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Abstract

This paper extends earlier health and work studies by examining how mental health affects transitions out of paid work in the years prior to the traditional Social Security retirement ages. Given recent changes in the labor market, optimal mental health may be as important a prerequisite for continuing employment as good physical health. This study uses data from the Health and Retirement Study to examine how mental health is linked to transitions to early retirement or other unemployment in 1996 for middle-aged adults who were currently working in 1992 and whether physical health, job, or sociodemographic factors affect those links. The study results indicated that mental health plays a strong and significant role in the move from paid work to other unemployment in three ways, net of other documented health, job, and sociodemographic correlates of work status. First, higher baseline CES-D depressive symptoms predicted the transition to retiree in male workers. Second, increased CES-D depressive symptoms between 1992 and 1994 (net of baseline symptoms) predicted exits from paid employment and into other unemployment by 1996. Finally, low job autonomy did not have the hypothesized moderating effect on the mental health-work status link. The results also indicated that mental health may be an even more important predictor of transitions out of paid work among middle-aged workers than are physical health and functioning and that patterns of labor force exit differ for men and women.
Keywords: health dimensions, work transitions, gender

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INTRODUCTION

A wide literature documents that poor physical health is one of the primary reasons for early retirement or other labor force exits (e.g., Bazzoli 1985; Crimmins and Pramaggiore 1988; Ruchlin & Morris 1992). And, functional difficulties may be even stronger predictors of leaving the work force than are the underlying illnesses (Wray 1995). Further, a recent study by Wray (2003) indicates that worsening perceived thinking speed also plays a role in transitions to early retirement, particularly in working women. Although physical health and cognitive health are certainly important to a person's functioning in daily life, including working for pay, another dimensions of health—namely, mental health—may also play a part. To date, little attention has focused on whether mental health influences the transition from work to retirement.

Past studies examining links between mental health—defined as either clinical depression, depressive symptoms, or self-assessed mental health and labor force exits have focused generally on how poor mental health affects job performance and earnings or how the experience of paid work or retirement affects mental health (e.g., Glass & Fujimoto 1994). Few studies have documented the role of mental health (either poor or good) on employment status or labor force exits. One notable exception is Mitchell and Anderson (1989) who examined the role of mental health on retirement and found that problems with mental health predict early retirement. Although they added important new information to the literature, their study examined only the effects of current status in mental health rather than change in mental health on employment transitions. In addition, they acknowledged the

need to control for information on job benefits and other economic factors documented as correlates of employment behavior that were not available in their data source. For example, job benefits such as retiree health insurance and pension coverage are known to ease the transition to retirement (Karoly & Rogowski 1994; Kim & Feldman 1998; Wray 1995). Other job, socioeconomic, and demographic characteristics (e.g., occupation, autonomy, job demands, education, age, and sex) also play roles in both mental health and labor force exits (Cleary & Mechanic 1983; Feldman 1994; Hayward et al. 1988; Lennon 1994; Ozawa & Law 1992; Sickles & Taubman 1986).

One can imagine that deficits in physical or cognitive health—which are increasingly common in middle-aged and older workers—may trigger clinical depression or depressive symptoms (Mirowsky & Ross 1992) which may, in turn, compromise work ability. Jobs that involve low levels of autonomy, are highly routinized, or require working with technologies that change more rapidly than one's ability to cope may also affect one's mental health (Lennon 1994). Further, the compromised work abilities may exacerbate the deficits in mental health fostering even greater declines in work abilities through "dysfunction spirals" (Verbrugge & Jette 1994). Under any of these scenarios, early exits from the labor force—either voluntary through retirement or involuntary through sick leave or other unemployment—may be seen as ways of compensating for deficits in mental health. To the extent that middle-aged and older women disproportionately hold clerical, service, and other non-professional jobs characterized by lower autonomy and higher routinization, they may be at greater risk for work-related depression than are men.

Recent industry reports and other research indicated that poor mental health affects about 25% of all workers (women more often than men) and figures disproportionately in lost labor productivity, depression alone costing society about $44 billion annually (e.g., see Greenberg, Finkelstein, & Berndt 1995; Williams & Strasser 1999). Given rapid changes in the labor market in recent decades, especially the move from manufacturing to service and communications industries, optimal mental health may be as important, and in some cases more important, a prerequisite for continuing employment as good physical health.

These labor market shifts plus the continued popularity of early retirement, increasing life expectancy, and the changing age composition of the population may strain future public and private pension and related health care systems unless workers remain in the labor force longer than they currently do. Given these interrelated changes, carefully targeted labor force or health care interventions may be needed to keep middle-aged adults working as long as they want or need if they are faced with declines in their mental health—whether alone or in combination with declines in physical or cognitive health. This paper extends previous studies on health and work by considering how mental health—both status and change—is related to transitions out of paid work in contemporary older workers and whether physical health, job, or demographic factors influence that relationship.

METHODS

Research on mental health and labor force exits is limited by the availability of data sets that contain longitudinal data appropriate for studying the issue. The Health and

Retirement Study (HRS) uniquely resolves the limitations in two ways. First, the HRS includes rich information central to the issue: data on mental health and other health domains (physical and cognitive) as well as a wide array of job, socioeconomic status, and demographic characteristics. Second, the panel design of the HRS permits the exploration of dynamic processes relating to work and health among middle-aged adults.

