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Understanding the Health Literacy of America Results of the National Assessment of Adult Literacy

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Abstract

Health literacy refers to an individual's ability to understand healthcare information to make appropriate decisions (S. C Ratzen & R. M. Parker, 2000). Healthcare professionals are obligated to make sure that patients understand information to maximize the benefits of healthcare. The National Assessment of Adult Literacy (NAAL) provides information on the literacy/health literacy levels of the U.S. adult population. The NAAL is the only large-scale survey of health literacy. The results of the NAAL provide information on literacy/health literacy and the relationship between background variables and literacy/health literacy. Multiple variables with potential for a relationship with literacy/health literacy were chosen for the NAAL including, but not limited to, education, language, race, gender, income, overall health, seeking health information, and health insurance.

Can you describe the characteristics of Americans who struggle to understand written information? Do you think about the reading ability of your patients every time you give them a pamphlet of healthcare information? The results of the National Assessment of Adult Literacy (NAAL) provide information for you to consider before giving written healthcare instructions to the next patient.

According to the NAAL, the ability to read a pamphlet or brochure is categorized as prose literacy. In the NAAL, 5% of those who were approached for the study were considered nonliterate and of those who participated in the study, 12% had proficient prose literacy, 44% had intermediate prose literacy, 29% had basic prose literacy, and 14% had below basic literacy in English (Kutner et al., 2007). Individuals with below basic prose literacy had the following demographic characteristics. They were most likely African American or Hispanic. Twenty-six percent of these individuals were 65 years and older. Thirty-five percent spoke Spanish or Spanish and another non-English language before starting formal education. Fifty-five percent did not have a high school degree or GED. Forty-six percent of adults of this population had one or more disabilities (National Center for Education Statistics [NCES], 2006).

Do any of your patients fit the description of those with the lowest literacy in our country? Most likely, you have had many patients who fit into one of the risk groups. This article will review the results of the NAAL and will provide an opportunity for healthcare professionals to consider the implications for practice.

National Assessment of Adult Literacy/Health Literacy

In 2003, the U.S. Department of Education, National Center for Education Statistics conducted the NAAL. The goal of this national study was to assess the status of English adult literacy in the United States since the National Adult Literacy Survey (NALS) in 1992. It was also the

first nationally representative study to have a specific component to evaluate health literacy in the American population with the intent to measure the ability to read, understand, and apply health-related information in English (White, 2008).

For decades, the nursing community, through the specialty of patient and family education, has been very interested in and concerned about the most effective methods to educate patients. However, the concept of health literacy was not introduced into healthcare literature until the early 1990s and had not become part of mainstream healthcare literature and practice until the last few years. The advances in healthcare and the push for patient self-management of health have brought increasing attention to the ability or inability of individuals to understand and make informed decisions about their healthcare.

The NAAL provides information about the health literacy abilities/skills of the American population. Meeting the health literacy demands of our society is dependent on understanding the abilities/skills of the population. The goal of this article is to provide an overview of the NAAL reports in a concise manner so that healthcare professionals can use this information to design educational programs for patients that meet their health literacy abilities.

Health Literacy

The definition of health literacy has evolved through the years. Initially, health literacy was seen primarily as the individual's ability to read health information. However, the definition has expanded and for the Healthy People 2010 initiative, *heath literacy* was defined 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" (Ratzen & Parker, 2000). The definition for the NAAL focused on written materials and is stated as "the ability of US adults to use printed and written health-related information to function in society, to achieve one's goals, and to develop one's knowledge and potential" (White, 2008, p. viii).

From this definition, healthcare providers can see that they need to support the health literacy of patients by providing health information in a manner that promotes comprehension and supports healthcare decision making. By understanding the health literacy abilities of the American population, nurses and other healthcare professionals can better develop education that supports comprehension and appropriate healthcare decision making.

