

Introduction

- Executive Function (EF) refers to the cognitive processes that control goal oriented skills important for learning, such as inhibition and cognitive flexibility.
- Previous research has suggested that there is a disparity in EF between deaf and hearing individuals, which has been claimed to be due to auditory deprivation.

Research Question

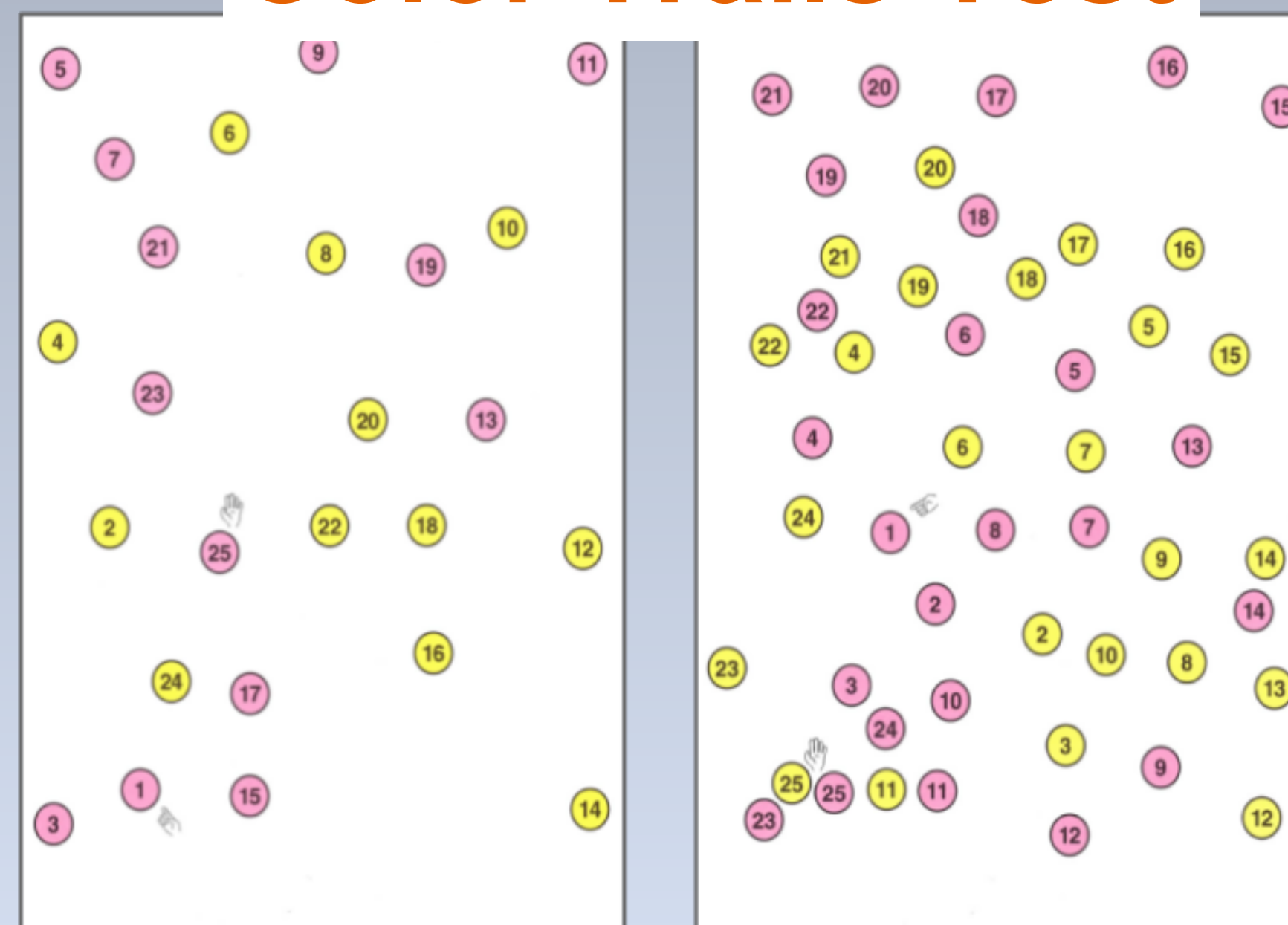
How are differences in executive function performance in relation to:

- Hearing status
- Caregiver Hearing status

Measurement

- Specific background information- family, education, and demographics.
- Color Trails Test

