

**LANGUAGE PROFILES  
OF CHILDREN EXPERIENCING  
OUT OF HOME PLACEMENT**

by

Julia Noelle Tomsic

Master of Science, 2020  
Texas Christian University  
Fort Worth, Texas

Submitted to the Graduate Faculty of  
Harris College of Nursing and Health Sciences  
Texas Christian University  
in partial fulfillment of the requirements  
for the degree of  
Master of Science  
May 2020



## ACKNOWLEDGMENTS

This study was supported by the Texas Christian University Graduate Research and Travel Grants. This research was orally presented at the American Speech-Language-Hearing Association Convention, Orlando FL 2019. I would like to express my gratitude to my Professor Dr. Emily Lund who was instrumental in defining my path of research.

i

## TABLE OF CONTENTS

Acknowledgements.....	iii
List of Figures.....	v
List of Tables.....	vi
References.....	26
Abstract .....	

## LIST OF TABLES

1. Table 1. Out of Home Placement Group Demographic Characteristics.....	7
2. Table 2. In Home Placement Group Demographic Characteristics.....	8
3. Table 3. Child-based measures planned.....	9
4. Table 4. Adult measures planned.....	10
5. Table 5. Vocabulary Scores of the OHP and IHP groups.....	14
6. Table 6. Articulation Scores of the OHP and IHP groups.....	15
7. Table 7. Nonmainstream dialect and TEGI scores for the OHP and IHP groups.....	16
8. Table 8. Non-verbal intelligence scores for the OHC and IHP groups.....	17
9. Table 9. Omnibus language scores for the OHP and IHP groups.....	18
10. Table 10. Average ACES scores of parents and children.....	21

**LANGUAGE PROFILES  
OF CHILDREN EXPERIENCING  
OUT OF HOME PLACEMENT**

A Thesis for the Degree

Master of Science

by

Julia Noelle Tomsic

Thesis approved by:

Emily Lund  
Dr. Emily Lund, PhD, CCC-SLP, Major Professor

Danielle Brimo  
Dr. Danielle Brimo, PhD, CCC-SLP, Committee Member

James Petrovich  
Dr. James Petrovich, PhD, Committee Member

Debbie Rhea  
Dr. Debbie Rhea, Associate Dean  
Harris College of Nursing & Health Sciences

May 2020  
iv

## Introduction

Living in a state of homelessness, either sheltered or unsheltered, puts children at risk for poor academic outcomes (e.g., Fantuzzo & Perlman, 2007). The direct effects of those experiences on language (and subsequently, academics), however, are difficult to study because these experiences often co-occur with other major social issues, including maltreatment, poor health-risk factors, disability and educational history (for a review, see Fantuzzo & Perlman, 2007; Lum, Powell, Timms, & Snow, 2015). This project explores the overlap between homelessness and speech and language disorders in families.

More than 1.6 million U.S. children are homeless each year, and about 40 % of children residing in shelters are under the age of seven-years-old (National Center on Family Homelessness, 2011). In 2016, an estimated 3.5 million children were the subject of one or more CPS reports of maltreatment (Administration on Children, Youth and Families, 2016). Trauma may include a child experiencing abuse, neglect, maltreatment, poverty and/or homelessness, or a caregiver who is impaired by illness, alcohol/drugs, or depression. These all fall under the umbrella of complex trauma (DeAngelis, 2007).

Despite the high rates of trauma among children, especially in the area of homelessness and maltreatment, there is limited research that has been done to look at how homelessness and associated trauma impacts a child's language development. Childhood trauma can have a negative functional impact on a developing child and results in a loss of core capacities for self-regulation and interpersonal relatedness (Malinosky-Rummell & Hansen, 1993; Margolin & Gordis, 2000). Young children who are exposed to traumas are at increased risk of not developing developmental competencies (Fantuzzo & Perlman, 2007). Specifically, it is

important to note that trauma increases risk of dysfunction of speech and language, motor functioning, social, and/or behavioral regulation (Perry, 2009).

