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A Comparison of Emoji Characters to Picture Optotypes

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A Comparison of Emoji Characters to Picture Optotypes

Submitting/Presenting Author (must be a trainee): Simran Brar, O.D.
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☐ **Resident/Psychology Intern (≤ 1 month of dedicated research time)**
☐ **Resident/Ph.D/post graduate (> 1 month of dedicated research time)**
☐ **Fellow**

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IRB Number: 967

Describe role of Submitting/Presenting Trainee in this project (limit 150 words):

My role, as the trainee, was to unbiasedly analyze and interpret the collected data in regard to assessing whether the study objective can alter clinical practice guidelines. The study question at hand was to determine whether an alternative form of testing visual acuity in young children was better suited for an age group 2-4 years old compared to the current standard method.

Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words

Background:

In clinical practice for eye care providers, visual acuity is a measure of visual clarity that is examined with specific characters, known as optotypes. There are three common charts that utilize pictures: Wright, Allen, and Lea. The pictures may not be relevant to what children currently see in their everyday life. This raises a concern of whether the child can see the picture clearly or just does not know what the picture is.

Studies show picture based optotypes are better received by young children in order to quantitatively measure visual acuity. No study has compared the ability to recognize the pictures by themselves or in comparison to alternative pictures. Exploring more familiar picture types (e.g. emojis) compared to standard picture optotypes can improve accuracy of vision screening in younger children.

Objectives/Goal:

To compare young children's ability to recognize pictures used in standard pediatric eye examinations with current emoji pictures. If the emoji pictures are more accurately recognized in this age group, future studies can be done to develop new standardized vision charts for pediatric eye exams and vision screenings.

Methods/Design:

Children ages 2 years to 4 years will be asked to verbalize what they think a test picture is. There will be 2 cards, each with 4 pictures on it. One card will have emoji-based pictures. One card will have 4 pictures from the standard vision testing picture optotypes. There will be 3 versions of the standard vision test card which utilizes the three most common testing cards in pediatric eye care (Wright, Allen, and Lea).

There will be 20 children in each group of the 3 standard cards. Examiner will record the number of correct responses to each of the pictures asked to be identified. Best score would be 4/4, worst score 0/4. The correct number of pictures identified will be kept on a separate score sheet with no other data or PHI.

Results:

A total of 60 children randomly selected between the ages of 2-4 years old had participated in the study. Results compared paired charts (emoji vs. allen, emoji vs. wright, emoji vs. lea) and also calculated for overall correct recognition of pictures. Overall comparison showed the wright images were identified with an 87.5% accuracy. The Allen chart was identified with 72.5% accuracy as the lea chart identified with 70% accuracy. Least correctly identified pictures were emoji images with 66.35% accuracy.

Conclusions:

When testing visual acuity on young children (2-4 years old), picture charts are most reasonable for obtaining most accurate results. Particularly, the wright chart was most accurately identified overall in this age group. The allen and lea charts were comparable in accuracy when compared to each other. The emoji images were least accurately identified overall.

Although emojis may not have served as an appropriate alternative picture chart for visual acuity compared to the standards, there is still an opportunity to increase accuracy in visual measurements. Our results demonstrate the wright chart was recognized with the most correct images, but we can also conclude there exists an opportunity for improvement.