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# Secondary Mental Health Conditions Reported by Rural Adults with Mobility and Sensory Impairments

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# Research Report

## Secondary Mental Health Conditions Reported by Rural Adults with Mobility and Sensory Impairments

People with disabilities who live in rural areas experience higher rates of disability than their urban counterparts. At the same time, they have less access to services and supports to address both medical and disability related needs. Based on their circumstances, they may be at greater risk for mental health conditions; however, little is known about their mental health status.

The purpose of this study was threefold: 1) to examine the incidence of mental health symptoms reported by a population-based sample of adults with disabilities, 2) to develop a brief screening instrument to identify adults with disabilities who are experiencing elevated mental health symptoms, and 3) to examine how this screening instrument performs over time.

### Methods

We developed a population-based sampling frame of rural adults with mobility and sensory impairments by randomly selecting 6000 households across three rural zip codes in MT, KS and CA (2000 each). Letters were mailed to the households in two waves about three weeks apart and the recipients were asked to self-identify disability status based on the American Community Survey (ACS) disability questions. We received 190 responses from individuals who answered yes to at least one of the six ACS disability questions and who were willing to complete a survey. Of the total sample identified, 166 returned a survey at any one time point (July, October, January, May and August of 2010-2011) and 114 returned surveys at all five time points.

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Based on all returns, participants were 54.4 years old, 59.4% were women, and 17.4% were veterans. On average, they had 13.8 years of education. The sample was predominantly Caucasian (82.8%) with Native Americans overrepresented (14%) due to the location of one community sampled, and Other (3.6%). Health conditions and impairments most frequently reported were neck or back pain (68%), arthritis (59.2%), eye/vision problems (45%), emotional problems (42%), hypertension (33.8%), fractures/joint injury (30.6%), hearing problems (22.9%) and lung or breathing problems (21%).

### Measures

In addition to demographics, we collected the Symptom Checklist 90-R (SCL-90-R, Derogatis, 1983) that measures nine psychiatric symptom dimensions: somatization, compulsiveness, uncertainty in social settings, depression, anxiety, hostility, phobic anxiety, paranoid thinking and psychoticism. For these analyses, we computed the average rating across all 90 items, a measure of symptom severity known as the Global Severity Index (GSI). Finally, we collected the Health Related Quality of Life – 14 (HRQOL) (Centers for Disease Control, 2011). This measure includes overall health ratings along with the number of

days out of 30 individuals report mental and physical health symptoms.

### Analysis

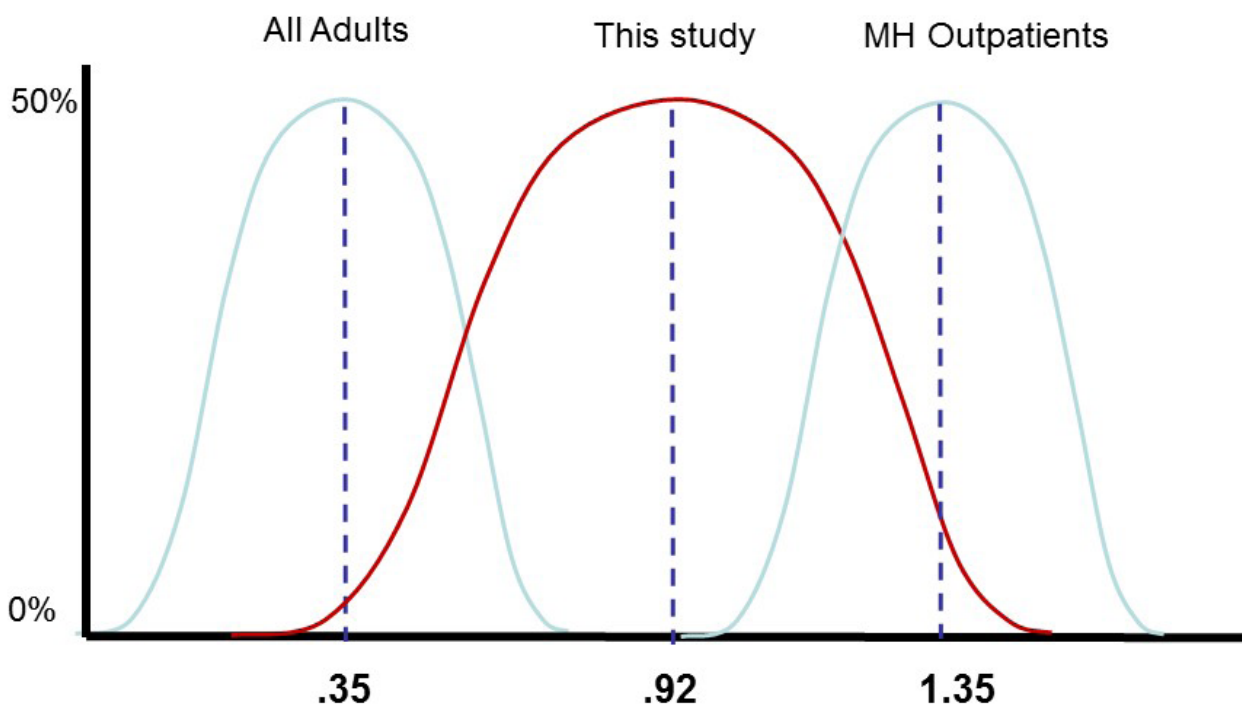
Data were analyzed using SPSS 18.0 multiple regression procedures that regressed Health Related Quality of Life items on the subscale scores of the SCL-90-R Global Severity Index and SCL-90-R subscales. Regression models were developed using the first wave of data and then cross-validated on subsequent waves to examine the predictive value of the model over time.