Adverse Childhood Experiences (ACEs), occurring before the age of 18, are experiences considered to be traumatic or stress inducing (Koita, K., Long, D., Hessler, D., Benson, M., Daley, K., Bucci, M., . . . Harris, N, 2018). ACEs are associated with poor health outcomes. The CDC and Kaiser Permanente compiled a questionnaire of 10 categories of adverse childhood experiences including physical, emotional or sexual abuse, physical or emotional neglect, or growing up in a household where a parent is substance dependent, mentally ill, incarcerated, where there was parental separation or divorce, or incarceration. For every “yes” you get a +1 added to the total score that is out of 10 (Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, et al, 1998). The study then correlated these experiences to negative health outcomes in children and adult. In a study conducted by Dr. Burk Harris, findings indicated that a child is 32 times as likely to have learning and behavior problems in school if a child scored a 4 or more on their ACES. Learning and social problems can often times be correlated to language skills and language ability.

A meta-analysis completed by Lum and colleagues (2015) found 26 studies that compared maltreated children, from a variety of home placement backgrounds inclusive of homelessness, with children who were not maltreated. The results from the meta-analysis indicated that maltreated children consistently show poor overall expressive and receptive language skills as compared to children who have not been maltreated. However, this study is unable to elucidate the role of home placement on language outcomes. Fantuzzo and Perlman (2007), in a large-scale database analysis, confirmed that for academic (but not language

outcomes), homelessness and foster care placement mediated language outcomes for children who had and had not been maltreated. Thus, there is reason to explore language outcomes within children who have experienced homelessness.

A couple of studies have explored language functioning of residents of homeless shelters. O'Neil-Pirozzi (2003), for example, determined that on overall or omnibus measures of language, children in homeless shelters were more delayed than peers not in homeless shelters. To date, however, the very limited amount of data on child language and out of home placement has been general and not specific to domain (e.g., vocabulary, morpho-syntax, pragmatics, articulation). To move the field of education (and related services such as speech-language pathology) forward, it is important to determine the role that out of home placement might play in language development. This study is a first step towards developing a model of how out-of-home placement might affect language development in children.

Language has three aspects which include: form (structure of language: phonology, morphology, syntax), content (vocabulary knowledge: semantics), and use (social use of language: pragmatics; Acar, 2019). Phonology refers to the knowledge of sounds of language and where they belong. Morphology is the structure and construction of words (i.e., adding 's' or 'ing' to a word). Syntax is referring to grammar and semantics is the meaning of language/words. Finally, pragmatics is the social skills in language. The term Developmental Language Disorder (DLD) refers to someone who has difficulty specific to language in the absence of another diagnosis, such as hearing loss. DLD can affect a child's receptive and/or expressive language. Typically, the most affected aspect of language for those with DLD is the form or content construct of language (Acar, 2019). If one struggles with language, it makes

success in all areas of life difficult (e.g., school, getting or maintain a job, comprehension moderately complex conversation). Research has yet to explore the rate of DLD in the homeless population; however, it is highly possible that there is overlap between heritable language disorders and poor outcomes such as homelessness.

The purpose of this investigation is to describe language profiles of children and their parents who have experienced homelessness. Although the extant literature indicates that children who experience homelessness, for example, are at high-risk for poor linguistic outcomes (e.g., O’Neil-Pirozzi, 2003; Fantuzzo & Perlman, 2007), systematic investigations have not yet defined how biological risk factors, social risk factors, and protective factors for language development yield different outcomes in the homeless population. This study will use a small sample to estimate: (a) the prevalence of language impairment across multiple domains of language in children experiencing homelessness placement as compared to a matched in-home placement community sample, (b) the factors (parent history of language impairment, trauma history, educational history) that are associated with language outcomes, and (c) the varying profiles of children who experience out-of-home placement. This information will provide valuable information to Speech-Language Pathologists about how homelessness might be associated with the language development of children who are on their caseloads in early-intervention and school programs.

