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**Identifying Medicare Beneficiaries with Poor Health Literacy Skills:
Is a Short Screening Index Feasible?**

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The AARP Public Policy Institute, formed in 1985, is part of the Policy and Strategy Group at AARP. One of the missions of the Institute is to foster research and analysis on public policy issues of importance to mid-life and older Americans. This publication represents part of that effort.

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Foreword

Health literacy is a major, albeit under-recognized health policy issue. Having adequate literacy skills allows individuals to successfully navigate the health care system. Without such skills, people are unable to actively participate in their health care. In addition, those with inadequate skills have less knowledge about their medical conditions, worse health status, less understanding and use of preventive services, and a higher rate of hospitalization than those with marginal or adequate health literacy skills.¹ As the Medicare program continues to evolve and offers beneficiaries more choices of benefits, health plans, physicians, hospitals, and treatment options, proficiency in literacy is essential.

A greater proportion of older Americans, regardless of their level of education, have marginal or inadequate skills compared to their younger counterparts. If health care practitioners and providers, as well as the information intermediaries who assist people on Medicare were able to identify individuals with inadequate or marginal literacy skills, they could design more effective materials and other interventions to help those with poor skills. Therefore, AARP commissioned Judith Hibbard of the University of Oregon, to expand her work on an earlier study conducted for the AARP Public Policy Institute, to determine the feasibility of a short, easy-to-use screening index that could readily and correctly identify Medicare beneficiaries with poor literacy skills. Such an index would have very practical application for those on the front-lines, such as Medicare counselors and clinicians.

The findings from this study are very promising. The screening index appears to perform well among older adults, yielding a relatively high level of both sensitivity and specificity for predicting health literacy levels.

People on Medicare already face a complex array of decisions that will become even more so as additional provisions of the Medicare Modernization Act are implemented in 2006. Additional research to confirm the findings from this study as well as the development of other tools to simplify Medicare will be essential to help older Americans make the best use of their health care services.

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¹ Lynn Nielsen-Bohlman, ed., et al., *Health Literacy: a prescription to end confusion*, Committee on Health Literacy, Board of Neuroscience and Behavioral Health, Institute of Medicine, 2004, page 82.

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Executive Summary

Background

There is a growing trend to rely on informed consumer choices to control health care costs and improve quality. As clinical care becomes more technologically sophisticated and health delivery becomes increasingly complex, consumers will require more knowledge and greater skill to navigate the health care system successfully. Yet inadequate health literacy skills prevent many people from being informed and active participants in their care. Health literacy deficits are extremely common, particularly among the older population, where studies indicate that approximately 30 percent of aged Medicare beneficiaries in managed care have marginal or inadequate health literacy (Gazmararian et al., 1999). Further, studies indicate that many with low literacy feel shame about their inability to understand and use information. These individuals go to some lengths to hide these problems, making it difficult for clinicians and information intermediaries to identify those who need extra assistance in making choices and following treatment regimens.

Purpose

The findings from a previous study showed that at least half of Medicare beneficiaries had difficulty understanding comparative information to help them make Medicare coverage choices. Although health literacy² was not specifically measured in that investigation, it is likely that those unable to understand the information had inadequate or marginal literacy skills. That earlier study found that a three-variable index predicted with 70 percent accuracy whether Medicare beneficiaries had sufficient skill to understand and use information to make Medicare choices. The three variables in the index were: respondent age, self-rated health status, and education (Hibbard et al., 2001b). This study assesses the potential of this same index to identify those with low health literacy quickly and easily.

Two research questions are addressed:

- How well does a simple, three-item index predict health literacy levels in a sample of Medicare beneficiaries?
- How well does the screening index score predict community-dwelling, older adults' knowledge, skill, and confidence for Medicare decision making, compared to a validated measure of health literacy?

² Citing Ratzen and Parker, the Institute of Medicine defines health literacy as follows: "The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Institute of Medicine, 2004).

Method

This study uses a cross-sectional design and a convenience sample of 293 Medicare beneficiaries who were recruited and paid for their participation. Recruitment and data collection took place primarily at Eugene/Springfield, Oregon senior community centers; therefore, homebound and institutionalized beneficiaries were, de facto, excluded. Thus, the sample is skewed toward higher-performing individuals.

The Test of Functional Health Literacy (S-TOFHLA) is used to assess health literacy. This assessment test correlates well with other tests of health literacy, such as the Rapid Estimate of Adult Literacy in Medicine (REALM), and other measures of literacy (Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, AMA, 1999, Davidoff, 1997; Baker et al., 1999.) The S-TOFHLA produces a numeric score that is grouped into three health literacy skill levels: inadequate, marginal, and adequate.

With the exception of the health literacy assessment, all other data were collected via a face-to-face, interviewer-administered survey. In addition to items on sociodemographic characteristics, items that assessed knowledge about the Medicare program, skills in making choices, and attitudes about using information to make selections within the Medicare program were assessed.

As a validity check, we use the three-variable screening index as a “proxy” measure for the S-TOFHLA to determine how well the index predicts respondent knowledge and decision-making skills. We present a side-by-side comparison of the screening index and the S-TOFHLA in predicting responses to these items.

Findings

The prevalence of inadequate and marginal literacy levels is low in this sample. Nevertheless, the screening index achieves a relatively high level of both sensitivity and specificity for predicting health literacy levels. Seventy-one percent of respondents are correctly classified by the screening index as either a true positive (low health literacy) or a true negative (adequate health literacy). However, this dichotomized health literacy score, which produces only two levels of scoring, adequate or marginal or less, is cruder than the suggested approach in the S-TOFHLA, which identifies three literacy levels, inadequate, marginal, and adequate.

Using data from the Medicare Current Beneficiary Survey (MCBS, 2001), we re-created the screening index and calculated the number of actual beneficiaries likely to be identified correctly and incorrectly by the screening index. Approximately 45 percent of the noninstitutionalized beneficiary population age 65 and over would have scores in the lower end of the screening index (high risk for inadequate literacy). Accordingly, more than 11 million beneficiaries would be true positives (i.e., have inadequate or marginal health literacy), and another 13 million would be true negatives (i.e., have adequate health literacy).

