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Life Course Health and Socioeconomic Profiles of Americans Aging with Disability

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Abstract

Background—While cross-sectional data have been invaluable for describing national trends in disability over time, we know comparatively little, at a population level, about the long term experiences of persons living with a disability over the adult life course.

Objective—In this paper we use nationally representative data from the U.S. Panel Study of Income Dynamics to describe the life course health and socioeconomic profiles of Americans who are aging with a work-limiting disability.

Methods—Data come from a cohort of adults age 20-34 in 1979, who were followed annually for 30 years to 2009 (to age 50-64). Disability is defined according to repeated measures of work limitations in prime working years. Using growth curve models we describe the life course profile of these Americans aging with work-limiting disability with respect to health, educational attainment, family formation, economic fortunes, and occupational history, and compare them to those who have not experienced repeated work-limiting disability in adulthood.

Results—Persons with persistent work-limiting disability prior to age 50 experienced lower rates of employment and lower household incomes over adulthood in comparison to those aging without a work-limiting disability. Additionally, in the mid-life period, adults with work-limiting disabilities were more likely to practice poor health behaviors (reflected by smoking, obesity, and sedentary activity) and to experience restrictions in functional independence than those without a work-limiting disability.

Conclusions—Our findings suggest that there are critical risk factors that make adults aging with work-limiting disability more vulnerable with respect to their health and independence as they age, suggesting avenues for intervention that may equalize the health and independence of Americans aging with and aging into disability in the years ahead.

Keywords

life course; cumulative disadvantage; socioeconomic status; self-rated health

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INTRODUCTION

The dual phenomena of global aging coupled with increased longevity for individuals with disabilities creates new challenges for societies striving to meet the needs of populations aging with and aging into disability.¹ The experience of growing older with a disability and growing older into a disability are likely to be considerably different – in part because of the accumulated inequality experienced by those aging with disabilities in terms of their health, social, and economic standing over adulthood.^{2,3}

Cross-sectional data from the Behavioral Risk Factor Surveillance System (recently made available from the CDC's Division of Human Development and Disability as part of its Disability and Health Data System) indicate that in general, people with disabilities are more likely to be obese and are more likely to be sedentary than persons without disabilities. They are more likely to be current smokers and less likely to have seen a dentist in the past year; and they are more likely to experience an unmet medical need due to cost. Qualitative research by Rimmer and colleagues⁴ indicates that more than half of adults with disability do not engage in any leisure-time physical activity due to a multifactorial set of barriers in the built and social environment, including economic issues, equipment barriers, negative perceptions and attitudes by persons who are not disabled, and policies and procedures within communities and recreational facilities. In addition, people with movement-related impairments and mobility limitations are less likely to receive cancer screening and other preventive health services⁵⁻⁸ in part due to physical barriers either within or leading up to health care facilities^{9,10}.

Given these day-to-day disadvantages, adults with disabilities who age into later life, are likely to be at a disadvantage with respect to their health than those aging without disabilities. In addition, poor health experienced throughout adulthood is likely to have spillover effects on adult social and economic attainment as well. Health problems over adulthood can have negative consequences for stable employment¹¹, which can be particularly consequential during the “developmental” period of adulthood in the late 20's and early 30's (typified by gains in statuses and roles, such as early career path, marriage, and asset acquisition)¹². Disrupted employment trajectories and career paths over this critical period of adulthood have been shown to have long term consequences for health, asset, and wealth accumulation into the retirement years¹³.

The purpose of this work was to compare the life course profiles of Americans aging with and without disabilities with respect to their health, economic status, employment and social histories. We draw on a unique study that has collected data on Americans over adulthood for more than 40 years. As a result we are able to examine life course trajectories based on annual (and biennial) reports of health, income, education, marital status, and employment from age 20 to 64, and compare these trajectories across those who are aging with and without disabilities. In addition to describing these differences over time, we link changes in social, economic and functional status over adulthood to long term trajectories of self-rated health (SRH), a global indicator of overall health and well-being that is sensitive to socioeconomic status and highly predictive of mortality [ENREF 14](#)¹⁴⁻¹⁶. We focus on SRH, not as a measure of health per se, but as a proxy indicator of overall well-being that captures the various adverse psychosocial states that may be associated with aging with disability, such as social isolation, negative life events, depression and job- or employment-related stress¹⁷.