## **Method**

### **Participants**

Two groups of participants were recruited for this project. The first group, out-of-home placement group (OHP), included eleven children ages 3-10 years who are experiencing

homelessness, and their primary caregiver (seven participants). Recruitment occurred primarily via a local night shelter for children and their families in Fort Worth, Texas. The researchers attended community meetings to verbally describe the study and pass out flyers to interested residents. Those residents who were interested in participation then contacted researchers to begin participation in the study. Thus, the sample was self-selected and not necessarily a representative sample of all families in this particular night shelter. The second group of participants, the in-home placement group, was recruited from the Fort Worth community. This group included seven children ages 3 – 10 who have not experienced homelessness and five of their caregivers. Participants from the two groups (OHP/IHP) were matched for age, dialect, and socio-economic status to the extent possible.

Parents completed the CHLLD (PI: Dr. Lund) lab demographic questionnaire which included socioeconomic status (SES), race and ethnicity, level of education, and family history of diagnoses. Families were asked “Can you tell me about your child’s/ family’s personal story?”. Parents could answer questions as openly as desired to give the parent a chance to share any other information not covered in our demographic questionnaire. Further, due to the dramatic educational and social impact trauma can have on a child, parents were asked to fill out the ACES questionnaire for both themselves and their child.

Demographics for participants are provided in Table 1 in order to delve into the family profiles to better understand which factors may play a role in language development and outcomes. Table 1 also provides parent diagnoses (self-reported) and a SES level. Learning and language disabilities have a strong genetic component which, in turn, could affect their children. Notably, parent diagnoses are only within the OHP group. SES Level was measured according to the SES composite proposed by Berzofsky, Creel, Moore, Smiley-McDonald and Krebs (2014).

Scores are on a level of 0 to 8, and include education level, income, housing status, and employment status. Scores of the stable housing group had to include 1 point more than the Night Shelter group (as this was a grouping variable). The SES score was used to match families from the OHP and IHP Group. Recruitment for IHP occurred within low-income but stable housing in order to try and best compare. Interestingly, no children had reported language disorders; however, above 66% of OHP children met criteria.

Parent and children from the OHP group were noted to have less successful educational outcomes, more learning and language diagnoses, and significantly higher ACES scores. Their children were reported to have significantly more medical and educational diagnoses ranging from Autism Spectrum Disorder (ASD), Dyslexia to Emotional-Behavioral Disorder (EBD). Interestingly, no parents reported language disorders for their children. Parents in OHP demonstrated difficulty throughout school and many repeated grades. Five of the seven parents at the night shelter repeated a grade at least one time and three of the seven parents completed high school. Families in the IHP group had better reported educational outcomes and minimal diagnoses. Four out of five parents completed high school, and no parents reported that they repeated a grade.

Table 1 Out of Home Placement Group Demographic Characteristics

<b>OHP Group</b>	<b>SES Level</b>	<b>Race/Ethnicity</b>	<b>Child Age</b>	<b>Child Grade</b>	<b>Child Diagnosis</b>	<b>Parent Diagnosis</b>	<b>Grade Parent completed</b>
Family 1	1	African American	5;7	K	None	LD	Some HS
Family 2	3	African American	9;9	4th	LD,Dyslexia	LD and Stroke	Bachelor's

Family 3	2	African American	10	4th	EBD	Mental illness	GED
Family 4	3	White	10	4th	ADHD, EBD, LD	LD,ADD	Some HS
Family 5	2	African American	10;4	4th	None	"other"-unspecified	HS
Family 6	2	African American	3;1	PreK	None	Dyslexia	GED
Family 6-child 2	2	African American	4;0	PreK	None	See above	Same as above
Family 7	2	White	9;0	4th	None	LD	Some HS
Family 7-child 2	2	White	6;7	K	ASD, ID, EBD, LD	See above	Same as above

\*SES Level was measured according to the SES composite proposed by Berzofsky, Creel, Moore, Smiley-McDonald & Krebs (2014). Note. LD = language disorder, EBD = Emotional behavior disorder, LD=learning disability, ID= intellectual disability, ADD= attention deficit disorder, ADHD= attention deficit hyperactivity disorder, HS= high school