Color Trails Test



CTT 1

CTT 2

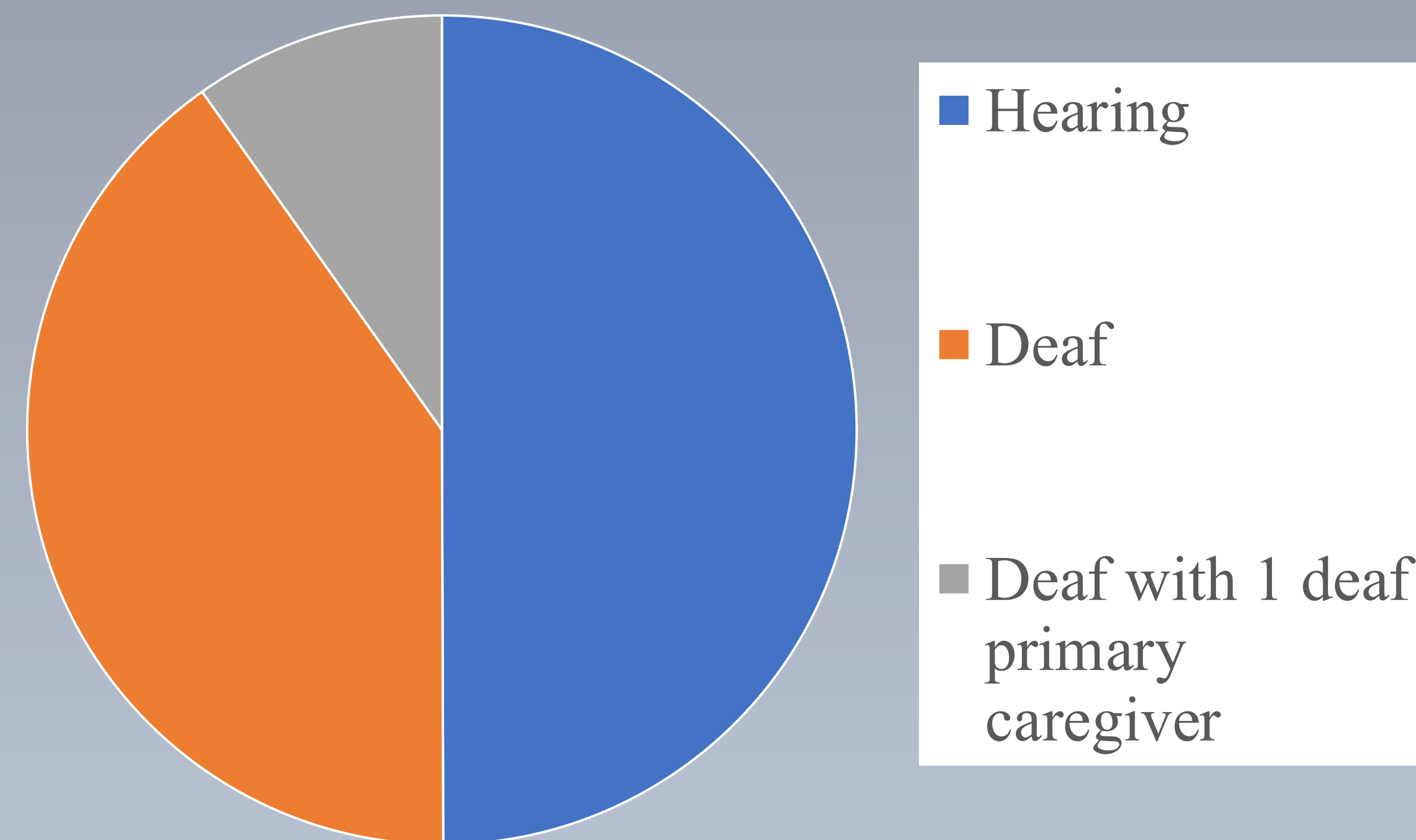
Methods

Database from a larger health literacy study (2016-2019) from 3 different locations New York, Michigan, and Illinois (McKee et. al, 2019).

