



Problem Behaviors in Young Children: The Impact of Hearing Loss and Language Impairment



Sarah E. Orfanedes, BHS; Megan Y. Roberts, Ph.D; Stephen M. Camarata, Ph.D; & P. Lynn Hayes, Ed.D
Department of Hearing & Speech Sciences, Vanderbilt University, Nashville, TN

Introduction

Current State of Knowledge

- Problem behaviors in children negatively impact social and academic outcomes as well as overall development (Masten et al., 2005)
- Previous research has largely found a higher prevalence of problem behaviors in children with HL compared to their hearing peers with typical language (TL) (Quittner et al., 2010; Barker et al., 2009; Topol, Girard, St. Pierre, Tucker, & Vohr, 2011; van Eldik, Treffers, Veerman, & Verhulst, 2004; Dammeyer, 2009)
- However, other studies have found no difference in problem behaviors between children with HL and their peers with TL (Khan, Edwards & Langdon, 2005; Theunissen et al., 2012)
- Most evidence supports the theory of language impairment (LI) as being the greatest source behind problem behaviors in children with HL (Quittner et al., 2010; Barker et al., 2009; Dammeyer, 2009; Cruz et al., 2012) and in hearing children with LI alone (Moretti et al., 2013; van Daal, Verhoeven & van Balkom, 2007; Kaiser, Hancock, Cai, Foster & Hester, 2000)

Purpose of the Current Study

- To better understand problem behaviors in children with HL and the correlation between problem behaviors and LI

Research Questions

Question 1

What is the relationship between problem behaviors and language skills across different populations of young children?

Question 2

Do children with HL have more problem behaviors than hearing children with LI or TL?

Question 3

Do parents and teachers differ in their report of problem behaviors in children with HL?

Methods

Participants

- 48 children, 16 in each group (HL, LI, TL)
- Mean age of 43 months (SD 12.2).
- Children were matched on age and gender between groups and language ability between HL and LI groups.
- 56% female, 44% male
- 73% Caucasian, 17% African American, 10% Other
- Average income was \$80,000 (SD: \$47,000).
- 64% of mothers had a bachelors degree or higher
- Children with HL attend an auditory-oral preschool program mixed with hearing peers
- Children varied in type, degree and configuration of hearing loss; majority (n=9) of children had bilateral cochlear implants
- Average total language standard score of children:
 - HL: 83 (19)
 - LD: 75 (10.2)
 - TL: 117 (20)

Measures

- Parent Report
 - Preschool Child Behavior Checklist (CBCL/1.5-5)
- Teacher Report
 - Caregiver -Teacher Report Form (C-TRF)

Statistical Analysis

- Research Question 1: Correlational analyses
- Research Question 2: One-way ANOVA HL vs. LI
One-way ANOVA HL vs. TL
- Research Question 3: Within-subjects ANOVA

Results

Group:	Hearing Loss M (SD)	Language Impaired M (SD)	Typical Language M (SD)
Externalizing Problem Behaviors	50.46 (11.27)	50.38 (11.11)	47.94 (11.47)
Internalizing Problem Behaviors	48.92 (12.87)	52.50 (11.54)	45.13 (13.09)

Measure:	Parent-reported	Teacher-reported
Externalizing Problem Behaviors	50.46 (11.27)	51.13 (12.13)
Internalizing Problem Behaviors	48.92 (12.87)	48.56 (11.76)

Research Question 1:

- Overall language skills were moderately correlated with internalizing behaviors ($r = -.351, p = .02$)
- Children who had better language skills demonstrated fewer internalizing problem behaviors; this relationship did not vary by group

Research Question 2:

- Children with HL did not exhibit a significantly greater number of internalizing ($F(1, 27) = .62, p = .44$) or externalizing ($F(1, 27) = .000, p = .98$) problem behaviors than children with LI
- Children with HL did not exhibit a significantly greater number of internalizing ($F(1, 27) = .61, p = .44$) or externalizing ($F(1, 27) = .35, p = .56$) problem behaviors than children with TL

Research Question 3:

- There was no significant difference between parent and teacher report for internalizing ($F(1, 27) = .01, p = .94$) or externalizing ($F(1, 27) = .02, p = .88$) problem behaviors

