Obesity, Work, and Economic Security in Later Life

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Obesity rates are rising dramatically in the U.S., currently about one-quarter of American adults are estimated to be obese (NCHS, 2003). While this trend has affected all groups, rates of obesity vary dramatically. Women and blacks are more likely to be obese than men or non-Hispanic whites; for instance, over 50 percent of non-Hispanic black women between the ages of 50 and 59 are obese. Past research demonstrates that obesity negatively affects health, often leading to lessened mobility, increased chronic disease, and what has been dubbed "early aging."

Besides health effects, obesity is linked to lower wages and lower accumulations of wealth in later life. The social construction of an ideal body size in which overweight is associated with weakness and laziness may lead to discrimination against heavy people in hiring decisions and job promotions. Some evidence indicates that this systematic bias in hiring decisions may be particularly strong for women (Roehling, 1999). In addition, research has documented a negative effect of obesity on job prestige and advancement and the existence of an "obesity wage penalty" (Pagan and Davila, 1997). Partly as a result of these lifetime effects, Fonda, et al. (2004) find that net worth in later life is inversely related to obesity for women, but not for men.

Does obesity also affect the work history of older individuals? Given the health effects of obesity, we might expect that obese individuals are more likely to have work limiting disabilities or to miss work due to illness. In addition, they may retire early due to health problems. The combination of lower wages and job discrimination, coupled with a less stable work history may have a significant impact on the economic security of these individuals in later life.

In this paper we explore the impact of obesity on middle and old age economic security. We extend the past work on income and net worth by examining the effects of obesity on work histories. Using data from the HRS we analyze the impact of obesity on labor force participation, number of hours worked, days lost due to illness, and work disability.

Patterns of Obesity

Adult obesity rates have been steadily climbing in the United States since 1970. Body mass index (BMI), calculated as weight/height^2 (kg/m^2), is commonly used to classify overweight (BMI 25.0-29.9) and obesity (BMI $\geq$ 30.0) among adults. The most reliable population-based estimate of obesity trends in the United States is the National Health and Nutrition Examination Survey (NHANES), conducted periodically by the Centers for Disease Control. In NHANES II, conducted in 1976-80, 15 percent of the population was classified as obese, compared to 31 percent in the 1999-2000 NHANES (NCHS 2002).

Levels of obesity vary by both gender and race. Women are more likely than men to be obese. In the 1999-2000 NHANES, 34 percent of adult women were obese compared to 28 percent of men. Levels of obesity peak for women in their late 50s and early 60s, where 43 percent of women are considered obese, and decline slowly thereafter. Among women aged 70 and older, only 25 percent are considered obese. The age pattern is somewhat different for men, with the peak levels of obesity occurring in the age range 65 to 74 (NCHS 2002).

Race and ethnicity combine with gender to create the highest rates of obesity among African American women. Over 50 percent of adult black women are considered

obese. If the definition is extended to those overweight as well, fully 78 percent of black women are included. About 30 percent of non-Hispanic white women are obese and 40 percent of Mexican American women (the only Hispanic group for whom statistics are available).

Obesity and Work

Obesity affects employment in two key ways. First, the relationship of obesity to both chronic and acute diseases means that those who are obese are more likely to be managing health problems and work. Second, stigma and discrimination mean that those who are obese may be less likely to be hired, promoted, or given raises.

The links between obesity and disease are well-documented (NHLBI 1998). Obesity is related to diabetes, hypertension, high cholesterol levels, arthritis, and asthma (Mokdad 2003). People who are obese also are more likely to suffer from functional and mobility limitations (Ferraro and Kelley-Moore, 2003; Sturm, et al., 2004).

Roehling (1999) reviewed the literature on workplace stereotypes related to obesity. Obese workers are perceived by employers and co-workers to be less competent, less conscientious, and emotionally unstable. In addition, obese employees are considered to have poorer attendance records than their non-obese counterparts (Paul and Townsend, 1995). Experimental studies have shown that managers are less likely to view obese hypothetical employees as candidates for promotion (Brink, 1988).

These stereotypes may lead to discriminatory practices in hiring, promotion, and pay (Puhl and Brownell 2001). Several studies have used the National Longitudinal Survey of Youth to examine the relationship between early life obesity and socio-economic status. Register and Williams (1990) find that obese women aged 18 to 25 in

the NLSY have earnings 12% lower than those of non-obese women. Other studies have shown the persistence of this effect, particularly for women (Pagan and Davila, 1997).

To this point, research on the economic effects of obesity has dealt only with current income or wealth (Fonda et al., 2004; Pagan and Davila, 1997). Studies of employment have been based almost entirely on experimental studies or on early life experiences. This paper begins to address these shortcomings by examining work in midlife. Ultimately, we are interested in how obesity affects work and earnings over the lifecourse and the implications of those effects for later life economic security. In this paper we specifically examine how obesity may affect the presence of a work-related disability and the missing of work due to health reasons.