METHODS

Data for these analyses come from the Panel Study of Income Dynamics (PSID), the longest running longitudinal household survey in the world. The study began in 1968 with a nationally representative sample of over 18,000 individuals living in 5,000 families in the United States. The PSID has continued to follow these families (including children of the original cohort and subsequent cohorts, after they started their own independent households) on an annual basis from 1968-1997 and biennially from 1997. While the early years of the study focused only on the family “heads” (defined as the primary financial contributor and typically male), since 1979 information has also been routinely collected on the family “wives”. In order to capture data from both men and women, we focus on a cohort of 4768 PSID subjects who were age 20-34 in 1979 and follow them over time to 2009, when persons were age 50-64.

Measures

Definition of Disability—Because PSID was initially developed as an economic study, only limited data are available on health status in the early years of the study. In order to identify those subjects in our cohort with a disability, we make use of a measure that asks about difficulty working due to a physical or “nervous” condition. Since 1981 all subjects were asked if they had “any physical or nervous condition that limits the type of work or the amount of work that you/she can do”. We define disability as an affirmative response to this question at four or more waves over the 14 year period between 1981 and 1994 (inclusive), when study subjects were in prime working age (age 22-49). We assume that study subjects reporting pre-midlife work limitations almost 30% of the time when they are in prime working age are not simply reporting chance limitations due, for example, to recoverable injury. Rather, frequent and persistent reports of work limitations over this period of the adult life course are likely to capture a sustained restriction in meaningful activity due to a physical or mental condition. (Sensitivity analyses using a measure based on five or more reports of work limiting disability showed no substantial differences in the results.) From here on in, we use the term work-limiting disability to refer to this operationalization.

Sociodemographic Factors—Age at each wave of the study was measured in years. Gender was modeled using a binary indicator (female vs. male), and race/ethnicity was captured using a dummy variable for minority race/ethnicity (including Hispanic, non-Hispanic Black, and other) vs. white. Education was captured according to the highest number of years of completed education. We also created categorical indicators of the highest level of education completed, contrasting those with less than high school (less than 12 years of education) and those with high school degree (12 to 15 years of education), with those obtaining a college degree or higher (16 or more years of education). PSID records the total number of children and the total number of marriages known for all study subjects. These factors are all time invariant.

Income and Employment—Income and employment status are time-varying variables. At each wave data were collected on annual household income in the preceding year, and categorized as <\$10,000, \$10-30,000, and >\$30,000 annually (inflation adjusted to 1979 dollars). Each subject’s employment status was recorded at each wave, and categorized as employed, unemployed, retired, unable to work because of disability, and homemaker. For those employed, information was collected on the annual hours worked.

Health Status—At every wave since 1984 subjects were asked: “Would you say your/her health in general is excellent, very good, good, fair, or poor”? Responses were coded from 1 to 5 and were reverse-scored so that higher responses represent higher SRH (excellent=5,

very good=4, good=3, fair=2, poor=1). In addition to retaining the five levels of this variable, we created a dichotomized indicator of poor health for descriptive purposes, by contrasting those reporting fair or poor health with those reporting excellent, very good, or good health.

Time-varying measures of chronic health problems, smoking status, physical activity, and self-reported height and weight are available from 1999-2009 when subjects in our cohort were between the ages of 40 and 64 (smoking and height/weight data are also available in 1986). At each wave study subjects were asked about medically diagnosed chronic health conditions (as well as age at diagnosis) including heart disease, diabetes, arthritis, hypertension, stroke, cancer, and psychiatric conditions. We create an index by summing the total number of these conditions at each wave, and for modeling purposes distinguish between those conditions occurring before/during and after age 50 to distinguish between those conditions contributing to work disability in pre-midlife and those occurring after disability onset. Current smokers are captured with a binary indicator. In terms of physical activity, study subjects were asked about their frequency of participation in vigorous and light physical activities. We create an indicator of sedentary status based on a “never” response to both vigorous and light activities in the previous year. Self-reported height and weight were used to create time-varying measures of body mass index ($BMI = kg/m^2$). A BMI of less than 25 represents normal and underweight, a BMI of 25-29 is used to define “overweight”, while a BMI score of 30 or above represents “obese”¹⁸.