Table 2 In Home Placement Group Demographic Characteristics

IHP Group	SES Level	Race/Ethnicity	Child Age	Child Grade	Child Diagnosis	Parent Diagnosis	Grade Parent completed
Family 1	4	White	10;5	5	None	None	Bachelor's
Family 2	3	White	9;8	5th	None	None	Bachelor's
Family 2- Child 2	3	White	7;0	2nd	None	see above	College
Family 3	1	White	9;8	4th	None	None	Bachelor's
Family4	5	Hispanic	10;3	5th	Possible Dyslexia	None	Some HS
Family 5	3	African American	3;0	PreK	None	None	Bachelor's

Family 5- child 2	3	African American	4;3	PreK	None	See above	Same as above
----------------------	---	---------------------	-----	------	------	-----------	------------------

\*SES Level was measured according to the SES composite proposed by Berzofsky, Creel, Moore, Smiley-McDonald & Krebs (2014). Note. HS= *high school*

## Procedures

Participation in this study included one or two study visits, based on participant preference and timing. Assessment batteries were selected to ensure that any child, at any age, could participate in a measure from the primary language domains. Table 3 lists measures that were administered based on a child's age as indicated in the table below. All of these measures are developmentally appropriate and consistent with those administered in preschools/ schools.

Table 3. Child-based measures planned

Domain:	Measure:	For which children:	Time required:
<b>Hearing</b>	Ling Six Sound Test (Ling, 2002)	Age 2; 0 to 3;0	5 minutes
	Pure-tone hearing screening (Brooks, 1973)	Age 3;1 to 10; 11	5 minutes
<b>Vocabulary</b>	MacArthur Bates Communicative Development Inventory (Fenson et al., 2007)	Age 2;0 to 2;11	Parent completion; 10 minutes
	Expressive One Word Picture Vocabulary Test (Brownell, 2010)	3;0 to 10;11	15 minutes
<b>Morphology/ Syntax</b>	Communication/ Language Sample: Play (Lund, 2018)	2;0 to 3;0	10 minutes
	Language Sample: Hadley Protocol	3;1 to 10;11	10 minutes

	Test of Early Grammatical Development (Rice & Wexler, 2001)	3;0 to 10;11	10 minutes
	Diagnostic Evaluation of Language Variation – Screening Test (Seymour et al., 2005)	4;0 to 10; 11	15 minutes
	Language assessment (CELF -5, Wiig, Semel & Secord, 2013) or DELV-NR (Seymour et al., 2005)	4;0 to 10;11	Up to 30 minutes
<b>Articulation</b>	Arizona Articulation Proficiency Scale (Fudala, 2000)	3;0 to 10;11	10 minutes
<b>Nonverbal Cognition</b>	PTONI (Erler & McGhee, 2008)	4;0 to 10;0	10 minutes

To determine which language assessment will be administered, the following procedures were undertaken for children age 4 as described in Table 1.

Adult measures are described in Table 4. Adult caregivers were asked to participate in a language battery that has been shown to identify adults with a history of language disorder (Fidler, Plante, & Vance, 2011).

Table 4. Adult measures planned

<b>Domain:</b>	<b>Measures:</b>	<b>Time:</b>
<b>Demographics/ history</b>	CHLLD lab demographic form	10 minutes
	Verbal interview	Up to 10 minutes
<b>Language use</b>	Modified Token Test (Fidler et al., 2011)	15 minutes

	15-word spelling test (Fidler et al., 2011)	5 minutes
	CELF-4 WD (as described in Fidler et al., 2011)	15 minutes
<b>Risk-factors for medical outcomes [completed for both parent and child]</b>	Major ACES questionnaire (e.g., Felitti et al., 1998)	20 minutes

*Note.* Ages are represented in the form *years; months* (i.e. 5 years 7month=5;7).

**Hearing measures.** In the Ling Six Sound test (Ling, 2005), sounds were presented to a child and the examiner will watch for behavioral responses. In the pure tone hearing screening, children wore headphones and the examiner played a tone to the child that the child will respond to with a gesture. These procedures are frequently used in educational settings for children of this age.

**Vocabulary measures.** For young children, the *MacArthur Bates Communicative Development Inventory* (MBCDI) (Fenson et al., 2007) is a parent checklist of words that a parent perceives a child knows. The *Expressive One Word Picture Vocabulary Test* (EOWPVT-4) (Brownell, 2010), required children to look at and name pictures.