This study's analysis sample included 3,540 HRS respondents who were current workers age 51-60 in 1992 for whom I had reliable matching work status data in 1994 and 1996 and non-missing values on all other model variables (described below). The age restriction permitted me to examine labor force transitions only in workers who would be less than age 65 in 1996 or not yet eligible for full Social Security benefits.

Three primary questions drove the study analyses, one concerning the effect of status of mental health in 1992 and one concerning the effect of change in mental health between 1992 and 1994 on work transitions in 1996:

(1) How is mental health associated with transitions out of paid work in middle-aged adults?

(2) Do physical health and job characteristics mediate or moderate the relationship between mental health and labor force exits?

(3) Do those relationships differ by sex and/or job family (e.g., professionals, managers, technicians/administrative workers, service workers, manufacturers, and day laborers)?

Based on recent studies, I expected to find that mental health as well as physical and

cognitive health affect transitions out of paid work in middle-aged workers. In particular, I hypothesized that *good mental health* would protect some workers from involuntary moves out of paid work by buffering the effects of health conditions and impairments, and other negative factors, even after controlling for relevant job and socioeconomic predictors of labor force exits. In contrast, I speculated that *poor or worsened mental health* between 1992 and 1994 would impel other workers to retire or be otherwise unemployed earlier than the traditional Social Security retirement ages by 1996 (Feldman 1984). Further, I posited that women and workers with low job autonomy would also be more likely to retire or leave the labor force early.

In order to answer the research questions, logistic regression models tested the relative contribution of both baseline and change in mental health and job characteristics on the transition from currently working in 1992 to being retired or otherwise unemployed in 1996. Baseline mental health in 1992 and change in mental health 1992-94 were measured as:

(1) *Total Center for Epidemiologic Studies Depression Scale (CES-D) depressive symptoms score*—the total number of depressive symptoms the respondent reported feeling most or all of the time over the past two weeks (0-8);[1] and

(2) *Increased CES-D symptoms, 1992-94*—an increase in the CES-D depressive symptoms summary score in 1994 that represented a gain of more than one standard deviation from the 1992 score, controlling on the baseline *CES-D score.*[2]

Each model also included other health, job, demographic, and socioeconomic factors that were documented as correlates of work status and measured at baseline in 1992. Health

was measured by:

(1) *Illness burden*—total level of burden relating to eight illnesses (e.g., arthritis, cancer, chronic lung disease, diabetes, heart problems, high blood pressure, psychiatric/emotional problems, and stroke) that the respondent reports a doctor ever telling them they had;

(2) *Health shock 1992-94*—the experience of having suffered a major health event (e.g., cancer, chronic lung disease, diabetes, heart problems, stroke) between 1992 and 1994;

(3) *Upper body difficulties* and *lower body difficulties*—sum of any difficulties with six upper body (or strength) activities and five lower body (or mobility) activities;

(4) *ADL difficulties*—the sum of any difficulties with four activities of daily living or personal care;

(5) *Sensory impairments*—sum of self-assessed fair/poor vision/blindness or fair/poor hearing;

(6) *Total word recall*—sum of the scores from the immediate and delayed word recall performance tests.

In addition, the models included important job characteristics not often available in other data sets:

(1) Non-professional work—employed in 1992 as service worker, manufacturer, farmer, or day laborer;

(2) Low job autonomy—report of little or no freedom in performing current job;

(3) High physical demands—report of high physical demands in current job;
(4) Employer-provided retiree benefits—the sum of health insurance and pension coverage; and

(5) Tenure—the number of years in current job.

Finally, the models included other primary correlates of work status: age, race/ethnicity, and marital status as well as two measures of socioeconomic status (e.g., educational attainment and adult-equivalent net worth). To the extent that many studies indicate that both mental health and work status differ by sex, each model is run for the full sample of workers as well as separately for male and female workers. The models' dependent and independent variables are described in greater detail in Appendix Table 1.

RESULTS

Correlates of Change in Work Status

Table 1 presents frequencies, means, and medians across selected characteristics for HRS respondents who were current workers in 1992. In the first column, these characteristics portray the entire sample of workers in 1992. The following three columns describe the same characteristics by work status in 1996: workers in 1992 who continued to work in 1996; those who retired; and those who were laid off, on sick leave, or otherwise unemployed by 1996. The subsequent multivariate analyses focus on comparing the characteristics of those workers who retired or were otherwise unemployed by 1996 with those who continued to work (columns 2-4).

[Table 1 about here]

As shown in column one, middle-aged workers were in fairly good mental and physical health in 1992. Focusing on the measures of mental health, column 1 indicates that

HRS respondents experienced less than one CES-D depressive symptom most or all of the time in the previous two weeks; and only one in eight reported increased CES-D symptoms between 1992 and 1994. They also reported low illness burden, few sensory impairments, less than two difficulties with either lower body or upper body activities, and virtually no difficulties with personal care.

Regarding their job and socioeconomic characteristics, more than one-third of the middle-aged workers were employed in often physically-challenging non-professional work. One in seven workers reported their jobs required high physical demands, and one in four reported low job autonomy. Over half of all workers reported that their employers provided retiree health insurance or pension coverage.

Looking beyond the mean for all workers in 1992, the distribution of those health, job, and sociodemographic characteristics varied considerably across work states in 1996. In general, workers in 1992 who reported they were retired or otherwise unemployed in 1996 had poorer physical health and mental health in 1992 than did those who continued working. Retirees in 1996 were also disproportionately non-professionals with low job autonomy but longer tenure, greater retiree health insurance and pension coverage, and greater net worth, compared with others who were no longer working by 1996. Other non-workers in 1996 were disproportionately women and previous workers in non-professional jobs with high physical demands, low autonomy, few benefits, and less tenure.

