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Employment and Occupation Effects on Depressive Symptoms in Older Americans: Does Working Past Age 65 Protect Against Depression?

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Objectives. This article examines the effects of work status, occupational sector, and occupation type on depressive symptoms in older Americans. We partially controlled for the healthy worker selection effect by including disability as a predictor of both work status and depressive symptoms.

Methods. We analyzed a nationally representative sample of 23,247 respondents aged 65 to 88 from the National Health Interview Survey pooled over 1997 to 2000. We used structural equation models with latent variables to assess relationships between work/occupation and depressive symptoms.

Results. Older Americans who work had lower levels of depressive symptoms as compared to older nonworkers. Membership in several worker groups, generally higher status occupations, protected against depressive symptoms. After controlling for disability, the difference in level of depressive symptoms for workers versus nonworkers did not persist. However, workers in specific occupational sectors and types reported different levels of depressive symptoms even when we controlled for disability.

Discussion. The mental health benefit of working, among persons aged 65 and older, may be due to the healthy worker effect. However, the particular job sector in which older workers are employed matters. Socioeconomic status and financial versus personal motivations for working are potentially important explanations for differences.

THE effects of work status on mental health outcomes may be viewed from a life course and role theory perspective. Work status may be considered a role that is central to one's identity, and one that also provides contextual benefits such as economic resources, social integration, and personal control. Retirement has been associated with a lower sense of control (Drentea, 2002). For a U.S. sample, loss of perceived control and physical dysfunction contributed to higher rates of depression in older individuals compared to younger adults (Mirowsky & Ross, 1992). Loss of work status under this perspective would likely result in a decline in mental health. However, exiting from the role of worker may reduce stress and role overload for individuals of normative retirement age, thus reducing rates of depression.

Employment is one of the primary roles in life course theory and is an important factor for depression. Mirowsky and Ross (1992) found that employment status along with marital status accounts for a large proportion of the changes in depression across age for adults. In this study, two major role statuses (market and familial) along with income removed a trend of increasing depression for those around 60 years old or older. Persons who were unemployed, part-time workers, housekeepers, and retired individuals showed higher levels of depression relative to full-time workers (Mirowsky & Ross, 1992). Also, Butterworth and colleagues (2006) found that men of retirement age have higher levels of depression when they are not working for pay compared to those of retirement age who do work for pay.

Whether the role of worker has a deleterious or beneficial impact on an individual depends in part on what is normative for that individual in terms of the life course as well as the overall context of the role. For example, job characteristics such as stress, prestige, and control may make a marked difference in the effects of work status on depressive symptoms. Several studies have revealed that depressive symptoms are more prevalent among workers with job stress (Mausner-Dorsch & Eaton, 2000; Wang, 2005), low-skill work (Sanne, Mykletun, Dahl, Moen, & Tell, 2003), and lower job status (Link, Lennon, & Dohrenwend, 1993). Other analyses have found that workers in particular occupations have higher levels of morbidity (Lee et al., 2006) and depression (Sanne et al., 2003).

The context of work matters for mental health outcomes among individuals of traditional retirement age. Recent research has shown sharp declines in depression and anxiety around the traditional age of retirement for men and women (Villamil, Huppert, & Melzer, 2006). However, Villamil and colleagues found the drop in depression at this age was not attributable to work status and that, in fact, working was associated with better mental health for men aged 45 to 74 after controlling on social class, job loss in the past 6 months, and physical illness and limitation. Mein, Martikainen, Hemingway, Stansfeld, and Marmot (2003) reported mental health benefits of retirement for workers who were employed in higher socioeconomic status employment, whereas those currently or pre-

viously employed in lower socioeconomic status occupations did not improve their mental health upon retirement.

Changes in depressive symptoms at retirement likely depend on the specific circumstances of retirement. Szinovacz and Davey (2004) found that workers whose retirement was abrupt, too early, or forced experienced an increase in depressive symptoms, whereas those who retired "on time" and willingly did not differ in their levels of depressive symptoms as compared to nonretired workers. This finding implies that unexpected work role changes can have deleterious effects on mental health. The working retired also did not differ from the working nonretired, indicating that perhaps those working in "bridge jobs" did not differ from those working in their preretirement jobs. Szinovacz and Davey did not find that these relationships differed after controlling for household income and changes in net worth during the retirement transition.

In sum, many studies have found working to be associated with better mental health among older individuals, particularly men. However, findings are not consistent, and other contextual factors (such as socioeconomic status, job characteristics, and the circumstances of work status changes) are important factors for the association between work and depression.

