The Burden of Falling on the Quality of Life Among Adults with Medicare Supplement Insurance

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Background

- Falls and risk of falling are common health problems among older adults and falls are the most common cause of injuries among the elderly. (1)
  - –Based on self-reported data from the 2008 Medicare Health Outcomes Survey (HOS), each year one third of older adults in managed Medicare plans fall, and the likelihood of falling increases substantially with advancing age. (2)
- A history of falling, or a fear of falling can substantially reduce the self-confidence needed to ambulate safely and can result in self-imposed functional limitations, social isolation, and depression. (3,4)
  - –Falls and fear of falling can lead to restricted physical activity, decreased functional capability, social isolation, and decreased quality of life (QOL).

Objective

- Estimate the prevalence of falls or being at risk of falling among beneficiaries with Medicare Supplement Insurance (i.e. Medigap) coverage.
- Identify characteristics associated with those who fell or who were at risk of falling.
- Estimate the burden of falling on QOL.

Population Studied

- About 2.9 million people are covered by an AARP® Medicare Supplement Insurance plan.
  - –These plans are insured by UnitedHealthcare Insurance Company (for New York residents, UnitedHealthcare Insurance Company of New York).
  - –These plans are offered in all 50 states, Washington DC, Puerto Rico, Guam, and the Virgin Islands.
- The Health Update Survey (HUS) was administered to 15,000 insureds in May 2008.
  - –The HUS is a self-administered survey that includes all the questions on the HOS.
  - –The instrument includes several questions on demographics, chronic medical conditions, and health status measured via the Veteran's RAND (VR) -12 item survey.
  - –The VR-12 is widely used and validated in other applications with older adults. (5,6)

Methods

Study respondents were categorized into one of three groups based on questions about falling or balance and walking difficulties:

- Those who reported falling in the past 12 months (i.e., those who fell).
- Those who reported having balance or walking problems (i.e., those at risk of falling).
- The comparison group (i.e., those who did not fall and were not at risk of falling).

Statistical Analysis

Three analyses were performed:

Analysis One: Described the sample and compared demographics, clinical characteristics, and QOL measures between the falls and risk-of-falling groups to the comparison group using univariate techniques without adjusting for differences in case-mix (e.g. demographic and health status). Chi-square and Student t tests were used to test for differences in categorical and continuous variables.

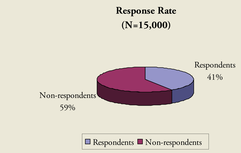
Analysis Two: Similar to analysis one, but was case-mix adjusted to account for demographic and health status differences between the three groups.

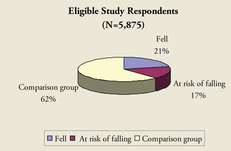
Propensity score weighting techniques were used to adjust the case-mix. The propensity score analyses involved four steps.

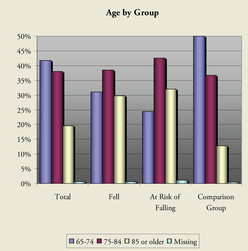
- Step 1: A multinomial logistic regression design to estimate the impact of each demographic and clinical measure on the log-odds of falling or being at risk of falling was estimated.
- Step 2: The log-odds values obtained for each person in the sample were converted to his or her predicted probability of being in the falls, risk of falling, or comparison group where he or she actually belongs.
- Step 3: Involved creating case weights for each respondent and using these weights to re-estimate all of the values for each of the demographic, clinical and QOL measures.
- Step 4: Compared quality of life for those in the falls, at risk of falling, and comparison groups, using the weighted data to adjust for demographic and case-mix difference.

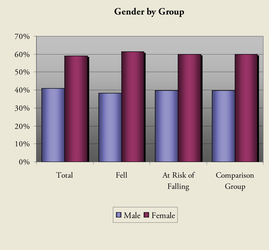
Analysis Three: Used weighted Ordinary Least Squares (OLS) models to estimate the impact of falling or being at risk of falling on the QOL measures controlling for patient demographics and clinical characteristics.