Predictors of Early Retirement

Tables 2-6 present the results of logistic regression analyses that test the effects of status and change in mental health on the transition out of paid work and into retirement between 1992 and 1996. Table 2 shows simple bivariate regressions between various measures of mental health on the transition to retirement; and Tables 3-6 show those relationships net of other demographic, health, job, and socioeconomic correlates of work status. Analyses were run on the sample of all workers in 1992 as well as separately by sex for each table.

As indicated in Table 2, when tested alone, poorer baseline mental health—as measured by a higher CES-D depressive symptoms score in 1992—significantly predicted the transition to retirement in the full sample and particularly in male workers. However, increased symptoms between 1992 and 1994, representing worsening mental health, had no effect on moves to retirement. Further, stable CES-D symptoms had a protective effect on such transitions in that stability predicted that male workers (but not female workers) remained in rather than exited the labor force. Finally, decreased symptoms, representing improved mental health, were positively associated with retirement, counter to the study hypotheses.

[Table 2 about here]

In Table 3, the baseline mental health-retirement link was examined net of other important health, job, socioeconomic, and demographic factors identified in the literature as

associated with labor force exits. Even after adjusting for these relevant characteristics, greater CES-D symptoms in 1992 continued to predict that working men (but not women) would retire by 1996. Further, the strength of that association was virtually unchanged from the simple bivariate relationship. However, the variance explained by the fuller model was considerably greater than the bivariate model, increasing from essentially 0.0 to 0.19 (overall) and 0.21 (men). Additional baseline factors that predicted the transition to retirement included older age and traditional retirement-related job and socioeconomic characteristics. In particular, retiree health insurance coverage nearly doubled the odds of retiring in women, and pension coverage and longer job tenure increased the odds of retiring for both men and women. Further, other job factors hypothesized to compromise work ability had differential effects on retirement: High physical job demands decreased the odds of men retiring but low job autonomy increased the odds for women. In addition, although greater illness burden predicted the move to retirement overall (as reported in many studies in the literature), it did not do so in the separate by-sex models, over and above other factors.

[Table 3 about here]

Given the significant differences in both baseline and increased CES-D depressive symptoms score across work transition categories as well as the significant effects of baseline depressive symptoms in Tables 2 and 3, it was somewhat surprising (and counter to our expectation) that change in depressive symptoms over a two-year period did not significantly predict transition to retirement (Table 4). The directions of the association even

differed for men and women, with increased depressive symptoms being associated with retirement in men but with remaining in the workforce for women. Significant predictors of retirement in this model included nearly all the same factors as in the previous baseline model—higher age, access to employee benefits, and higher net worth increase the likelihood that a worker retired earlier than the traditional Social Security benefit eligibility age. Work in a non-professional job just missed significance in increasing the likelihood that men would retire early. In addition, women were 31% more likely than men to retire early. Interestingly and contradictory to a substantial body of literature, neither illness burden, physical impairments often resulting from illness burden, nor health shocks were seldom significant predictors of early retirement after controlling for change in mental health and other relevant correlates. However, increased sensory impairments just missed significance for both men and women but operating in different directions, increasing the odds of retirement for men but decreasing them for women.

[Table 4 about here]

Table 5 presents similar analyses on the transition to retirement testing the effect of increased CES-D symptoms between 1992 and 1994, controlling on baseline CES-D symptoms and other model variables. Here, increased symptoms continued to be non-significant but worse baseline mental health increased the odds of retiring by 1996 for men. As in the earlier analyses, health factors were not significant predictors of retirement (although sensory impairments just missed significance in these as well as the earlier

analyses). Instead, employer-provided retiree benefits "afforded" workers the opportunity to retire earlier. In addition, low job autonomy increased the odds of retiring in women and high physical job demands decreased the odds for men.

[Table 5 about here]

In a final set of analyses related to early retirement before age 65 in middle-aged workers, we examined the effects of interactions of baseline and increased depressive symptoms with low job autonomy, one of the job factors hypothesized to be associated with lower mental health in workers. Here, we found no significant moderating effects of low job autonomy on the mental health-retirement link. Instead, higher baseline depressive symptoms alone impelled working men to retire early. Neither physical health nor non-professional occupations mediated the link (again, sensory impairments were nearly significant). The association and strength of the remaining predictors of early retirement were virtually identical to those in previous models. The max-rescaled R^2s also continued to indicate that this and the previous retirement models accounted for moderate amounts of variation in these labor force exits.

Predictors of Other Exits from the Labor Force

Tables 7-11 present the results of parallel logistic regression analyses that tested the effects of status and change in mental health on involuntary exits from the labor force (e.g., being laid off, on sick leave, or otherwise unemployed) between 1992 and 1996, overall as

well as by sex. As illustrated in the simple bivariate tests shown in Table 7, higher levels of CES-D depressive symptoms at baseline significantly predicted that workers would experience largely involuntary exits from the labor force by 1996, overall and by sex. Further, worsened mental health as measured by increased CES-D symptoms 1992-94 nearly doubled the odds of such exits for working women and more than tripled the odds for men. In contrast, stable CES-D symptoms were protective of these exits.