The findings show a consistent pattern in responses; those with inadequate or marginal health literacy have the least understanding of the Medicare program, express the most worry about making Medicare choices, and are the most likely to want to delegate Medicare choices to someone else. The dichotomous scores on the screening index mirror the same pattern with each of the items as was seen with the S-TOFHLA. This suggests that the screening index could be used as a proxy for, or in place of, the S-TOFHLA to identify older adults who are likely to have difficulty understanding their Medicare choices.

Summary

Health literacy deficits undermine consumers' ability to play an effective role in their own care; such deficits also contribute to unnecessary health care costs. Identifying those with low literacy and providing them with special help should be a high priority. The three-item screening index is a strong indicator of health literacy level. The index appears to be relatively sensitive, identifying 72 percent of those with health literacy deficits. A key advantage of the index over a direct measure of literacy is that it is not intrusive or threatening and can be administered very quickly. Asking age, self-rated health status, and education are questions that are often asked in health care and social service settings. However, while the screening index identifies those with marginal and inadequate skills, it does not discriminate between these two levels of literacy proficiency.

This study represents a first step toward the development of a screening tool that could be applied easily in a clinical setting or a Medicare counseling center to identify people who will need extra assistance in following instructions, using information, and making choices. The findings indicate that the approach is feasible, and the results suggest that additional research with larger, more diverse populations is warranted.

Introduction

There is growing interest, particularly among purchasers and policymakers, to rely on informed consumer choices to control health care costs and improve quality. However, as clinical care becomes more technologically sophisticated and health delivery systems increasingly complex, consumers will require more knowledge and greater skill to navigate the health care system successfully. Those consumers who have the capability and confidence to understand and use health care information effectively will be able to take advantage of health care advances, successfully self-manage their health conditions, and likely fare far better than those who lack these capabilities.

Inadequate health literacy skills prevent people from being informed and active participants in their care. The recent Institute of Medicine report on health literacy summarizes the burden that health illiteracy imposes on individuals and the delivery system as a whole (Institute of Medicine, 2004). Low health literacy has been linked with higher rates of hospitalization (Baker et al., 1998; Baker et al., 2002), lower use of preventive care (Fortenberry et al., 2001; Scott et al., 2002), less effective self-management of chronic conditions (Schillinger et al, 2002; Institute of Medicine, 2003); and poor health habits (Arnold et al., 2001; Fredrickson et al., 1995; Hawthorne, 1996). It is estimated that low health literacy costs the health care system between \$30 billion and \$73 billion annually (Parker, Ratzan, and Lurie, 2003).

Health literacy deficits are extremely common, particularly among the older population; studies indicate that approximately 30 percent of aged Medicare beneficiaries in managed care have marginal or inadequate health literacy (Gazmararian et al., 1999). Because older adults use more health care services than do younger persons, limited health literacy skills in the older population are of special concern. That is, patients with the greatest health care needs may have the least ability to access and use information to participate actively in their care.

Given the major part health literacy plays in health outcomes, the Institute of Medicine identified it as a high-priority area for improvement in health care quality. Similarly, improving health literacy is a goal articulated for *Healthy People 2010*. It is widely recognized that, to begin to address the problem, methods to easily and quickly detect low health literacy are urgently needed (Parker, Ratzan, and Lurie, 2003; Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, AMA, 1999). This study examines the feasibility of a short, easily administered screening tool to identify older adults with low health literacy skills.

Background

Studies indicate that those with low literacy feel shame about their inability to understand and use information; these individuals go to some lengths to hide these problems. Research suggests that shame actually inhibits people with low literacy skills from admitting their reading difficulties, seeking needed help to understand information,

or asking questions regarding their health care (Parikh et al., 1996). The stigma associated with low literacy makes it a sensitive issue to test or screen for. Explicit testing for skill level would surely cause those with low skills embarrassment and possibly lead to avoidance of care. How, then, can we identify and help people in a way that overcomes these obstacles?

A previous study found that a three-variable index predicted with 70 percent accuracy whether Medicare beneficiaries had sufficient skill to understand and use information to make Medicare choices (Hibbard et al., 2001b). The three variables in the index were: respondent age, self-rated health status, and education. This study assesses the potential of this index to predict health literacy levels.

Ideally, a screening tool should provide an easily obtained preliminary indication of which individuals are likely to have a particular trait or characteristic, (e.g., low health literacy) and which are not. Screening tests have different levels of sensitivity (accuracy in identifying cases) and specificity (accuracy in identifying non-cases). An acceptable level of sensitivity or specificity for a screening test depends on how important it is not to “miss” individuals who have this trait, compared with the consequences of incorrectly identifying individuals as having the trait, when in fact they do not. The consequences of a false positive finding (identifying someone as having low literate skills when in fact the person does not) are not so great; the added resources and help provided to that person are the extent of the “cost” of such an error. However, the consequences of a false negative (identifying someone as having adequate health literacy when the person does not), can have greater costs. Therefore, in screening for health literacy, maximizing sensitivity over specificity may be more important.

Research Questions

- How well does a simple three-item index predict health literacy levels in a sample of Medicare beneficiaries?
- How well does the screening index score predict beneficiary knowledge, skill, and confidence for Medicare decision making, compared to a validated measure of health literacy?

Methods and Study Sample

This study employs a cross-sectional analysis to address the research questions. A convenience sample of 293 Medicare beneficiaries were recruited and paid for their participation. Recruitment and data collection took place primarily at Eugene/Springfield, Oregon senior community centers; therefore, homebound and institutionalized beneficiaries were, de facto, excluded. Further, because participation was voluntary and potential respondents understood that participation required reading, those with the lowest literacy skills likely declined to participate. Thus, the sample is skewed toward higher-performing individuals.

