

LETTERS TO THE EDITOR

RESEARCH

A single question assessment of loneliness in older adults during the COVID-19 pandemic: A nationally-representative study

INTRODUCTION

Loneliness is common, particularly during the COVID-19 pandemic, prompting many clinicians and researchers to assess for loneliness.^{1–3} However, the best approach for screening is unclear. One option is a single question directly asking about loneliness (“how often are you lonely?”). However, concerns about sensitivity or stigma surrounding self-identifying as “lonely” have led to use of multi-item scales that avoid the term “lonely,”⁴ which can be time-intensive or unfamiliar to clinicians.⁵ The COVID-19 pandemic presents a unique opportunity to revisit the use of the single loneliness question for two reasons. First, societal perceptions of identifying as “lonely” may have changed due to social restrictions, making it a common experience more openly discussed. Second, national surveys now (a) include both single direct loneliness questions and longer scales, and (b) have similar administration protocols for each assessment, making comparisons of performance more feasible. If the single question performs similarly to longer scales, it could reduce barriers to loneliness assessments in clinical and research settings. Our objective was therefore to compare the relationship between the single question and scale loneliness assessments in COVID-19 and pre-pandemic samples.

METHODS

We used the nationally-representative National Social Life Health and Aging Project (NSHAP), including participants interviewed in Round 3 (R3) (2015–2016), and re-interviewed in the COVID-19 supplement (September 14, 2020–January 27, 2021) (conditional response rate: 58%), yielding a sample of 2168 community-dwelling older adults.⁶ Loneliness was measured using a single direct question (“how often do you feel lonely”) and the gold-standard 3-item UCLA Loneliness scale (range: 3–9 points) at both study time points.⁷ There were notable

differences in administration of each assessment in pre-pandemic data which were resolved in COVID-19 data (described in Table S1). For the single loneliness assessment, we categorized responses of “some of the time” or higher as indicating loneliness based on prior literature and consistency of this category between waves.^{8,9} Demographic and health measures included age, gender, marital status, education, depression, self-reported happiness, and self-reported health.

We first re-established the optimal cut-point to translate between the single question and the UCLA scale (range: 3–9 points) using receiver operating characteristic (ROC) curves,⁴ and computed the area under the curve (AUC), a global measure of test discrimination. We prioritized a cut-point minimizing false negatives as more harm might arise in a clinical setting from failing to identify individuals as lonely. We then examined the bivariate associations of the single question and the UCLA scale with demographic and health measures to demonstrate construct validity and whether different sub-groups responded differently to each assessment. Analyses were stratified by the time of data collection (2015–2016 vs. COVID-19) and made use of provided sample weights.

RESULTS

At baseline, participants were on average 63.9 years old (SD = 8.8, 50–64: 55%, 65–74: 32%, 75–84: 11%, 85–94: 2%), 56% female, 71% married, 9% Black/African American, and 6% Hispanic, Non-White. There was an increase in loneliness from pre-pandemic to COVID-19 data for both loneliness assessments (single question: 28%–32%, p -value = 0.007; UCLA scale: 18%–21%, p -value = 0.03). ROC curves demonstrated the positive response on the single question corresponded most optimally with a cut-point of ≥ 6 points on the UCLA scale, and that the AUC was higher in the COVID-19 data (AUC = 0.908, 95% CI: 0.89–0.92) compared with the pre-pandemic data (AUC = 0.751, 95% CI: 0.73–0.77, Figure 1). The single

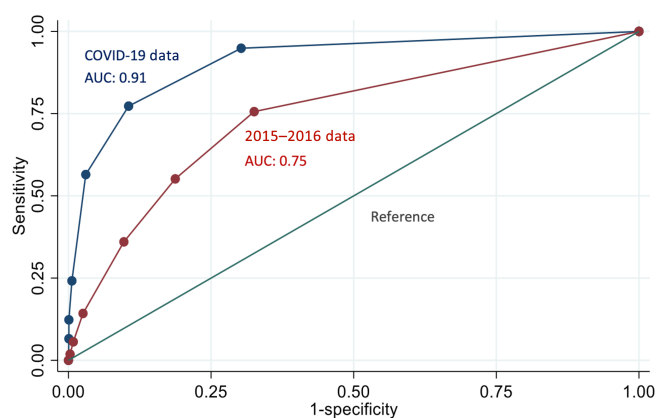


FIGURE 1 Receiver operating characteristic (ROC) curve to determine the optimal cut-point on the 3-item UCLA loneliness scale in relation to the single direct loneliness question. Two lines indicate separate ROC curves for COVID-19 data (blue) and 2015–2016 data (red). AUC, area under the curve