[Table 7 about here]

Based on parallel analyses, Table 8 presents the effects of baseline CES-D symptoms on transitions to other not working states adjusting for relevant health, job, socioeconomic, and demographic factors. In contrast to the retirement analyses, selected demographic, job, and socioeconomic factors mediated the relationship between baseline CES-D symptoms and exits to other not working states. Being a female worker more than doubled the odds of leaving the labor force for non-retirement reasons. Further, being married or partnered also increased the odds of being unemployed in working women. Counter to previous studies, health conditions, impairments, and shocks did not significantly predict labor force exits to retirement or otherwise not working, net of mental health and other relevant factors. (Higher total word recall, however, just missed significance in decreasing the odds of retirement in men.) Also contrary to expectation, high physical job demands were associated with remaining in the labor force for working men. Finally, pension benefit coverage (in women)

and higher levels of education (in both men and women) decreased the odds of involuntary labor force exits.

[Table 8 about here]

In Table 9, we show the results of analyses that tested the effects of increased CES-D depressive symptoms on the transition to not working. Here, worsened mental health remained significant predictors of involuntary exits for both men and women, even net of other relevant factors. The odds of involuntary exits were lessened from those in the previous bivariate analyses but remained nearly doubled for both men and women. In addition to worsened mental health, being female and married/partnered (in women) increased the odds of not working in 1996, and higher cognitive functioning (in men), pension coverage (in women), and educational attainment (in both men and women) decreased the odds. In working men, low autonomy just missed significance in increasing the odds of involuntary exists while longer job tenure just missed predicting remaining in the work force.

[Table 9 about here]

Table 10 presents the results of analyses testing the effects of increased CES-D depressive symptoms, controlling on baseline CES-D symptoms. Here, increased CES-D symptoms continued to predict transitions to not working by 1996 in both men and women.

net of other documented correlates of work status. In fact, not only was significance lost for women but the direction of the association of worsened mental health to involuntary exits changed. Other patterns were similar to those in the previous analyses.

[Table 10 about here]

In the final table, the effects of increased CES-D symptoms, baseline symptoms, and the two interactions terms on involuntary exits are presented (Table 11). As with the parallel analyses examining predictors of retirement, neither of the interaction terms is a significant predictor of otherwise leaving the labor force. Instead, increased CES-D symptoms alone predict such exits in women, a reversal of the findings in Table 9. In addition, although being married or partnered increases the odds of transitions to not working, none of the health factors are significant. Job factors, however, remain important predictors of labor force transitions. Counterintuitively, reporting high physical job demands decreases the odds of leaving the labor force while employer-provided pension coverage increases those odds in working men. Conversely, pension coverage decreases the odds in working women. Finally, higher levels of education continue to significantly decrease the odds of involuntary exits for both men and women. The max-rescaled R^2s in this and previous tables indicted that the models explained less variance in exits to not working than to retirement.

DISCUSSION

This study's results illustrated a clear trend even during a relatively brief four-year period: Mental health played an important role in work transitions, independent of other well-documented health, job, socioeconomic, and demographic correlates of work status. The results also strongly suggested that mental health may be an even more important predictor of early retirement than are physical health and functioning.

With regard to the study's first question on the association of mental health to work transitions, I expected to find that better mental health at baseline would "buffer" the effects of deficits in physical or mental health so that workers would remain in their jobs four years later. The results on this point were mixed. Higher numbers of CES-D depressive symptoms were significantly associated with increased odds of voluntary exits but not of involuntary exits from paid work for either men or women. Better mental health did not appear to protect workers. Similarly, the effects of mental health deficits on work transitions were also mixed. Increased CES-D symptoms between 1992 and 1994 strongly predicted transitions from paid work to other unemployment for both men and women but did not affect the transition to retirement at all.

Related to the second question, although much of the past literature has documented how physical health and functioning are related to early exits from the labor force, this study supports Mitchell and Anderson's (1989) earlier suggestion that other dimensions of health—in this case, mental health—are often more influential predictors of retirement than is physical health. In none of the study's analyses of voluntary or involuntary exits did illness, impairments, or health shocks significantly predict either retirement or other

unemployment. Instead, mental health and job characteristics were the primary factors driving the moves out of paid work. The hypothesized mediating or moderating effects of low job autonomy were not supported. However, given the powerful effects of mental health deficits on involuntary exits from the labor force in particular as well as the associated costs of that lost labor productivity, these results strongly support calls for enhanced mental health coverage in both employer- and government-provided health insurance.

Finally, the study analyses demonstrated that patterns of labor force exits—and the effects of mental health on those exits—differ in important ways for working men and women. In addition, although non-professional job was not a significant predictor of voluntary or involuntary exits, it must missed significance in men and operated in opposite directions for men and women. This suggests that there may be differences in the mental health-exits link by more narrowly specified job families (e.g., professionals, managers, technicians and administrative workers, service workers, manufacturing, farmers and day laborers) as well as by sex and perhaps interactions of job and sex, issues that will be explored in future research.

The advantage of this particular study lies in its use of a large nationally representative data set for a cohort of preretirement-age workers to reveal the relationships among mental and other domains of health, job and economic characteristics, and both voluntary and involuntary exits from the labor force. The HRS gives us access to considerable data that are generally not available in other large data sets. Although this study is limited to exits over a four-year period among workers for whom retirement or other

unemployment is the exception rather than the rule, there are sufficient numbers of workers leaving during that period to track how health and other factors influence moves out of paid work. An investigation of additional waves of HRS data—covering a wider period of time, greater numbers of workers moving in and out of non-work states, and particular job families as well as other comparable data sets (e.g., Americans Changing Lives)—should clarify the influence of mental health on work transitions. Clearly, poorer health from whatever source exerts significant negative impacts on all of society via lost productivity, impaired family and social functioning, and economic costs. The results of this and future studies may point to areas for policy or workplace interventions that may enable workers to remain in their jobs longer than they might remain otherwise by compensating for impairments in their mental health.