Table 1 shows the characteristics of the study sample and compares them to those of a nationally representative sample of Medicare beneficiaries from the Medicare Current Beneficiary Survey. In the study sample, participants are, on average, 76 years old. Ages range from 65 to 97; 69 percent are female; and 27 percent have a college degree or higher. In addition, participants in the study are better educated and report better self-rated health status than those in the nationally representative sample of noninstitutionalized Medicare beneficiaries. The rate of marginal or low literacy among the sample population is much lower than the 30 percent that has been estimated for Medicare beneficiaries by other investigations.

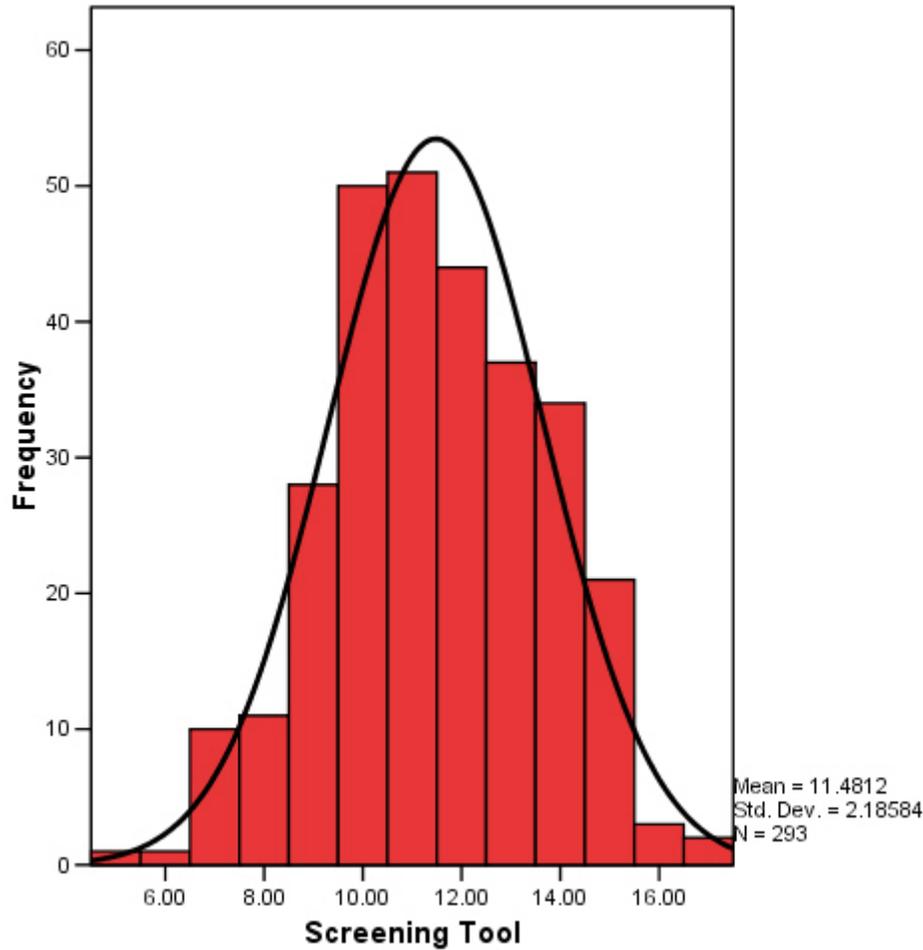
Table 1: Characteristics of the Study Population

	Study Sample (n = 293)	N of Study Population	National Sample* (n = 12,993)
Age			
65-74	38.2	112	53%
75-84	54.0%	158	36%
85 or more	7.8%	23	11%
Education			
Less than high school	10.2%	30	33%
High school diploma	27.6%	81	29%
Some college/vocational school	34.5%	101	21%
College graduate or more	27.6%	81	17%
Gender			
Female	68.9%	202	53%
Self-Rated Health			
Excellent/Very Good	52.2%	153	40%
Good	31.1%	91	31%
Fair/Poor	16.7%	49	29%
Income			
Less than \$15,000	47.5%	133	40%
\$15,000-\$24,999	27.1%	76	22%
\$25,000-\$34,999	11.8%	33	15%
\$35,000 or more	13.6%	38	22%
Marital Status			
Married	33.9%	99	51%
Health Literacy (TOFHLA)			
Inadequate	7.5%	22	N/A
Marginal	5.8%	17	N/A
Adequate	86.7%	254	N/A

* Data are from the 2000 Medicare Current Beneficiary Survey, Noninstitutionalized Medicare Beneficiaries. Percentages are weighted to reflect the national population of non-institutionalized Medicare beneficiaries.

The Screening Index. The screening index is calculated by adding scores for age, education, and self-rated health. Age is scored from 1 to 6, with subjects age 65-69 assigned a value of “6”; 70-74 assigned a value of “5”; and so on up to those age 90 and older, who are assigned a value of “1.” Education is coded similarly. Those with more than a four-year college education are assigned a “6”; those with a college degree are assigned a “5”; and those with an eighth-grade education or less are assigned a “1.” Finally, self-rated health is scored from 1 to 5, with 1 equaling poor and 5 equaling excellent health. This scoring results in values from 3 to 17. The distribution for the study sample is shown in Figure 1. Low scores on the screening index indicate some combination of being older, reporting poor health, and/or having lower educational attainment.

Figure 1: Distribution of Scores on the Screening Index



Assessment of Health Literacy. To assess health literacy we used the 14-point-font version of the short form of the Test of Functional Health Literacy (S-TOFHLA). This assessment test correlates well with other tests of health literacy such as the Rapid Estimate of Adult Literacy in Medicine (REALM), and other measure of literacy (Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, AMA, 1999, Davidoff, 1997; Baker et al., 1999). The S-TOFHLA produces a numeric score and groups those scores into three health literacy skill levels: inadequate, marginal, and adequate.

With the exception of the health literacy assessment, all other data were collected via a face-to-face, interviewer-administered survey. Knowledge about the Medicare program, skills in making choices, and attitudes about using information to make selections within the Medicare program were assessed. Questions on sociodemographic characteristics were also included.