Depression in later life is often comorbid with physical illness (Blazer, 2003). Physical illness also affects one's ability to work. Therefore, an analysis of the mental health risks and benefits of workers is often hindered by a selection effect coined the *healthy worker effect*, whereby individuals' poor physical health may both prevent them from working and cause increased levels of depression. This selection effect may be especially important for analyses of older populations with a higher incidence of physical limitations. Nearly all of the studies referenced here included controls for physical health in longitudinal models.

In this article, we test the effect of work status on depressive symptoms in a high-quality, representative sample of Americans aged 65 and older. We consider occupational sector and occupation type as a potential contextual factor that may explain some differences in levels of depressive symptoms between older workers and nonworkers. Because occupations have different levels of integration, prestige, income, stress, autonomy, and so on, we expected them to differentially affect mental health. We hypothesized that working would provide a mental health benefit for workers employed in occupational sectors and types that have higher prestige due to the associated financial and contextual benefits of these jobs.

Methods

Sample and Data

The National Health Interview Survey (NHIS) is a nationally representative, multipurpose household survey of the U.S. civilian noninstitutionalized population conducted annually (National Center for Health Statistics, 2002). This analysis utilized a subsample of 23,247 respondents aged 65 and older from NHIS years 1997 to 2000. These respondents represent an annual average of 29,589,504 Americans aged 65 and older.

The depressive symptoms latent variable (or factor) was measured by four of six ordinal variables from the K6 Nonspecific Psychological Distress Scale (Kessler et al., 2002). The two excluded measures loaded on a separate anxiety factor. The four indicators of depressive symptoms included the following: "During the past 30 days how often do you feel (1) hopeless, (2) worthless, (3) so sad that nothing could cheer you up, (4) that everything was an effort?" Responses were measured on a 5-point ordinal scale: 1 = none, a little, some, most, or 5 = all of the time.

Work status was defined as (a) being employed either part time or full time in the week prior to the respondent's NHIS interview date and (b) having an assigned occupation category. Occupation type was measured with 13 standardized occupation codes derived from more detailed U.S. Census occupation codes (National Center for Health Statistics, 2002). We collapsed occupation types into four occupational sectors: white collar (Types 1–5), blue collar (Types 10–13), service (Types 6–8), and farm (Type 9).

Disability was a latent variable measured by nine ordinal indicators of physical limitation. The indicators included the following series of questions: "By yourself and without any special equipment how difficult is it for you to (1) walk up to ten steps without resting, (2) walk a quarter of a mile—about 3 city blocks, (3) stand or be on your feet for about 2 hours, (4) sit for about 2 hours, (5) stoop, bend or kneel, (6) reach up over your head, (7) use your fingers to grasp or handle small objects, (8) lift or carry something as heavy as ten pounds such as a full bag of groceries, (9) push or pull large objects such as a living room chair?" Responses were measured on a 5-point ordinal scale: 1 = not at all difficult, only a little difficult, somewhat difficult, very difficult, or 5 = can't do at all.

Covariates included gender, race (White, Black, other), age in years, and level of education measured on a 5-point ordinal scale (1 = less than high school; high school or equivalent; some college or Associate's degree; bachelor's degree; 5 = master's, professional, or doctoral degree).

Models

We estimated confirmatory factor analysis models to assess the quality of the depressive symptoms and the disability latent variables. We gauged quality by overall and component model fit indices. We subsequently used the latent variables in regression and path models.

We estimated three regression models for the depressive symptoms latent variable outcome. The first model compared the level of depressive symptoms of workers to that of nonworkers (Model 1a). The second model categorized workers into the four occupational sectors and compared the level of depressive symptoms of workers from each sector to that of nonworkers (Model 1b). The third model further categorized workers into more refined occupation types and compared depressive symptoms of workers from each type to those of nonworkers (Model 1c). All models controlled for covariates and used alpha criterion .01.

A path model (Model 2a) augmented regression Model 1a by including disability as an independent predictor and by placing employment as a mediator of the relationship between disability and depressive symptoms. A second and third path model had occupational sector and occupation type as mediators (Models 2b and 2c, respectively). In the path models, effects on depressive symptoms of all covariates were direct and indirect through the employment and occupation variables. For all models,

workers and occupation sectors and types were compared to nonworkers. Models 2b and 2c also tested comparisons of the workers in each occupational sector/type to workers in the other sectors/types.

We completed descriptive and model-based analyses with adjustments for sample weights and design effects using SUDAAN 9.0.0 (Research Triangle Institute, 2004) and MPlus 4.21 (Muthén & Muthén, 1998/2004) statistical packages. We present partially standardized coefficients for ease of interpreting the magnitude of associations with latent variables. All unstandardized regression and path estimates were within 4% and 7% of standardized estimates, respectively.