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TABLE 1. Frequencies, Means, and Medians on Selected Characteristics of U.S. Workers Age 51-61 in 1992, by 1996 Work Status

Characteristics	All	Work Status 1996		
		Working	Retired	Not Working
Mental Health				
CES-D symptoms 1992 (mean, 0-8)[a]	**0.8**	**0.8**	**1.0**	**1.1**
Increased CES-D symptoms 1992-94[a]	**12.2**	**11.5**	**11.6**	**23.9**
Stable CES-D symptoms 1992-94[a]	**72.7**	**73.9**	**67.9**	**62.9**
Decreased CES-D symptoms 1992-94[a]	**15.1**	**14.6**	**20.5**	**13.6**
Demographic & Health				
Age (mean, 51-61)[a]	54.8	54.6	57.1	54.7
Female[a]	46.7	45.2	47.4	69.8
African American	7.7	7.8	6.8	7.1
Married/partnered	76.5	76.4	77.2	77.3
Illness burden (mean, 0-16)[a]	1.5	1.4	1.8	1.7
Health shock 1992-94	5.2	5.2	6.1	4.7
ADL difficulties (mean, 0-4)	0.0	0.0	0.1	0.1
Upper/lower body difficulties (mean, 0-11)[a]	1.3	1.2	1.5	1.8
Sensory impairments (mean 0-2)[a]	0.2	0.2	0.2	0.3
Total word recall (mean, 0-40)[a]	13.6	13.7	12.8	13.1
Job				
Non-professional	37.2	36.3	40.1	47.2
High physical job demands[a]	13.7	13.7	11.0	16.7
Low job autonomy[a]	24.8	23.7	31.3	31.0
Retiree health insurance benefits[a]	54.9	53.9	66.6	47.6
Pension coverage[a]	59.0	58.9	69.8	39.3
Tenure (mean, 1-49)[a]	13.9	13.7	17.4	10.2
Socioeconomic				
Education (mean, 0-17)[a]	12.9	13.2	12.9	11.8
Adult-equivalent net worth (median)[a]	65,200	66,600	67,100	40,400
N	3,540	2,997	355	188

Source : Health and Retirement Study (1992, 1994, 1996)

Key : [a] Work states are significantly different from working in 1996 (at $p < .05$).

TABLE 2. Odds Ratios of Transitions From Working in 1992 to Retirement in 1996 Regressed on Measures of CES-D Depression Symptoms State (1992) and Change (1992-94) in U.S. Workers Age 51-61 in 1992

	Transition to Retirement in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
CES-D Depressive Symptoms 1992	**1.14 ****	**1.18 ***	**1.12**
Log Likelihood Ratio	6.95 **	4.36 *	2.85 ***
df	1	1	1
Max-rescaled R^2	0.00	0.00	0.00
Increased CES-D Symptoms 1992-94	**0.94**	**1.16**	**0.77**
Log Likelihood Ratio	0.11	0.36	1.16
df	1	1	1
Max-rescaled R^2	0.00	0.00	0.00
Stable CES-D Symptoms 1992-94	**0.77 ***	**0.65 ****	**0.93**
Log Likelihood Ratio	4.66 *	6.77 ***	0.17
df	1	1	1
Max-rescaled R^2	0.00	0.00	0.00
Decreased CES-D Symptoms 1992-94	**1.52 ****	**1.69 ****	**1.35**
Log Likelihood Ratio	8.55 **	6.95 **	2.18
df	1	1	1
Max-rescaled R^2	0.00	0.01	0.00
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)
Key : * $p < .05$, ** $p < .01$, *** $p < .001$

TABLE 3. Odds Ratios of Transitions From Working in 1992 to Retirement in 1996 Regressed on CES-D Depression Symptoms and Other Demographic, Health, and Job Characteristics In U.S. Workers Age 51-61 in 1992

	Transition to Retirement in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
CES-D depressive symptoms 1992	**1.12 ***	**1.20 ***	**1.11**
Age	1.37 ***	1.40 ***	1.36 ***
Female	1.29	---	---
African American[a]	0.75	0.62	0.91
Married/partnered	1.14	0.87	1.28
Illness burden	1.04 *	1.08	1.03
ADL difficulties	1.05	0.85	1.33
Upper/lower body difficulties	1.01	0.99	1.02
Health shock 1992-94	0.93	1.02	0.74
Sensory impairments	1.06	1.33	0.62
Total word recall	0.98	0.98	0.99
Non-professional[b]	1.12	1.48	0.80
High physical job demands	0.76	0.59 *	0.95
Low job autonomy	1.23	1.03	1.44 *
Retiree health insurance benefits	1.57 ***	1.33	1.94 ***
Pension coverage	1.74 ***	1.81 **	1.58 *
Tenure	1.02 ***	1.02 **	1.03 **
Education	0.97	0.96	0.98
Adult-equivalent logged net worth	1.01	1.00	1.00
Log Likelihood Ratio	338.99 ***	204.90 ***	158.83 ***
df	19	18	18
Max-rescaled R^2	0.19	0.21	0.18
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key : * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

