The association between self-reported health and type of retirement

Matthew J. Shim, PhD, MPH, MA[1]
Benjamin C. Amick, III, PhD[2, 3]

Affiliations:
1- US Air Force School of Aerospace Medicine, Epidemiology Consult Service (USAFSAM/PHR), Brooks City-Base, TX, USA
2- The University of Texas Health Sciences Center at Houston, School of Public Health, Southwest Center for Occupational and Environmental Health, Houston, TX, USA
3- Institute for Work & Health, Toronto, ON, Canada

Abstract:

Moen's life course approach to retirement and health was used to help clarify the relationship between retirement and health by accounting for the circumstances surrounding the retirement transition. We identified heads of households and spouses, ages 18 to 60, from the Panel Study of Income Dynamics (PSID) that reported working or transitioned from work to initial retirement or work to initial permanent disability between 1984 and 2005 (n = 18,757). When compared to those still working, heads of households and spouses reporting 'good' pre-retirement health were 72% more likely to be retired than those reporting 'excellent' health (OR = 1.72, 95% CI = 1.48, 2.00). Additionally, heads of households and spouses reporting 'poor' pre-retirement health were 4.7 times more likely to be retired than those reporting 'excellent' health (OR = 4.71, 95% CI = 3.96, 5.61). Health status appears to drive the retirement transition.

Background:

There are two conflicting health beliefs associated with modern retirement: 1) retire early and you will live longer and 2) retirement leads to early death (1, 2). To date, research has not provided any definitive evidence to support or refute either belief (2-16).

Current social epidemiology research tends to focus on the association between unemployment, job loss and/or job transition and health outcomes (18-23) with only a cursory mention of retirement. When retirement is the exposure of interest, the focus has been on the relationship between retirement and mortality without any discussion of the different retirement types (3, 11, 15, 24). The impact of retirement on health is complex and cannot be assessed with simple exposure-disease models.

Moen's 1996 life course model suggests that the circumstances surrounding retirement and an individual's perception of the transition to retirement are important to consider when examining the association between retirement and health (24). Retirement transitions can be a source of both positive and negative changes for an individual and the process may be voluntary or involuntary. A social epidemiological perspective requires the use of a more complete exposure model to untangle the complex etiological relationships among retirement, health and mortality. The application of Moen's life course approach to retirement and health may help clarify the relationship between retirement and health by accounting for the circumstances surrounding the retirement transition.

The objective of this research is to use a life course perspective to examine the association between pre-retirement self-reported health and the type of retirement. We hypothesize that 1) poor pre-retirement self-reported health status is associated with health-related retirement; 2) good pre-retirement self-reported health status is associated with on-time retirement and 3) excellent pre-retirement self-reported health status is associated with early-retirement; after adjusting for covariates.

Methods:

We identified heads of households and spouses, ages 18 to 60, from the Panel Study of Income Dynamics (PSID) that reported working or transitioned from work to initial retirement or work to initial permanent disability between 1984 and 2005 (n = 18,757). Pre-retirement self-reported health (excellent, good and poor) was the

exposure of interest. Retirement status (working = no, retired = yes) was the primary outcome of interest. Additionally, retirement was stratified into three retirement types: 1) early (≤ age 59 without disability); 2) on-time (≥ age 60 without disability); and 3) health-related (permanent disability at any age).

Individuals identified as heads of household and spouses were initially selected if they entered the PSID study between the ages of 18 and 60. This age exclusion was intended to avoid ages where working may not be the primary life course activity (3). The upper age restriction allowed a minimum of 5 years of self-reported heath status and/or disability before age 65, the current US Social Security entitlement age.

We identified those individuals that reported working or transitioned from work to initial retirement or work to initial permanent disability between 1984 and 2005 (n = 18,757). "Working" was defined as any head of household or spouse that reported they were working between the years 1984-2005 with no transitions based on permanent disability or retirement. "Retired" was defined as any head of household or spouse that initially reported "working" between the years 1984-2005 and subsequently reported either retirement or a permanent disability in a later survey year. We stratified "retired" into three categories: 1) early retirement – retired at age 59 or less without disability; 2) on-time retirement – retired at age 60 or greater without disability; and 3) health-related retirement – retired with permanent disability at any age. We excluded individuals that were currently retired or permanently disabled in 1984 since they were not working at the beginning of the study period.

Since retirement transitions were measured for the PSID survey years between 1985 and 2005, we used self-reported health scores recorded between the survey years of 1984 and 2003.