Findings

As shown in Table 1, only 13 percent of the study sample has inadequate or marginal health literacy scores. While the reported health illiteracy levels in different clinical populations vary greatly, i.e., from 18 percent to 50 percent (Kalichman et al., 2000; Gazmararian et al., 1999; Schillinger et al., 2002), as expected, the study sample functions at a considerably higher level than the Medicare beneficiary population as a whole. The study sample is also more skilled than the samples that have been assessed in earlier studies of the Medicare population, where approximately 30 percent-50 percent of beneficiaries scored in the inadequate or marginal range.

Testing the efficacy of a health literacy screening test on a high-functioning population has advantages and disadvantages. The advantage is that if the screening test works with this sample, it will work with any older population. Because it can discriminate when prevalence is low, the screening test is very likely to discriminate well in a high-prevalence sample. Accordingly, it would not be necessary to select out “high-risk” sub-groups to screen. However, the major disadvantage is that because, as a rule, the predictive value of a positive screening test depends on the prevalence of the condition in the sample (Mausner and Kramer, 1985), the predictive value of the screening test in this study is probably underestimated because there are fewer cases of low health literacy in the sample. That is, the higher the prevalence of inadequate health literacy in the sample, the more likely it is that a positive test (low screening score) is predictive of low literacy.

In the earlier study, the screening index was dichotomized at the median score. Those respondents scoring in the lower half of the screening index were most likely to score low on a test of comprehension of information contained in charts and tables describing Medicare coverage options. When the screening index was used in this way, 70 percent of Medicare beneficiaries were accurately identified as scoring in the top or bottom half of the comprehension test (Hibbard et al., 2001b).

In the present analysis, we use the screening index in a similar manner as in the earlier study, using the index to predict the S-TOFHLA score. We dichotomize the sample according to whether a respondent’s screening score was 10 or lower or 11 or higher. We then use this dichotomized screening index to predict whether respondents score in the inadequate/marginal range or in the adequate range on the S-TOFHLA. Approximately 34 percent of the sample scored 10 or lower on the screening index.

Based on their health literacy scores, respondents are placed in one of the four cells shown in Table 2. The cell labeled “true positive” includes those respondents who have low health literacy scores and who are identified correctly as such by the screening index. The cell labeled “true negative” includes those respondents who have adequate health literacy scores and who are identified correctly as such by the screening index.

The numbers of true positive, false positive, false negative, and true negative scores observed in this sample are shown in Table 2 and Figure 2. Based on the sensitivity and specificity formulas shown in Table 2, 72 percent of respondents are

classified correctly as either a true positive (low health literacy) or a true negative (adequate health literacy). The sensitivity of the test indicates the proportion of those who have low literacy who are identified as such [*true positive/(true positives+false negatives)*: $28/(28+11) = 72$ percent] (Mausner and Kramer, 1985), while the specificity (how well the test identifies those who do not have low literacy) is 71 percent [*true negatives/(true negatives+ false positives)*: $181/(181+73) = 71$ percent].

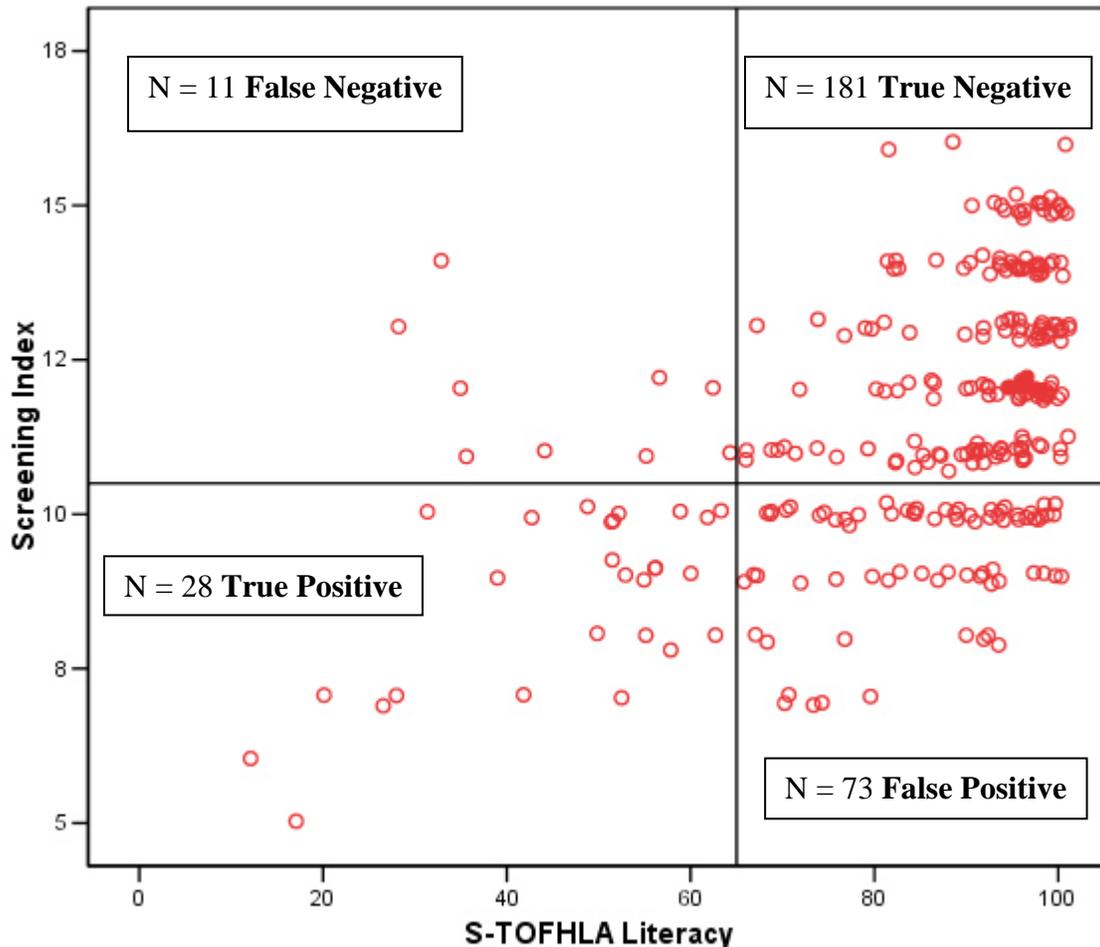
Table 2. The Sensitivity and Specificity of the Screening Index in Predicting Health Literacy Levels