question had 90% sensitivity and 83% specificity for identifying individuals scoring ≥ 6 points on the UCLA scale, with a lower rate of false negatives in COVID-19 data compared to pre-pandemic data (3% vs. 10%; Table S2). Loneliness differed by education level when using the single question, but did not differ when using the UCLA scale (p -value for difference = 0.02) (Table 1). Health measures, including depression, happiness, and self-rated health, were strongly correlated with both loneliness assessments at a similar magnitude.

DISCUSSION

In a nationally-representative sample of community-dwelling older adults, the single question “how often are you lonely?” was sufficient to classify individuals as lonely during the COVID-19 pandemic. The single

TABLE 1 Correlations of direct and indirect loneliness measures with demographic and mental health measures during COVID-19

	NSHAP COVID-19 data				Difference between correlations p -value ^a
	Single item loneliness	Correlation	UCLA 3-item loneliness	Correlation	
Age ≥ 70		−0.06		−0.07	0.77
% lonely among <70	33%		22%		
% lonely among ≥ 70	30%		19%		
Gender		0.22		0.18	0.18
% lonely among men	25%		16%		
% lonely among women	37%		24%		
Married/partnered		−0.33		−0.31	0.56
% lonely among not married/partnered	47%		32%		
% lonely among married/partnered	26%		16%		
Education		−0.12		0.01	0.02
% lonely among those with less than HS	40%		20%		
% lonely among those with HS or more	31%		21%		
Depression ^b		0.59		0.59	0.97
% lonely among not depressed	23%		13%		
% lonely among depressed	66%		50%		
Happiness ^c		−0.66		−0.62	0.25
% lonely among not happy	64%		46%		
% lonely among happy	19%		10%		
Self-rated health		0.28		0.30	0.43
% lonely among good/v. good/excellent	29%		18%		
% lonely among poor/fair health	47%		35%		

Abbreviations: HS, high school; V, good–very good.

^a p -Value indicate whether correlations between the single item loneliness assessment and covariates, and UCLA 3-item loneliness assessment and covariates, were significantly different.

^bDepression was measured using the Center for Epidemiologic Studies-Depression Scale.

^cHappiness was determined based on the question “If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole”

question misclassified only 3% of those identified as lonely by the longer measure. Notably, both measures were strongly, and similarly associated with mental health, including depression, happiness, and self-rated health, suggesting strong construct validity of the single question and that both assessments can provide important clinical insight into psychological well-being. The substantially stronger association between the single question and 3-item UCLA scale during than before the pandemic may be attributable to (1) normalization and reduced stigma of identifying as lonely, and (2) the use of identical administration protocols for the two assessment types during the pandemic in contrast to substantial differences in prior rounds of NSHAP and other national surveys (see Table S1).⁴ Taken together, while longer scales remain appropriate for comprehensive assessments of loneliness, results suggest a single question is a reasonable candidate to reduce barriers to screening in time-limited surveys or clinical settings, and could be incorporated into comprehensive, multi-domain assessments of the social determinants of health. Results are generalizable to community-dwelling adults without severe cognitive impairment, age 50 or older. An important limitation is that NSHAP respondents were relatively anonymous, in contrast to clinical settings where individuals are not de-identified; stigma and sensitivity may consequently still play a role in false negative responses to the single question. Future work in diverse clinical settings can determine if the single question loneliness assessment performs similarly to these survey results.

CONFLICTS OF INTEREST

All authors report no conflicts of interest.

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AUTHOR CONTRIBUTIONS

Conception and design: Ashwin A. Kotwal, Irena Censer, and Louise Hawkey. *Acquisition of the data:* Linda Waite and Louise Hawkey. *Analysis and interpretation:* Ashwin A. Kotwal, Irena Censer, Linda Waite, Alexander Smith, Carla Perissinotto, and Louise Hawkey. *Drafting and*

revising manuscript: Ashwin A. Kotwal, Irena Censer, Linda Waite, AS, Carla Perissinotto, and Louise Hawkey. *Approval of final manuscript:* Ashwin A. Kotwal, Irena Censer, Linda Waite, Alexander Smith, Carla Perissinotto, and Louise Hawkey.