Since 2003 (when this sample was age 44-58) data are available on difficulty with activities of daily living (ADL). Study subjects are asked if, because of a health or physical problem, they have any difficulty with 7 self-care activities (ADL) (bathing, dressing, eating, transferring, walking, going outside, toileting) and 5 instrumental activities (IADL) (meal preparation, shopping, money management, using the telephone, heavy housework) when doing the activity by themselves and without special equipment. In addition to examining difficulty with specific tasks, we create a summary indicator of the number of ADL and IADL difficulties at each wave since 2003.

Statistical Analyses

We begin by first describing the health and sociodemographic characteristics of those with and without pre-midlife work limitations, and test for significant differences using t-tests and chi-square difference tests (two-tailed alpha of $p < .05$). We then use growth curve models to examine life course trajectories of SRH over adulthood. Growth curve models belong to a general class of mixed models that take into consideration the clustering of observations within persons and also have the capacity to handle unbalanced designs (inconsistent number of observations per person)^{19,20}. We analyze a two-level model, with multiple observations nested within persons over time. Since data on SRH was only collected beginning in 1984 our model is restricted to the time period 1984-2009 when our cohort was age 25 to 64. Although SRH is strictly speaking an ordinal variable, we analyzed it as a continuous outcome based on the fact that the residuals in the unconditional growth were roughly normally distributed. Age was used as the indicator of time, creating a synthetic cohort from age 25 to 64. In order to facilitate parameter interpretation, we centered age at the initial time-point in our analyses (1984 when subjects were age 25-39). To address non-linearity in SRH trajectories over time/age, we investigated the fit of a parabolic model with a quadratic term.

We used the MIXED procedure in SAS to estimate linear models using full information maximum likelihood assuming normally distributed residuals. (The distribution of the residuals shows a good approximation to normality, with little deviation from the diagonal in the normal probability plots.) Analyses began by estimating an unconditional growth

model. We then examined how age trajectories of SRH differ by disability status and by individual sociodemographic characteristics, socioeconomic status and health over adulthood. Nested models were compared according to the proportion of variance in SRH scores that is explained by each model (R^2), calculated by squaring the correlation between the observed and predicted SRH values. Under the missing at random assumption, we assume that the health score for a subject who drops out at a given wave is the same for a subject who remains at that wave given the same covariates, with maximum likelihood estimation²¹. With unbalanced data we were constrained in the estimation of multiple random components (models failed to converge or resulted in non-positive definite matrices)²⁰. We therefore estimate random effects for the intercept and the linear age effect only. All residual errors at the person-level are assumed to be independent from the within-person residuals.

RESULTS

Of the 4768 PSID subjects age 29-34 in 1979, 4425 answered the question about work limitations at least once. A total of 544 (12.3%) of these persons reported work limitations at 4 or more waves between the ages of 22 and 49. Table 1 illustrates the distribution of pre-midlife work limitations among this cohort, both overall, and by disability status.

Table 2 presents the characteristics of those identified as aging with and without work-limiting disability in this PSID cohort. Individuals aging with disability have fewer years of education than those who did not experience work limitations during their pre-midlife years and are less likely to have a college degree compared to persons without sustained work disability over this time. Persons with disability are more likely to experience difficulty in the amount or type of work they can do throughout adulthood, reporting 10 years on average of such difficulty compared to less than 1 year among persons without disability. Persons with work-limiting disability are more likely to never marry than those without disability.

By mid to late life (age 40-64), persons with sustained work limitations were more likely to be sedentary and obese and to have a greater number of chronic health problems. By the age of 44 persons aging with disability were more likely to report difficulty with basic self-care activities and instrumental ADLs. For example, 18.9% of those aging with work-limiting disability reported difficulty bathing at some point between 2003-2009 (when the cohort was age 44-64), compared to only 4.7% of those not experiencing sustained disability earlier in life. Transferring (between bed/chair) and walking were also tasks with a high prevalence of difficulty among persons aging with work-limiting disability (ranging from 33-47%), along with heavy housework (prevalence of 50% among those aging with disability). The prevalence of difficulty with dressing, toileting, meal preparation and shopping were also non-trivial (11-18.5%) and significantly higher than those aging without work-limiting disability.

