one's ability to master, control, or effectively alter one's own environment (Ross and Mirowsky 1992). The alternative is the belief and expectation that one's own efforts cannot improve one's environment. Throughout life, a low sense of control produces psychological distress and can compromise a person's vitality. Past research indicates that the association between age and the sense of control can be attributed to education, disability or physical health impairments, employment, income, marital status, perceived health, volunteer work, and subjective life expectancy (Ross and Mirowsky 1992; Grossman and Grossman 1995; Mirowsky 1995; Wolinsky and Stump 1996; Mirowsky 1997; Schieman 2001; Wolinsky et al. 2003). Research findings indicate that education accounts for some of the relationship between sense of control (Mirowsky 1995; Mirowsky 1997; Schieman 2001; Wolinsky and Stump 1996). Of interest here, is how various factors explain the relationship between age and the sense of control when levels of education levels are constant.

Most findings indicate a negative relationship between age and sense of control (Ross and Drentea 1998; Ross and Mirowsky 1992; Mirowsky 1995; Mirowsky 1997; Wolinsky and Stump 1996; Shaw and Krause 2001; Wolinsky et al. 2003). Older adults have less sense of control than younger adults. One explanation for the relationship between age and sense of control is the increased number and intensity of negative socially meaningful experiences, such as retirement (Wolinsky and Stump 1996; Wolinsky et al. 2003). Another explanation suggests that the relationship stems from the deterioration of both functional and physiological health status, such as an increase in chronic conditions and disability. Findings

also failed to find a relationship between age and sense of control (Lachman as cited in Mirowsky 1995; Rodin as cited in Mirowsky 1995). Conversely, Grossman and Grossman (1995) found that senior citizens had a significantly healthier sense of control compared to young and middle aged adults. The relationship between age and sense of control has not consistently been replicated and warrants additional attention.

Research has shown that education accounts for most, but does not eliminate the age differences in control (Mirowsky 1995; Mirowsky 1997; Schieman 2001; Wolinsky and Stump 1996). Education mediates the relationship between age and sense of control due to generational effects related to education levels. Furthermore, education leads to higher socioeconomic status, which affects the relationship between age and sense of control. The benefits derived from education likely cause people to age differently. This analysis focuses on the relationship between age and sense of control when education levels equal across groups.

Changes in physical health may be one reason why sense of control is lower among older people. Research indicates that disability and functional health impairment accounts for some of the association between age and sense of control (Mirowsky 1995). Physical health declines later in life may limit activities and reduce the sense of control. Disability and impairment reduces control because it interferes with the ability to perform daily activities. Even if people adequately manage impairments, doing so can impose constraints that lower the sense of control.

In addition to the effect of functional impairment on the sense of control, physical health may explain the relationship between age and sense of control. Because health tends to deteriorate as one ages, the effect of age on sense of control is possibly a reflection of declining health. However, there has been research which shows that physical health is not

related to the relationship between age and feelings of control (Shaw and Krause 2001). Past research fails to consider how both functional health impairment and physical health (such as number of chronic conditions one has been diagnosed with) can affect the relationship between age and sense of control.

Perceived health may account for some of the relationship between age and sense of control. Although studies have reported that perceived health does account for part of the relationship between age and sense of control (Wolinsky and Stump 1996; Schieman 2001), other research has found that perceived health does not change the relationship between age and sense of control (Mirowsky 1995).

Research also shows support for the horizon hypothesis, which suggests that greater subjective life expectancy increases the sense of control and accounts for some of the negative association between age and sense of control (Mirowsky 1997). Subjective estimates of one's future may influence the sense of control. Mirowsky (1997) found that together education, impairments, and subjective life expectancy account for 93.1% of the association between age and sense of control. However, a follow-up study shows that the negative relationship between age and sense of control is not notably diminished by the introduction of any potential cofounders (Ross and Mirowsky, 2002).

