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Hearing Loss is Associated with Poorer Ratings of Patient-Physician Communication and Healthcare Quality

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To the Editor

Hearing loss (HL), a chronic condition that affects nearly two-thirds of older adults in the United States,¹ has been independently associated with dementia, poor health outcomes and mortality.² HL could potentially interfere with patient-physician communication, and thus quality of healthcare. We investigated, in a nationally representative sample of adults, the associations between HL and 1) patient perceptions of quality of patient-physician communication, and 2) patient perceptions of quality of healthcare.

METHODS

Pooled data were derived from years 2002–2011 of the Medical Expenditure Panel Survey Household Component (MEPS-HC), a nationally representative survey of the US civilian non-institutionalized population.³ Participants were included if they were 18 years or older and visited a physician at least once in the previous year. Data were collected through computer-assisted personal interviews. HL was based on self-report and summarized as a binary variable (“No hearing loss” versus “Any hearing loss” [excluding deafness]). Perception of patient-physician communication was assessed with the Consumer

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Study concept and design: Mick, Lin

Acquisition of the data: Foley

Analysis and Interpretation of data: Mick, Foley, Lin

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Assessment of Healthcare Providers and Systems (CAHPS) composite measure developed for the Agency for Healthcare Research and Quality.⁴ Participants indicated how often their doctor(s) explained things clearly, listened carefully, showed respect for what they had to say, and afforded the adequate time (never (1), sometimes (2), usually (3) or always (4)). Responses to the 4 items were summed and averaged for each participant.⁵ The CAHPS quality of healthcare item asked participants to rate their care overall from 0 (worst possible) to 10 (best possible).

The associations of HL with ratings of patient-physician communication and healthcare were analyzed with logistic regression (rating scores > versus 50th percentile). We adjusted for potential demographic and health confounders including sex, age, race/ethnicity, education level, income, hearing aid use, physical health status (Short Form-12 version 2 physical component summary), mental health status (Short Form-12 version 2 mental component summary), and histories of hypertension, diabetes, stroke, hypercholesterolemia, myocardial infarction, coronary heart disease, other heart disease, and smoking. Multiplicative interaction terms were included to determine if age, sex, hearing aid use or self-reported vision impairment (any versus none) modified the associations. Analyses accounted for the complex sampling design. Missing values due to non-responses, refusals, and the survey skip pattern were excluded. Analyses were performed with STATA 12.0 (StataCorp).

RESULTS

Our analytic cohort was comprised of 122,556 participants (9,747 with HL; 112,809 with normal hearing). Individuals with HL were more likely to be older, male, of lower socioeconomic status, and in poorer health (Table 1). In fully adjusted models, individuals with HL versus those with normal hearing had significantly lower odds of having ratings of patient-physician communication (Odds ratio [OR] 0.906, 95% confidence interval [CI]: 0.858, 0.957; $p < 0.001$) and overall healthcare (OR 0.939, 95% CI: 0.890, 0.990; $p = 0.021$) that were greater than the median. Sex, age, hearing aid use, and self-reported visual impairment did not significantly modify these associations (data not shown).

DISCUSSION

In this nationally representative study of adults in the United States, self-reported HL was independently associated with lower ratings of patient-physician communication and overall healthcare. On average, individuals with HL had a ~10% and 6% lower odds, respectively, of having more favorable ratings of their patient-physician communication and healthcare experiences compared to individuals with normal hearing. Patients with HL may have greater difficulty understanding or engaging in discussions with their physicians, especially in the context of noisy environments or unfamiliar medical concepts/terminology. Doctors may also become frustrated or unaware of effective communication strategies when conversing with patients with HL. These factors could plausibly impact the quality of patient-provider communication and overall rating of healthcare.

Effective communication is necessary for patient-centered care that is respectful and responsive to individual preferences, needs, and values, and facilitates knowledge transfer, shared decision-making, and patient autonomy.⁶ It is an important predictor of how patients perceive quality of care.⁵ Good communication may improve health outcomes in certain situations. In a systematic review of randomized controlled trials and observational studies that occurred in a variety of healthcare settings, 16 of 21 studies showed positive correlations between patient-physician communication and outcomes like emotional health, symptom resolution, pain control, functional status, blood pressure and glucose control.⁷

Limitations of our study are the use of self-reported assessments of HL, which may have resulted in exposure misclassification, and the possibility of residual confounding. Future research should investigate whether HL is associated with objective measures of healthcare quality and how patient-physician communication could be improved for patients with HL. Physicians should ensure that their patients with HL fully understand healthcare discussions.

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Table 1

Study participant characteristics according to self-reported hearing loss (HL) status.

Characteristic	No HL Col %	Any HL Col %	p-value ¹
Male	40.5	57.1	< .001
Age, mean (SE)	47.2 (0.062)	62.6 (0.19)	< .001
Race			< .001
White	83.2	91.2	
Black	10.7	4.9	
American Indian/Alaska Native	0.7	0.7	
Asian	3.9	1.5	
Hawaiian/Pacific Islander	0.3	0.1	
Multiple races	1.3	1.6	
Education			< .001
Less than high school	12.5	16.3	
High school or GED	30.6	35.4	
Some college or university	25.8	24.1	
College/university graduate	31.1	24.3	
Family income			< .001
Poor or negative	9.8	10.2	
Near poor	3.5	5.3	
Low income	11.5	14.2	
Middle income	29.6	29.7	
High income	45.6	40.6	
Physical health, mean (SE) ²	48.9 (0.04)	41.2 (0.15)	< .001
Mental health, mean (SE) ³	50.5 (0.03)	49.2 (0.13)	< .001
Diabetes	9.6	18.4	< .001
Hypertension	33.2	54.5	< .001
Angina pectoris	2.6	8.4	< .001
Coronary heart disease	4.9	14.5	< .001
Other heart disease	9.5	21.7	< .001
Myocardial infarction	3.6	10.7	< .001
Stroke	3.1	9.8	< .001
Smoker	17.2	17.7	> .05

¹P-value for test of no difference between HL groups, determined using Chi-square test for categorical variables and 2-sided Student's t-test for continuous variables

²Physical component summary score of the Short-form 12 version 2 (higher is better)

³Mental component summary score of the Short-form 12 version 2 (higher is better)