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ORIGINAL ARTICLE

Toward developing a standardized Arabic continuous text reading chart

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KEYWORDS

Continuous text charts;
Visual acuity;
Acuity chart;
Reading;
Arabic

Abstract

Purpose: Near visual acuity is an essential measurement during an oculo-visual assessment. Short duration continuous text reading charts measure reading acuity and other aspects of reading performance. There is no standardized version of such chart in Arabic. The aim of this study is to create sentences of equal readability to use in the development of a standardized Arabic continuous text reading chart.

Methods: Initially, 109 Arabic pairs of sentences were created for use in constructing a chart with similar layout to the Colenbrander chart. They were created to have the same grade level of difficulty and physical length. Fifty-three adults and sixteen children were recruited to validate the sentences. Reading speed in correct words per minute (CWPM) and standard length words per minute (SLWPM) was measured and errors were counted. Criteria based on reading speed and errors made in each sentence pair were used to exclude sentence pairs with more outlying characteristics, and to select the final group of sentence pairs.

Results: Forty-five sentence pairs were selected according to the elimination criteria. For adults, the average reading speed for the final sentences was 166 CWPM and 187 SLWPM and the average number of errors per sentence pair was 0.21. Childrens' average reading speed for the final group of sentences was 61 CWPM and 72 SLWPM. Their average error rate was 1.71.

Conclusions: The reliability analysis showed that the final 45 sentence pairs are highly comparable. They will be used in constructing an Arabic short duration continuous text reading chart.

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PALABRAS CLAVE

Tablas de textos continuos;
Agudeza visual;
Tabla optométrica;
Lectura;
Árabe

Hacia el desarrollo de una cartilla estandarizada de lectura de textos continuos en árabe

Resumen

Objetivo: La agudeza visual de cerca es una medición esencial del examen visual. Las tablas de lectura de textos continuos de corta duración miden la agudeza visual y otros aspectos del rendimiento lector. No existe una versión estandarizada de dichas cartillas en árabe. El objetivo de este estudio es el de crear frases de igual legibilidad, para ser utilizadas en el desarrollo de una cartilla estandarizada de lectura de textos continuos en árabe.

Métodos: Inicialmente, se crearon 109 pares de frases en árabe para construir una cartilla con un diseño similar al de la tabla de Colenbrander. Fueron creadas para tener el mismo nivel de dificultad e igual longitud física. Se reunió a cincuenta y tres adultos y dieciséis niños para validar las frases. Se midieron la velocidad lectora en palabras correctas por minuto (CWPM) y las palabras de longitud estándar por minuto (SLWPM), contabilizándose los errores. Se utilizaron los criterios basados en la velocidad lectora y los errores en cada frase para excluir los pares de frases con más características periféricas, y seleccionar el grupo final de pares de frases.

Resultados: Se seleccionaron cuarenta y cinco pares de frases, de acuerdo con los criterios de eliminación. Para los adultos, la velocidad lectora media de las frases finales fue de 166 CWPM y 187 SLWPM, y el número medio de errores por par de frase fue de 0,21. La velocidad lectora media de los niños para el grupo final de frases fue de 61 CWPM y 72 SLWPM. Su índice medio de error fue de 1,71.

Conclusiones: El análisis de fiabilidad mostró que los 45 pares de frases finales son altamente comparables. Se utilizarán para construir una tabla de lectura de textos continuos de corta duración en árabe.

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Introduction

Reading is essential in modern life and is the most common rehabilitation goal for people with low vision.¹ Inability to read significantly affects quality of life and so aspects of reading are usually included in vision-related quality of life measures.²⁻⁵ Reading acuity measurement (acuity for text or words) is important in assessing a patient's reading performance⁶ and in understanding the impact of eye disease.⁷⁻⁹ Although there is a good correlation between distance letter acuity and word or text acuity,¹⁰⁻¹² they are not equal,^{10,13,14} and word or text reading acuity is more related to everyday reading tasks.^{15,16} Charts using short duration continuous text are considered a better representation of a person's vision for everyday reading than charts using unrelated words^{15,16} as reading short duration sentences includes cognitive and visual factors, e.g. effects of context and crowding.⁶ They quickly assess a patient's near reading acuity and can also measure maximum reading speed and critical print size (the smallest print to achieve maximum or near maximum reading speed).⁶ These measures indicate the potential for reading small print fluently, and are used to estimate the required magnification for reading in patients with low vision. The use of standardized sentences and layout is important, so that the print size is the only parameter that affects the threshold, and not variability in the text difficulty or crowding effects, so as to ensure reliable and repeated results.¹⁷⁻²⁰

The concept of using standardized sentences of equal length and difficulty was first introduced by Legge and co-workers in 1993 and developed into the MNREAD charts.²¹ Radner et al.²² developed the concept further, creating sentences which were equal in terms of lexical and syntactical difficulty, word length and positioning of words within the sentence. Continuous text reading charts are now available in many languages.^{19,20,23-28} Arabic is ranked as the fifth spoken language (in number of first language speakers) and is spoken in 60 different countries globally, with approximately 237 million native speakers.²⁹ Despite this there is no short duration standardized Arabic reading acuity chart. There have been a number of attempts to develop Arabic distance and near letter visual acuity charts,³⁰⁻³⁵ but none of them have been produced or are commercially available. The lack of standardized continuous text reading charts has made the use of non-standardized charts very common. These are either created and printed by clinicians or freely distributed by eye-care companies for advertisement purposes. These charts use sentences that have not been developed according to the recommendations for standardized reading acuity charts^{6,16,17,36} and they have not been tested for reliability and repeatability. It is important that chart variables, such as text typeface, text difficulty, and text length should be equal for different acuity levels so that comparable results are given with different versions of the chart. The one standardized reading chart in Arabic is the IREST texts,²⁴ but this is primarily a measure of reading speed rather than reading

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