Data and Methods

For our analysis we use data from the first five waves of the Health and Retirement Survey (HRS). The HRS is an ongoing study of the physical health, economic status, employment characteristics, and family life of individuals born between 1931 and 1941. The study is conducted at the University of Michigan with support from the National Institute on Aging. Data collection began in 1992 when the individuals were between the ages of 51 and 61. Subsequent surveys have been conducted every two years. The respondents were chosen to be nationally representative with African Americans and Hispanics over-sampled to allow analysis of these groups. The surveys have been widely used by economists, sociologists, and demographers. A complete description of the study can be found at the study website (hrsonline.isr.umich.edu). Our analysis is limited to those age-eligible respondents who were interviewed at the first

wave, in 1992, and who provide height and weight reports needed to calculate the body mass index.

Dependent variables. In our current analysis we are interested in two key dependent variables, work status and days of sick leave. Work status is measured each wave by a question regarding present job status. Respondents were offered six distinct choices; working now, temporarily laid off, unemployed and looking for work, disabled and unable to work, retired, and homemaker. A residual "other" category was also included. Although respondents were allowed to provide more than one answer, few did and in our analysis we use the first answer provided as indicative of an individual's primary perception of their job status.

For those who report that they are working, additional questions probed about the nature of their work. Each wave working respondents were asked, "In the last 12 months, did you miss any days from work because of your health?" For those reporting that they had missed work for health reasons, the estimated number of days missed was recorded.

Independent variables. The key independent variable is obesity status, determined by body mass index (BMI). BMI is calculated from baseline self-reports of height and weight. Based upon the WHO and NIH guidelines, those with a BMI of 30 kg/m^2 or more are classified as obese. Additional independent variables include age, gender, and race. In models of disability, health status, dichotomized to distinguish those in excellent, very good, or good health from those in fair or poor health, and the presence of some disease conditions (diabetes, chronic lung disease, heart problems, and cancer)

were included. Since smoking and obesity are inversely related to each other but directly related to health, current smoking status is controlled.

Results

At the baseline interview in 1992, about 24 percent of the HRS sample is classified as obese. This rate is somewhat lower than that observed for similar age groups in the 1988-94 NHANES study, (27 % and 34% for men and women aged 55-64), probably due to the self-reporting of height and weight. Obesity rates in the HRS, as in the NHANES, vary considerably among demographic groups, with only 21 percent of white men in the obese category, compared to 42 percent of black women (Table 1). As expected, those who are obese tend to rate their health as somewhat poorer in 1992

At each wave, those in the non-obese category are more likely to be working than the obese. The differential is relatively constant across time, with about six percent fewer obese individuals working in any wave than non-obese (Table 2). In contrast, those classified as obese are more likely to report a work-related disability at each wave. The higher rates of work-related disability almost completely account for the difference in work status at each wave; obese disability rates exceed those of the non-obese by about six percent. In each of the other work categories, unemployed, laid-off, retired, homemaker, or other the differences by obesity status are minimal.

Looking more closely at disability rates by gender and race reveals larger differences for women than men (Table 3). Among white men, obesity is related to somewhat higher rates of disability and the differential increases slightly over time. For black men, an anomalous pattern is found; the non-obese have higher rates of disability

than the obese. For both white and black women, obesity is linked to higher rates of disability in each wave.

Among those working at each wave, those who are obese are more likely to report having missed work due to health reasons than the non-obese. In 1992 about ½ of obese workers and 45 percent of non-obese workers missed some time at work in the past year due to health (Table 4). Over time the overall percentage missing work declines, likely due to the health selection of those remaining in the work force. With increasing age and declining health, we would reasonably expect those remaining in the work force retirement to be relatively healthy. However, the obese continue to have slightly higher rates of missing work than the non-obese.

Not only are obese workers more likely to miss work due to health reasons, the number of days missed is slightly higher (Table 4, panel 2). This difference actually increases among workers across waves, with an average difference of only about one day in 1992 and four days in 2000. Although obese workers may be slightly more likely to miss work, their average reported work hours are not appreciably different (Table 4, panel 3). The numbers of hours worked in an average week declines for all workers, from slightly over 40 hours per week in 1992 to about 37 hours per week in 2000.

These descriptive results indicate that obesity may be an important factor for women continuing to work or experiencing a disability that limits work. In our final analysis we examine how baseline obesity affects the risk of a work disability over future waves among those working at wave1. First, we estimate the odds of reporting a work disability anytime between waves 2 and 5 for men and women separately. Second, we estimate a multinomial logit model for survivors comparing the odds of being disabled

with the outcomes of continuing to work, retiring, or experiencing any other work outcome (laid-off, unemployed, homemaker, other). These are all treated as absorbing states, so we are essentially capturing the first exit from the labor market.

Among both men and women, obesity in 1992, at the baseline survey, is associated with greater odds of claiming a work disability at any future interview (Table 5). Younger respondents and those who rate their health as good, very good, or excellent in 1992 are less likely than others to report a work-related disability in later waves. As might be expected from the descriptive results, race is an important correlate of disability for women, but not for men. Smoking, like obesity, is related to a greater risk of disability in the future. Of the specific health conditions included, only diabetes is related to a work disability.

