Meta-Analysis: Dyslexia Predictors

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Abstract

- The prevalence of dyslexia ranges from 3-17%. This is due to a lack of an agreed upon operational definition for the disorder. The purpose of this meta-analysis is to analyze data from many studies on dyslexia, searching for studies that are the best at predicting dyslexia, in order to better establish an operational definition of dyslexia, to help narrow down the prevalence.
- We attempt to create a distribution of dyslexia prevalence, that will be dependent on severity, rather than just a statistic of if they have the disorder or not. We do this by finding thousands of studies related to predicting dyslexia, screening the title, abstracts, and eventually entire texts, in order to determine what information we will extract from which studies. This information will be used on our meta-analysis.
- This analysis will help provide criteria for the identification of dyslexia.

Introduction

- The present study is a meta-analysis determining the measures related to dyslexia.
- Dyslexia is a developmental learning disorder that is neurobiological in origin (Snowling 2022). It is characterized as having trouble decoding, recognizing, and spelling words (Cutting 2009). This is typically relative to other cognitive abilities, meaning individuals with dyslexia struggle with the phonological aspect of language, but have display normal levels of other cognitive abilities (Prahl 2022).
- The purpose of conducting this meta-analysis is to obtain a more in-depth understanding of the measures seen in those with dyslexia, to provide information to programs that help treat dyslexia from a young age.
- This research will help bridge the gap between diagnosing dyslexia and early intervention, with the hope of preventing further reading comprehension problems in children and adults.
- By finding the most common predictors of dyslexia, further research can be done to find if there is a biological link between certain predictors and the degree to which researchers can use these predictors to develop more direct identification and intervention.

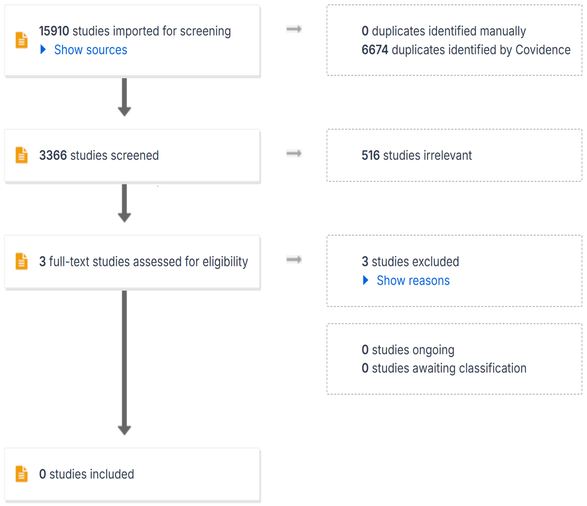

Figure 1 shows the distribution of the search string results (journals, books, and dissertations/theses) through a Prisma graph.

Methods

We conducted a meta-analysis through Covidence, a platform designed for data analysis and extraction. The APAPsychInfo (proquest) database was searched with different search strings resulting in 9,236 results. These results are going through title and abstract screening which will result in studies to undergo full text review. After full text review, the necessary data from each article will be screened and coded for the data needed for the study. The data collected will measure the prominence of certain predictors such as phonological awareness (ability to hear how spoken words are alike and how they are different), phonological memory (ability to store speech information in your short-term memory), and rapid naming (ability to efficiently access the pronunciations of known words in your long-term memory) (Wagner 2021).

Results/Conclusion

While the meta-analysis is still ongoing, we plan to see results that are able to correlate certain measures with a more structured definition of developmental dyslexia. The key takeaway from this study is determining the most common predictors to create a more rigid standard for identification.

Discussion

We are conducting the meta-analysis to determine which predictors of dyslexia were most prominent. In this way, the results will hopefully lead us to a greater understanding of combatting dyslexia through early intervention and as well as provide a more rigid identification knowing the reoccurring predictors helps connect the gap between diagnosis and intervention of dyslexia because there is no solidified tool to directly combat the issue. One strength of this study is the sheer number of articles/theses gathered from the word string searches. We had over 9,000 results, which adds to the reliability of the research. Though the meta-analysis is thorough, one limitation to this research is the databases searched. The study mainly sourced from APAPsychInfo (ProQuest). Future studies should utilize studies from other databases to gain a deeper and more widespread understanding and expand their studies into early intervention processes.

Acknowledgements

We want to thank our mentor Dr. Richard Wagner, as well as Dr. Dorota Kossowska-Kuhn, Dr. Fotena Zirps, and Gillian Gouveia for this study. Additionally, we would like to thank the Center for Undergraduate Research and Engagement and our UROP colloquium leaders, Leah Livin, Natalia Sanchez, Elias Latimer, and Ana-Gabriela Osorio.

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