Results

The population represented by the sample was an estimated 74 years old on average ($SE = 0.06$), 43.1% male, 89.0% White, 8.0% Black, and 3.0% other race/ethnicity. About one third of the population fell into each of the following education categories: less than a high school diploma (33.0%), a high school diploma or equivalent (33.4%), and more than a high school diploma (33.6%; 18.6% some college, 9.2% bachelor's, and 5.9% master's or higher). Overall, 11.7% of the population reported being employed. Table 1 gives the population distribution by occupational sector and occupation type. Most workers (61.7%) in this population were employed in white-collar jobs; only 6.1% were working in the farming sector.

Just more than two thirds (67.7%) of this population had never experienced any of the four indicators of depressive symptoms in the past 30 days. An estimated 38.5% of the population reported having no difficulty with any of the nine physical limitation indicators of disability.

The depressive symptoms factor model had a good fit: comparative fit index (CFI) = 0.999, Tucker–Lewis index (TLI) = 0.998, root mean square error of approximation (RMSEA) = 0.036. Indicator reliability was moderate to high (effort = 0.73, hopeless = 0.88, sad = 0.66, worthless = 0.85). The disability factor model had a moderate fit: CFI = 0.975, TLI = 0.991, RMSEA = 0.099. Indicator reliability ranged from 0.444 for the grasping limitation question to 0.872 for the walking limitation question.

All regression models fit the data very well (CFI $\geq$0.996, TLI $\geq$0.996, RMSEA $\leq$0.019). Model 1a results (Table 2) indicated that older American workers were less likely to experience depressive symptoms than older nonworkers. After controlling for age, gender, race/ethnicity, and education level, workers were 0.28 *SD* (unstandardized –0.271; $p < .001$) lower on the depressive symptoms latent variable than nonworkers. Workers in three of the four occupational sectors experienced significantly lower levels of depressive symptoms compared to nonworkers: –0.30, –0.21, and –0.53 *SD* units for white collar, blue collar, and farming, respectively (Model 1b, Table 2). Service sector workers did not experience significantly lower levels of depressive symptoms as compared to nonworkers. The unstandardized effects were white collar (–0.29), blue collar (–0.20), service (–0.20), and farming (–0.51). In all, 11 of the 13 occupation types had estimated lower levels of depressive symptoms as compared to nonworkers, 7 of which were significantly lower levels (Model 1c, Table 2). Specifically, reports of depressive symptoms among older U.S. workers were lowest for the farming, forestry, and fishing workers; precision production, craft, and repair workers; and for several white-collar occupation types.

Table 1. Percent Distribution of Workers Aged 65 and Older by Occupational Sector and Occupation Type (Unweighted $n = 2{,}601$)

Variable	%
Occupational sector	
White collar	61.7
Blue collar	16.5
Service	15.7
Farm	6.1
Occupation type	
1. Executive, administrative managerial	13.8
2. Professional specialty	14.5
3. Technicians/related support	1.3
4. Sales	17.3
5. Administrative support occupations, including clerical	14.8
6. Private household	1.2
7. Protective service	3.1
8. Service occupations, except protective/household	11.4
9. Farming, forestry, fishing	6.1
10. Precision production, craft, repair	6.2
11. Machine operators, assemblers, inspectors	2.6
12. Transportation/material moving	4.9
13. Handlers, equipment cleaners, helpers, laborers	2.9

Note: Data are from the National Center for Health Statistics (2002).

Path analysis models that accounted for disability as a predictor of both employment and depression had moderate model fit (CFI $\geq$0.979, TLI $\geq$0.989, and RMSEA $\leq$0.048). Table 2 gives all three path model results for effects on depressive symptoms. Controlling for disability resulted in a nonsignificant difference between workers and nonworkers in level of depressive symptoms, such that the effect was near zero (standardized and unstandardized –0.014; $p > .05$). We found similar results for occupational sectors with standardized effects near zero and ranging from –0.086 to 0.052 (all ps $> .05$). Workers in 11 of the 13 occupation types also did not have different levels of depressive symptoms as compared to nonworkers, with most effects attenuating toward zero after controlling for disability. Private household workers and machine operators, assemblers, and inspectors had higher levels of depressive symptoms compared to nonworkers at an alpha level of 0.033 each.