TABLE 4. Odds Ratios of Transitions From Working in 1992 to Retirement in 1996 Regressed on Impaired Mental Health and Other Demographic, Health, and Job Characteristics Among W.S. Workers Age 51-61 in 1992

	Transition to Retirement in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
Increased CES-D symptoms 1992-94	**1.02**	**1.32**	**0.81**
Age	1.37 ***	1.40 ***	1.36 ***
Female	1.31 *	---	---
African American[a]	0.76	0.65	0.91
Married/partnered	1.10	0.83	1.24
Illness burden	1.05	1.09	1.04
ADL difficulties	1.07	0.88	1.36
Upper/lower body difficulties	1.02	1.00	1.03
Health shock 1992-94	0.93	1.03	0.74
Sensory impairments	1.08	1.36	0.64
Total word recall	0.98	0.97	0.99
Non-professional[b]	1.12	1.46	0.80
High physical job demands	0.76	0.60 *	0.97
Low job autonomy	1.25	1.04	1.46 *
Retiree health insurance benefits	1.57 ***	1.35	1.93 ***
Pension coverage	1.73 ***	1.81 **	1.58 *
Tenure	1.02 ***	1.02 **	1.03 **
Education	0.97	0.97	0.98
Adult-equivalent logged net worth	1.01	1.00	1.00
Log Likelihood Ratio	334.98 ***	202.24 ***	157.61 ***
df	19	18	18
Max-rescaled R^2	0.18	0.21	0.18
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key: * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

TABLE 5. Odds Ratios of Transitions From Working in 1992 to Retirement in 1996 Regressed on Baseline CES-D Depressive Symptoms, Impaired Mental Health 1992-94, and Other Demographic, Health, and Job Characteristics in U.S. Workers Age 51-61 in 1992

	Transition to Retirement in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
Increased CES-D symptoms 1992-94	**1.03**	**1.32**	**0.81**
Baseline CES-D symptoms	**1.12 ***	**1.20 ***	**1.11**
Age	1.37 ***	1.40 ***	1.36 ***
Female	1.29	---	---
African American[a]	0.75	0.62	0.91
Married/partnered	1.14	0.89	1.27
Illness burden	1.04	1.08	1.03
ADL difficulties	1.05	0.84	1.34
Upper/lower body difficulties	1.01	0.99	1.03
Health shock 1992-94	0.92	1.01	0.75
Sensory impairments	1.06	1.32	0.63
Total word recall	0.98	0.98	0.99
Non-professional[b]	1.12	1.47	0.80
High physical job demands	0.76	0.59 *	0.96
Low job autonomy	1.23	1.02	1.44 *
Retiree health insurance benefits	1.57 ***	1.34	1.94 ***
Pension coverage	1.74 ***	1.83 **	1.59 *
Tenure	1.02 ***	1.02 **	1.03 **
Education	0.97	0.97	0.98
Adult-equivalent logged net worth	1.01	1.01	1.00
Log Likelihood Ratio	339.01 ***	205.96 ***	159.44 ***
df	20	19	19
Max-rescaled R^2	0.19	0.21	0.18
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key: * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

TABLE 6. Odds Ratios of Transitions From Working in 1992 to Retirement in 1996 Regressed on Baseline CES-D Depressive Symptoms, Impaired Mental Health 1992-94, Other Demographic, Health, and Job Characteristics and Interaction of Mental Health with Job Autonomy in U.S. Workers Age 51-61 in 1992

	Transition to Retirement in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
Increased CES-D symptoms 1992-94	**0.92**	**1.20**	**0.71**
Baseline CES-D symptoms	**1.12**	**1.26 ***	**1.06**
Inc CES-D symptoms x low autonomy	**1.01**	**0.86**	**1.13**
CES-D symptoms x low autonomy	**1.31**	**1.30**	**1.43**
Age	1.37 ***	1.40 ***	1.36 ***
Female	1.30	---	---
African American[a]	0.76	0.62	0.90
Married/partnered	1.14	0.91	1.26
Illness burden	1.04	1.08	1.03
ADL difficulties	1.03	0.86	1.31
Upper/lower body difficulties	1.02	0.99	1.02
Health shock 1992-94	0.92	1.01	0.74
Sensory impairments	1.06	1.32	0.63
Total word recall	0.98	0.98	0.99
Non-professional[b]	1.08	1.46	0.79
High physical job demands	0.76	0.60 *	0.94
Low job autonomy	1.16	1.00	1.34
Retiree health insurance benefits	1.57 ***	1.34	1.92 ***
Pension coverage	1.73 ***	1.82 **	1.59 *
Tenure	1.02 ***	1.02 **	1.03 **
Education	0.97	0.97	0.98
Adult-equivalent logged net worth	1.01	1.01	1.00
Log Likelihood Ratio	337.22 ***	206.75 ***	160.64 ***
df	22	21	21
Max-rescaled R^2	0.18	0.21	0.19
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key: * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

TABLE 7. Odds Ratios of Transitions From Working in 1992 to Other Not Working State in 1996 Regressed on Measures of CES-D Depression Symptoms State (1992) and Change (1992-94) in U.S. Workers Age 51-61 in 1992