SPONSOR'S ROLE

The sponsor had no role in the design, methods, data collection, analysis, or preparation of the paper.

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REFERENCES

1. Kotwal AA, Holt-Lunstad J, Newmark RL, et al. Social isolation and loneliness among San Francisco Bay Area older adults during the COVID-19 shelter-in-place orders. *J Am Geriatr Soc.* 2021;69:20-29.
2. Holaday LW, Oladele CR, Miller SM, Dueñas MI, Roy B, Ross JS. Loneliness, sadness, and feelings of social disconnection in older adults during the COVID-19 pandemic. *J Am Geriatr Soc.* 2021;70:329-340.

3. Hawkley LC, Finch LE, Kotwal AA, Waite LJ. Can remote social contact replace in-person contact to protect mental health among older adults? *J Am Geriatr Soc.* 2021;69:3063-3065.
4. Shiovitz-Ezra S, Ayalon L. Use of direct versus indirect approaches to measure loneliness in later life. *Res Aging.* 2012; 34:572-591.
5. Perissinotto C, Holt-Lunstad J, Periyakoil VS, Covinsky K. A practical approach to assessing and mitigating loneliness and isolation in older adults. *J Am Geriatr Soc.* 2019;67: 657-662.
6. National Social Life, Health, and Aging Project (NSHAP); 2021. Accessed December 16, 2021. <https://www.norc.org/Research/Projects/Pages/national-social-life-health-and-aging-project.aspx>
7. Hughes ME, Waite LJ, Hawkley LC, Cacioppo JT. A short scale for measuring loneliness in large surveys: results from two population-based studies. *Res Aging.* 2004;26:655-672.
8. Perissinotto CM, Cenzer IS, Covinsky KE. Loneliness in older persons: a predictor of functional decline and death. *Arch Intern Med.* 2012;172:1078-1084.
9. Choi EY, Farina MP, Wu Q, Ailshire J. COVID-19 social distancing measures and loneliness among older adults. *J Gerontol B Psychol Sci Soc Sci.* 2021;1-12.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

Table S1. Differences in administration protocol of the Single Item and UCLA 3-Item loneliness assessments between NSHAP Round 3 (2015–2016) and COVID-19 data.

Table S2. Relationship of Single Loneliness Question to 3-item UCLA Loneliness Scale in data collected during the COVID-19 pandemic and pre-pandemic (2015–2016). Highlighted boxes indicate the rates of false negatives when using the single question. All percentages are row percentages.

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Psychotropic and pain medication use in nursing homes and assisted living facilities during COVID-19

INTRODUCTION

The direct impact of COVID-19 on nursing home and assisted living facility residents in the United States has been devastating. Since the start of the pandemic, roughly 1-in-12 residents in these facilities have died from COVID-19, a toll that represents around 35% of all COVID-19 deaths nationally.¹ Beyond these staggering figures, the indirect effects of COVID-19 on these individuals and the care they received are not yet fully understood.

One important indicator of how nursing homes and assisted living facilities have adapted to COVID clinically is in how medication use has changed. Prescribing can be an early signal of potentially inappropriate care and/or of a changing patient population. Our study focuses on prescribing of select psychotropic and pain medications. Nursing home prescribing for these medications has attracted scrutiny, and the potential is high for negative health consequences among older residents, many of whom have dementia and severe pain.^{2–5}

METHODS

We used pharmacy claims from IQVIA's Community LRx and LTC-LRx products, respectively capturing around

95% of retail and 75% of nursing home/assisted living claims (our data do not include facility identifiers or distinguish between facility types), regardless of payer. We focus on individuals 65 years and older with LTC LRx claims (roughly 400,000 each month), generally comparing medication use before and after March 2020 (Table S1). We focused on the following medication categories: antipsychotics; benzodiazepines; antidepressants; opioids; muscle relaxants; and mood stabilizers (Table S2).

Analyses examined, by month, the proportion of: i) individuals with any use; ii) individuals who initiated use; and iii) newly admitted individuals who initiated use. For outcome ii, we identified the proportion of stays with a prescription fill among stays that began 31 days or more previously and did not have use of that medication in the previous 30 days. For outcome iii, we analyzed the proportion of newly admitted individuals with a new fill and no use in the 30 days prior to the admission date.

RESULTS

Across our medications of interest, the prevalence and initiation of use among individuals in nursing homes