NAAL Goals

The 2003 NAAL was a large-scale national assessment of adult literacy focusing on evaluating the ability to read, comprehend, and apply written information. The NAAL assessed literacy directly through tasks taken from daily real-life situations. The NAAL evaluated three different types of literacy: prose, document, and quantitative. Prose literacy refers to tasks that require the participant to read text in paragraph form to search, comprehend, and use information. Examples of prose literacy include stories, brochures, and instructional materials. Document literacy involves the ability to review and utilize information from noncontinuous texts including forms, applications for services, maps, and nutrition labels. Quantitative literacy requires the utilization of numbers in a text for computation in everyday tasks. Examples of quantitative literacy include calculating medication doses from prescription instructions, checkbook balancing, tip computation, and determining loan interest in an advertisement (Kutner et al., 2007).

The NAAL assessment included an extensive questionnaire on demographic factors. The purpose of the questionnaire was to allow the relationship between literacy and background characteristics to be assessed. Examples of factors are age, gender, education, employment,

use of public assistance, income, health insurance, sources of health information, overall health rating, volunteerism, and time spent reading (Kutner et al., 2007).

The NAAL is also the first large-scale assessment of our nation's adult health literacy levels. Although the assessment does not include an evaluation of the spoken communication components of health literacy, it does provide a picture of many key components of health literacy in America (Kutner et al., 2007).

NAAL Design

The design used to conduct the 2003 NAAL is complex. Specific information about the fine points of the design can be found in the reports written by the NCES. For this article, only highlights of the design and administration used for the health literacy component of the NAAL will be described.

The 2003 NAAL consists of a background questionnaire and 152 literacy tasks written in English. Each participant completed the demographic questionnaire followed by literacy tasks. Because the amount of time needed to complete all 152 tasks was too great to expect from any individual participant, the tasks were divided into 13 blocks and each participant completed only a portion of these blocks. Before completing the tasks, each participant was verbally screened using tasks written in English. If the participant was unable to answer the screening tasks but could verbally communicate in English or Spanish, the participant was given an alternative oral assessment in English or Spanish (Kutner et al., 2007).

The participants who successfully passed the screening completed the background questionnaire and three blocks of assessment tasks (approximately 40 literacy tasks). Health-related questions made-up approximately one fifth of the 152 tasks and each participant completed some of these tasks (White, 2008). To gain a general picture of literacy/health literacy in the United States, the participants' answers for the tasks in each block were blended together. As a result, no participant has an individual literacy score for this study. Instead, scores were determined on the basis of an aggregate of scores using complex statistical methods. This approach generates score estimates for groups defined by participant characteristics and the responses to the estimates that they completed. In addition, sampling weights were used to reflect the appropriate proportion of the U.S. population (Kutner et al., 2007).

Participants

Participants involved in the NAAL represent adults in households and prisons from across the country. The NAAL was administered to 19,000 adults (including 1,200 prisoners) from across the country who were a representative sample of the 222 million adults who live in households or prisons (federal and state). Included in this study were household participants who were selected for six more in-depth state-level assessments (Kentucky, Maryland, Massachusetts, Missouri, New York, and Oklahoma). The participants represented individuals from various skills levels, experiences, and backgrounds (Kutner et al., 2007).

Assessment Administration

The assessment was completed one-on-one at the participant's house or prison. The assessment was completed using a computer-assisted personal interviewing system. Participants were encouraged to use any aids they would use normally when completing literacy tasks such as calculators, eyeglasses, ruler, and magnifying glasses (Kutner et al., 2007).

Background/Demographic Information

The background questionnaire was read to participants in English or Spanish, and answers were recorded by the computer-assisted personal interviewing system. The categories for background information included general and language background, educational background and experiences, political and social participation, labor force participation, literacy practices, job training and skills, demographic information, family literacy, household income and welfare participation, health questions, and additional demographics. The health questions focus on self-report of overall health, visual and auditory acuity, learning and other disabilities, health insurance, sources of health information, and preventative healthcare practices (Kutner et al., 2007).

Assessment Tasks

The NAAL consists of 152 tasks that reflect content and skills that are essential for the utilization of everyday written materials. The health literacy tasks focus on those skills needed when encountering everyday health-related materials such as insurance forms, drug labels, and information on diseases. These tasks included items from the prose, document, and quantitative literacy domains described above but, unlike the general literacy assessment, the responses were combined into a single health literacy score.