Ages: 18-81, M=43.6 years

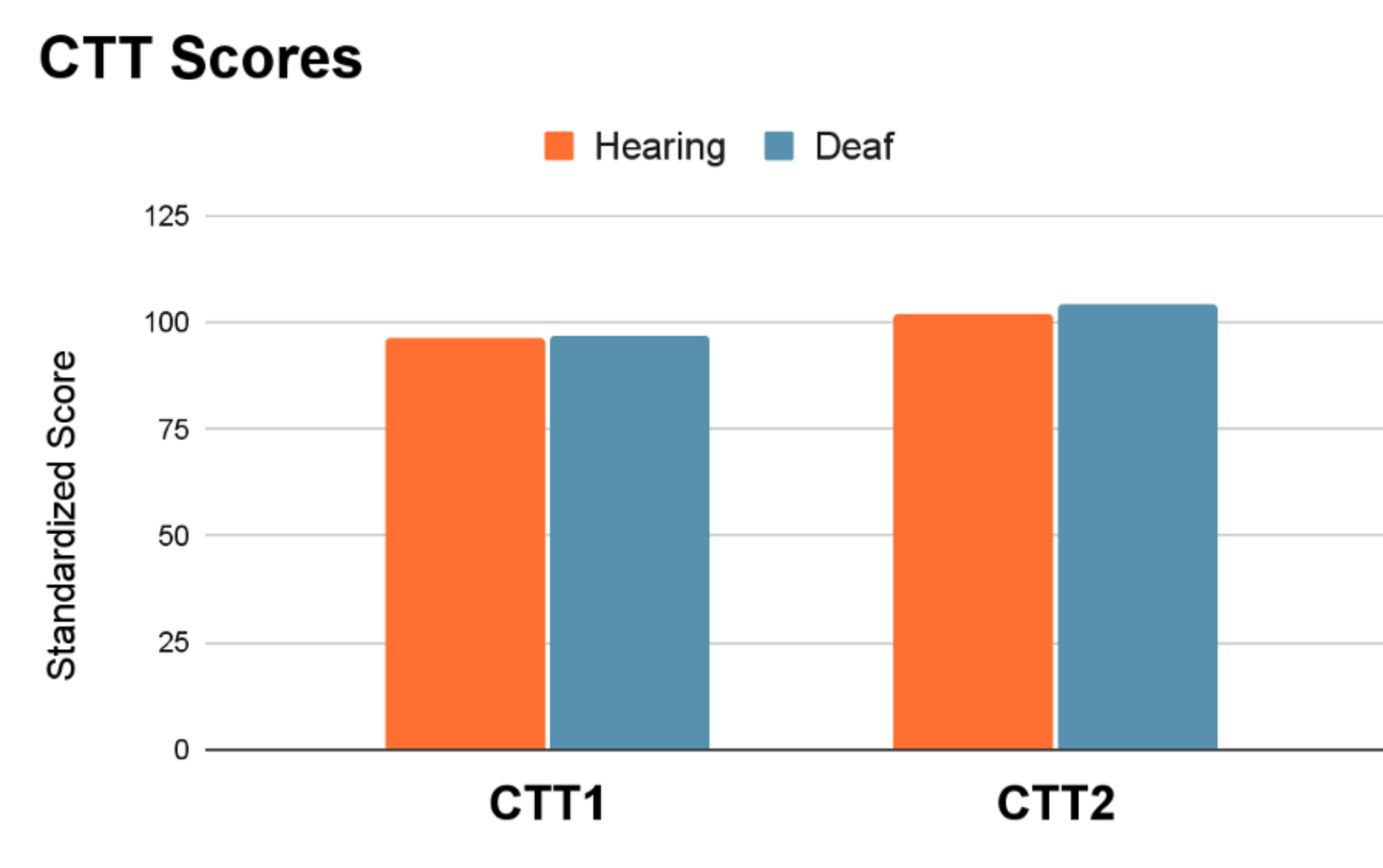
- 445 hearing
- 446 deaf (9.6% with at least 1 deaf primary caregiver)