**Morphosyntax measures.** All children participated in a language sample. In a play-based sample, the child played with a set of toys (a set of plastic food and cooking toys) with the examiner. In a conversational sample, the examiner asked the child about his or her experiences in school utilizing the Hadley Protocol to elicit speech from the child. Those children over the age of three participated in the *Test of Early Grammatical Impairment* (TEGI) (Rice & Wexler, 2001), which required children to say a word about a picture presented on a card. Children older than four participated in the *Diagnostic Evaluation of Language Variation – Screening Test* (DELV-ST) (Seymour et al., 2005) to determine if children use a mainstream (MAE) or non-

mainstream dialect of English (indicated as ‘strong variation’ or ‘some variation’). This DELV-ST involved talking about and pointing to pictures. Then, if children used a mainstream dialect, they participated in the *Clinical Evaluation of Language Fundamentals* (CELF) (Wiig, Semel & Secord, 2013) core test of language (involved pointing to and talking about pictures). If children use a non-mainstream dialect, they participated in the *Diagnostic Evaluation of Language Variation – Norm Referenced Test* (DELV-NR), which involved pointing to and talking about pictures. However, due to time constraints and child willingness, not all children participated in and/or completed the CELF. Due to varying test completion from the out of home placement group, once testing of stable housing children began, only the DELV screener was completed, which indicated if the child was at risk for a language impairment. The DELV-ST part II screens whether children are at risk for a language disorder.

**Articulation Measures.** Children completed the *Arizona Articulation Proficiency Scale* (Fudala, 2000), where they named pictures.

**Nonverbal Cognition Measures.** Although nonverbal cognition is not a domain of language, it was useful in distinguishing a language-specific impairment from an overall cognitive delay (Rice, 2020). Children who completed the *Primary Test of Nonverbal Intelligence* (PTONI) (Erler & McGhee, 2008) pointed to pictures.

**Adult language measures.** Parents completed three direct tasks. These tasks were validated for use with adults and, in a model created by the authors, found to be the best predictors of history of language impairment. First, the Modified Token Test required parents to manipulate shapes according to examiner directions. Second, parents were asked to spell fifteen

words (according to Fidler, Plante & Vance, 2011). Finally, parents were asked to, in their own words, to define 20 words (see Fidler, Plante & Vance, 2011).

**Risk factors measure.** Parents filled out the Major ACES survey for themselves and their child.

## **Analysis**

To document the prevalence of language delay across multiple domains of language, tests were scored according to their norms in the test manuals. The sample size for this study did not merit completion of inferential analyses, but a description of across-group differences was considered. To identify which factors might be associated with language outcomes, those scores obtained related to the variables of interest (parent language outcomes, trauma history from the ACES form, educational history as reported demographically) were considered for both groups and described. To generate hypotheses about the varying profiles of children in the OHP group, descriptive information for children will be evaluated to determine how many children demonstrate deficits in which domain.

## **Results**

Sixteen children and eleven parents took part in testing for the study. Participants from the two groups (OHP/IHP) were matched for age, dialect, and socio-economic status to the extent possible. This study sought to consider the association between language deficits across various domains with homelessness, to identify other characteristics that might affect language skills in each of the study groups, and to consider whether children and adults experiencing homelessness demonstrated differing or similar patterns of skill profiles.

The first research question addressed the prevalence of language impairment (OR DLD or below-average language skills) across multiple domains of language in children experiencing homelessness placement as compared to a matched in-home placement community sample. The study protocol was written with the intention of administering each of the language measures capturing morpho-syntactic skills in their entirety. However, unforeseen barriers arose in completion of those measures with the group in the night shelter. On more than one occasion, a participant had to leave to complete another important task (i.e., childcare pick up or work-related item completion). Additionally, a few children demonstrated fatigue and refused to participate in the entire test battery. Thus, researchers decided to administer the DELV non-mainstream dialect screener and the language impairment screener to those children at a minimum. Given the nature of a screener, which is meant to over- rather than under-identify impairment, one can assume that if a child scored in the no/minimal risk category of the impairment screener, he or she was unlikely to show signs of language impairment on the full test battery (Seymour et al., 2005). Overall, children from in-home placements outperformed out-of-home placement children across all domains of language. The same was true for parents in stable housing compared to parents experiencing homelessness. Hearing screenings revealed no indications of hearing loss in either group, so these measures are not reported by group or by family.