For those still working, self-reported health was defined as the first recorded self-reported health score for the period 1984-2005. For retirees, self-reported health was defined as the first recorded self-reported health score prior to the year of retirement (pre-retirement). The self-reported health measure used by the PSID has five categories (excellent, very good, good, fair, and poor). Based on our hypotheses, we collapsed pre-retirement self-reported health into three categories: 1) excellent (PSID=excellent); 2) good (PSID=very good + good) and 3) poor (PSID=fair + poor).

For the covariates in the analysis, age was defined as the maximum age for the period 1985-2005. Race/ethnicity was defined as a dichotomous variable (black=0 and non-black=1). Non-blacks included white, Hispanic and Asian races (26, 27). Marital status was defined as currently not married (never married, divorced, widowed, separated) or married. Total family income included income from all sources and all household members for last reported survey year in period 1985 – 2005. Total years worked full time included the total number of years worked full-time since age 18. Receiving a pension was defined as receiving income from a non Social Security pension. Baseline disability was defined as self-reported work disability at first year of study entry and ascertained from a question asking whether a person had a physical or nervous condition that limited the type or amount of work.

Age is a known effect modifier in the relationship between health and retirement (3). Amick, et al (2002) found that individuals that retired at a younger age were more likely to be in poor health or disabled. The interaction term of age by retirement could

not be explored in our modeling strategy since early and on-time retirement, by our definition, are a function of age.

Results:

Overall, retirees in this sample were older, mostly non-black, married and high school graduates. Additionally, retirees had lower total family income, smaller family size and were more likely to be receiving a non-Social Security pension. Retirees and those still working did not differ by gender or baseline disability.

Table 1 presents the crude and adjusted odds ratios (ORs) of retirement by self-reported health among PSID Heads of Households and Spouses from 1985 - 2005. Heads of households and spouses in 'good' pre-retirement health were 72% more likely to be retired than those in 'excellent' health (OR = 1.72, 95% CI = 1.48, 2.00). Additionally, heads of households and spouses in 'poor' pre-retirement health were 4.7 times more likely to be retired than those in 'excellent' health (OR = 4.71, 95% CI = 3.96, 5.61).

Table 2 presents the crude and adjusted odds ratios of type of retirement by pre-retirement self-reported health among retired PSID Heads of Households and Spouses from 1985-2005. This was a conditional logistic regression among retirees only.

Early retirement: Retired heads of households and spouses in 'poor' pre-retirement health were 55% less likely to report early retirement than those retirees in 'excellent' pre-retirement health (OR = 0.45, 95% CI = 0.33, 0.64). Also, retirees in 'good' pre-retirement health were 26% less likely to report early retirement than those retirees in 'excellent' pre-retirement health (OR = 0.74, 95% CI = 0.56, 0.99).

On-time retirement: Retirees in 'poor' pre-retirement health were 34% less likely to report on-time retirement than those retirees in 'excellent' pre-retirement health (OR = 0.66, 95% CI = 0.45, 0.98). However, retirees in 'good' pre-retirement health were only 25% more likely to report on-time retirement than those in 'excellent' pre-retirement health (OR = 1.25, 95% CI = 0.88, 1.79).

Health-related retirement: Retired heads of households and spouses in 'poor' pre-retirement health were 4.4 times as likely to report health-related retirement than those retirees in 'excellent' pre-retirement health (OR = 4.41, 95% CI = 2.87, 6.78). Furthermore, retirees in 'good' pre-retirement health were about 51% more likely tot report health-related retirement than those in 'excellent' pre-retirement health (OR = 1.51, 95% CI = 0.99, 2.28).

All reported ORs were adjusted for age, gender, race, marital status, family size, family income, education, years worked full-time, receiving pension, veteran status, baseline disability and PSID sample weight.

Conclusion:

Modern retirement is associated with two conflicting health beliefs. One is that retirement leads to early death and the other is that retiring early leads to longer life. (1, 2). However, much of the literature on the relationship between retirement and post-retirement health is confounded by the impact of pre-retirement health on the retirement transition. In an attempt to disentangle the role of health and retirement in these two divergent beliefs, we used a life course perspective to examine the association between pre-retirement self-reported health and type of retirement.

Among PSID participants, pre-retirement self-reported health was associated with type of retirement. The results support our hypotheses that 'poor' health pre-retirement is associated with overall retirement status and health related retirement and that early retirees were more likely to report 'excellent' and 'good' health pre-retirement than reporting 'poor' health. Our third hypothesis that 'good' pre-retirement self-reported health status is associated with on-time retirement was supported in the context of 'excellent' versus 'poor' health. On-time retirees were more likely to report 'excellent' pre-retirement health than 'poor' pre-retirement health, although the 95% confidence interval (0.88-1.79) does not allow us to infer an association.