	<u>Inadequate or Marginal Health Literacy (S-TOFHLA)</u> (N = 39)	<u>Adequate Health Literacy (S-TOFHLA)</u> (N = 254)
<u>Low Screening Score (3-10)</u> (N=101)	<p><i>True Positive</i> (N = 28) <u>Sensitivity = 72%</u> <i>[true positives/(true positives +false negatives):</i> $28/(28+11) = 72\%$]</p> <p>[45% of the MCBS sample has a screening score of 10 or less] x [72% of study sample with low literacy also has a low screening score] = 32% or 11,121,000 Medicare Beneficiaries</p>	<p><i>False Positive</i> (N = 73)</p> <p>[45% of the MCBS sample has a screening score of 10 or less] x [29% of study sample with adequate literacy also has a low screening score] = 13% or 4,766,000 Medicare Beneficiaries</p>
<u>High Screening Score (11-17)</u> (N = 192)	<p><i>False Negative</i> (N = 11)</p> <p>[55% of the MCBS sample has a screening score of 11 or more] x [29% of study sample with low literacy also has a high screening score] = 16% or 5,441,000 Medicare Beneficiaries</p>	<p><i>True Negative</i> (N = 181) <u>Specificity = 71%</u> <i>[true negatives/ (true negatives + false positives):</i> $181/(181+73) = 71\%$].</p> <p>[55% of the MCBS sample has a screening score of 11 or more] x [71% of study sample with adequate health literacy also has a high screening score] = 39% or 13,603,000 Medicare Beneficiaries</p>

Seventy-two percent of those with lower literacy can be identified correctly with the screening index. KEY: Blue numbers indicate the estimated number of Medicare beneficiaries who would be expected in each cell if the same study were done on the whole 65+ noninstitutionalized Medicare population. These estimates are based on the Medicare Current Beneficiaries Survey (MCBS), 2001.

Note: Inadequate or marginal literacy is defined as having a score of 66 or less on the Short Test of Functional Health Literacy in Adults (S-TOFHLA)

Figure 2: Scatter Plot: Sample Distribution on Screening Index and S-TOFHLA Health Literacy Level



KEY: The reference line on the TOFHLA axis indicates the threshold between marginal literacy and adequate literacy. The reference line on the Screening Index axis indicates the 34th percentile, the best estimate of the low literacy rate among the Medicare population.

Approximately 34 percent of the study sample had a score of 10 or lower on the screening index. However, because the sample population is a higher-functioning group than the larger population, we would expect a larger portion of the general Medicare population to have lower scores on the screening index. Using data from the Medicare Current Beneficiary Survey (MCBS, 2001), we re-created the screening index and found that approximately 45 percent of the noninstitutionalized age 65+ beneficiary population scores 10 or lower on the screening index. Given the distribution of beneficiaries on the screening index from the MCBS, the number of actual beneficiaries likely to fall into each of the four cells is shown in Table 2. According to these estimates, more than 11 million beneficiaries would be true positives (i.e., have inadequate or marginal health literacy), and another 13 million would be true negatives (i.e., have adequate health literacy).

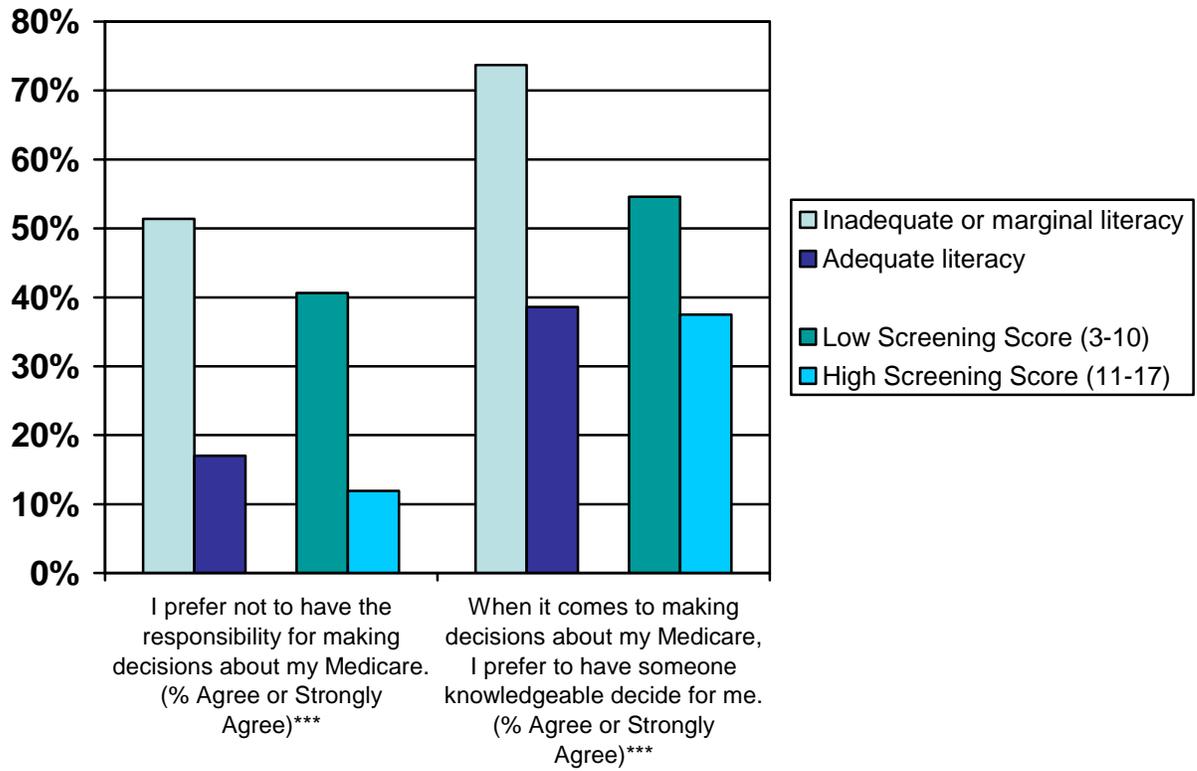
The screening index achieves a relatively high level of both sensitivity and specificity in predicting health literacy levels. However, using the dichotomized health literacy score is cruder than the suggested approach in the S-TOFHLA, which identifies three literacy levels, inadequate, marginal, and adequate. Dichotomizing the measure as was done in this study produces only two levels of scoring: adequate and marginal or less.