Table 5 shows OHP versus IHP group and family scores for the domain of Expressive Vocabulary. In the group experiencing homelessness, three of the nine children had a score that fell below the range of normal. In the group not experiencing homelessness, no child fell outside the range of normal. Using the group means and standard deviation, t-test was used to determine group differences and a Cohen's d effect size difference was calculated between groups. The

effect size difference in vocabulary scores for children in OHP versus IHP was  $d = 1.63$ , a large effect size difference.

Table 5. Vocabulary Scores of the OHP and IHP groups

<b>OHC Families</b>	<b>Standard Score</b>	<b>IHC Families</b>	<b>Standard Score</b>
Family 1	91	Family 1	122
Family 2	77*	Family 2 Child A	123
Family 3	110	Family 2 Child B	104
Family 4	77*	Family 3	104
Family 5	89	Family 4	117
Family 6 Child A	98	Family 5 Child A	96
Family 6 Child b	88	Family 5 Child B	105
Family 7 Child A	110		
Family 7 Child B	83*		
<b>Mean</b>	<b>91.44</b>		<b>110.14</b>
<b>Standard Deviation</b>	<b>12.44</b>		<b>10.45</b>

\* indicates below range of normal.

Table 6 illustrates OHP versus IHP group scores for the domain of articulation. Scores for the group experiencing homelessness and the stable housing group are unremarkable; no child fell outside of the range of normal for vocabulary scores. One child refused to participate in the vocabulary assessment. Using the group means and standard deviation, a Cohen's d effect size difference was calculated between groups. The effect size difference in articulation scores for children in OHP versus IHP was  $d = .35$ , a small effect,

Table 6. Articulation Scores of the OHP and IHP groups

<b>OHC Families</b>	<b>Standard Score</b>	<b>IHC Families</b>	<b>Standard Score</b>
Family 1	97	Family 1	100

Family 2	100	Family 2 Child A	100
Family 3	100	Family 2 Child B	84
Family 4	100	Family 3	100
Family 5	100	Family 4	100
Family 6 Child A	94	Family 5 Child A	93
Family 6 Child b	92	Family 5 Child B	96
Family 7 Child A	100		
Family 7 Child B	NC		
<b>Mean</b>	<b>97.87</b>		<b>96.14</b>
<b>Standard Deviation</b>	<b>3.23</b>		<b>6.01</b>

Table 7 shows OHP children versus IHP children non-mainstream dialect scores from the DELV screener, alongside TEGI scores for those children who were able to complete the measure. In the group experiencing homelessness, five out of nine children had a dialect of some variation from mainstream American English. For morphological markers, four of nine OHP children scored at least 1 SD below the range of normal, but those results should be interpreted with caution for children who show dialect variation. However, one child with no indicators of non-mainstream dialect marked morphemes below the typical range for that child's age. In the stable housing group, four out of the six seven children spoke with a dialect varying from mainstream American English to Nonmainstream. Children in this group did not receive a score outside of the expected range for morphological markers.

Table 7. Nonmainstream dialect and TEGI scores for the OHP and IHP groups

OHC Families	DELV	TEGI /3S	TEGI /ED	IHC Families	DELV	TEGI /3s	TEGI /ED
Family 1	Strong	82% *	82% *	Family 1	MAE	100%	100%

Family 2	Some	100%	100%	Family 2 Child A	Some	100%	100%
Family 3	MAE	NC	NC	Family 2 Child B	Some	90%	83%
Family 4	MAE	100%	100%	Family 3	Some	100%	100%
Family 5	Some	NC	NC	Family 4	MAE	100%	100%
Family 6 Child A	Strong	0% *	0% *	Family 5 Child A	Strong	NC	NC
Family 6 Child b	Strong	25% *	0% *	Family 5 Child B	Strong	NC	NC
Family 7 Child A	MAE	90%	100%				
Family 7 Child B	MAE	85%	69% *				

\* indicates below range of normal. Note. NC= not completed, MAE= main stream American

English, Strong= strong variation from MAE, some= some variation from MAE.