### Results

The results suggested three items accounted for substantial variance in the overall symptom level as measured by the GSI. Overall, the average GSI scores for this sample fell between the average scores for community samples of the general population and samples of mental health center outpatients used for validating the SCL-90-R.

Figure 1 includes “histograms” drawn to show how the distribution of scores in this study overlapped both the general population and patient population reference samples reported by Derogatis (1983).

Figure 1: Peer SCL-90 Distribution



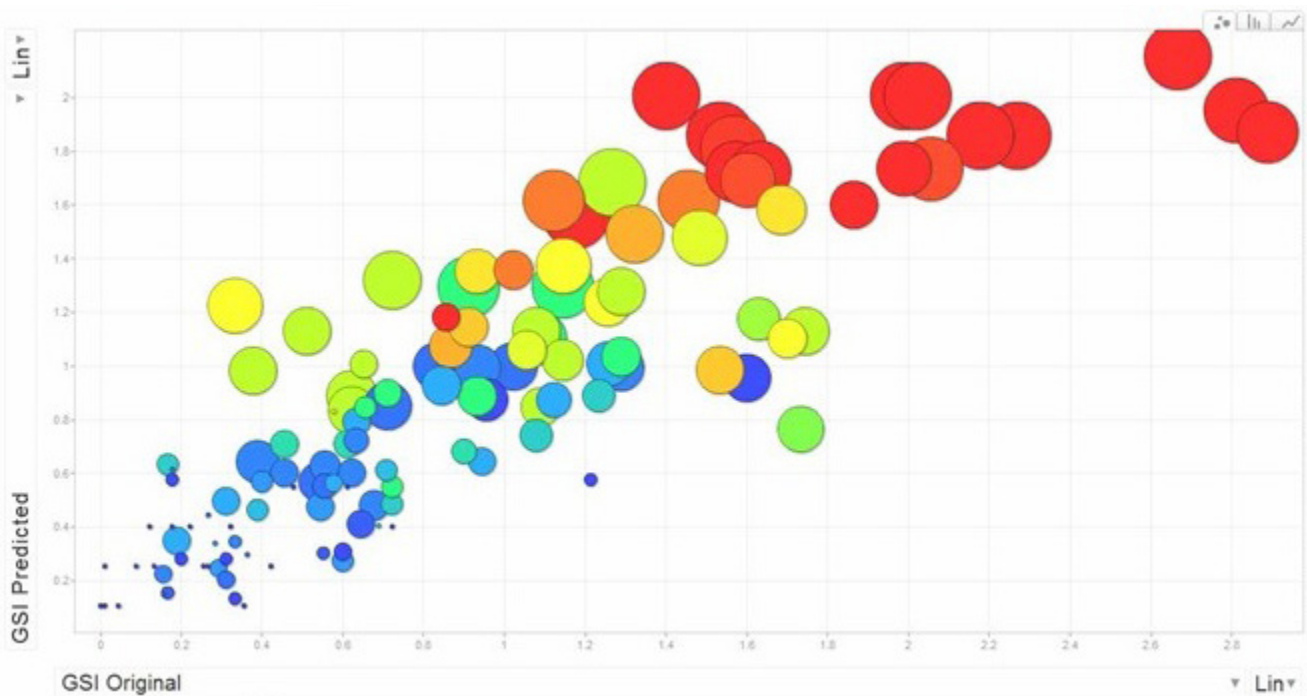
Note that in addition to the overlap, this sample had a much wider range of scores.

