The Association Between a Loneliness Resource Guide and Health-Related Quality of Life Among a Medicare Advantage Population

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Background

- Loneliness and social isolation have been associated with worsening health-related quality of life (HRQOL), increased mortality, and other poor physical and mental health outcomes in older adults.[1-3]
- Early identification of loneliness and related patient characteristics can guide more targeted and effective interventions.

Objective

To assess the impact of dissemination of a loneliness resource guide on Healthy Days in a Medicare Advantage (MA) population with a high likelihood of experiencing loneliness.

Methods

Study Design: Randomized study.

Population:

- Adults enrolled in a Medicare Advantage (MA) plan from Humana Inc., a national health and wellbeing organization.

Patient Selection:

- Applied Loneliness & Social Isolation Predictive Model version 1.0 (L&SI PM V1.0) to predict likelihood of experiencing loneliness in a random sample of 50,000 adults enrolled in a MA plan.
- Randomized 1:1 to intervention or control group 10,000 members who had the top 20% scores (i.e., predicted to be the most lonely) and were age over 65 (Fig 1).

Intervention:

- Loneliness Resource Guide sent via direct mail to intervention group (Fig 2).

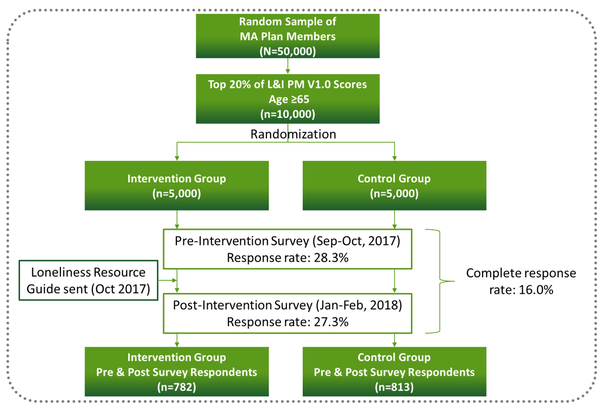
Assessments:

- Interactive voice response (IVR) telephone survey collected:
  - Physically and mentally unhealthy days, according to the 4-item HRQOL-4 survey tool.[4] Total unhealthy days (UHD) was the sum of physically and mentally unhealthy days.
  - Three-Item Loneliness Scale.[5] Respondents assigned a numeric score (1-rarely, 2-some of the time, 3-often) to each of 3 measures: lacking companionship, feeling left out, and feeling isolated. The sum of these scores created a loneliness index with a range of 3-9.

Analysis:

- Repeated measures linear regression model was built to assess the longitudinal association between the intervention and changes in mean UHD and mean Loneliness scores.
- Stratified posthoc analyses were conducted to identify characteristics associated with greatest change in UHD.

Figure 1. Study Flow

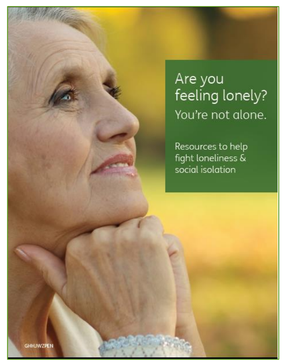


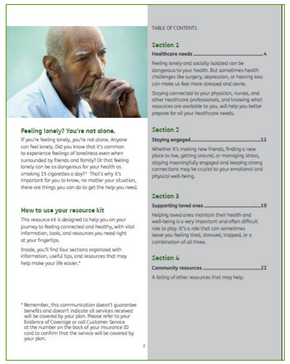
L&SI PM V1.0, Loneliness & Social Isolation Predictive Model version 1.0

Humana.

Results

Figure 2. Loneliness Resource Guide





- The 24-page, booklet contains information, worksheets, and resources.
- The content explains loneliness and its risk factors, provides tools and tips, and directs the readers to accessible resources to help counter feelings of loneliness and social isolation.