A number of limitations should be considered when interpreting the findings from this study. 1) The PSID data was not collected to identify any relationships between retirement and health (26). 2) The PSID does not collect complete biometric measures of health and health status and conditions are based on self-reports. Self-reported health as a valid measure of individual health status has been previously used in other studies (30, 31). 3) The generalizability of the findings to all racial and ethnic groups is limited due to changes in race/ethnicity categorizations since 1968 and small random samples sizes.

This study has several strengths. 1) The PSID has over 30 consecutive years of data on employment experience of a nationally representative sample that includes military families. The work and retirement experience of this cohort over the life course provides valuable evidence that can be generalized to the U.S. population. 2) We included the PSID sampling weight variable which provided unbiased individual estimates. The individual sampling weight from the most recent survey year was used as recommended by Hill (1992). 3) The PSID data contains data on self-reported health in addition to employment, disability and retirement experience which can be used to determine if self-reported health status predicts type of retirement. 4) The large number of women and blacks in the sample provides an opportunity to measure the role of retirement in explaining possible differences in racial and gender mortality differentials. 5) To our knowledge, no research has used Moen's theoretical life course model to test the relationship between retirement and health. The PSID data provide a unique opportunity to apply Moen's life course approach to retirement and health by accounting for the circumstances surrounding the retirement transition. By using Moen's life course perspective, our analysis was able to control for the timing of retirement, work and disability history, economic well-being and pre-retirement health in a large US sample population. This is just one example of many potential life course epidemiology studies using the PSID data.

In conclusion, we found that poor pre-retirement health is strongly associated with health-related retirement. We also know that self-reported poor health is associated with an increased risk of mortality (30, 31). Health status appears to drive the retirement transition both for those who retire and those who do not retire. If poor health is the reason people retire and poor health is a predictor of early mortality, it seems the conflicting health beliefs are only partly true. The belief that retirement leads to early death may be an artifact of individuals retiring due to poor health and subsequently dying as a result of their poor health status and not actually dying due to the retirement transition. Similarly, an individual that is healthy and retires early may lead a longer life—not because they retired, but because they are healthy.

Table 1. Crude and adjusted‡ odds ratios of retirement by self-reported health among PSID Heads of Households and Spouses from 1985-2005.

Self-reported Health	Working n=16,048	Retired n=2,709	Retired (n=2,709)	
			Crude OR (& 95% CI)	Adjusted‡,1 OR (& 95% CI)
Excellent	4,528	324	1.0 (REF)	1.0 (REF)
Good	9,357	1,430	2.14 (1.88 - 2.42)	1.72 (1.48 - 2.00)
Poor	2,163	955	6.17 (5.39 - 7.07)	4.71 (3.96 - 5.61)
Covariates				
Age				1.10 (1.10 - 1.11)
Gender				
Female				1.0 (REF)
Male				1.43 (1.27 - 1.60)
Race				
Black				1.0 (REF)
Non-Black				0.77 (0.68 - 0.88)
Marital Status				
Not Married				1.0 (REF)
Married				1.23 (1.09 - 1.40)
Family Income				0.99 (0.99 - 0.99)
Family Size				0.75 (0.71 - 0.79)
Education				
High School Diploma				1.0 (REF)
11 years or less				1.48 (1.28 - 1.71)
Some College				0.84 (0.73 - 0.97)
College Graduate				0.60 (0.49 - 0.74)
17 years or more				1.03 (0.84 - 1.27)
Years of Full-Time Work				0.99 (0.99 - 0.99)
Receiving Pension				
No				1.0 (REF)
Yes				3.01 (2.70 - 3.36)
Veteran Satus				
No				1.0 (REF)
Yes				0.93 (0.83 - 1.04)
Baseline Disability				
No				1.0 (REF)
Yes				0.68 (0.58 - 0.79)
PSID Sample Weight				1.01 (1.01 - 1.02)

‡ Adjusted for age, gender, race, marital status, family size, family income, education, years worked full-time, receiving pension, veteran status, baseline disability and PSID sample weight
1. Model goodness of fit: area under ROC curve = 0.8841

Table 2. Crude and adjusted‡ odds ratios of type of retirement by pre-retirement self-reported health among retired PSID Heads of Households and Spouses from 1985-2005.