We believe that what constitutes adequate literacy skill depends, to some extent, on the difficulty of the task. We know, for example, that understanding the Medicare program and making coverage option choices within Medicare are very challenging for a majority of beneficiaries (Hibbard et al., 2001a). It is likely that using information to make these more difficult and complex choices requires a higher level of health literacy than other everyday tasks, such as the ability to understand an appointment slip.

Validity of Screening Index. We hypothesize that those with lower literacy would have less knowledge of the Medicare program, be less confident about their decision-making skill, and have more anxiety about making Medicare choices. To confirm these assumptions, we examine the degree to which the S-TOFHLA score predicts these knowledge and decision-making factors. Then, as a validity check for the screening index, we assess how good a “proxy” or replacement the index is for the S-TOFHLA in predicting these same knowledge and decision-making variables.

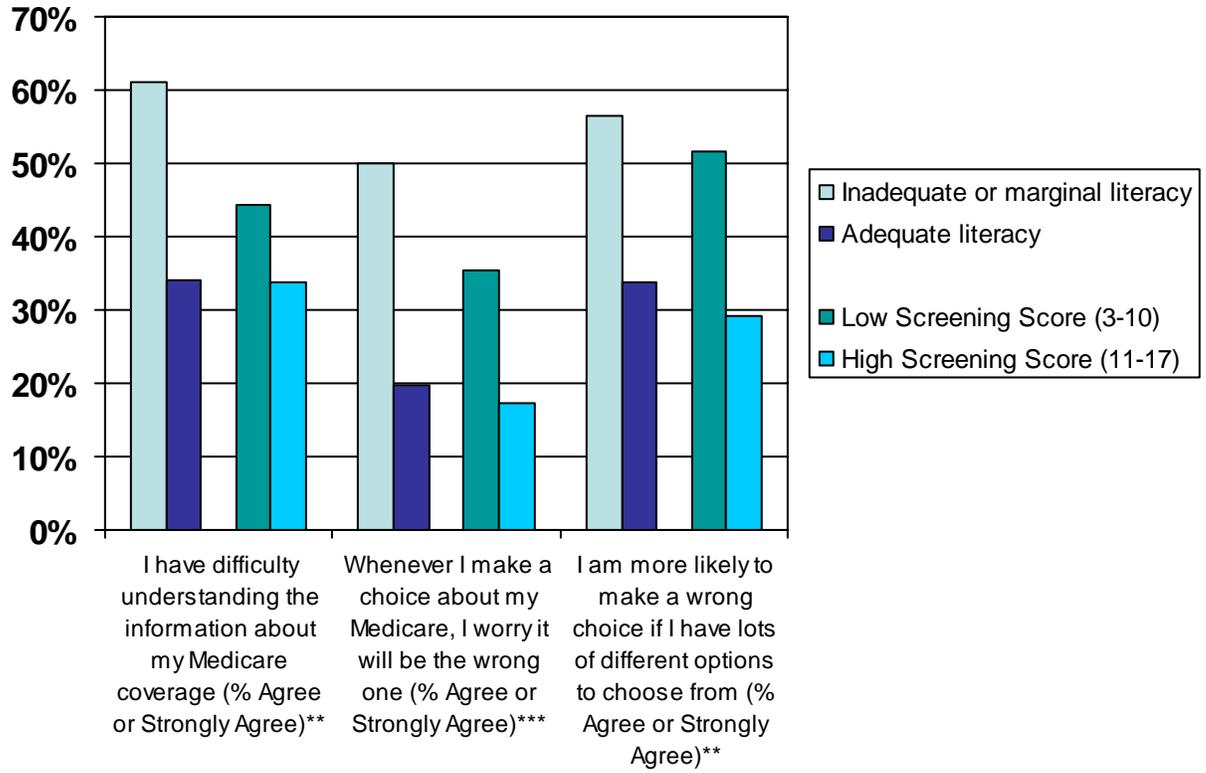
Figure 3 shows a side-by-side comparison of the screening index and the S-TOFHLA in predicting responses to these questions. A consistent pattern in responses is evident; those with inadequate or marginal health literacy have the least understanding, express the most worry about making Medicare choices, and are the most likely to want to delegate Medicare choices to someone else. The dichotomous scores on the screening index mirror the same pattern with each of the items as was seen with the S-TOFHLA. This suggests that the screening index could be used as a proxy for, or in place of, the S-TOFHLA in identifying older adults who are likely to have difficulty understanding their Medicare choices.