Figures 1a through 1d describe the time varying characteristics by disability status. The figures display the observed means or percentages over time. As illustrated in Figure 1a a higher proportion of persons aging with a work-limiting disability report fair/poor health over adulthood than those aging without work-limiting disability. Although those aging without disability show an increase in the proportion reporting fair/poor health by mid-life, the prevalence of fair/poor health remains considerably lower than those aging with a work-limiting disability. The proportion of adults with work-limiting disabilities who are employed at any given age over adulthood is lower than for those who are aging without disabilities (Figure 1b), although the general pattern in the employment rate follows a similar form. Annual work hours are also much lower among those with work-limiting disabilities in comparison to those without (Figure 1c). Perhaps as a consequence, the mean

household income reported among those with work-limiting disabilities tends to be lower than those without disabilities (Figure 1d), with a persistent separation in income levels over early adulthood that appears to become more marked as adults move into early midlife. From about age 40 annual household income tends to level off among those aging with disabilities on average, but continues to increase among those aging without work-limiting disability.

The next step in the modeling process seeks to explicitly model these life course health and socioeconomic differences as they shape patterns of SRH over adulthood. Table 3 reports the results from a series of growth models. Model A presents the coefficients for the unconditional model indicating that, on average, respondents in this PSID cohort rated their health as “very good” at age 25 (corresponding to an intercept value of 4.0), but health tended to decline over adulthood (negative slope coefficients). A quadratic term for age resulted in a significant improvement in model fit over a simple linear model.

Model B contrasts the SRH trajectories of those aging with and without work-limiting disability. Among those aging with disability, health status is significantly lower at baseline and declines at a more rapid rate over time than for those aging without disability. Figure 2 presents the predicted trajectories of SRH for these two groups, and illustrates how perceived health declines more rapidly among those experiencing persistent work-limiting disability across emerging adulthood. Together age and disability status explain 10% of the variance in SRH over this stretch of the adult life course ($R^2=.10$, Table 3, Model B).

Models C through G in Table 3 add the covariates to examine effects on SRH trajectories across those aging with and without disabilities. Model C introduces sociodemographic factors that may predispose persons to experience both lower SRH and work-limiting disability in adulthood. In any given survey year women, racial ethnic minorities, and those with lower education report lower SRH than men, whites and those with a college education. Including these controls somewhat attenuates the disabled effect (Model B to Model C) suggesting that some of the difference in SRH between those with and without work-limiting disabilities is due to the greater propensity of women, minorities and those with lower education to be disabled.

Model D in Table 3 adds time-varying employment status over adulthood, and the results indicate that those who were not employed in any given wave reported lower SRH than those who were employed. Together with the sociodemographic controls, employment status over adulthood accounts for an additional 14% in the variance in SRH over time (total $R^2=.24$, Model D Table 3). Model E adds household income over time, and lower incomes are associated with lower SRH at any given age. However, the addition of income to the models accounts for little of the difference in SRH by disability status, and does not increase the explained variance of the model.

Models F and G in Table 3 add the mid-life health status variables including health behaviors, chronic conditions occurring after age 50, and restrictions in activities of daily living. These models are fit to the latter part of the life course to reflect the time period when these data were collected. Current smokers, a greater number of health problems, and being overweight or obese are associated with lower SRH at this life stage. The addition of these mid-life health behaviors accounts for an additional six percent of the explained variance (bringing the total R^2 to 30%, Model F, Table 3) and reduces the disabled coefficient by 25% to non-significance ($-.53$ to $-.40$, Model E to Model F), suggesting that poor health behaviors among those aging with work-limiting disability account for a considerable difference in the SRH status of those aging with and without work-limiting disability. The addition of the chronic health and ADL variables in Model G further explains the effect of

disability and together with the other covariates accounts for 42% of the variance in SRH over the mid-life period of adulthood. Collectively, these results suggest that differences in early adult employment experiences, income levels, as well as health behaviors and chronic health problems in mid-life account for a considerable amount of the differences in SRH between those aging with a work-limiting disability and those aging without such disability in later life.

