

Spotlight

Medication Literacy: A Helpful Concept for Understanding Medication Decision Making among Older Adults

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Every day, 45 million older Americans pull out a pillbox, set up an injection, or make other preparations for their daily medication regimen.¹ For some, the routine is quick and easy. For others, the task is complex, involving multiple medications, steps, or dosing schedules. For all, though, the routine is an important part of maintaining health and managing chronic illnesses.

But what happens when an older adult doesn't have the facility, language, or knowledge to accurately take their prescribed medications? What are the consequences of an inability to read prescription labels, understand instructions, or manage medication regimens?

Health literacy measures have long served as the dominant tools for understanding the gaps in skills, knowledge, and ability to receive health information, understand it, and make informed health care decisions. Yet while these tools provide a helpful starting point, researchers and clinicians have begun to recognize that the measurement of health literacy may be too broad to assess the specific competencies related to medication decision making. As such, they have sought to distinguish *medication* literacy from health literacy by developing medication literacy instruments and using these tools to better isolate an individual's skills to safely and appropriately use medications.

This *Spotlight* explores the value of measuring medication literacy among older adults.

Key Takeaways

While health literacy is widely understood as a quality measure of health care decision making, another related measure calls for increased attention, particularly regarding older adults: medication literacy.

Additional research is needed to develop and apply medication literacy instruments. The resulting assessments can help improve older adults' medication decision making and potentially reduce the health and financial costs associated with low medication literacy.

Specifically, the *Spotlight* examines three questions: Why is medication literacy an important concept in understanding older adults' medication decision making? What is the evidence of medication literacy levels among older adults? How can improved understanding and measurement of medication literacy allow stakeholders to develop targeted interventions that improve medication decision making among older adults?

What Is Medication Literacy?

In 2016, researchers sought to produce a consensus definition of medication literacy that could enable providers to tailor

medication information and help individuals improve medication therapies.² The resulting definition (see sidebar) framed medication literacy as a three-step concept—obtaining medication information, processing received information, and using the information to make medication decisions—that requires specific skills to enable appropriate action.

Individuals who have adequate or proficient levels of medication literacy take the first step by obtaining information in a variety of, and often repeated, ways. These individuals are able to employ a combination of oral, written, and visual literacy skills, depending on the source of the information and setting in which it is presented. For example, when meeting with a provider (i.e., primary care, specialists, and pharmacists), individuals are able to actively listen to and communicate with the provider about the clinical details of a new prescription and discuss the impact of making dosage changes or substitutions among existing prescriptions. Or, when reviewing prescription drug labels or medication guides, an individual can recognize and understand certain medication vocabulary, use numeracy to understand dosages, and isolate applicable material in a complex document.

In step two, individuals with adequate medication literacy then process this information. They demonstrate a level of cognition that allows them to translate the information into action, using such skills as reading comprehension and recall, an ability to synthesize multiple pieces of information, and instruction sequencing.

In the final step, individuals with adequate medication literacy act on the information as presented. In this step, literacy skills are put into practice: Individuals manage their medications correctly, take proper doses at proper times, respond to drug warnings, recognize and monitor medication side effects, and avoid adverse drug events.

Health Literacy: The degree to which individuals can find, understand, and use information and services to make health-related decisions.

Medication Literacy: The degree to which individuals can obtain, comprehend, communicate, calculate, and process patient-specific information about their medications to make informed medication and health decisions in order to safely and effectively use their medications, regardless of the mode by which the content is delivered (i.e., written, oral, or visual).

Why Consider Medication Literacy among Older Adults?

Measuring medication literacy—an individual's capacity to move through the three-step journey—is a particularly valuable tool when considering the medication decision making of older adults. To begin with, this tool can help evaluate the specific skills used in a significant portion of all the health care decision making among older adults, since medication plays an outsized role among this population. Adults over the age of 65 utilize prescription drugs at a higher rate than any other age group. From 1994 to 2014, the proportion of older adults taking five or more drugs tripled, from 14 percent to 42 percent.³ Today, 86 percent of adults ages 65 and older regularly take at least one prescription medication.⁴ Forty-two percent take five or more drugs, with the average Medicare beneficiary taking 4.6 prescriptions per month.⁵

With each new prescription comes more medication information as well as an increased need to synthesize this information with requirements for current prescriptions and a potentially more complex medication regimen. Studies have shown that this repeated exposure to medication information and medication decision making did not result in higher levels of literacy. In fact, adults with low health literacy who took multiple prescriptions were more likely to misunderstand instructions on

prescription labels and less likely to attend to auxiliary labels.⁶

In addition, a medication literacy tool can help measure the personal health and financial impacts associated with lower literacy levels. Consider mortality. An analysis of studies that investigated the association between mortality and polypharmacy showed an escalating relationship between the number of medications taken and an individual's mortality risk. It showed that older adults who take 6 to 9 medications have a 59 percent greater chance of death compared to those who take no medications, and when an older adult takes 10 or more medications, the risk increases to 96 percent.⁷ While this study does not establish a causal relationship between polypharmacy and mortality, it does find that the more drugs an individual takes, the greater the risk for poor health outcomes, including death. Therefore, older adults with low medication literacy, many of whom take multiple medications, may be at higher risk for poorer health outcomes.

