Down, or Down and Out:

Health Shocks, Socioeconomic Status, and Adverse Events in Mid-Life

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As people age, they experience a variety of events, both good and bad. Jobs change, families grow or fall apart, and health improves or deteriorates. While shocks are common, the response to these shocks is quite variable across individuals. In response to a bad health shock, for example, some people are affected only mildly, whiles others spiral out of control: they may have follow-on health conditions (e.g., depression), become divorced or separate, experience disruption in social networks, and increase substance use. Our goal is to see what divides those who are ‘down’, experiencing a single bad event within four years, from those who are ‘down and out’, experiencing multiple adverse events.

We examined nearly 10,000 respondents surveyed every two years in the Health and Retirement Study between 1996 and 2010. For our analyses, we observe individuals at a baseline wave to capture baseline health and demographics. We then observe the same individuals one wave (two years) from baseline to observe new major health shocks, two waves (four years) and three waves (six years) from baseline to observe adverse events. We restricted our sample to individuals working full time at baseline, and aged 50 to 60 at the time they report a health shock, to permit us to follow them for four years before reaching age of eligibility for programs like Medicare, with complete information on demographics, work characteristics, and adverse events.

A surprisingly large number of people go through a downward spiral in their near-retirement years. Of nearly 10,000 respondents in their 50s who we can follow over time, more than one half will be hit by a series of two or more adverse events over a six year period (Table 1). Over three quarters of older full-time workers will experience at least one adverse event within four years of baseline, and this figure jumps to 85 percent within six years of baseline. Adverse events, based on changes between baseline and two waves or four waves later include: divorce or separation of partnered individuals, increased substance use (higher drinks per day, move from nonsmoker to current smoker) work loss (unemployed or layoff), increase in depression symptoms, and social network deterioration (decline in frequency of socializing with neighbors, no longer living near a friend or relative in
neighborhood, move of residence). In total there are eight possible bad events (seven for those not married at baseline). To summarize the data, we also create summary measures showing when 2 or more of these 8 events occur, when 3 or more occur, or when at least one event occurs in 3 of the categories (two separate categories if not married at baseline). The most common types of adverse events are deterioration of social networks (51 percent), an increase in substance use (22.5 percent for males and 15.1 percent in females), and an increase in symptoms of depression (24.3 percent in males and 26.8 percent in females).

<table>
<thead>
<tr>
<th>Number of Bad Events</th>
<th>Wave W+2</th>
<th>Wave W+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>28%</td>
<td>15%</td>
</tr>
<tr>
<td>1</td>
<td>39%</td>
<td>33%</td>
</tr>
<tr>
<td>2</td>
<td>23%</td>
<td>29%</td>
</tr>
<tr>
<td>3+</td>
<td>11%</td>
<td>23%</td>
</tr>
</tbody>
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Table 1: Distribution of Number of Adverse Events 4 and 6 Years from Baseline

Many events can set off an adverse spiral. We consider how two variables in particular affect subsequent adverse outcomes. The first variable we examine is a new onset of a health condition, or health shock – a diagnosis of cancer, heart disease, stroke, psychiatric illness, or lung disease. Seven percent of older workers in our sample reported a new diagnosis of the above conditions over a two-year period; psychiatric and heart disease diagnoses were most common. We have information on whether people suffer a health shock in each two-year period and we relate that to subsequent bad events. The second variable we explore is the socioeconomic status (SES) of the individual at baseline (i.e., before their health shock). We examine whether household income in the top half or assets in the top half are protective for a constellation of bad outcomes.

We predict how the probability of having 3 or more bad events change with SES (household assets in top half) and with a new major health shock. The primary outcome we examine is whether the individual had three or more bad events, independent of event type. We also control for baseline characteristics capturing household composition, coverage by insurance and pensions, expectations about the
future, other demographics, and baseline measures of social support, depression, and health and functional status.

Table 2: Percentage Point Change in 3+ Bad Events with Health Shocks and Assets

<table>
<thead>
<tr>
<th>Effect of:</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Shock</td>
<td>4.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Assets in top 1/2</td>
<td>-2.1</td>
<td>-3.8</td>
</tr>
</tbody>
</table>

Note: Reports the change in probability of 3+ adverse events within 4 years of baseline.

People who experienced a health shock were much more likely to have multiple bad events within 4 years of baseline. The impact is about 5 percentage points for men and 4 percentage points for women, even after controlling for baseline characteristics. Socioeconomic status is a mitigating factor for bad events. Males in the top half of the assets distribution are about two percentage points less likely to experience multiple bad events, and for women this figure is nearly four (Table 2).

We examined how various policy and familial characteristics mitigate the impact of health shocks. To the extent that health shocks matter because of inadequate social insurance – for example, they might affect the ability of people without health insurance to pay for needed care – policies that address this could have a substantial impact on welfare. In one of our major tests, for example, we ask how the probability of having three or more adverse health shocks differs if an individual had employer-sponsored health insurance coverage. A finding that employer coverage mitigates the impact of health shocks on multiple bad events would indicate the importance of this type of insurance. Of the 9 baseline characteristics we believe could help or hinder individuals experiencing a health shock (depression, employer-sponsored health insurance, pension coverage, some college education or more, experiencing Good, Fair or Poor health, having wealth in the top half of assets, having 2+ social supports, having caregiving responsibilities for a spouse, parent, or parent-in-law, or being in the top half of household income) we found little evidence that any mitigated the tendency for health shocks to generate adverse events.
We deliberately omitted disability applications from our earlier models to focus on factors that are less the result of individual decisions. Still, the relationship between bad events, outcomes, and disability is of great importance for understanding of social insurance programs. The Figure below shows why this is the case.

![DI Application/Receipt Rate by Number of Bad Events](image)

Unsurprisingly, people who have a major health shock are more likely to have applied for or be receiving disability insurance two waves after a health shock than people without a major health shock. More surprisingly, the application rate is higher for people with multiple bad events. For example, the rate of DI application or receipt is twice as high for those with a major health shock and two or more bad events compared to those with a major health shock without any bad events. To explore these relationships further, we predicted application or receipt of DI as a function of the variables we used to predict 3 or more adverse events. A new health shock increases the probability of applying for DI by nearly 8 percentage points for both men and women. Interestingly, being in a high-income household is not
associated with DI application or receipt, nor are any of the marital characteristics. Given the close relationship between multiple adverse events DI application and receipt, it suggests that changes in baseline variables matter more than the levels.

Our analysis documents several findings. First, older workers experience adverse events at a high rate; a new health shock substantially increases the chance of experiencing multiple adverse events. However, we find no evidence that baseline income and assets, employer-sponsored insurance, or pension coverage mitigates the adverse effects of a health shock. This last finding is significant because these are variables amenable to policy changes, offering one potential way to reduce the likelihood of becoming “down and out”. We show that DI application and receipt is highly correlated with both adverse events and health shocks, but we find that baseline demographics and policy variables like pensions and insurance are not. Thus, our understanding of DI application and adverse events relies on understanding how these baseline variables change over time leaving some workers to be down and out on multiple dimensions and likely to use disability insurance.