	Early Retirement (n=553)				On-time Retirement (n=1,231)				Health-related Retirement (n=925)			
Self-reported Health	On-time & Health-related n=2,156	Early n=553	Crude OR (& 95% CI)	Adjusted‡,1 OR (& 95% CI)	Early & Health-related n=1,478	On-time n=1,231	Crude OR (& 95% CI)	Adjusted‡,2 OR (& 95% CI)	Early & On-time n=1,784	Health-related n=925	Crude OR (& 95% CI)	Adjusted‡,3 OR (& 95% CI)
Excellent	222	102	1.0 (REF)	1.0 (REF)	165	159	1.0 (REF)	1.0 (REF)	261	63	1.0 (REF)	1.0 (REF)
Good	1,105	325	0.64 (0.49 - 0.83)	0.74 (0.56 - 0.99)	697	733	1.09 (0.86 - 1.39)	1.25 (0.88 - 1.79)	1,058	372	1.46 (1.08 - 1.97)	1.51 (0.99 - 2.28)
Poor	829	126	0.33 (0.25 - 0.45)	0.45 (0.33 - 0.64)	616	339	0.57 (0.44 - 0.74)	0.66 (0.45 - 0.98)	465	490	4.37 (3.22 - 5.91)	4.41 (2.87 - 6.78)

Covariates

Covariates	Early (Adjusted OR & 95% CI)	On-time (Adjusted OR & 95% CI)	Health-related (Adjusted OR & 95% CI)
Age	0.96 (0.95 - 0.97)	1.21 (1.19 - 1.23)	0.89 (0.88 - 0.90)
Gender			
Female	1.0 (REF)	1.0 (REF)	1.0 (REF)
Male	0.70 (0.55 - 0.88)	0.91 (0.70 - 1.18)	1.32 (1.02 - 1.70)
Race			
Black	1.0 (REF)	1.0 (REF)	1.0 (REF)
Non-Black	1.09 (0.84 - 1.41)	1.28 (0.97 - 1.70)	0.75 (0.58 - 0.97)
Marital Status			
Not Married	1.0 (REF)	1.0 (REF)	1.0 (REF)
Married	1.68 (1.31 - 2.16)	1.49 (1.13 - 1.97)	0.61 (0.47 - 0.80)
Family Income	1.00 (1.00 - 1.00)	1.00 (0.99 - 1.00)	0.99 (0.99 - 0.99)
Family Size	0.87 (0.78 - 0.96)	0.72 (0.64 - 0.82)	1.40 (1.26 - 1.56)
Education			
High School Diploma	1.0 (REF)	1.0 (REF)	1.0 (REF)
11 years or less	0.89 (1.28 - 1.71)	0.74 (0.55 - 0.99)	1.58 (1.19 - 2.10)
Some College	1.14 (0.87 - 1.49)	0.83 (0.60 - 1.15)	1.09 (0.80 - 1.48)
College Graduate	1.22 (0.83 - 1.80)	0.89 (0.55 - 1.43)	0.66 (0.39 - 1.14)
17 years or more	1.37 (0.97 - 1.94)	1.21 (0.80 - 1.83)	0.37 (0.17 - 0.59)
Years of Full-Time Work	0.99 (0.97 - 0.99)	1.02 (1.01 - 1.03)	0.98 (0.97 - 1.00)
Receiving Pension			
No	1.0 (REF)	1.0 (REF)	1.0 (REF)
Yes	2.61 (2.06 - 3.30)	1.15 (0.90 - 1.46)	0.37 (0.29 - 0.46)
Veteran Satus			
No	1.0 (REF)	1.0 (REF)	1.0 (REF)
Yes	1.25 (1.00 - 1.56)	0.66 (0.51 - 0.84)	1.21 (0.95 - 1.54)
Baseline Disability			
No	1.0 (REF)	1.0 (REF)	1.0 (REF)
Yes	0.95 (0.69 - 1.31)	0.65 (0.46 - 0.93)	1.42 (1.03 - 1.96)
PSID Sample Weight	1.00 (1.00 - 1.01)	0.99 (0.99 - 0.99)	1.00 (1.00 - 1.01)

‡ Adjusted for age, gender, race, marital status, family size, family income, education, years worked full-time, receiving pension, veteran status, baseline disability and PSID sample weight
1. Model goodness of fit: area under ROC curve = 0.7315
2. Model goodness of fit: area under ROC curve = 0.9087
3. Model goodness of fit: area under ROC curve = 0.9023

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