The 28 health-related tasks were embedded within the 152 total NAAL tasks and were divided among three principal healthcare domains: clinical (3 items), preventative (14 items), and navigation of healthcare system (11 items). The preventative and navigational components were favored because most patients encounter information in these areas as opposed to specific disease information found in the clinical component. A specific clinical task is described as follows: from a drug label, the participant must “underline three substances that may increase the drowsiness associated with taking Allerdryl” (White, 2008, p. 8). A preventative task asks the participant to determine how many vaccines a child should be given for polio by the age of 7 years based on the information in a vaccination table (White, 2008). A navigational task asks the participant whether he or she is eligible for social security income. The answer to this question is based on reading a prose document on social security income and eligibility rules (White, 2008).

Time Frame

The NCES conducted an earlier assessment of adult literacy in the United States in 1992 called the NALS. Information from that assessment has guided many organizations in developing programs and addressing literacy issues until the 2003 NAAL was completed. In addition, a portion of the items from the NALS were used in the NAAL, allowing comparisons between the two assessments. The 2003 household assessment was carried out from March 2003 to February 2004. The prison assessment was conducted from March through July of 2004 (Kutner et al., 2007).

The data from the NAAL provide information about the relationship between literacy/health literacy and background factors in the American population. Various public and private groups are analyzing the data to gain knowledge that will guide policy and program development. The NCES started the data analysis process and has published results through government reports. The authors of this article are currently using the data from the NAAL to examine health literacy in the geriatric population (Bennett, White, Chen, & Soroui, in press).

Results of the NAAL

The 2003 NAAL is a descriptive study that allows associations between background information and literacy/health literacy levels to be assessed. The results discussed will focus

on the relationship between background information (common demographics and health questions) and literacy/health literacy levels.

Literacy Levels

For the NAAL, the U.S. Department of Education chose to use four literacy levels when reporting the prose, document, and quantitative literacy as well as the health literacy results. The four levels reflect the skills and knowledge needed to function at a particular literacy level. Participants' scores ranged between 0 and 500 for each category and were linked to a specific literacy level. The four literacy levels are (1) below basic, (2) basic, (3) intermediate, and (4) proficient. In addition, any adults who could not complete the assessments because of language, or other obstacles, were not included in the final scoring (5%) (Kutner et al., 2007). To illustrate these levels, Figure 1 describes health literacy tasks and the associated health literacy score/levels (Kutner et al., 2007).

Below basic literacy level is described as "no more than the most simple and concrete literacy skills" (Kutner et al., 2007, p. 4). Individuals with this skill level range from being nonliterate to having the ability to find simple information in everyday prose text and in simple documents such as charts or forms and use numbers found on quantitative material to complete simple mathematical operations (addition). This level of literacy is well below that needed to function within the healthcare setting.

Basic literacy level refers to "skills necessary to perform simple and everyday literacy activities" (Kutner et al., 2007, p. 4). Individuals at this level are able to read, understand, and use information in short, simple, everyday prose text, documents, and quantitative material (one-step problem with simple arithmetic operation).

Intermediate literacy level encompasses "skills necessary to perform moderately challenging literacy activities" (Kutner et al., 2007, p. 4). Individuals in this category are able to read and understand moderately dense prose text leading to summarization, inferences, recognizing relationships, and noting purpose of less common written material. The individuals can also find information in complex documents and make inferences. With quantitative material, the individual can find less common quantitative information and use it to solve nonobvious problems.

Proficient literacy refers to "skills necessary to perform more complex and challenging literacy activities" (Kutner et al., 2007, p. 4). The individuals at this level are the most proficient in using written information in prose, document, or quantitative format. They can read and understand lengthy complex written material and synthesize the information to make complex inferences. They can analyze, integrate, and synthesize information in complex documents. They find and utilize uncommon quantitative information and solve problems using multiple-step arithmetic operations. This is the group that would have the least difficulty with navigating the healthcare system, understanding health information, following through with health instructions, and adhering to medical plans.

