Validation of a Single Question Health Literacy Screening Tool for Older Adults

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Abstract

Objectives: Health Literacy skills are important for people of all ages. Older adults have the lowest health literacy rates. The purpose of this study was to assess health literacy rates and validate the use of a screening tool with older adults. **Methods:** Participants included a convenience sample, age 65 years or older, English speaking with corrected vision of 20/100 or better and typical cognitive skills. Participants completed the 36-item Short Test of Functional Health Literacy Assessment (STOFHLA) and a single item screening (SIS) tool. Results of STOFHLA and SIS were compared using nonparametric statistics. **Results:** Of the 64 participants, 94% had adequate scores on the STOFHLA, while 64% self-reported confidence in filling out medical forms, $p = .006$, $\chi^2 = 7.606$, $df(1)$. **Conclusion:** Results suggest that use of health literacy screening tools for older adults may be of value. Additional studies are needed to expand the study sample and validate the findings of this study.

Introduction

Older adults (age 65 years and older) continue to be the fastest growing population in the United States and developing countries (United Nations Population Division, Department of Economic and Social Affairs, 2015). Health literacy is an important, modifiable factor which impacts self-management and health outcomes for older adults (Geboers, de Winter, Spoorenberg, Wynia, & Reijneveld, 2016; Serper et al., 2014). Ratzan and Parker (2000) define health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (p. 4). Additional health literacy definitions have been identified and supported to include six commonly used definitions within current publications (Malloy-Weir, Charles, Gafni, & Entwistle, 2016). For this publication, the Institute of Medicine's definition was used as it was deemed most appropriate by the authors. Low health literacy is a particularly significant problem among persons over age 65 years, the majority of who score below basic competency levels (Kutner, Greenburg, Jin, & Paulsen, 2006). Socioeconomic status, age, race, cognition, and education level are considered contributing factors of health literacy levels, with age as one of the highest correlates of low health literacy (Cutilli, 2007). Changes in cognition and physical abilities (e.g., eyesight) associated with aging are contributing factors to lower health literacy in older adults (Cutilli, 2007).

Multiple health literacy assessment tools have been identified for older adults (Chesser, Keene Woods, Smothers, & Rogers, 2016). In addition, there is some evidence that results from a three-question screener or a single item screening (SIS) tool may be comparable (valid and reliable) with longer assessments to identify individuals with low health literacy (Bishop et al., 2016; Chew et al., 2008; Quinzanos, Hirsh, Bright, & Caplan, 2015). However, no single study has reported the validation of health literacy assessment tools for use in an older adult population (65 years of age or older) (Chesser et al., 2016). The purpose of this study was to assess health literacy rates and validate a SIS health literacy tool for adults aged 65 years and older. This study was

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part of a larger study of older adult health literacy and health behaviors.

Method

Study Participants

Participants included a convenience sample. Respondents, aged 65 years or older, English speaking with corrected vision of 20/100 or better and typical cognitive skills, were recruited from multiple senior living center locations in a Midwestern state. Recruitment was conducted from August to December 2015. An information sheet about the study was made available to all participants when they attended local community events for older adults. After learning about the study from the recruitment flyer, the participants indicated to a member of the community site or the research team that they were interested in participating in the study. The member of the research team scheduled an appointment at the convenience of the participant. The participant was directed to a private area to meet with the investigator to learn about the study, its requirements, and eligibility. Participants were guided through the informed consent process, and the investigator answered additional questions about study activities. Implied consent was obtained from participants. If the person chose not to participate, he or she was thanked. Those who consented completed an in-person survey. Questionnaire items included the following: demographics, the *Standardized Mini-Mental State Examination* (for inclusion in the study), vision screening (for inclusion in the study), CAGE questionnaire (smoking only), *Chronic Conditions, Geriatric Depression Scale* (GPS), *Social Support, Short Test of Functional Health Literacy Assessment* (STOFHLA), and the SIS tool for health literacy assessment. Trained investigators collected participants' responses through Qualtrics® data management system. In addition, researchers provided a binder with laminated copies of each survey item for the participant.

As part of a larger survey, participants completed the 36-item STOFHLA using the standard procedure, scoring, and interpretation (Baker et al., 1999). A SIS for health literacy, "How confident are you filling out medical forms by yourself?" adopted from Chew, Bradley, and Boyko (2004) was administered during the same data collection session. The study was approved by the University Institutional Review Board for the protection of human subjects. No incentive was provided for study participants.

Data Analysis

General frequencies were calculated for demographic questions. Results of the health literacy assessments (STOFHLA and SIS) were compared using nonparametric statistics. All data were analyzed using IBM SPSS Statistical Software Version 19 (IBM Corp., 2010).