In the multinomial models disability is compared to other possible work outcomes, including continuing to work, retiring, and being in a residual "other" category. We see from Table 6 that older age is positively related to retirement and negatively related to working. Women are less likely than men to be classified in any of the work statuses relative to the reference category which includes homemakers. Obesity is related only to the odds of being disabled, as is general health status. Workers classified as obese in 1992 and in poor health are more likely to be disabled over time. The presence of two specific health conditions, diabetes and lung disease, is inversely related to working and retirement.

Comments

The preliminary evidence points to a much greater effect of obesity on the work lives of women than men. Women who are considered obese are more likely to have a

work limiting disability and to use more sick days when they are working than women who are not obese. These differences are present for men, but to a much smaller extent. These results are consistent with the earlier research findings that obese women are more disadvantaged in the workforce than obese men.

These indications, coupled with the higher rates of obesity among women and the greater wage penalty they face, mean that women who are obese are likely to suffer greater economic harm in later life. Work is stratified by race and gender, with black women receiving the lowest average wages of any group. In addition, their higher rates of obesity mean that they may face an increased risk of both health difficulties and work restrictions. This combination of factors means that older black women are likely to enter late life with more health problems and fewer resources than any other group.

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Table 1. Characteristics of HRS sample.

	White men	Black men	White women	Black women
% obese	20.99	25.07	22.46	41.83
Mean BMI	27.28	27.36	26.57	29.83
Mean Self-Reported Health 1=excellent, 5=poor	2.6	3.0	2.5	3.1
Non-obese	2.4	2.9	2.4	3.0
Obese	2.8	3.1	3.0	3.3

Table 2. Work status by obesity (percents); 1992-2000 HRS sample.

		1992	1994	1996	1998	2000
Working	non-obese	64	60	54	47	40
	obese	58	54	47	41	35
Unemployed	non-obese	3	3	2	1	1
	obese	3	2	2	1	1
Laid-off	non-obese	1	1	1	1	1
	obese	2	1	1	1	1
Disabled	non-obese	8	9	10	10	9
	obese	12	14	16	16	15
Retired	non-obese	8	13	22	30	37
	obese	8	13	21	28	35
Homemaker	non-obese	14	11	11	11	11
	obese	16	12	12	12	13
Other	non-obese	1	2	1	1	1
	obese	1	1	1	1	2

Table 3. Disability prevalence by race, gender, and obesity status (percents); 1992-2000 HRS sample.

		1992	1994	1996	1998	2000
White men	non-obese	7.59	8.73	9.46	9.15	7.93
	obese	9.03	10.29	12.97	12.06	11.35
Black men	non-obese	19.55	20.62	20.49	20.53	24.50
	obese	16.20	19.28	20.14	20.00	19.01
White women	non-obese	5.22	6.89	7.50	6.98	6.28
	obese	9.06	12.95	14.06	15.18	13.32
Black women	non-obese	12.11	16.47	18.99	17.46	17.59
	obese	20.39	23.27	25.71	24.70	23.08

Table 4. Percent of those working each wave who report missing one or more days of work due to health reasons, the mean number of days missed, and the mean number of hours worked each week, by obesity status; HRS sample.

	Miss work due to health reasons		Mean Number of days missed		Mean Number of hours worked	
	Non-obese	Obese	Non-obese	Obese	Non-obese	Obese
1992	45	50	9.5	10.76	40.8	40.4
1994	43	48	9.55	10.22	40.7	40.3
1996	38	41	11.59	14.79	40.2	40.1
1998	36	40	13.62	16.35	38.5	39.2
2000	36	38	12.65	16.35	36.9	36.9

Table 5. Estimated effects of obesity on the reporting of a work-related disability; HRS sample, logistic regression model.

	Male Odds Ratios	Female Odds Ratios
Age	0.938*	0.963
Black	1.374	1.752*
Obese	1.543*	1.402*
Current smoker	2.204*	1.745*
Good health	0.313*	0.272*
Diabetes	1.746*	1.987*
Lung disease	1.412	1.387
Heart disease	1.328	1.149
Cancer	1.048	1.009

* significant at 0.05 level

Table 6. Estimated effects of baseline obesity on future work status; HRS sample, multinomial logistic model.

	Working[1]	Disabled	Retired
Age	-0.0993*	-0.0413	0.2021*
Female	-0.7926*	-0.9266*	-0.8328*
Black	0.0149	0.5450	-0.0193
Obese	0.1809	0.6089*	0.1878
Current smoker	-0.1172	0.5009	-0.1370
Good health	-0.4612	-1.7757*	-0.4247
Diabetes	-0.7918*	-0.2478	-0.8216*
Lung disease	-0.7520*	-0.3100	-0.7797*
Heart disease	-0.0370	0.3421	0.2155
Cancer	-0.0745	-0.0061	-0.0932

* significant at 0.05 level

1. Comparison group is the residual "other" category including unemployed, laid-off, homemaker, and any other classification.