Research indicates that employment status explains part of the relationship between age and sense of control (Schieman 2001). Of the research done on the relationship between employment status and sense of control, most results indicate that employment is associated with a higher sense of control (Ross and Mirowsky 1992; Ross and Drentea 1998; Drentea 2002). This relationship is based on the belief that employment is empowering and reflects one's personal achievements and identity in the larger society. Retirement represents role loss and loss of earning potential, social resources, and activity. The opposing view contends

work is alienating and retirement is liberating (Ross and Mirowsky 1992; Ross and Drentea 1998; Drentea 2002). Retirement is an award after years of hard work, for which people can now pursue their own desires and have more autonomy. The age hypothesis contends the association between sense of control and employment status is a reflection of age (Ross and Drentea 1998; Mirowsky 1995). Past findings support this hypothesis, finding that age alters the association between sense of control and employment (Ross and Mirowsky 1992). Other research rejects it, finding the effects of employment status and age on the sense of control are independent of each other (Ross and Drentea 1998).

Volunteer work is beneficial to mental health. Research investigating the sense of control has pointed to associations with volunteering and community service (Thoits and Hewitt 1991). Volunteering contributes to decreased distress and improved sense of control. Volunteer work is also associated with better physical health and lower mortality. For older populations, volunteer work can be seen as a substitute for employment when individuals retire. Therefore, volunteer work may account for part of the relationship between age and sense of control.

There are many inconsistencies in research about age and the sense of control. Previous studies have used restricted age ranges, nonrandom selection methods, or small samples sizes in their research (Mirowsky 1995; Wolinsky and Stump 1996; Wolinsky et al. 2003). Furthermore, much of the research that has been done on age and sense of control has used cross sectional data (Drentea 2002; Schieman 2001; Ross and Drentea 1998; Mirowsky 1995; Wolinsky and Stump 1996). Due to the problematic methods of past research, as well as inconsistent findings regarding the sense of control, this paper will consider the effects of these variables on the relationship between age and sense of control. The nature of the relationship between age and sense of control will be examined. Then perceived health,

subjective life expectancy, number of chronic conditions, functional health impairment, volunteer work, and employment will be introduced to examine how each potentially explains the relationship between age and sense of control. It is of interest to see how various factors change the association between age and sense of control when education is education is held constant.

Data and Methods

Data for this research comes from the Aging, Status, and Sense of Control (ASOC) Survey. ASOC is longitudinal data with waves in 1995 (N=2,593) and 1998 (N=1,378 re-interviewed)[1]. ASOC is a national telephone probability sample of English-speaking adults aged 18 or older in the United States, with over-sampling of persons aged 60 and older. The study examines the relationship between age and changes in sense of control over one's life. Respondents were queried about their physical health, activities of daily living, mental health, health behaviors, sense of control, work status, and history of adversity. The same questions were asked in both waves.

Dependent Variable

The sense of control is measured using a scale of eight items from the wave II of the ASOC. The scale is based on the Mirowsky-Ross scale, which balances statement claiming or denying control over good or bad outcomes (Mirowsky and Ross 1991; Ross and Mirowsky 1992; Mirowsky 1995; Wolinsky and Stump 1996; Ross and Drentea 1998; Drentea 2002; Wolinsky et al. 2003). There are two statements in each of the four categories. Claiming control over good outcomes: (a) "I am responsible for my own successes" and (b) "I

[1] Previous research using both the 1995 and 1998 waves of the ASOC have noted that regardless of the large decrease in sample size from wave I to wave II, the statistical power seems generally adequate. Furthermore, there is no significant effect of baseline sense of control on the probability of remaining in the sample, thus no reason to suspect bias due to self-selection on changes in sense of control (Mirowsky and Ross 2001).

can do just about anything I really set my mind to." Claiming control over bad outcomes: (c) "My misfortunes are the result of mistakes I have made" and (d) "I am responsible for my failures." Denying control of good outcomes: (e) "The really good things that happen to me are mostly luck" and (f) "There's no sense planning a lot-if something good is going to happen, it will." Denying control over bad outcomes: (g) "Most of my problems are due to bad breaks" and (h) "I have little control over the bad things that happen to me." Responses to the perceived control questions (a-d) were coded -2 (strongly disagree), -1 (disagree), 0 (neutral), 1 (agree), and 2 (strongly agree). Responses to the lack of control questions (e-h) were coded 2 (strongly disagree), 1 (disagree), 0 (neutral), -1 (agree), and -2 (strongly agree). To construct the scale for this research, the perceived control questions are coded in reverse to be consistent with the lack of control questions. It is then calculated by averaging the responses to the 8 questions. The result is a sense of control scale with categories ranging from 2 (low sense of control) to 4 (high sense of control). Using this scale eliminates defense bias introduced by statements about good versus bad statements and eliminates agreement bias, enhancing the validity of the measure. However, by having equal number of statements denying or claiming control over outcomes, the reliability of the measure may be compromised.