DISCUSSION

As life expectancy for Americans with disabilities increases, they are increasingly living into older ages. Yet, we know relatively little about the characteristics of adults aging with disability in comparison to those who approach later life free of persistent disability. This paper used longitudinal data from a national sample of Americans gathered prospectively from age 20 through to age 64, to understand the life course histories of those aging with and without work-limiting disability. Using persistent work limitations over the prime working years as an indicator of aging with disability, we found notable differences in the sociodemographic characteristics between the two groups, with persons aging with disability having less education than those aging without a persistent work-limiting disability. Whether educational differences account for disability status or are a consequence of disability remains to be seen.

From a life course perspective²², health disadvantage early in life (especially during the key development period of adulthood) has effects that multiply over the life course in the form of cumulative disadvantage^{2,3,23}. We found that persons with persistent work-limiting disability prior to age 50 experienced lower rates of employment and lower household incomes over adulthood in comparison to those aging without disability. Additionally, in the mid-life period, adults with prior work-limiting disabilities were more likely to practice poor health behaviors (reflected by smoking, obesity, and sedentary activity) than those without disabilities. Such differences may reflect differences in opportunities for physical activity among those with disabilities as a result of physical and social barriers in recreational centers and local built environments (i.e. inaccessible walking paths and sidewalks)⁴.

Many of these factors accounted for differences in global SRH over adulthood by disability status. Much of the difference in SRH between those with and without disabilities is due to the greater propensity of women, minorities and those with lower education to be disabled, suggesting that targeting socioeconomic disparities in health early in adulthood remains an important strategy. In addition, differences in health behaviors across those aging with and without disabilities account for a considerable amount of the difference in SRH at mid-life, emphasizing the importance of promoting health behaviors and removing barriers to health behaviors among those aging with disability.

Differences in SRH between those aging with and without work-limiting disability in the early late life period (prior to age 64) were to a large part explained by differences in health behaviors, chronic health problems, and difficulty with daily life activities at this life stage. Thus, were it not for their poor health behaviors, their greater difficulty with self-care and instrumental activities of daily living, and their greater number of chronic conditions, adults aging with a history of work-limiting disability would rate their health almost as high as adults who are aging without disability. Thus, mid-life health challenges coupled with greater socioeconomic hardship over the critical developmental periods of adulthood account for a large part of the differences in subjective health between those aging with and aging without disability. This illustrates the cumulative disadvantage experienced by adults aging with work-limiting disability, who have enjoyed fewer socioeconomic and health benefits over their lifetime^{24,25}.

While the use of frequent prospective data collected over adulthood is a strength of this study, there are some notable limitations. Our classification of those aging with disability is based on self-reported limitations in work over the pre-midlife period of adulthood, and therefore excludes persons not in the workforce at any time between age 22 and 49. Our description of life course profiles therefore excludes persons not in the labor force, including homemakers (who may be more likely to be women) and persons with childhood physical or developmental disabilities that did not enter the labor force. In addition due to the data collection protocol of PSID, information on household wives was not self-reported but reported by the household head. It is possible that there may be some error in these reports with respect to subjectively assessed characteristics including SRH, difficulty with ADLs, and sedentary behavior. Due to data limitations (health conditions, behaviors, and ADL/IADL only available post age 40), we are unable to ascertain whether health conditions, behaviors, and self-care disability preceded or followed the phase of persistent work-limiting disability in the premidlife years. Further research with more complete data would help to fully understand the relationships suggested in this study. Our results are also limited to a specific cohort of Americans, who were age 20-34 in 1979. As more data become available for future cohorts of older Americans, it would be interesting to see if policy initiatives or cohort changes result in different patterns of health and socioeconomic attainment between those aging with and without disability in future years.