Table 1. Characteristics of Respondents to Both Pre and Post Surveys*

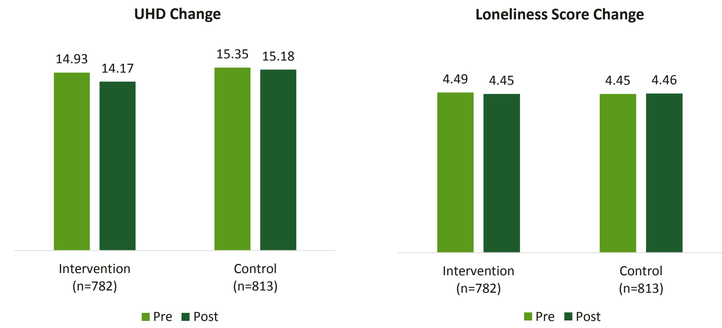
Characteristics	Intervention n=782	Control n=813	*P* Value
Mean age, y ± SD	73.9 ± 6.1	73.9 ± 6.6	0.935
Demographics, n (%)			
Women	564 (73)	572 (71)	0.436
White	677 (87)	687 (86)	0.534
Disabled	264 (34)	283 (35)	0.659
Dual eligibility	109 (14)	127 (16)	0.344
Low income	173 (22)	205 (25)	0.147
Clinical history, n (%)			
Coronary artery disease	231 (30)	267 (33)	0.155
Chronic heart failure	138 (18)	143 (18)	0.976
COPD	216 (28)	211 (26)	0.452
Diabetes	314 (40)	310 (38)	0.408
Hypertension	625 (80)	657 (81)	0.655
Depression	340 (44)	383 (47)	0.145
Inpatient admission	87 (11)	93 (11)	0.843
ED visits	162 (21)	179 (22)	0.526
Medicare Advantage product, n (%)			
Individual plan	730 (93)	760 (94)	0.916
Risk arrangement	185 (24)	202 (25)	0.580

COPD, chronic obstructive pulmonary disease; ED, emergency department

*Participants who answered all 5 questions in both the pre and post surveys.

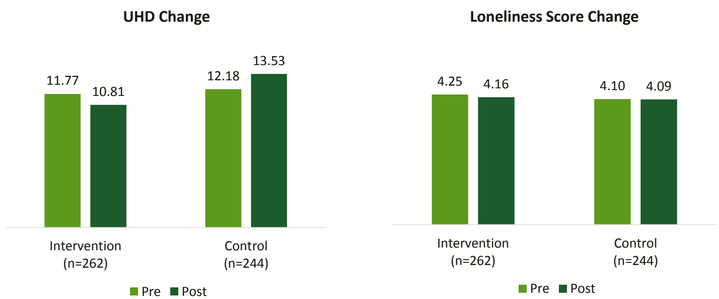
- Chronic diseases were evaluated during the 27 months before the pre-intervention survey.
- Inpatient admission and ED visits were evaluated during the 6 months before the pre-intervention survey.

Figure 3. Pre- to Post-Intervention Changes in Score Among All Complete Respondents



According to repeated measures analysis, there was no association between dissemination of the intervention and changes in either UHD (intervention minus control, –0.58; 95% CI: –2.15, 0.98) or Loneliness score (intervention minus control, –0.05; 95% CI: –0.19, 0.10).

Figure 4. Pre- to Post-Intervention Changes in Score Among Complete Respondents Who Aged into* Medicare and Were Without Depression†



According to repeated measures analysis, respondents in the intervention group had a more beneficial change in UHD (intervention minus control, –2.31; 95% CI: –4.96, 0.35) and in Loneliness score (intervention minus control, –0.09; 95% CI: –0.30, 0.13). Differences were greater than in the overall study population but were nonsignificant.

Aged into refers to Medicare eligibility based on age as opposed to disability.

†As indicated by no diagnosis of depression in medical claims data.

Conclusions

- Our analyses linked dissemination of the Loneliness Resource Guide to a –0.58 change in UHD and –0.05 change in Loneliness score; neither improvement trend was statistically significant.
- In a subgroup of patients who aged into Medicare and did not have a diagnosis of depression, repeated measures analysis linked dissemination of the Loneliness Resource Guide to a nonstatistically significant greater reduction in UHD over time.
- Future research may further explore the impact of dissemination among the aged-in/no depression subpopulation.

Limitations

- This study is subject to inherent limitations of self-report surveys and claims data, and participation bias in the post surveys.
- The IVR post-intervention survey did not assess if respondents had received and used the Loneliness Resource Guide.
- The study was not designed to differentiate between correlation and causation.
- Because we tested the intervention in a Medicare population, the results might not be generalizable to other populations.

Acknowledgement

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Disclosures

All authors are employees of Humana, Inc.; they have no other potential conflicts of interest to declare.

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