



# Vocabulary Outcomes for 5-Year-Old Children who are Deaf or Hard of Hearing: Impact of Age at Enrollment in Specialized Intervention

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## Background

Early vocabulary knowledge contributes to linguistic and communicative competence, supplying the foundation for the development of spoken and written language, cognitive processing, and listening and reading comprehension.

Children who are deaf or hard of hearing (DHH) are at a disadvantage due to the effects of auditory deprivation on vocabulary and spoken language development. The current study assessed vocabulary outcomes of five-year-old children who are DHH and enrolled in OPTION programs, as well as the impact of early enrollment in specialized intervention on their vocabulary skills.

## Methods

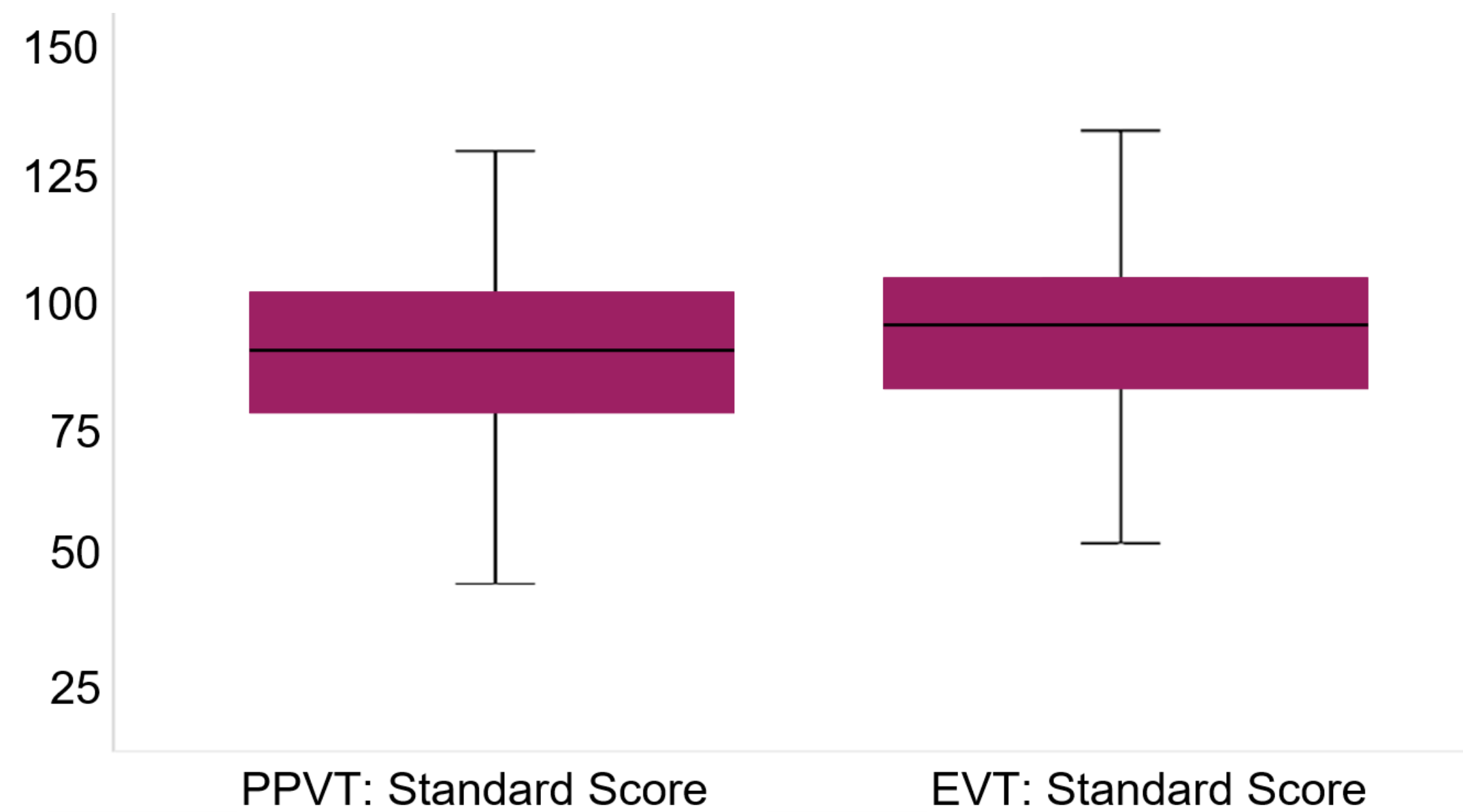
- Data was retrieved from the Listening and Spoken Language Data Repository (LSL-DR)
- Analysis used standard scores from the EVT, and PPVT.
- Regression analyses were utilized to examine effects of age at enrollment on vocabulary outcomes.
- Inclusion Criteria:
  - Enrollment in OPTION program
  - Aged 5;0 to 5;11
  - Confirmed hearing loss with no additional developmental diagnoses