Independent and Control Variables

Data for the independent and control variables are taken from wave I of the ASOC for proper causal ordering. Age is calculated by subtracting the year of birth from the year the baseline survey was completed (1995). To assess perceived health, respondents were asked to rate their general health. Perceived health is categorical with 1 equal to very poor perceived health and 5 equal to very good perceived health. Life expectancy is a continuous variable and indicates to what age the respondent expects to live. Chronic health is measured using

items assessing if the respondent has ever been diagnosed with the following conditions: heart disease, high blood pressure, lung disease, breast cancer, other cancer, diabetes, arthritis or rheumatism, osteoporosis, allergies or asthma, and ulcers, ulcerative colitis, or other digestive problems. It is calculated by adding the responses to all items. Functional health impairment is measured using a 7-item scale assessing difficulty with climbing stairs, kneeling, lifting or carrying 10 lbs, household work, shopping or getting around, seeing, and hearing. It is calculated by averaging the responses to all items.

Volunteer work, which consisted of the question, "Do you do volunteer work for a church, hospital, library, scouts, or other organization?" is coded 0 for no and 1 for yes. Employment status is coded 0 for those retired, keeping house full-time, unable to work because of disability, temporarily unemployed or laid off and 1 for those employed fulltime or part-time.

Control variables in the models are gender, race, marital status, financial strain and sense of control at wave I. Gender is coded 0 for females and 1 for male. Race is coded as follows: 0 for non-white and 1 for white, 0 for non-Hispanic and 1 for Hispanic, 0 for non-black and 1 for black. Marital status is coded as 0 for never married, separated, divorced, or widowed and 1 for married. Education is coded as the highest grade of school completed by the respondent. Financial strain is a scale composed of three questions: "During the past 12 months, how often did you not have enough money to buy food, clothes, or other things your household needed," "During the past 12 months, how often did you not have enough money to pay for medical care," and "During the past 12 months, how often did you have trouble paying the bills?" Possible responses are, "very often," "fairly often," "not very often," and never." These three items are combined to assess financial strain. Sense of control at wave I is a scale constructed exactly as the sense of control scale at wave II was constructed. Both

scales used the same 8 questions and resulted in ordered categories ranging from 2 for low sense of control to 4 for high sense of control.

Results

Analysis is done using ordered logistic regression[2]. This is appropriate when the dependent variable consists of ordered categories such as the case with the sense of control scale, with categories ranging from 2 (low sense of control) to 4 (high sense of control). Descriptive statistics are presented in Table 1.

(Table 1)

Results from the ordered logistic regression are presented in Table 2. Model 1 presents the results examining the relationship between age and sense of control, controlling for gender, race, marital status, education, financial strain, and sense of control at wave I. There is a significant negative relationship between age and sense of control, meaning that for every unit increase in age, the odds of being in a higher category on the sense of control scale decrease by 2.5%.

(Table 2)

Model 2 though 7 present the analysis of perceived health, subjective life expectancy, number of chronic conditions, functional health impairment, volunteer work, and employment on sense of control. The relationship between number of chronic conditions one has been diagnosed with and sense of control is significant and negative, meaning as the number of chronic conditions a person has been diagnosed with increases, the odds of being in a higher category on the sense of control scale decrease by 18.1%. As the number of conditions one has been diagnosed with increases, their sense of control declines. However, results indicate that perceived health, subjective life expectancy, nor functional health impairment are

[2] Analysis was also done using Ordinary Least Squares Regression. Results did not yield different conclusions.

significantly related to the sense of control. Surprisingly, how one views their own health, how long they think they will live, and the range of physical function does not affect the sense of control. In addition, volunteer work and employment are not significantly related to the sense of control.

Results indicate that only the number of chronic conditions diminishes the association between age and sense of control. Number of chronic conditions accounts for .7% of the change in the relationship between age and sense of control. For every unit increase in age, when controlling for number of chronic conditions, the odds of being in a higher category on the sense of control scale decrease by 1.8%, compared to 2.5% when the number of chronic conditions was not considered. As one ages, the number of chronic conditions that one is diagnosed with increases and this accounts for part of the relationship between age and sense of control.