Participants

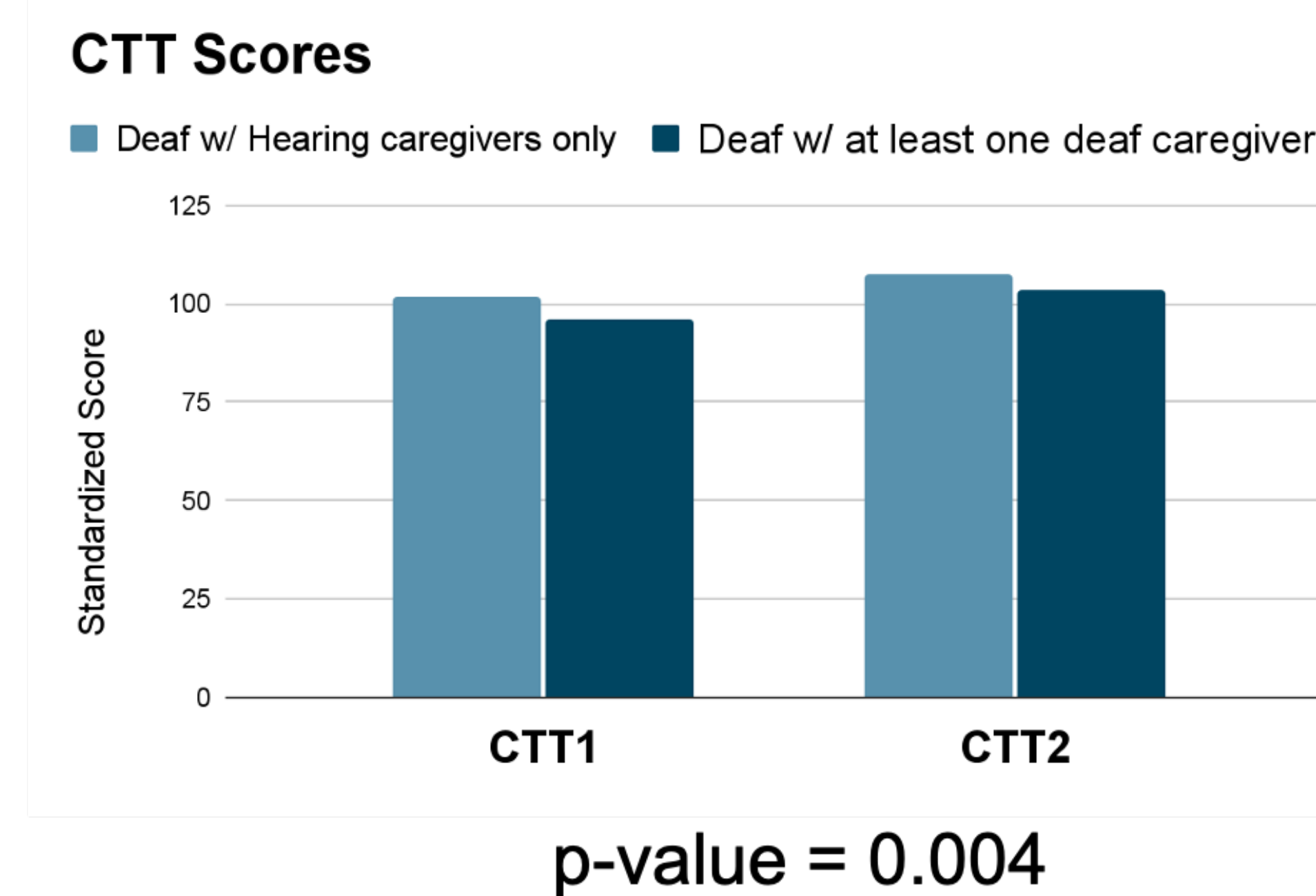


Results

Deaf vs Hearing individuals



Deaf with at least 1 deaf caregiver



- No difference between deaf and hearing individuals
- Slight difference** between deaf with only hearing caregivers and deaf with at least one deaf caregiver

Discussion

- No difference in performance based on hearing status
- Deaf individuals with one caregiver showed slightly faster EF performance.
- CTT is a good tool for measuring deaf individuals' EF skills.

Future Directions

- Use CTT to further understand how EF differences relate to language proficiency.

References

- Conway, C. M., Pisoni, D. B., & Kronenberger, W. G. (2009). The Importance of Sound for Cognitive Sequencing Abilities: The Auditory Scaffolding Hypothesis. *Current directions in psychological science*, 18(5), 275–279.
- Diamond, A. (2013). Executive function. *Annual Review of Psychology*, 64,135-168.
- Hall, M. L., Eigsti, I. M., Bortfeld, H., & Lillo-Martin, D. (2018). Executive Function in Deaf Children: Auditory Access and Language Access. *Journal of speech, language, and hearing research : JSLHR*, 61(8), 1970–1988. https://doi.org/10.1044/2018_JSLHR-L-17-0281
- Marschark, M., Walton, D., Crowe, K., Borgna, G., & Kronenberger, W. (2018). Deafness & Education International , 20(2), 100–120.
- Terhune-Cotter, B. P., Conway, C. M., & Dye, M. W. G. (2021). Visual Sequence Repetition Learning is Not Impaired in Signing DHH Children. *Journal of Deaf Studies and Deaf Education*, 26(3), 322–335. <https://doi.org/https://doi.org/10.1093/deafed/enab007>

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