Interpreting the Results

This study and subsequent reports are meant to be descriptive only. The study is meant to show relationships between health literacy and demographic/background factors. It is not meant to show causal inferences between all variables, and many of the variables are related to each other. The complex relationships and interactions between all the variables have not been fully explored (Kutner, Greenberg, Jin, & Paulsen, 2006).

Health Literacy

The health literacy levels of the NAAL participants are very similar but not identical to the overall prose, document, and quantitative literacy of the overall NAAL. Most of the participants (53%) had an intermediate level of health literacy. A total of 22% had basic health literacy and 14% had below basic health literacy. Twelve percent scored in the proficient range. Overall, 36% of the adult participants had basic or below basic health literacy skills. This represents more than one third of the population (Kutner et al., 2006).

Gender

The average health literacy score for women was 6 points higher than the score for men. More men than women had below basic health literacy. More women had intermediate health literacy. The difference between men and women with basic or proficient health literacy was not significant (Kutner et al., 2006).

Race

"White and Asian/Pacific Islander adults had higher average health literacy than Black, Hispanic, American Indian/Alaska Native, and Multiracial adults" (Kutner et al., 2006, p. 11). A higher percentage of White and Asian/Pacific Islander adults had proficient health literacy when compared with multiracial, Hispanic, Black, and American Indian/Alaska Native adults. A higher percentage of White, Asian/Pacific Islander, and multiracial adults had intermediate health literacy when compared with Black and Hispanic adults. A higher percentage of Black and Hispanic adults had below basic health literacy when compared with White, Asian/Pacific Islander, or multiracial adults. In addition, there was a higher percentage of multiracial, Hispanic, and Black adults with basic health literacy (Kutner et al., 2006).

Language Spoken Before School

Participants who spoke only English prior to beginning school had higher health literacy than those who spoke only one language that was not English.

> The average health literacy score of adults who spoke only English before starting school was at the *Intermediate* level, as were the average health literacy scores of adults who spoke English and Spanish or English and another language. Adults who spoke only Spanish before starting school had the lowest average health literacy, equivalent to *Below Basic* health literacy. (Kutner et al., 2006, p. 12)

Age

Adults who aged 65 and older had the lowest average health literacy when compared with the other age groups. Adults aged 25–39 had higher average health literacy when compared with the other groups. Adults aged 65 and older had the lowest percentage of those with intermediate health literacy. More adults aged 65 and older had below basic or basic health literacy than the younger groups. Adults aged 25–39 had the highest percentage of proficient health literacy (Kutner et al., 2006, p. 13).

Education

For the most part, as educational level increased, the health literacy level increased. Those in the highest educational groups (bachelor's degree and graduate studies or graduate degree) had no significant difference in the percentage of adults who fell into each health literacy category. Those with below basic health literacy consist of the following educational groups: 4% with 2-year or associate degree; 3% with a 4-year college degree or graduate studies; and 12%–15% who were still in high school, had a high school diploma, had a GED certificate, and took business or trade classes after high school (Kutner et al., 2006, p. 13).

Poverty

The average health literacy score for those living below the poverty level was 205. For those at the poverty level or up to 125% of it, the score was 222. Both of these scores are at the basic level. The average health literacy score increased as the percentage above the poverty level increased (Kutner et al., 2006).

Self-Assessment of Overall Health

For each higher level of self-reported overall health, the average health literacy score increased. For participants who reported excellent health, their average health literacy score was 262. Those who reported very good health had an average score of 254. Adults with good health had a health literacy score of 234. The average health literacy score for those with fair health was 207, and for those who reported poor health the average score was 196 (Kutner et al., 2006, p. 16).

Health Insurance

Adults obtain health insurance through a variety of private and public sources. For this study, participants were asked whether their insurance was provided from the following sources: employer, military, private purchase, Medicare, and Medicaid. If the participant had no insurance, this was recorded on the background questionnaire. The following average health literacy rates were noted for each category of insurance: 259 for employer, 248 for military, 243 for private purchase, 216 for Medicare, 212 for Medicaid, and 220 for no insurance (Kutner et al., 2006).