Or consider out-of-pocket costs. A study, which estimated the total cost of additional health care expenditures due to low health literacy at \$73 billion, found that \$11.5 billion was in individual out-of-pocket costs.⁸ A more targeted impact of medication literacy among older adults may appear in Medicare Part D costs. In 2019, enrollees filling prescriptions under Part D paid \$16.1 billion out of pocket in 2019.⁹ That same year a subset of Part D enrollees (1.5 million) had out-of-pocket costs that exceeded \$5,100 (the 2019 Part D catastrophic threshold), totaling \$1.8 billion.¹⁰ These medication-related costs add up quickly, and low medication literacy may contribute to the accrual.

Furthermore, medication literacy can help identify costs that accrue to the health care system. Notably, these costs include avoidable emergency department visits and hospitalizations. A Centers for Disease Control and Prevention study of emergency department visits from 2014 to 2017 reported an emergency department visit rate among adults ages 60

and over at 43 visits per 100 persons and that the visit rate increased with age among older adults.¹¹ A number of these visits were due to adverse drug events (ADEs)—medication errors (e.g., missed or excess doses), adverse effects from prescribed medication, or reactions to a medication. One study of emergency department visits showed three times as many emergency department visits for ADEs among adults ages 65 and older as compared to those under age 65.

With respect to unnecessary hospitalization, between 2007 and 2009, nearly 100,000 hospitalizations among adults ages 65 and older were due to ADEs.¹² In 2014, this figure increased to nearly 200,000 hospitalizations, and an ADE was present at some 878,000 hospitalizations among older adults.¹³ Most of these hospitalizations resulted from commonly used medications, and relatively few resulted from medications typically designated as high-risk or inappropriate. The high utilization of prescription drugs among older adults puts them at increased risk of ADEs and, thus, emergency department visits, hospitalizations, and the associated costs to address these events.¹⁴

What Is Known about the Medication Literacy Levels of Older Adults?

A recent report identified 13 medication literacy instruments in use by researchers and clinicians, varying in scope and purpose.¹⁵ Some measures narrowly focus on specific skills (e.g., reading a prescription label), outcomes (e.g., adherence), or medications; others are more comprehensive, measuring the skills needed for each step of medication literacy, including medication vocabulary, reading comprehension, navigation of common medication documents, calculation and problem solving, and ability to take action on information.¹⁶

A few international studies have applied a medication literacy measure with older adults and consistently shown high rates of limited medication literacy. A Spanish study using the

Medication Literacy in Spanish and English assessment tool (MedLitRxSE) showed that adults ages 51 to 64 (77 percent) and adults ages 65 and older (93 percent) had the highest rates of inadequate medication literacy as compared to other age groups.¹⁷ Also, during the development of a Chinese medication literacy measure, (ChMLM) researchers showed a correlation between higher levels of low literacy and increased age.¹⁸

However, these measures have neither received broad validation nor enjoyed wide application in the United States.¹⁹ Because of these limitations, understanding health literacy may be the first step to understanding medication literacy among older Americans.

According to the National Assessment of Adult Literacy (NAAL), 36 percent of American adults have limited health literacy skills, meaning that an individual has basic or below basic skills to perform simple and everyday literacy activities, such as reading and understanding information in simple documents or locating numbers and using them to solve simple, one-step problems.²⁰ This translates into more than 77 million American adults with low health literacy.²¹

A breakdown of the NAAL by age shows that older adults had the highest rates of low health literacy among all age groups (figure 1). Thirty-four percent of adults ages 50 to 64 and 59 percent of adults ages 65 and older had basic or below basic health literacy levels. While the percentages of adults ages 50 to 64 who had intermediate and proficient levels of health literacy were comparable to younger age groups, adults ages 65 and older had significantly lower rates of both proficient (3 percent) and intermediate (38 percent) levels of health literacy.