An analysis of the relationship between age and sense of control with all the possible confounding variables is presented in model 8. Of the possible confounding variables, only number of chronic conditions is significantly related to the sense of control. The relationship is negative, meaning as the number of chronic conditions a person has been diagnosed with increases, the odds of being in a higher category on the sense of control scale decrease by 17.5%. Furthermore, number of chronic conditions one has been diagnosed with reduces the association between age and sense of control. Number of chronic conditions accounts for .5% of the change in the relationship between age and sense of control. For every unit increase in age, the odds of being in a higher category on the sense of control scale decrease by 2%. The number of chronic conditions that one is diagnosed with increases with age, which accounts for part of the relationship between age and sense of control. These results indicate that of the

included variables, only number of chronic conditions that one is diagnosed with acts as mediating factor in the association between age and sense of control.

Discussion

These results indicate that perceived health, subjective life expectancy, functional health impairment, volunteer work, and employment are not related to the sense of control. However, there is a negative relationship between number of chronic conditions one has been diagnosed with and the sense of control. As the number of chronic conditions one has been diagnosed with increases, the sense of control declines. Furthermore, of the variables considered, only number of chronic conditions one has been diagnosed with accounts for part of the relationship between age and sense of control. These findings contradict research that indicates that functional health impairments and subjective life expectancy account for most of the association between age and sense of control.

As people age, the belief and expectation that one's own efforts cannot improve one's environment increases. As the number of chronic conditions that one has been diagnosed with increases, the relationship between age and sense of control decreases, meaning that part of the relationship between age and sense of control is accounted for by the number of chronic conditions one has been diagnosed with.

While the results of this research are valuable, further analysis and changes are necessary. The researchers plan to examine the non-linear effects of sense of age and the sense of control. Because previous results have shown that the relationship between age and the sense of control is non-linear, different functions of age will be examined (Ross and Mirowsky 1992; Wolinsky and Stump 1996; Mirowsky 1997; Schieman 2001; Wolinsky et al. 2003). Furthermore, more variables will be considered. It would be useful to consider

how undesirable life events, mental health, and frequency of contact with health care professionals affect the relationship between age and sense of control.

The sense of control provides individuals with flexible coping styles and problem-solving skills (Turner and Roszell as cited in Schieman 2001). It is an important coping resource for the elderly who face adversities due to personal losses and other difficulties. The aging population is susceptible to the effects of low sense of control. Furthermore, an understanding of the relationship between aging and sense of control may lead to fewer demands on families and institutions.

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Table 1. Descriptive Statistics

	Mean	Std. Dev.
Sense of Control (Wave II)	3.048	0.385
Age	50.349	17.531
Perceived Health	4.180	0.866
Life Expectancy	81.262	11.778
Chronic Conditions	1.209	0.295
Functional Health Impairment	1.137	1.251
Volunteer	0.415	0.493
Employment Status	0.597	0.491
Gender	0.441	0.497
White	0.860	0.347
Hispanic	0.050	0.218
Black	0.054	0.226
Marital Status	0.610	0.488
Education	13.589	2.610
Financial Strain	3.605	0.637
Control (t=1)	3.020	0.384

Table 2. Ordered Logistic Regression on the Sense of Control (odds ratios)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Age	.975***	.976***	.973***	.982***	.978***	.975***	.977***	.980***
Perceived Health		1.131						0.941
Life Expectancy			1.013					1.013
Chronic Conditions				.819**				.825**
Functional Health Impairment					0.584			0.80
Volunteer						1.314		1.317
Employment Status							1.107	1.062
Gender	1.506**	1.522**	1.531**	1.477**	1.486**	1.501**	1.492**	1.472**
White	1.248	1.231	1.212	1.239	1.221	1.22	1.252	1.181
Hispanic	1.204	1.2	1.186	1.21	1.155	1.176	1.203	1.15
Black	1.362	1.38	1.333	1.455	1.349	1.38	1.362	1.429
Marital Status	1.404*	1.409*	1.430*	1.419*	1.397*	1.347	1.413*	1.384
Education	1.151***	1.145***	1.147***	1.147***	1.145***	1.142***	1.150***	1.133**
Financial Strain	0.996	0.981	1.007	0.975	0.942	0.99	0.991	0.961
Sense of Control (Time 1)	6.738***	6.658***	6.614***	6.658***	6.627***	6.798***	6.690***	6.577***

Notes: *p<.10, **p<.05, ***p<.01