## Participants (N = 342)

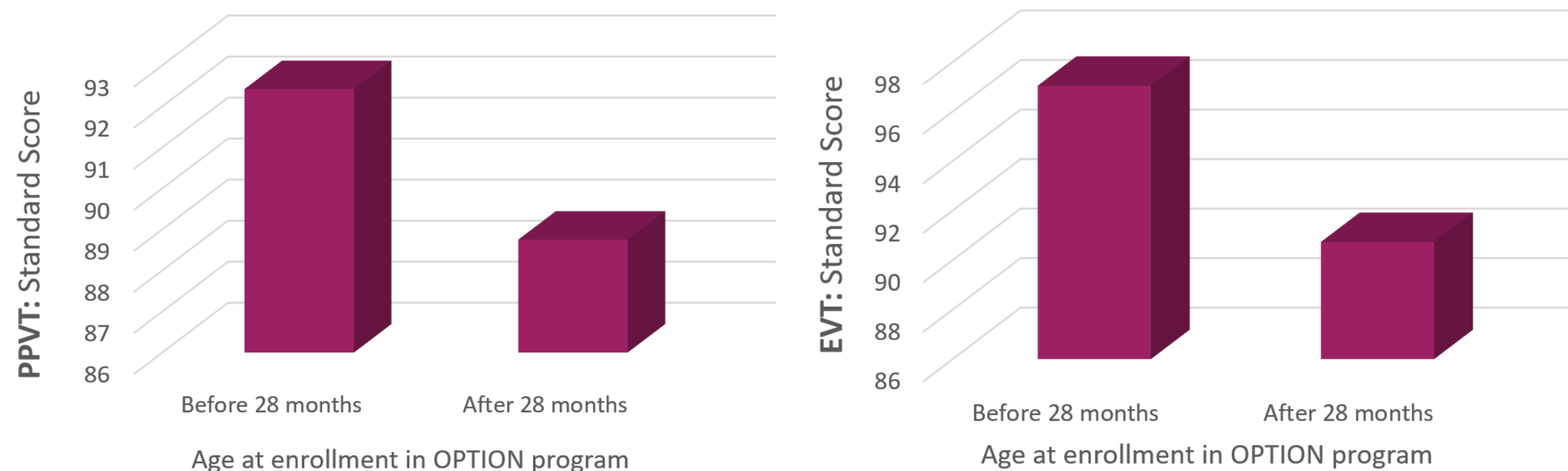
- Mean age at test = 65.2 months
- Gender: 53% Male, 47% Female
- Primary Language: English 89%; Spanish 4%, Other 6%, ASL 1%
- Hearing loss: Bilateral (94%), Unilateral (6%)
- Degree of HL: Profound (45%), Severe (12%), Moderately-severe (18%), Moderate (17%), Mild (5.6%), Slight (2%)
- Mother's Education: Post-graduate degree (43%), Bachelor's degree (55%), Some High School (1%), Less than 8<sup>th</sup> grade (1%)

## Results

**By age 5, children enrolled in OPTION programs can understand and produce vocabulary at skill levels commensurate with typically-hearing peers.**



**Children who enrolled in OPTION programs before 28 months of age demonstrated better vocabulary skills at age 5 when compared to those who had later ages of enrollment.**



## Conclusions

- Overall, participants achieved scores within normal test limits on receptive and expressive measures of vocabulary.
- Children who enrolled prior to 28 months in intervention had better vocabulary skills at 5 years old than those who enrolled later.
- The findings support that children who are DHH can understand and produce vocabulary at skill levels commensurate with their typically-hearing peers, regardless of severity of hearing loss.
- Results highlight the crucial impact of early entry into early intervention programs on children's lexical readiness to participate in general education settings by Kindergarten.
- Future directions should include longitudinal investigations of vocabulary development.
- Further analysis is warranted to determine the relationship between vocabulary skills and other areas of Kindergarten-readiness (e.g., social skills, syntactic skills, literacy skills).

## Acknowledgements

The LSL-DR is an international, multicenter data repository that tracks demographic and outcome data of children who are enrolled in OPTION Schools, which are specialized Listening and Spoken Language programs for children who are deaf or hard of hearing.

Thank you to the children, parents, and OPTION staff members who participated in the data collection process. The authors also acknowledge the contribution of the LSL-DR Investigative Team and the University of Miami Miller School of Medicine.