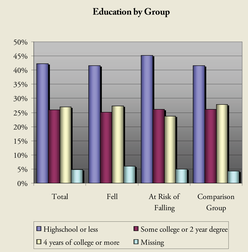
Pre-weighted Sample Characteristics*

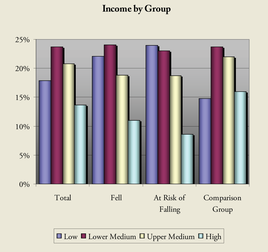


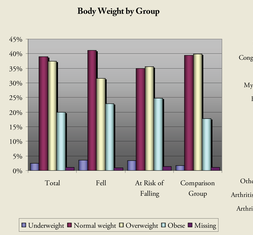


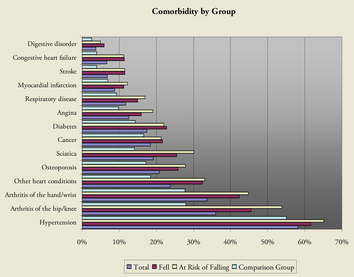










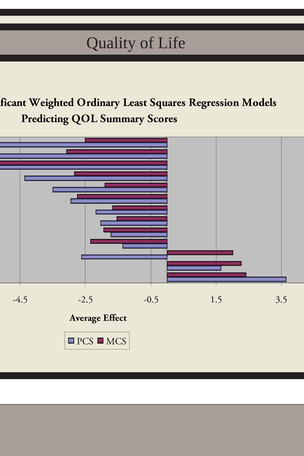


*The case-mix differences were minimized after weighting.

Results – Predictors of Falls or Being at Risk of Falling

- Based on logistic regression models, numerous demographic and clinical characteristics predicted the likelihood of falling or being at risk of falling.
- The graph below shows the Relative Risk Ratio (RRR) for each independent variable.
- The RRR shows the likelihood of falling or being at risk of falling relative to the comparison group.
  - –A RRR greater than one represents an increased likelihood of having a fall or being at risk of falling relative to the comparison group; whereas, a value less than one represents a decreased likelihood.
- For example, those aged 85 years or older were 1.9 times as likely to fall and 2.5 times as likely to be at risk of falling as those in the 65 – 74 age group.

Predictors of Falls and Being at Risk of Falling



Results – Quality of Life

- The results of the OLS models showing the impact of falling, being at risk of falling, respondent demographics, and clinical characteristics on the QOL are shown below.
  - –The graph shows the average effects of the significant ($p<0.01$) variables in the model.
  - –The average effect measures each variables independent impact on QOL.
  - –A negative average effect indicates a negative impact on QOL while a positive average effect indicates a positive impact on QOL.
- Falling and being at risk of falling were the greatest negative factors affecting QOL.
  - –Falling decreased the average physical component score (PCS) and mental component score (MCS) by 5.6 and 3.1 points, respectively.
  - –Risk of falling decreased the average PCS and MCS scores by 8.3 and 2.5 points.

Quality of Life

Conclusions

- In this study, the percentages of respondents who fell (21%) and were at risk of falling (17%) were lower than in the HOS dataset. (2)
  - –These differences are likely attributable to the overall better health status of the AARP® Medicare Supplement Insurance plan members in our study compared to the HOS members as measured by the higher PCS and MCS scores.
- Demographic and clinical predictors of falls and being at risk of falling were largely consistent with past reports.
- Falling or being at risk of falling had a stronger negative influence on QOL than most of the comorbidities measured, namely heart problems, diabetes, respiratory conditions and arthritis, among others.

Limitations

- Consists only of beneficiaries enrolled in an AARP® Medicare Supplement Insurance plan.
- Limited to respondents at least 65 years of age.
- Limited number of respondents (40%) and limited time frame of study (12 months).
- Self reported nature of survey.
- Temporal relationship of the falls or risk of falling and QOL is not known.

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AARP® Medicare Supplement Plans insured by UnitedHealthcare Insurance Company

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