Activities of daily living are more closely correlated with health-related quality of life than medical diagnoses: Evidence from two large US surveys

Background
Studies show self-reported health and health-related quality of life (HRQoL) are highly associated with actual morbidity, mortality, and healthcare costs. The HRQoL-4 instrument (also known as Healthy Days) was developed by the Centers for Disease Control and Prevention in the early 1990s as a measure of population health status and HRQoL. This validated 4-questions HRQoL instrument measures general health status, self-reported number of physically and mentally unhealthy days (UHD), and activity limited days within the past 30 days. Although previous studies have examined associations between Healthy Days and other patient-reported health and behavior characteristics, they focused on specific behaviors or conditions captured within the surveys. This study uniquely examined Healthy Days survey responses from two different sources to understand which behaviors, characteristics, and/or conditions have the strongest correlation with reported UHD.

Objective
To understand the characteristics, behaviors, and/or clinical conditions with the strongest correlation with reported UHD among two samples from adult populations in the United States.

Methods
Study Design: Healthy Days responses were captured from two independent health-related surveys, the Behavioral Risk Factor Surveillance System (BRFSS) survey and the Health Outcomes Survey (HOS). Decision tree analyses were performed to identify variables with the strongest correlation with total reported UHD.

Outcomes and Statistical Analyses:
• Reported physically and mentally unhealthy days were summed for each individual to determine the total number of UHD, ranging from 0 to 60.
• Patient characteristics were broadly categorized as activities of daily living (ADLs) demographics/benefits, medical diagnoses and screenings, health resource utilization and other.
• Two decision tree analyses were performed using SAS Enterprise Miner to examine the correlation between self-reported UHD and patient characteristics obtained from the survey questions and/or claims data (HOS only). A value of 1 was assigned to the most statistically significant variable. All other statistically significant variables were assigned a value of 0.

Behavior Risk Factor Surveillance System Survey View:
This study of adults age 18 years and older was conducted during the 2013 calendar year. Survey questions captured 43 potential predictors of unhealthy days.

Behavior Risk Factor Surveillance System Survey:
Activities of daily living (ADLs) include personal activities such as bathing, dressing, eating, walking alone, and household chores. These activities are important because self-reported UHD and patient characteristics obtained from the survey questions and/or claims data (HOS only) are highly associated with ADL limitations.

Health Outcomes Survey: This study of adults aged 18-75 years of age was conducted March-June 2012. UHD and predictors from the survey were included in the analysis. These data were merged with medical claims from the 2012 calendar year at the individual level to obtain 10 clinical diagnoses and several health resource utilization data elements.

Results

Table 1. Baseline characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Female, %</th>
<th>F (0-59)</th>
<th>M (60-74)</th>
<th>F (75-100)</th>
<th>M (101-124)</th>
<th>M (125+)</th>
<th>M (135+)</th>
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</thead>
<tbody>
<tr>
<td>Age 59-69</td>
<td>4.1 (12)</td>
<td>9.7 (15)</td>
<td>13.7 (15)</td>
<td>21.0 (15)</td>
<td>32.5 (15)</td>
<td>35.4 (15)</td>
<td>20.1 (15)</td>
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<td>Time since personal diabetes management (days)</td>
<td>364 (157)</td>
<td>346 (124)</td>
<td>336 (124)</td>
<td>346 (124)</td>
<td>356 (124)</td>
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<tr>
<td>Similar activities limited due to physical or mental limitations</td>
<td>21.7 (18)</td>
<td>23.7 (18)</td>
<td>22.5 (18)</td>
<td>22.0 (18)</td>
<td>21.5 (18)</td>
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<tr>
<td>Similar ADL</td>
<td>21.7 (18)</td>
<td>23.7 (18)</td>
<td>22.5 (18)</td>
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Figure 1. Significant HOS Predictors

Figure 2. Significant BRFSS Survey Predictors

Figure 3. Impact of Walking Ability on UHD (HOS)

Conclusions
• This study highlights the strong correlation between ADLs and HRQoL using data from two independent, large health surveys.

Implications for Policy and Practice
• Regardless of age, ADLs appear to have a strong correlation to the number of unhealthy days within two independent surveys.

References

Havens E, Slabaugh SL, Pena J, Gopal V, Renda A, Prewitt T
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