Table 8 shows non-verbal cognition scores of children from the OHP group versus children from the IHP group. In order to diagnose DLD, a child cannot have any underlying conditions/diagnoses, inclusive of a general delay in nonverbal cognitive development (below a score of 70). Non-verbal cognition helps rule out another diagnosis that would influence language. Furthermore, a high nonverbal score paired with a low language score suggests a language impairment. These scores reported as “NC” were for children who were unable to condition to the test or refused to complete due to behavior barriers. The children at the night shelter tended to burn out quickly and were unable to complete many tasks. In the group experiencing homelessness, four of the six children had a score that fell below the range of normal (85 – 115), with two falling below a range where that child could be diagnosed with DLD. In the group not experiencing homelessness, one child fell outside the range of normal (but not beyond the range to be diagnosed with DLD). There was an effect size difference between groups of .66, a medium effect size favoring the IHC group.

Table 8. Non-verbal intelligence scores for the OHC and IHP groups

<b>OHC Families</b>	<b>Standard Score</b>	<b>IHC Families</b>	<b>Standard Score</b>
Family 1	89	Family 1	107
Family 2	78*	Family 2 Child A	92
Family 3	53*	Family 2 Child B	77*
Family 4	65*	Family 3	92
Family 5	78*	Family 4	105
Family 6 Child A	NC	Family 5 Child A	96
Family 6 Child b	NC	Family 5 Child B	85
Family 7 Child A	123		
Family 7 Child B	NC		
<b>Mean</b>	<b>81</b>		<b>93.42</b>
<b>Standard Deviation</b>	<b>24.02</b>		<b>10.56</b>

\*indicates a score of at least 1 SD below the mean. Note. NC= not completed.

Table 9 displays language scores of children from the OHP group versus children from the IHP group. These scores reported as “NC” were for children who were refused to complete due to behavior barriers or could not complete due to parent time constraints. Due to inconsistent language testing with the night shelter children, all children in stable housing were given the DELV screener for a language impairment rather than completing the CELF battery of testing. In the group experiencing homelessness, all of the children who completed language testing (five of the five children) received a score that fell below the range of normal for the measure they completed. In the group not experiencing homelessness, all children received a ‘low risk’ score on the DELV for the language impairment screener. Although the two groups were unable to complete the same testing, there was a stark contrast between language success for children experiencing homelessness versus not.

Table 9. Omnibus language scores for the OHP and IHP groups

OHC Families	Standard Score	IHC Families	Standard Score (all DELV)
Family 1	NC	Family 1	low risk
Family 2	CELF--WC: 11 / RC: 5 *	Family 2 Child A	low risk
Family 3	CELF--WC: 7 / RC: 2 *	Family 2 Child B	low risk
Family 4	NC	Family 3	low risk
Family 5	CELF--84*	Family 4	low risk
Family 6 Child A	NC	Family 5 Child A	low risk
Family 6 Child b	DELV syntax-- 5*	Family 5 Child B	low risk
Family 7 Child A	81 *		
Family 7 Child B	NC		

\*indicates a score of at least 1 SD below the mean. Note. WC= word classes on CELF, RC= recalling sentence on CELF, NC= not completed, low risk= DELV language screener indicates low risk for language impairment.

Overall, results indicated there is a difference between overall success for IHP versus OHP. Five children in the OHP group had language scores that were outside the range of normal, and four of those children may have met criteria for DLD, as compared to zero children in stable housing.

To determine which adults displayed language skills consistent with language impairment, the results from the Modified Token Test, 15-word spelling test, and CELF-4 Word Definitions subtests were entered into the formula provided by Fidler, Plante and Vance (2011), where a positive score yield from the formula =  $6.93 + Spelling\ Score * -.256 + CELF-4\ score * -.1578 + Modified\ Token\ Test\ score * -.1395$  is indicative of clinical language impairment. Five families of the seven tested from the night shelter had a positive score, and two of those families reported that they were told they had some type of disability while in school. The remaining two

parents in this group who did not have a positive score according to the Fidler et al., 2011 protocol also reported having been told they had a language or learning disability in school. In the group not experiencing homelessness, no parent had a positive score on the Fidler et al., formula, and no parent reported having been advised of a language or learning disability in school.