Conclusions

- Internalizing problem behaviors were moderately correlated with language level, but not uniquely with HL
- Children with HL did not have significantly different levels of internalizing or externalizing problem behaviors than children with LI or TL
- Parent and teacher reported problem behaviors were in concordance

Limitations

- Small sample size; monolingual children only
- Direct observational measures of problem behaviors are needed
- All of the children with HL attended an intensive auditory-oral preschool; findings may not be consistent across other educational placements

Clinical Implications

- Targeting language development in children may reduce internalizing problem behaviors
- Difficulties with problem behaviors may emerge as the child enters grade school

References

- Barker, D. H., Quittner, A. L., Fisk, N. E., Eisenberg, L. S., Tobey, E. A., Niparko, J. K., & The CHC3 Investigative Team. (2009). Predicting behavior problems in deaf and hearing children: The influences of language, attention, and parent-child communication. *Development and Psychopathology*, 21, 375-392.
- Cruz, L., Vaurio, J., Wang, N. X., Niparko, J., Quittner, A. L., & the CHC3 Investigative Team. (2012). Language and behavioral outcomes in children with developmental disabilities using cochlear implants. *Otolaryngology*, 33, 751-60.
- Dammeyer, J. (2009). Psychosocial development in a Danish population of children with cochlear implants and deaf and hard-of-hearing children. *Journal of Deaf Studies and Deaf Education*, 15, 50-58.
- Kaiser, A. F., Hancock, B. T., Cai, X., Foster, E. M., & Hester, P. P. (2008). Parent-reported behavioral problems and language delays in boys and girls enrolled in Head Start classrooms. *Behavioral Disorders*, 26, 26-41.
- Khan, S., Edwards, L., & Langdon, D. (2005). The cognition and behaviours of children with cochlear implants, children with hearing aids and their hearing peers: A comparison. *Audiology & Speech Sciences*, 10, 117-126.
- Masten, A. S., Roisman, G. I., Long, J. D., Burt, K. B., Obradovic, J., Riley, J. R., et al. (2005). Developmental cascades: Linking academic achievement and externalizing and internalizing symptoms over 20 years. *Developmental Psychology*, 41, 723-736.
- Moretti, A., Noble, M., Garzoni, M., Marini, A., Fornasari, L., Negri, L. A., ... Buzanilla, P. (2013). Increased internalizing problems in children aged 4 to 12 with language impairments. *Journal of Psychological Abnormalities in Children*, 1-8.
- Quittner, A. L., Barker, D. H., Cruz, L., Small, C., Ginsky, M. E., Bottem, M., & the CHC3 Investigative Team. (2010). Parenting stress among parents of deaf and hearing children: Associations with language delays and behavior problems. *Parenting: Science and Practice*, 10, 136-155.
- Theunissen, S. C., Raffel, C., Koverberg, M. D., De Ruve, L., Soede, W., Buisson, J. J., & Frijs, J. H. (2012). Anxiety in children with hearing aids or cochlear implants compared to normally hearing controls. *The Laryngoscope*, 122, 654-9.
- Topol, D., Nicole, G., St. Pierre, L., Tucker, R., & Vohr, B. (2011). The effects of maternal stress and child language ability on behavioral outcomes of children with congenital hearing loss at 18-24 months. *Early Human Development*, 87, 807-811.
- van Eldik, T., Treffers, P. D. A., Verman, J. W., & Verhulst, F. C. (2004). Mental health problems of deaf Dutch children as indicated by parents' responses to the Child Behavior Checklist. *American Annals of the Deaf*, 149, 390-395.
- van Daal, J., Verhoeven, L., & van Balkom, H. (2007). Behaviour problems in children with language impairment. *Journal of Child Psychology and Psychiatry*, 48, 1159-1147.

More Information

Sarah E. Orfanedes, MS-SLP Candidate
sarah.e.orfanedes@vanderbilt.edu
Megan Y. Roberts, PhD, CCC-SLP
megan.y.roberts@northwestern.edu

This work was supported in part by IES grant number R324A090181 and UL1 TR000445 from NCAATS/NIH.