	Transition to Other Not Working State in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
CES-D Depressive Symptoms 1992	**1.26** ***	**1.44** ***	**1.15** *
Log Likelihood Ratio	14.09 ***	9.54 **	3.96 *
df	1	1	1
Max-rescaled R^2	0.01	0.02	0.01
Increased CES-D Symptoms 1992-94	**2.40** ***	**3.40** ***	**1.86** **
Log Likelihood Ratio	20.72 ***	12.92 ***	6.97 **
df	1	1	1
Max-rescaled R^2	0.02	0.03	0.01
Stable CES-D Symptoms 1992-94	**0.61** **	**0.36** ***	**0.86**
Log Likelihood Ratio	9.54 **	13.18 ***	0.6
df	1	1	1
Max-rescaled R^2	0.01	0.03	0.00
Decreased CES-D Symptoms 1992-94	**0.87**	**1.47**	**0.62**
Log Likelihood Ratio	0.40	1.17	3.09
df	1	1	1
Max-rescaled R^2	0.00	0.00	0.00
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)
Key : * $p < .05$, ** $p < .01$, *** $p < .001$

TABLE 8. Odds Ratios of Transitions From Working in 1992 to Other Not Working State in 1996 Regressed on CES-D Depression Symptoms and Other Demographic, Health, and Job Characteristics In U.S. Workers Age 51-61 in 1992

	Transition to Other Not Working State in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
CES-D depressive symptoms 1992	**1.09**	**1.17**	**1.06**
Age	0.96	0.93	0.98
Female	2.75 ***	---	---
African American[a]	0.68	0.44	0.79
Married/partnered	1.51 *	0.72	1.88 **
Illness burden	1.04	1.10	1.03
ADL difficulties	1.11	0.95	1.01
Upper/lower body difficulties	1.34	1.05	1.06
Health shock 1992-94	0.83	1.02	0.72
Sensory impairments	1.06	1.17	1.36
Total word recall	1.00	0.94	1.01
Non-professional[b]	1.13	0.81	1.25
High physical job demands	0.92	0.79 *	1.02
Low job autonomy	1.00	1.71	0.78
Retiree health insurance benefits	0.99	0.96	0.96
Pension coverage	0.60 **	1.12	0.46 ***
Tenure	0.98 *	0.98	0.99
Education	0.87 ***	0.86 **	0.88 **
Adult-equivalent logged net worth	0.98	0.96	0.99
Log Likelihood Ratio	132.35 ***	47.29 ***	67.68 ***
df	19	18	18
Max-rescaled R^2	0.11	0.10	0.09
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key : * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

TABLE 9. Odds Ratios of Transitions From Working in 1992 to Other Not Working State in 1996 Regressed on Impaired Mental Health and Other Demographic, Health, and Job Characteristics Among W.S. Workers Age 51-61 in 1992

	Transition to Other Not Working State in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
Increased CES-D symptoms 1992-94	**1.82 ****	**2.32 ***	**1.63 ***
Age	0.97	0.93	0.98
Female	2.69 ***	---	---
African American[a]	0.65	0.48	0.76
Married/partnered	1.47 *	0.74	1.85 *
Illness burden	1.03	1.08	1.01
ADL difficulties	1.12	1.04	1.01
Upper/lower body difficulties	1.06	1.07	1.07
Health shock 1992-94	0.85	1.02	0.73
Sensory impairments	1.33	1.24	1.33
Total word recall	1.00	0.93 *	1.01
Non-professional[b]	1.11	0.77	1.24
High physical job demands	0.93	0.90	0.99
Low job autonomy	1.00	1.66	0.78
Retiree health insurance benefits	1.00	1.03	0.96
Pension coverage	0.58 **	1.10	0.45 ***
Tenure	0.98 *	0.98	0.99
Education	0.88 ***	0.87 **	0.88 **
Adult-equivalent logged net worth	0.98	0.97	0.99
Log Likelihood Ratio	139.74 ***	51.41 ***	71.05 ***
df	19	18	18
Max-rescaled R^2	0.11	0.11	0.10
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key: * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

TABLE 10. Odds Ratios of Transitions From Working in 1992 to Other Not Working State in 1996 Regressed on Baseline CES-D Depressive Symptoms, Impaired Mental Health 1992-94, and Other Demographic, Health, and Job Characteristics in U.S. Workers Age 51-61 in 1992

	Transition to Other Not Working State in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
Increased CES-D symptoms 1992-94	**1.84 ****	**2.37 ***	**1.64 ***
Baseline CES-D symptoms	**1.10**	**1.19**	**1.07**
Age	0.97	0.94	0.98
Female	2.67 ***	---	---
African American[a]	0.66	0.47	0.77
Married/partnered	1.52 *	0.81	1.89 **
Illness burden	1.02	1.08	1.01
ADL difficulties	1.10	0.98	1.01
Upper/lower body difficulties	1.05	1.05	1.06
Health shock 1992-94	0.83	0.97	0.72
Sensory impairments	1.30	1.16	1.31
Total word recall	1.00	0.94	1.01
Non-professional[b]	1.11	0.78	1.25
High physical job demands	0.92	0.86	0.98
Low job autonomy	0.99	1.60	0.77
Retiree health insurance benefits	1.00	1.03	0.96
Pension coverage	0.59 **	1.14	0.46 ***
Tenure	0.98 *	0.98	0.99
Education	0.88 ***	0.87 **	0.89 **
Adult-equivalent logged net worth	0.98	0.98	0.99
Log Likelihood Ratio	141.79 ***	53.10 ***	71.73 ***
df	20	19	19
Max-rescaled R^2	0.12	0.12	0.10
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key: * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