The NAAL also showed wide racial and ethnic disparities in health literacy (figure 2). Black (58 percent), Hispanic (66 percent), and Native American (48 percent) adults had higher levels of limited literacy—below basic and basic levels—as compared to White (28 percent) adults.

While the NAAL did not break out literacy levels by age *and* race and ethnicity, a study of Medicare enrollees showed that health literacy disparities are present among older adults. The findings showed wide gaps between the health literacy of White and Black older adults. Only 36 percent of Black enrollees had adequate

FIGURE 1
Percentage of Adults at Each Health Literacy Level, by Age

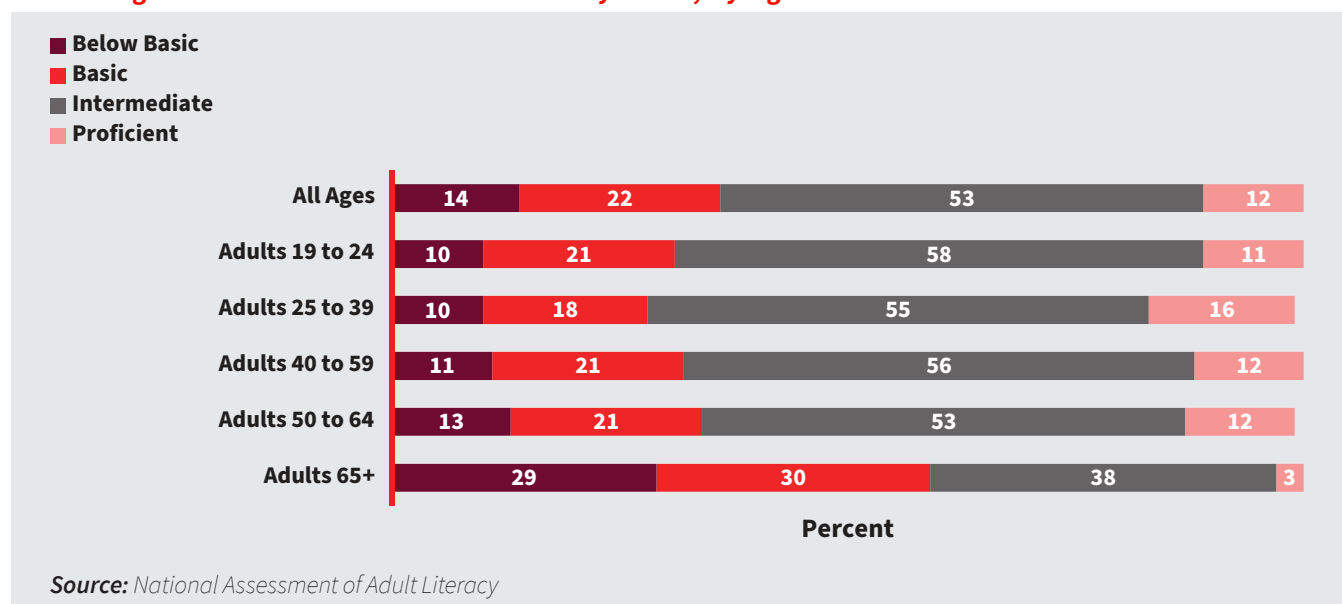
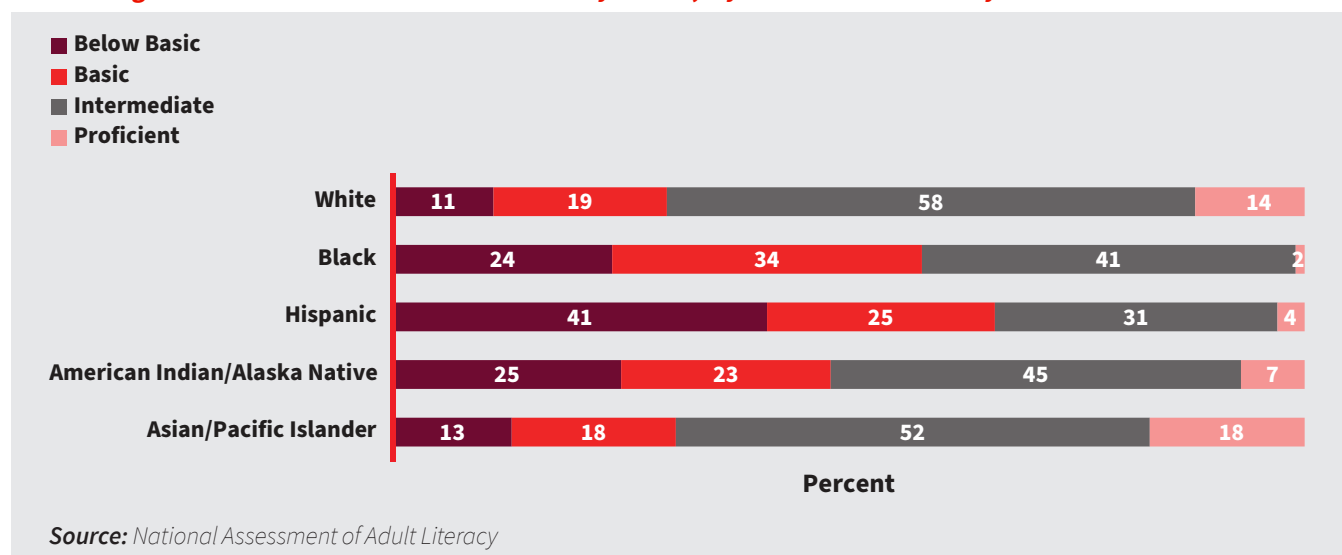