Although good health selection into work accounted for the lower levels of depressive symptoms among work sectors and types as compared to nonworkers, there were differences in depressive symptoms when comparing workers in occupational sectors and types to one another in the path models. For example, white-collar workers had significantly lower levels of depressive symptoms as compared to workers in the service sector ($p = .012$) and blue-collar workers ($p = .006$). In addition, farm workers had significantly lower levels of depressive symptoms compared to blue-collar ($p = .030$) and service ($p = .045$) workers. Comparing specific occupations in Model 2c, we found that machine operators, assemblers, and inspectors and private household workers both had higher levels of depressive symptoms than five other occupation types: (a) executive, administrative managerial; (b) sales; (c) administrative support occupations; (d) farming, forestry, and fishing;

Table 2. Depressive Symptoms Regression Results and Select Path Model Results for Population 65 Years and Older (Unweighted $n = 23,247$)

Variable	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c
Covariate controls						
Age	0.009**	0.009**	0.009**	−0.010**	−0.009*	−0.009**
Male	−0.209**	−0.208**	−0.203**	−0.040	−0.023	−0.036
Black	0.017	0.014	0.009	−0.107**	−0.164**	−0.118**
Other race	0.253**	0.252**	0.251**	0.272**	0.257**	0.272**
Education	−0.161**	−0.160**	−0.160**	−0.088**	−0.081**	−0.087**
Disability				0.543**	0.545**	0.546**
Work status						
Employed[a]	−0.280**			−0.014		
Occupational sector[a]						
White collar		−0.303**			−0.048	
Blue collar		−0.205*			0.052	
Service		−0.204			0.048	
Farm		−0.527*			−0.086	
Occupation type[a]						
Executive, administrative managerial			−0.350**			−0.168
Professional specialty			−0.279*			−0.028
Technicians/related support			−0.152			0.189
Sales			−0.348**			−0.121
Administrative support occupations, including clerical			−0.251*			−0.031
Private household			0.297			0.584
Protective service			−0.408			−0.072
Service occupations, except protective/household			−0.232*			0.092
Farming, forestry, fishing			−0.521*			−0.285
Precision production, craft, repair			−0.457**			−0.110
Machine operators, Assemblers, inspectors			0.013			0.338
Transportation/material moving			−0.147			0.074
Handlers, equipment cleaners, helpers, laborers			−0.118			0.141
R^2	.08	.08	.08	.32	.34	.33

Notes: Partially standardized coefficients are presented. Partially standardized coefficients are within 7% of unstandardized coefficients. The significance level is for unstandardized coefficients. Data are from the National Center for Health Statistics (2002).

[a]Reference group is nonworkers.

*$p < .01$; **$p < .001$, two-tailed t test.

and (e) precision production, craft, repair (all ps $\leq .038$). Also, service occupations, except protective/household occupations, had higher levels of depressive symptoms than three other occupation types: (a) executive, administrative managerial; (b) sales; and (c) farming, forestry, and fishing (all ps $\leq .037$). Notice from these comparisons that it was mostly white-collar and farming workers who had the advantage relative to the other occupation types in terms of lower depressive symptoms.

Discussion

This analysis demonstrates that older U.S. workers report lower levels of depressive symptoms than older nonworkers, with workers in certain occupational sectors and types experiencing greater mental health benefits compared to nonworkers. However, these effects disappear when we account for selection into work due to physical health. This implies that better physical health results in both an increased likelihood of working and a decreased incidence of depression. However, this study is limited in that it did not fully account for the employment selection process and controlled for only very few potential confounders. Several other longitudinal studies have found an advantage to working after controlling for physical health (Butterworth et al., 2006; Mirowsky & Ross 1992; Villamil et al., 2006).

Nevertheless, the results of this analysis do support the idea that the specific characteristics of work matter. In particular, we found that among those who do work for pay past traditional retirement age, working in certain job sectors/types does provide a benefit as compared to employment in other job sectors/types. Benefits seem to apply to those who may be working for personal fulfillment reasons in higher status positions rather than out of financial necessity in lower status positions. For example, even after we controlled for disability, white-collar workers had significantly lower levels of depression than service sector workers.

The specific circumstances surrounding full retirement, including possible early or abrupt retirement due to physical disability, are important. For example, Gallo and colleagues (2006) recently found that involuntary job loss among older workers increases long-term (at least 2 years post job loss) depressive symptoms among individuals with below-median net worth, but this finding did not apply to high-net-worth individuals. It is possible that the positive mental health effects attributed to retirement in other studies are due mainly to the individuals who voluntarily retire because it is economically

feasible for them to do so. Depression may be lower for higher status individuals whether they choose to retire for personal fulfillment or to continue working for personal fulfillment. Further studies that incorporate family income and motivations for working are needed to add to researchers' understanding of the relationship between working and mental health among older Americans.

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