Table 1. Demographic Characteristics of Participants (*N* = 64).

	n	Percentage (%)
Household income		
< US$25,000	14	21.9
US $25,0000-US $39,999	14	21.9
US 40,000-US 49,999	8	12.5
US$50,000-US$74,999	19	29.7
US$75,000-US$99,999	5	7.8
>US$100,000	4	6.3
Health insurance		
Medicare/Medicaid	39	60.9
PPO	18	28.1
HMO	6	9.4
POS	1	1.6
Other	1	1.6
Employment		
Full-time	11	17.2
Part-time	6	9.4
Student	1	1.6
Not employed	47	73.4
Technology use—Cell phone use		
Cell phone with Internet	41	64.1
Cell phone without Internet	15	23.4
No cell phone	9	14.1
Technology use—Computer access		
Use computer at work	14	21.9
No computer at work	47	73.4
PDA with Internet	1	1.6
Technology use—Home computer		
Computer at home	52	81.3
No access at computer at home	12	18.8
Technology use—Public computer		
Access to public computer	9	14.1
No access to public computer	55	85.9

Note. PPO = Preferred Provider Organization; HMO = Health Maintenance Organization; POS = Point of Service Plan; PDA = Personal Digital Assistant.

Results

The majority of participants (*N* = 64) were not employed (72%, *n* = 46), had an annual income < US$50,000 (55%, *n* = 35), had Medicaid or Medicare coverage (59%, *n* = 38), rated their level of health as average or below (52%, *n* = 34), and reported exercising 3 or less times per week (64%, *n* = 41) (Table 1).

Results from the STOFHLA assessment indicated the majority of participants (93.8%; *n* = 60) had an adequate health literacy rate while results from the SIS showed fewer participants (64.1%; *n* = 41) rated their level of health literacy as adequate (Table 2).

Discussion

Studies have shown low health literacy rates for older adults are a predictor of poor health outcomes (Geboers et al., 2016). However, health literacy is a modifiable factor which has been associated with self-management skills and health behaviors related to health status. Results indicate the SIS overestimates the number of older adults with low health literacy. Continued assessment to accurately assess health literacy for older adults is paramount. Research to fully understand most accurate

Table 2. Comparison of STOFHLA and SIS Participant Results (*N* = 64).

		STOFHLA categories		
		Inadequate/marginal	Adequate	Total
SIS categories	Inadequate/marginal	4	19	23
	Adequate	0	41	41
Total		4	60	64

Note. STOFHLA = Short Test of Functional Health Literacy Assessment; SIS = and a single item screening.

method to measure health literacy rates for older adults is needed. The use of health literacy measures have not been successfully validated among the older adult population suggesting the use of some tools may be inappropriate due to age-related reasons (Saldana, 2012). The variance in the purpose of the tools may contribute to mixed findings. The STOFHLA measures functional health literacy to include numeracy and reading comprehension, thus measuring health literacy skills. The SIS may be considered a self-reported confidence measure for health literacy–related skills. Each measure may have a unique and specific purpose—yet may not be comparable particularly for older adults and when used in the clinical setting. Although the STOFHLA was specifically designed for use in the clinical setting, and was amended to allow for time constraints in a busy clinical setting, the 7-min administration time may be considered burdensome and unrealistic. The most practical clinical solution could involve the use of the SIS as a part of clinical intake paperwork as a standard question with a longer follow-up assessment (such as the STOFHLA) planned for older adults who score low in health literacy.

The validation and standardization of tools has important clinical implications as the call for an integrated health literacy screening tool in primary care settings increases (Hart, Chesser, Wipperman, Wilson, & Kellerman, 2011). However, the use of specific health literacy measures for different populations is still under debate (Powers, Trinh, & Bosworth, 2010). The STOFHLA is one of two most frequently used measures of health literacy (Chin et al., 2011).

Findings from Cordasco , Asch , Franco and Mangione (2009) and Bickmore et al. (2010) indicate the use of a single item health literacy screener and the use of an embodied conversational agent as an approachable and usable vehicle to present health care information to all consumers regardless of health literacy levels may be the best solution (Bickmore et al., 2010; Cordasco, Homeier, Franco, Wang, & Sarkisian, 2012). A conversational agent may provide the opportunity for a quick assessment of health literacy in the clinical setting and could provide key information to accurately identify older adults who need person-centered communication (i.e. the teach back method) or community-based support (Farris, 2015; Mahramus et al., 2014; Schillinger et al., 2003; Sudore et al., 2009).

Limitations

The findings of this pilot study are not without limitations. As with all studies using a small, convenience sample, there is a possibility for research bias and conclusions are limited. There may have been survey fatigue due to the length of the questionnaire. This sample may not be representative of the older adult population. Although some work has advanced the field, additional research is warranted. The nonrandomized study design and convenience sample are constraints to the overall value of the findings. Limited data are available from state, regional, nationally, or international representation samples comparing these two health literacy assessment tools with the older adult population.

Conclusion

Health literacy continues to be a growing concern within the medical and public health professionals to ensure a person-centered approach to care. The findings of this review highlight the importance of continuing to validate the use of screening tools to assess the health literacy rates of older adults. Using the SIS as a quick assessment of health literacy in the clinical setting as part of an intake or initial assessment could provide key information to accurately identify older adults who need person-centered communication strategies (i.e., the teach back method) or additional community-based support (Farris, 2015; Mahramus et al., 2014; Schillinger et al., 2003; Sudore et al., 2009). However, this tool and the findings should not be used as a equivalent measure to the STOFHLA for older adults. Additional research including a larger, less homogeneous population is needed to assess the validity of the health literacy SIS tool among older adults. This research highlights the importance of the expanded and continued use of understandable health care information for all consumers by all health educators.

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