Figure 3: Responses to Medicare Decision-Making Questions, by Health Literacy Level and Screening Index score



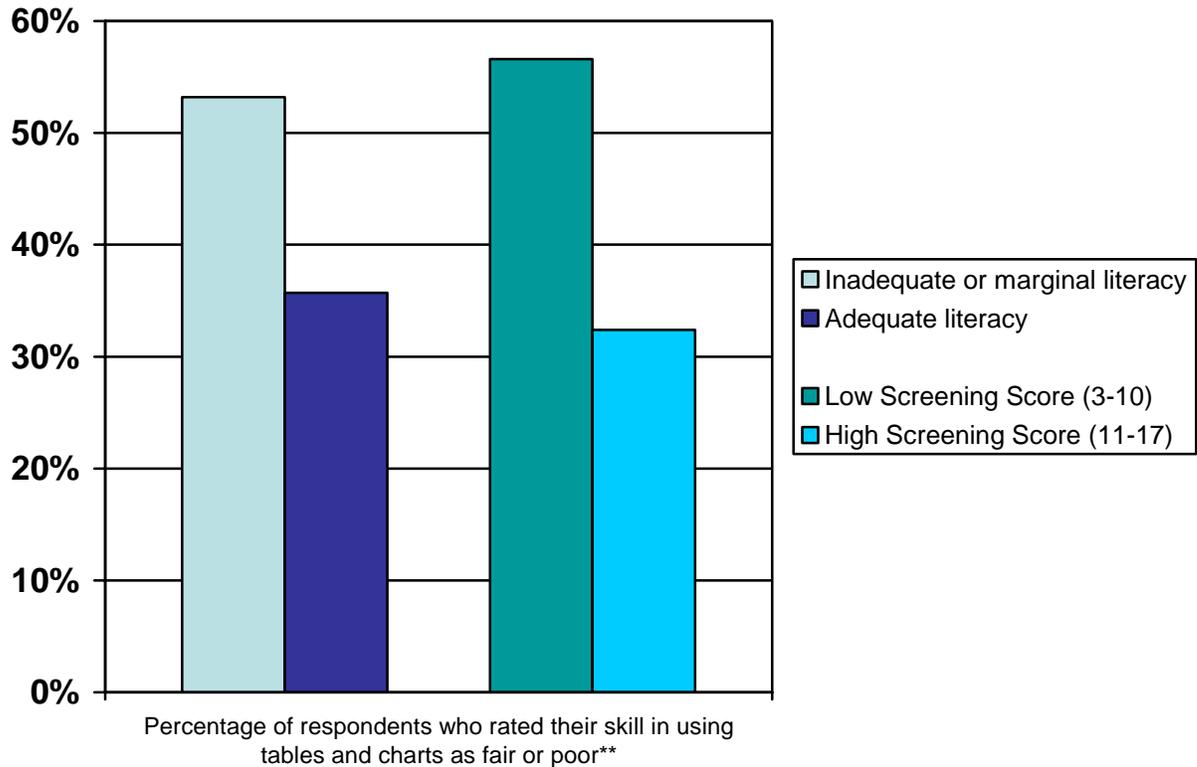
*** $p < .001$.

Figure 3 (continued): Medicare Decision-Making and Health Literacy and Screening Index



** p < .01, *** p < .001.

Figure 3 (continued). Health Literacy Level and Screening Index by Percent Who Rate their Skill in Using Tables and Charts as Fair or Poor



** $p < .01$.

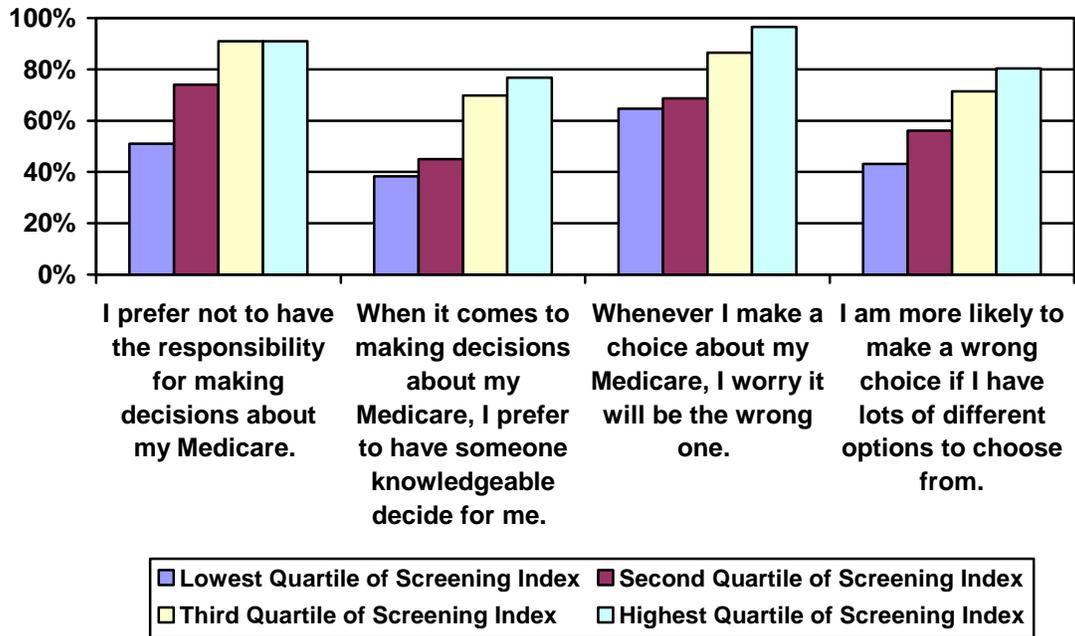
Table 3 shows two sets of correlations: between the S-TOFHLA scores and the Medicare decision-making items, and between the screening index and the Medicare decision-making items. Both the screening index and the S-TOFHLA score are equally strong predictors of responses to the Medicare decision-making items. Further, most of these relationships appear to be linear, indicating that the cut-off score of 10 on the screening index may be somewhat arbitrary (Figure 4). That is, those scoring 11 or 12 on the screening index are likely to have more difficulty using information to make health care decisions than those scoring 13 on the index. The full index is a robust predictor of responses to these items. This analysis is further evidence that the screening index is a viable proxy for health literacy in an older population.