Nonetheless, these data provide insight into the life histories of those who approach later life both with and without a history of work-limiting disability. Our findings suggest that there are critical socioeconomic and functional risk factors that make adults aging with disability more vulnerable with respect to their health and independence as they age. At the same time, knowledge of these risk factors suggests avenues for intervention that may equalize the health and independence of Americans aging with and aging into disability in the years ahead.

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Figure 1a.
Self-Rated Health over Adulthood by Work-Limiting Disability

Figure 1b.
Employment Status over Adulthood by Work-Limiting Disability

Figure 1c.
Annual Hours Worked over Adulthood by Work-Limiting Disability

Figure 1d.
Annual Household Income[†] over Adulthood by Work-Limiting Disability
[†]Inflation adjusted to 1979 dollars

Figure 2.
Predicted Self Rated Health over Adulthood by Work-Limiting Disability: PSID 1984-2009
(Age 25-64)[†]

[†] Figure is based on the results from Model B in Table 3.

Table 1Percent of PSID Sample Reporting Limitations in Work (1981-1994) by Disability Status[†]

Annual Reports of Work Limitation over 14 year Period (1981-1994) Age 22-49	Overall Sample (N=4425)	Aging with Work- Limiting Disability [†] (N=544)	Aging without Work-Limiting Disability [‡] (N=3881)
0	66.0		75.2
1	12.6		14.3
2	5.5		6.3
3	3.6		4.2
4	2.2	18.0	
5	2.0	16.4	
6	2.1	17.1	
7	1.1	8.8	
8	1.3	10.7	
9	.8	6.4	
10	.9	7.0	
11	.7	5.5	
12	.5	4.2	
13	.4	3.1	
14	.3	2.8	

[†] Defined as 4 or more reports of work disability over a 14 year period (1981-1994) when persons were age 22-49.

[‡] Defined as fewer than 4 reports of work disability over a 14 year period (1981-1994) when persons were age 22-49.

Table 2

Characteristics of PSID Men and Women age 20-34 in 1979, Followed to 2009 (age 50-64): Percent and Mean ($\pm$ standard deviation) by Disability Status[†]

	Aging With Work-Limiting Disability [†] (N=544)	Aging Without Work-Limiting Disability [‡] (N=3881)
Age in 1979		
20-24	27.9%	31.4%
25-29	38.8%	40.1%
30-34	33.3% *	28.5% *
Gender		
Female	57.4%	53.4%
Male	42.6%	46.6%
Race/Ethnicity		
White	64.8%	62.2%
Minority ^a	35.2%	37.8%
Years of Education	12.6 ($\pm$ 2.2) **	13.2 ($\pm$ 2.1) **
Highest Education Level Completed		
Less than High School	20.0% **	11.2% **
High School Degree	66.2%	67.6%
College Degree	13.8% **	22.2% **
Number of marriages	1.3 ($\pm$ 0.8)	1.3 ($\pm$ 0.7)
Never married	10.7% **	6.7% **
Number of children	2.3 ($\pm$ 1.6)	2.2 ($\pm$ 1.3)
Annual reports of work disability (1981-2009) ^b	10.2 ($\pm$ 4.6) ***	0.9 ($\pm$ 1.7) ***
Current Smoker (1999-2009) ^c	16.9%	14.8%
Obese (1999-2009) ^c	25.4% **	18.3% **
Sedentary (1999-2009) ^{c,d}	25.5% **	18.4% **
Number of Chronic Health Problems (1999-2009) ^c	2.3 ($\pm$ 1.5) **	1.3 ($\pm$ 1.2) **
Difficulty with Self Care Activities (2003-09) ^{e,f}		
Bathing	18.9% **	4.7% **
Dressing	17.7% **	4.8% **
Eating	7.7% **	1.3% **
Transferring	33.1% **	8.6% **
Walking	47.7% **	13.8% **
Going Outside	21.9% **	4.5% **
Toileting	11.5% **	2.5% **
Difficulty with Instrumental Activities (2003-09) ^{e,f}		
Meal preparation	16.5% **	3.7% **

	Aging With Work- Limiting Disability[†] (N=544)	Aging Without Work- Limiting Disability[‡] (N=3881)
Shopping	18.5% **	4.1% **
Managing money	9.6% **	2.6% **
Using the telephone	5.4% **	1.4% **
Doing heavy housework	50.4% **	17.0% **

[†] Defined as 4 or more reports of work disability over a 14 year period (1981-1994) when persons were age 22-49.