FIGURE 2

Percentage of Adults at Each Health Literacy Level, by Race and Ethnicity

health literacy levels compared to 71 percent of White enrollees, while more than half (52 percent) of Black enrollees had inadequate health literacy levels, compared to 19 percent of White enrollees.²²

Using Medication Literacy as a Tool for Change

Because low levels of literacy result in economic and health costs, an obvious solution for limiting or reducing these costs is to improve literacy levels. Researchers and clinicians have sought to implement this solution with respect to health literacy. In 2013, the Agency for Healthcare Research and Quality developed an online Health Literacy Center where pharmacists can download tools and curricula to help them identify and address knowledge and skills gaps that patients might have.²³

And in 2010, the US Department of Health and Human Services (HHS) published a *National Action Plan to Improve Health Literacy*, through which the agency intended to engage with stakeholders across the health care system to implement strategies toward accomplishing seven goals that, when realized, would raise health literacy levels and, in so doing, improve the accessibility, quality, and safety of health care.²⁴ The creation of the *National Plan*

spurred HHS to convene a workgroup to evaluate and improve the structure and distribution of health information with consumers, served as a framework for ongoing activities for state and local organizations focused on health literacy, and prompted providers to adopt new interventions.²⁵

These examples, which have sparked changes in research and practice behavior, hold promise for addressing medication literacy. They show that the actions of key stakeholders can motivate improvements in the literacy levels of older adults. To advance medication literacy and develop measurement tools to better understand the medication decision making among older adults, stakeholders should consider the following suggested actions:

Researchers. Collecting more information on the impact of medication literacy is necessary, since the research around the issue remains in its early stages. Researchers should develop validated, comprehensive medication literacy instruments in order to inform an understanding of the skills and knowledge gaps that older Americans face. Moreover, they should embark on additional research that applies these instruments to diverse sets of older adults with respect to age, socioeconomic

background, race and ethnicity, and physical and mental abilities to help shape interventions that change behavior and limit the costs accrued to individuals and the health care system.

Providers. Primary care, specialists, pharmacists, and hospital staff should evaluate their communication across modes and settings. As they share critical medication information, such as details about a new prescription, the impact of making dosage changes or substitutions among existing prescriptions, or the management of an individual's prescriptions, they should employ evidence-based strategies to reduce miscommunication and missed information and to reinforce messages. These strategies may include teach-back tools and should use understandable and culturally appropriate language. Providers should include the caregiver in the communications, allow for patients to ask questions, and follow up with older adults to confirm they have understood the information.

Insurers. Since the majority of older adults with low medication literacy are likely insured, insurers should strengthen coverage of and access to services that improve medication literacy, such as medication reconciliation services and testing using vetted medication literacy instruments. Insurers should also evaluate their communication tools and move

beyond state and federal requirements to ensure older adults with limited medication literacy can navigate coverage and better understand benefit information as presented.

Policymakers. Finally, policymakers can allocate funds and implement new policies to create an environment for improved medication literacy. Federal officials could continue to monitor and limit the direct-to-consumer advertising that promotes a drug independent of its utility for a consumer and evaluate the style, format, and content of written communications (e.g., prescription drug labels and drug guidance) to ensure maximum receptivity of information by older adults. As a long-term solution, officials should consider collecting data around medication literacy and working with other stakeholders to develop a national plan to improve medication literacy.

Without adequate measures of medication literacy and interventions to address the high levels of limited medication literacy among older adults, the health and economic costs of low literacy will likely continue to accumulate. Stakeholders have the opportunity to build on the established work about health literacy to help consumers, including older adults, attain the skills necessary to maintain an adequate level of medication literacy necessary for good health.

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