Those with employer, military, or private insurance belonged to the group with the greatest percentage of adults who had intermediate or proficient health literacy. Individuals with Medicare, Medicaid, or no insurance belonged to groups with the greatest percentage of below basic health literacy. Although there were individuals in all of the literacy levels in each category of insurance, those with Medicare, Medicaid, or no insurance have the greater chance of having basic or below basic health literacy (Kutner et al., 2006).

Sources of Health Information

American adults get health information from a variety of print and nonprint sources. On the background questionnaire, the participants were asked about their use of health information sources, specifically whether they use a source “a lot,” “some,” “a little,” or “none.” Print sources included newspapers, magazines, books or brochures, and the Internet. Nonprint sources included radio, television, family, friends, coworkers, and healthcare professionals.

Print—Adults with below basic health literacy were more likely to not seek health information (“none”) from any printed source. The percentage of those who did not seek information from newspapers, magazines, and books or brochure ranged from 37 to 41. In the lowest literacy group, 80% reported that they did not seek information from the Internet (Kutner et al., 2006). In contrast, individuals with basic, intermediate, or proficient health literacy were more likely to use print sources of health information (“some”) and the percentage of those who marked “none” declined dramatically as the literacy level increased (Kutner et al., 2006).

The difference in the use of print material for various health literacy levels was most dramatic in the use of the Internet. For adults with below basic health literacy, 80% did not use the Internet; for basic health literacy, 58% did not; for intermediate health literacy, 33% did not; and for proficient health literacy, 15% did not.

Nonprint—For radio and television sources of information, individuals at the below basic health literacy level sought no information at a higher rate than did adults from other literacy levels. For intermediate and proficient groups, 43%–44% sought "some" information from the radio/television as compared with 34%–40% of those with below basic or basic health literacy (Kutner et al., 2006).

When seeking health information from family, friends, or coworkers, individuals with below basic health information were part of the group that had the highest percentage of adults who did not seek any information ("none") from family, friends, or coworkers. In contrast, individuals with intermediate and proficient health literacy sought information from family, friends, or coworkers at a much higher rate than did those with below basic and basic health literacy (Kutner et al., 2006).

Seeking health information from healthcare professionals varies greatly among the health literacy levels. Those with below basic/basic health literacy either did not seek information from healthcare professionals or were very reliant on the healthcare individual as the main source of information. In contrast, those with the highest health literacy sought information from healthcare providers in moderation, having the highest rate of seeking information "a little" or "some" when compared with those with other literacy levels. In addition, those with intermediate and proficient health literacy did not rely as heavily on healthcare professionals as a main source of information (Kutner et al., 2006).

The results of the NAAL show us that individuals with below basic and basic health literacy are part of the group that seeks healthcare information the least ("none") from all sources: print or nonprint. The NAAL demonstrates that individuals who have intermediate or proficient health literacy seek information at a higher rate from all sources in moderation ("a little" or "some").

Conclusion

The NAAL gives us a snapshot of literacy and health literacy in the United States. From the NAAL we know that individuals who struggle the most with understanding healthcare information (those with the lowest literacy/health literacy) are 65 years or older, male, and Black or Hispanic; spoke another language prior to formal education; have less than a high school diploma; live at or below the poverty line; rate their overall health as poor; have Medicare, Medicaid, or no insurance; and do not seek health information ("none") from print or nonprint sources more often than individuals with higher levels of health literacy (Kutner et al., 2006).

This information helps us think about which of our patients are most likely to have low health literacy and what is the best medium for presenting healthcare information. Many adults, as noted in the NAAL, lack the health literacy skills needed to function well in the U.S. healthcare system. Healthcare professionals need to provide health information in a meaningful manner to ensure that Americans can understand their health and make informed decisions. The first step in this process is to understand the health literacy abilities of the population.