[‡] Defined as fewer than 4 reports of work disability over a 14 year period (1981-1994) when persons were age 22-49.

PSID = Panel Study of Income Dynamics

* Statistically significant difference between those with and without disability ($p < .05$)

** Statistically significant difference between those with and without disability ($p < .001$)

^a Includes Hispanic, African American, and other race/ethnic groups.

^b Reported limitation in the type or amount of work a person can do due to a physical or nervous condition (1981-2009).

^c At any wave between 1999-2009 when persons were age 40-64

^d does not participate in any vigorous or light physical activity (e.g. walking, dancing, gardening, golfing, bowling, heavy housework, aerobics, running, swimming, or bicycling).

^e Reported difficulty at any wave between 2003-2009 when persons were age 44-64.

^f Because of a health or physical problem, reports difficulty doing activity by his/herself without special equipment.

Table 3

Growth Curve Model for Self Rated Health over Adulthood: PSID Men and Women age 20-34 in 1979, Followed to 2009 (age 50-64)

	Unconditional Growth Model	+ Disability Status	+ Socio- demographic Controls	+ Employment Status over Adulthood	+ Income over Adulthood	+ Health Behaviors (age 44-64)	+ Health Problems (age 50-64)
	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Intercept ⁱ	3.99***	4.05***	4.62***	4.65***	4.68***	4.86***	4.90***
Disabled ^d		-.52**	-.46***	-.54***	-.53***	-.40	-.12
Female			-.12***	-.11***	-.11***	-.13***	-.07*
Minority Race/ethnicity ^b			-.41***	-.39***	-.39***	-.37***	-.29***
<HS Education ^c			-.72***	-.68***	-.68***	-.65***	-.56***
HS Education ^c			-.36***	-.34***	-.34***	-.26***	-.24***
Never Married			-.12**	-.09*	-.09*	-.18*	-.15*
Unemployed ^d				-.08***	-.08***	-.14***	-.11*
Retired ^d				-.25***	-.24***	-.20***	-.05
On Disability Insurance ^d				-.72***	-.71***	-.74***	-.37***
Homemaker ^d				-.09***	-.09***	-.16***	-.08*
Household Income <\$10K ^e					-.03*	-.01	-.04
Household Income \$10-30K ^e					-.02*	-.06*	-.11*
Current Smoker						-.18***	-.22***
Overweight ^f						-.10***	-.06*
Obese ^f						-.33***	-.23***
Sedentary ^g						-.17***	-.13***
Chronic Health Problems							-.24***
ADL Disability							-.11***
IADL Disability							-.19***
Rate of Change							
Age	-.0125***	-.0066**	-.0100***	-.0151***	-.0168***	-.0247	-.0302

	Unconditional Growth Model	+ Disability Status	+ Socio- demographic Controls	+ Employment Status over Adulthood	+ Income over Adulthood	+ Health Behaviors (age 40-64)	+ Health Problems (age 44-64)
	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Age ²	-.0003 ***	-.0004 ***	-.0003 ***	-.0001 *	-.0001 **	.0001	.0003
Age × Disabled ^a		-.0340 ***	-.0333 ***	-.0207 **	-.0212 **	-.0110	-.0191
Age ² × Disabled ^a		.0004 ***	.0006 ***	.0005 ***	.0005 ***	.0002	.0004
Goodness of Fit							
R ²	.01	.10	.21	.24	.24	.30	.42

^f Self rated health in 1984 (age 25-39)

* p<.05

** p<.01

*** p<.001 (two tailed tests)

^a Defined as 4 or more reports of work disability over a 14 year period (1981-1994) when persons were age 22-49 (Reference group is not disabled)

^b Reference group is White

^c Reference group is College degree or higher

^d Reference group is Employed (time varying 1984-2009)

^e Reference group is over \$30K

^f Reference group is normal weight/underweight (time varying 1986, 1999-2009)

^g Reference group is any physical activity (time varying 1986, 1999-2009)