Table 3. Correlations: Medicare Decision Making by Health Literacy Score and the Screening Index Score

	S-TOFHLA	Screening Index
I prefer not to have the responsibility for making decisions about my Medicare.	.375***	.371***
When it comes to making decisions about my Medicare, I prefer to have someone knowledgeable decide for me.	.302***	.311***
I have difficulty understanding the information about my Medicare coverage.	.261***	.250***
Whenever I make a choice about my Medicare, I worry it will be the wrong one.	.264***	.297***
I am more likely to make a wrong choice if I have lots of different options to choose from.	.190***	.310***
Self-rated skill in using tables and charts	.336***	.353***

*** p < .001.

Figure 4: Screening Index Quartiles by Medicare Decision Making:
 Percentage of respondents replying “Disagree” or “Strongly Disagree”



The analysis indicates that age is an important element of the screening index, accounting for more than half of the total variation that the whole index explained in S-TOFHLA scores (26 percent variation explained in all). Given this, at least a portion of the literacy deficits observed in the older population are likely aging-related cognitive declines. This suggests that the screening index is more appropriate for use with older adults and is not likely to work as well with a younger population.

Discussion

In an era where health care consumers are being asked to bear greater responsibility for their choices, the ability to make good use of information to make appropriate and satisfying decisions is becoming ever more critical. Health literacy deficits undermine consumers’ ability to take an effective role in their own care and contribute to unnecessary health care costs. Identifying those with low literacy and providing them with special help should be a high priority. The three-item screening index is a strong indicator of health literacy level. The index appears to be relatively sensitive, identifying 72 percent of those with health literacy deficits. A key advantage of the index is that it is not intrusive or threatening to people. Asking age, self-rated health status, and education are questions that are often asked in health care and social service settings. The disadvantage, however, is that the screening index identifies those with

marginal and inadequate skills, but it does not discriminate between these two lowest levels of literacy proficiency.

As this study includes a small number of participants and a higher-functioning population than those included in previous studies of health literacy, it is important that the findings reported here be replicated with larger and more ethnically and racially diverse populations. Because the prevalence of low health literacy is higher in a more diverse population [e.g., it is estimated to be 54 percent among Spanish-speaking older adults (Gazmararian et al., 1999)], the predictive value of the screening index would increase as well. Under these circumstances, it may be possible to lower the screening cut-off to make it closer to the “inadequate” score of the S-TOFHLA and still have a strong, sensitive measure.

The index could be used in a clinical setting to identify people who will need extra assistance in making choices, using information, and following through on treatment regimens. It also could be used by information intermediaries, such as SHIP counselors who help beneficiaries understand the Medicare program, and others who could use the index to tailor their assistance based on individual client needs.

It is beyond the scope of this study to identify effective interventions to help older persons with low health literacy skills. However, having a feasible way to distinguish those with low health literacy skills easily will facilitate testing of intervention strategies. Given that at least a portion of the health literacy deficits in the older population are likely due to cognitive declines, interventions should focus on better ways to communicate information and support choices, rather than on broadly upgrading literacy skills. For example, by adopting strategies that use careful verbal instructions to patients and visually enhanced printed material (e.g., showing pictures of three teaspoons of medication rather than just the words) would likely help lower-literacy adults follow medication regimens more accurately. Just improving written materials by making them more “evaluable,” such as summarizing and interpreting information for the reader, has been shown to help beneficiaries with lower skills understand their Medicare options (Hibbard et al., 2001a).

This study represents a first step toward the development of a screening tool that could be applied easily in a clinical setting or a Medicare counseling center to identify people who will need extra assistance in following instructions, using information, and making choices. The findings indicate that the approach is feasible, and the results suggest that additional research is warranted.

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Appendix: Relevant Survey Questions

Now I'm going to read some statements about Medicare. Just answer whether you think the statement is true or false.

Q54 With a Medicare HMO, people can go to any doctor or hospital in the United States for routine care and the visit will be covered.

- a) True
- b) False

Q55 Medicare pays for flu shots.

- a) True
- b) False

Q56 How well do you understand the difference between Medicare HMOs and original Medicare? Please rate your understanding. Would you say it's poor, fair, good or excellent?

- a) Poor
- b) Fair
- c) Good
- d) Excellent
- e) Don't Know

Q57 How much do you feel you know about what medical services Medicare covers or does not cover? Do you know a lot, some, a little or none?

- a) A lot
- b) Some
- c) A little
- d) None

Now I'm going to ask you some questions about using information and making decisions.

Q58 Have you ever sought help for a Medicare problem or question?

- a) Yes
- b) No
- c) Don't Know

Q59 (IF YES) Was that from a family member or friend--or was it from a counselor or advisor?

- a) Family Member
- b) Counselor or Advisor
- c) Don't Know

Q60 Most of the time, do you make decisions about Medicare health insurance on your own, do you get help from someone in making these decisions, or do you rely on someone else to make health insurance decisions for you?

- a) On your own
- b) Get help from someone in making these decisions
- c) Rely on someone else to make decisions about health insurance for you

Q63 I prefer NOT to have the responsibility for making decisions about my Medicare.

- a) Disagree Strongly
- b) Disagree
- c) Agree
- d) Agree Strongly

Q64 When it comes to making decisions about my Medicare, I prefer to have someone knowledgeable decide for me.

- a) Disagree Strongly
- b) Disagree
- c) Agree
- d) Agree Strongly

Q65 I have difficulty understanding the information about my Medicare coverage.

- a) Disagree Strongly
- b) Disagree
- c) Agree
- d) Agree Strongly

Q66 Whenever I make a choice about my Medicare, I worry it will be the wrong one.

- a) Disagree Strongly
- b) Disagree
- c) Agree
- d) Agree Strongly

Q67 I am more likely to make a wrong choice if I have lots of different options to choose from.

- a) Disagree Strongly
- b) Disagree
- c) Agree
- d) Agree Strongly

Q107 How would you rate your health? Would you say it's excellent, very good, good, fair, or poor?

- a) Excellent
- b) Very good
- c) Good
- d) Fair
- e) Poor