With regard to the HRQOL variables included in the regression model (see below), respondents reported an average of 10.9 days out of the last 30 days that they felt "sad, blue or depressed" and 11.4 days when they felt "worried tense or anxious." They reported an average score of 3 out of 5 for their overall health, indicating their health was "alright" over the past two months. The multiple regression analysis on the first wave of data indicated that 70.3% of the reliable variance in the GSI scores could be accounted for by participants' ratings of their overall health and the number of days they felt depressed and anxious. Using this same model on the next four data waves (2-5) showed similar results with 61.5, 73.1, 67.9 and 65.7 percent of the variance accounted for by the three item model. These results suggest that the respondents' ratings of health, depression and anxiety were significantly and substantially related to their overall symptom levels over a period of 15 months. Other demographic variables did not make substantial contributions to the prediction of GSI scores. To examine how depression and anxiety are related to this predictive model, we plotted

the GSI scores (X axis) against the GSI scores predicted by the regression model (Y axis). Next, we coded the individual data point by anxiety (red=more days with anxiety and blue fewer days) and size (larger=more days with depressed mood and small fewer days) for the first wave of data.

Figure 2 shows the linear prediction of GSI scores and the gradient of anxiety (color) and depression (size) scores. In general, as GSI scores increased, the colors changed from blue to red demonstrating the relationship between anxiety and GSI scores. Similarly, the size of the plotted points grew as GSI scores increased indicating more days with depression. The relationship between GSI, anxiety and depression were strongest at for extreme scores with much of the error in the equation's prediction occurring in the mid-range for each variable. While not depicted in figure 2, overall health ratings contributed significantly to the regression equation accounting for nearly 5% of the variance in GSI scores after depression and anxiety had already entered the equation. Health was negatively correlated with GSI scores in these analyses.

Figure 2: PEER Raw by predicted GSI Scores



## Discussion

Overall, these results showed rural people with disabilities experience higher rates of mental health symptoms as measured by the SCL-90-R than the general population. Depression, anxiety and overall health are good indicators of the overall symptom burden and constitute an efficient and accurate screening measure.

These results indicate that mental health symptoms are related to health status, and that appropriate community mental health services and behavioral medicine services that address the whole person are needed.

Rural people with disabilities are among the most disadvantaged people in America. In addition to living in largely resource poor environments, they often lack opportunities for mental health services that are sensitive to the challenges of living with a disability.

Unfortunately, mental health providers who are knowledgeable about physical health and disability can be difficult to find in urban areas and are practically non-existent in rural areas. To fill the gap, other intervention models are needed to identify people with disabilities who are experiencing elevated mental health symptoms, along with novel approaches to meet their needs.

In conjunction with this longitudinal study, we conducted a naturalistic study using rural peer support providers to address mental health needs of rural adults with mobility and sensory impairments.

## Next Steps

This research prompts further inquiry to address the mental health needs of rural people with disabilities. Of particular interest is conducting additional analyses to examine the longitudinal effect of changes in health status on mental health symptoms, and examining the effectiveness of providing peer support through Centers for Independent Living for improving mental health.

## References

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