TABLE 11. Odds Ratios of Transitions From Working in 1992 to Other Not Working State in 1996 Regressed on Baseline CES-D Depressive Symptoms, Impaired Mental Health 1992-94, Other Demographic, Health, and Job Characteristics and Interaction of Mental Health with Job Autonomy in U.S. Workers Age 51-61 in 1992

	Transition to Other Not Working State in 1996		
	All	Men	Women
Characteristics	**Odds Ratio**	**Odds Ratio**	**Odds Ratio**
Increased CES-D symptoms 1992-94	**1.65 ***	**1.48**	**1.76 ***
Baseline CES-D symptoms	**1.05**	**1.19**	**1.01**
CES-D symptoms 1992-94 x low autonomy	**1.13**	**1.04**	**1.15**
Baseline CES-D symptoms x low autonomy	**1.43**	**2.86**	**0.81**
Age	0.97	0.94	0.98
Female	2.70 ***	---	---
African American[a]	0.66	0.48	0.77
Married/partnered	1.53 *	0.83	1.88 **
Illness burden	1.03	1.07	1.01
ADL difficulties	1.07	0.96	1.05
Upper/lower body difficulties	1.05	1.06	1.06
Health shock 1992-94	0.83	0.94	0.73
Sensory impairments	1.30	1.17	1.31
Total word recall	1.00	0.94	1.01
Non-professional[b]	1.11	1.46	1.25
High physical job demands	0.92	0.60 *	0.97
Low job autonomy	0.86	1.00	0.77
Retiree health insurance benefits	1.00	1.34	0.96
Pension coverage	0.60 **	1.82 **	0.46 ***
Tenure	0.98 *	1.02	0.99 **
Education	0.88 ***	0.87 **	0.89 **
Adult-equivalent logged net worth	0.99	0.98	1.00
Log Likelihood Ratio	143.57 ***	55.54 ***	72.76 ***
df	22	21	21
Max-rescaled R^2	0.12	0.12	0.10
N	3,540	1,845	1,695

Source : Health and Retirement Study (1992, 1994, 1996)

Key: * $p < .05$, ** $p < .01$, *** $p < .001$

[a] Reference category is white or other non-African American ethnicity.

[b] Reference category is professional, managerial, or administrative/technical worker.

Appendix Table 1. Operationalization of Independent and Dependent Varbiables

VARIABLES	DEFINITIONS
Independent Variables	
CES-D depressive symptoms	Sum of CES-D depressive symptoms in 1992 (felt depressed, lonely, sad, unhappy, that everything required effort, was not able "to get going," or had restless sleep most/all of time in past two weeks, 0-8, centered)
Increased CES-D symptoms, 1992-94	CES-D sum in 1994 is greater than CES-D sum in 1992 plus one standard deviation (0=no, 1=yes)
Age	Chronological age (51-60, centered)
Female	0=no, 1=yes
African American	0=no, 1=yes
Married/partnered	0=no, 1=yes
Illness burden	Sum of levels of severity for 8 diseases (arthritis, cancer, chronic lung disease, diabetes, heart problems, high blood pressure, psychiatric/emotional problems, stroke, 0-16, centered)
Health shock 1992-94	Self-reported experience of major health event (cancer, chronic lung disease, diabetes, heart problems, stroke) 1992-94
Upper/lower body difficulties	Sum of any difficulties with upper body (strength) or lower body activities (0-11, centered)
ADL difficulties	Sum of any difficulties with four personal care activities of daily living (0-4, centered)
Sensory impairments	Sum of self-reported vision impairment (fair/poor/blind) or hearing impairment (fair/poor) (0-2, centered)
Total word recall	Sum of immediate and delayed word recall scores (0-40, centered)
Non-professional	Service/manufacturing/farm/day labor worker (0=no, 1=yes)
High physical job demands	High physical job demands score (0=no, 1=yes)
Low job autonomy	Freedom in doing job sometimes/hardly ever/never (0=1, 1=yes)
Retiree benefits	Sum of employer-provided retiree health insurance or pension benefit coverage (0-2, centered)
Tenure	Years in current job (0-49, centered)
Education	Years of education (0-17, centered on 12)
Logged net worth	Adult-equivalent net worth (0-$7,725,000, logged)
Dependent Variables	
Retirement	Transition from working in 1992 to being retired in 1996
Not working	Transition from working in 1992 to being unemployed/ laid off/on sick leave in 1996

ENDNOTES

[1] The Center for Epidemiologic Studies Depression Scale (CES-D), a 20-item self-reported index of current depressive symptoms that is often used in survey research settings, was derived from earlier validated clinical depression scales to tap the major feelings or behaviors associated with clinical depression (Radloff 1977; Kohout et al. 1993). Various studies have found that summary scores from the original 20-item CES-D scale and its shorter 8-item relative correlate reasonably well with clinical ratings although some studies have recently suggested that the CES-D scale may not correlate as well with diagnosed depression among much older persons, compared with middle-aged or young-old adults (Kohout et al. 1993).

[2] The question format for the CES-D index items differed slightly between the 1992 and 1994 interviews. In order the test the concordance of responses to the different formats, the 1994 interview included the new format in the core questionnaire and the old format in one of the experimental modules administered to a 10 percent random subsample of the full sample. In order to make the 1992 and 1994 scores comparable for this study, the 1992 CES-D scores were adjusted by the difference in the grand mean of the 1994 core and module scores, according to recommendations by HRS project staff (Steffick, 2000).