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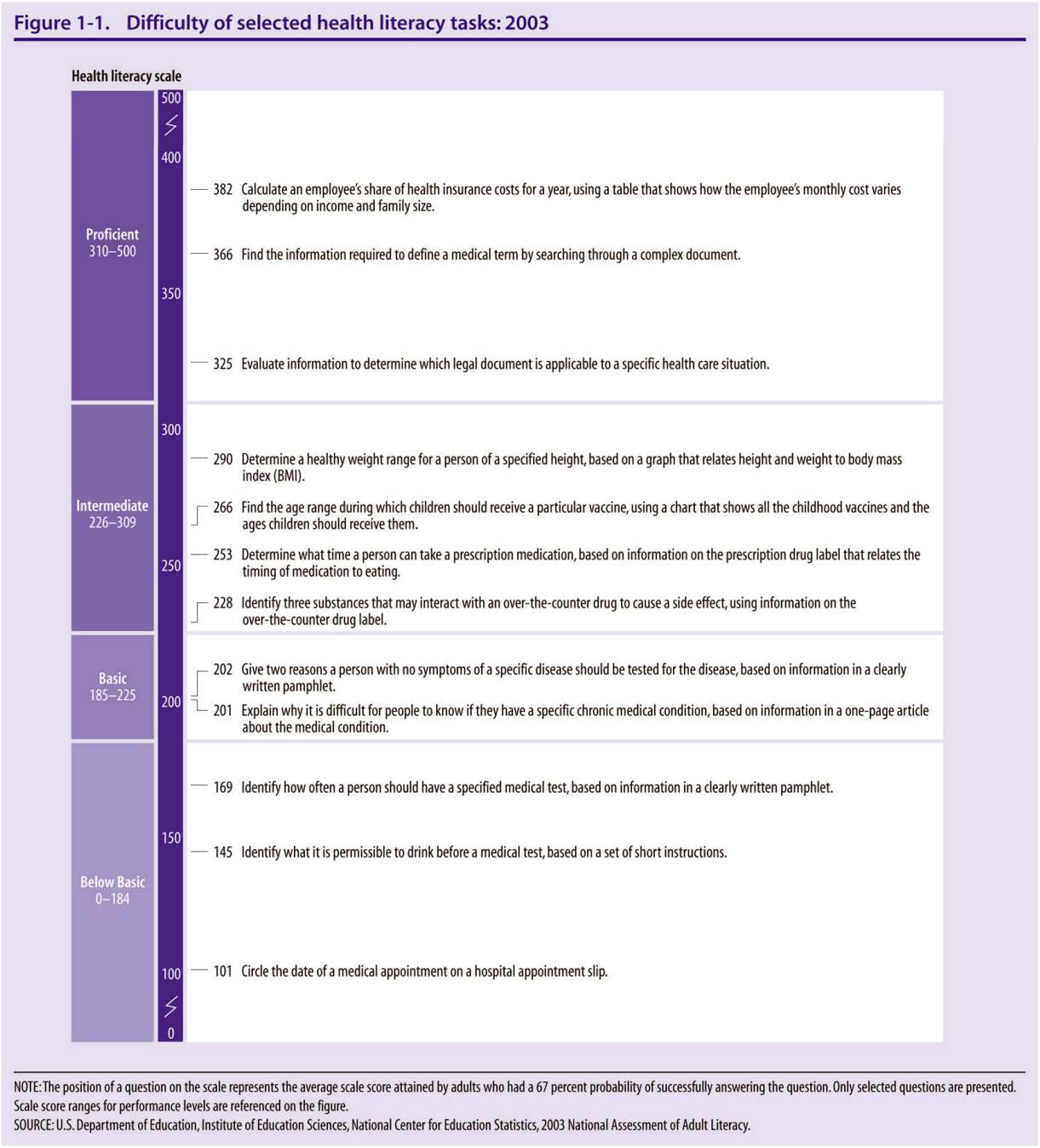

Figure 1.

Difficulty of selected health literacy tasks: 2003. The position of a question on the scale represents the average scale score attained by adults who had a 67% probability of successfully answering the question. Only selected questions are presented. Scale score ranges for performance levels are referenced on the figure. From U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy.