

# Patient literacy levels within an inner-city optometry clinic

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## KEYWORDS

Literacy;  
Patient education;  
Communication;  
Nonverbal  
communication

## Abstract

**BACKGROUND:** This study compares the literacy levels of patients seeking primary optometric care at the Illinois Eye Institute, located in a Chicago inner-city neighborhood, to the literacy demands of available near point cards and patient educational materials.

**METHODS:** The revised large print Slosson Oral Reading Test was administered to 100 primary care patients 10 to 15 minutes after the instillation of mydriatic eye drops. In addition, the Flesch-Kincaid Grade Level was calculated using the Spelling and Grammar component of the Microsoft® Word software package 2003 (Microsoft, Redmond, Washington) for available near point testing cards and patient education materials used in this clinic from the American Optometric Association and the National Eye Institute.

**RESULTS:** A total of 37.4% of patients read 1 standard deviation or more below their age-expected levels. A total of 46.5% of patients read at or below an eighth-grade level. The literacy demands of the tested near point cards ranged from 2nd grade to 12th grade. The literacy demands of patient education materials ranged from 7th grade to 12th grade.

**CONCLUSIONS:** About one third to almost one half of the 100 patients in this sample from the Illinois Eye Institute optometry clinic read below their age-expected level. Therefore, near point testing materials and patient education materials may not be written at a suitable reading level to be effective in this population. Clinicians who provide eye care for patients in inner city settings should consider communicating important information using nonwritten methods to those patients with low literacy levels.

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During a “routine” eye examination, optometrists use many materials that rely on the patient’s ability to read and comprehend written English language. This includes the use of charts to measure visual acuity, near point testing cards to evaluate the vergence and accommodative systems, and educational pamphlets and fact sheets. Patient education materials may include handouts on topics such as treatment regimens for blepharitis, dry eye, cataracts, macular degeneration, amblyo-

pia, and other common visual conditions. Written materials are often provided to instruct patients on how to use a home Amsler grid, instill eye drops and ointments, or recognize the symptoms of a retinal or vitreous detachment. However, if these reading materials are not appropriately matched to the patient’s reading level, examination findings may be affected, or decreased patient compliance may result. For example, a clinician may misinterpret a patient’s struggle to read a near point card as a need for a higher bifocal power, or a patient’s inability to read medication instructions may cause the incorrect instillation of eye drops. Thus, poor reading ability can affect all aspects of optometric vision and health care.

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Individuals with reduced reading skills are prevalent in all parts of society, all professions, and all socioeconomic groups; they are not limited to certain ethnic groups or cultures.<sup>1,2</sup> Illiteracy has been shown to be particularly common in our nation’s urban areas<sup>3</sup> as shown in Chicago, where it was estimated that 63% of the people living there performed at lower literacy skill levels.<sup>4</sup>

How widespread is adult illiteracy in the American population? More than 30 million Americans (14% to 20%) have reading skills below the fifth- to eighth-grade level,<sup>1,2</sup> meaning that they may have difficulty understanding the front page of a daily newspaper, the instructions on some medicine labels, or the poison warning on a can of insecticide. An additional 20% are functionally illiterate,<sup>5-7</sup> meaning that they do not have the literacy skills needed to interact fully as a family member (i.e., parents may be unable to assist with their children’s homework or administer medications safely), employee (i.e., difficulty reading equipment manuals or hazard signs), or citizen (i.e., difficulty reading a voting ballot).

In addition to affecting an individual’s daily life, illiteracy greatly affects the nation’s economy. Illiterate patients more frequently delay needed medical treatment, have more trouble understanding medication instructions, are more frequently hospitalized unnecessarily, and have more medical charges.<sup>8</sup> These increased charges are caused by more visits to emergency rooms, increased need for hospitalization caused by poorer health,<sup>8</sup> failure to get appropriate early treatment, and more frequent misinterpretation of medical instructions.<sup>5,9</sup> This translates into \$8 billion to \$15 billion a year in excess hospital costs alone.<sup>10</sup> Additionally, \$30 billion to \$100 billion are spent yearly on increased health care, lost wages, overuse of unemployment benefits, and basic skills remediation<sup>10</sup>—all attributable to functional illiteracy.

It is necessary to point out that illiterate patients are not necessarily unintelligent individuals. A patient may have an average or above-average IQ and may speak articulately but may not have learned to read well.<sup>1</sup> Therefore, health care professionals should not assume a patient has a certain literacy level based solely on profession, socioeconomic group, ethnicity, or culture.<sup>1,2</sup>

Based on the information above, it is important that educational and near point testing materials be written at a reading level suitable to the patient to be effective. The purposes of this study are (1) to examine the literacy levels of patients seeking primary optometric care at an inner-city optometric clinic, (2) to determine the reading level of near point testing materials and educational materials used within optometry, and (3) assess whether patient literacy levels are matched appropriately with these materials.

Methods

To determine patient literacy levels, the revised Slosson Oral Reading Test (SORT-R) was administered to 100

patients who presented to the Illinois Eye Institute (IEI) for comprehensive eye examinations in the Primary Eye-care Service. The IEI is located in inner-city Chicago and contains a predominantly African American patient base. Patients were selected randomly from morning and evening clinic sessions throughout the week. Patients younger than 14 years were excluded from the study. All subjects signed an Illinois College of Optometry Institutional Review Board–approved informed consent form.

The SORT-R evaluates the ability of the examinee to read aloud 200 words arranged in ascending order of difficulty. This test was chosen because it is widely used, nationally standardized, quick to administer, and has a moderate number of items at lower reading levels.<sup>11</sup> The SORT-R offers validity with correlations to other reading tests in the 0.90s and higher as well as test-retest reliabilities of 0.95 and above.<sup>12</sup> To take advantage of patient waiting time during the normal examination sequence, the test was administered while patients were waiting for dilation. To minimize any unintended effects of mydriasis or cycloplegia, the test was administered within 5 to 10 minutes after instillation of mydriatic drops, and the large print version of the test was used.

The SORT-R is untimed, but patients are not given credit for words which they take longer than about 5 seconds to read aloud.<sup>12</sup> The patient’s raw score on the SORT-R and the patient’s age are used to look up the standard score in the SORT-R testing manual. A standard score is referenced to a mean of 100 and a standard deviation of 15. A patient’s standard score allows that performance to be compared with those of other patients. Standard scores near 100 ± 15

Table 1    Tested near point cards and educational brochures	
	Source
Near point cards	
Near Point Card	NPTIC095.05
Near Reading Cards for the Partially Sighted	Designs for Vision
Nearpoint Rotochard	Reichert Ophthalmic Instruments (11999)
Reading Card Snellen Rating Standard Test Types	SMD Test Card/BC 11980 BC/11966
Educational brochures	
Blepharitis	AOA (FS9/991)
Cataracts	AOA (FS5/191)
Chalazia and Styes	AOA (FS14/695)
Common Vision Conditions	AOA (Q1-10/04)
Don't Lose Sight of Cataract	NEI/NIH (94-3463)
Don't Lose Sight of Glaucoma	NEI/NIH
Dry Eye	AOA (Q20-10/04)
Flashes, Floaters, and Vitreous Detachment	AOA (FS10/991)
Macular Degeneration	AOA (Q22/998)
Presbyopia	AOA (Q9/896)
Protecting Your Eyes from UV Radiation	AOA (VL2/794)

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