The second research question addressed whether certain factors (parent history of language impairment, trauma history, educational history) were associated with lower language outcomes. Group reports of these factors were observed in conjunction with language outcomes to describe whether there is reason to believe any of these factors may be associated with language difficulties in children.

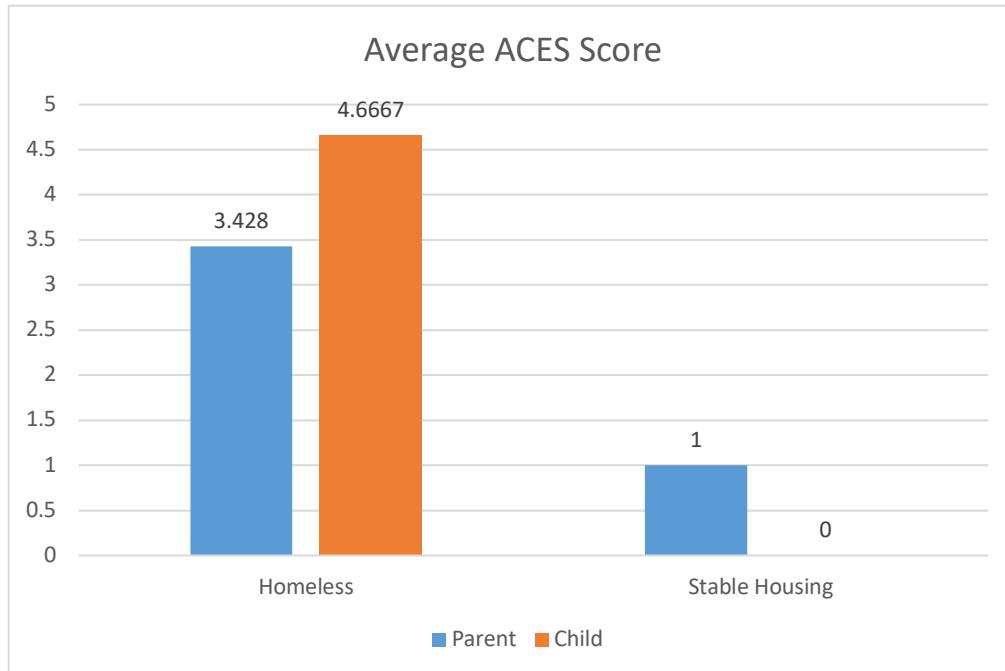
Relative to history (reported or observed) of language impairment, there appeared to be an association between parent impairment and child impairment. Only parents in the night shelter demonstrated a reported or observed history of impairment. Across domains of language, children in the night shelter were the only children in the study who showed signs of difficulty on omnibus language measures (e.g., morphosyntax measures) and vocabulary measures. However, only one child in the OHP group and one child in the IHP group demonstrated difficulty with articulation. These findings represent pilot data indicating that family history may interact with the effects of housing placement to affect language and vocabulary development, but not necessary articulation development.

Regarding ACEs scores of parents and children, there was an association between language and social outcomes and the number of trauma experiences. A higher ACEs score suggests a history of significant trauma. Table 10 displays ACES scores of parent and children in OHP compared to ACES of the IHP group. Parents at the night shelter averaged at a score of 3.5

and their children averaged a score of 4. Noted above, these parents and children alike were deemed at risk of having a language impairment. However, for the families in stable housing, parents had an average ACES score of 1, and children averaged at zero. These families showed no signs of difficulty with language and no explicit difficult with social outcomes as these parents have steady jobs and living in stable housing. These findings suggest that trauma may interact with the effects of language development (across all domains) and social outcomes (i.e., stable income, stable housing, academic success). This represents pilot data that there is a correlation between the number of trauma experiences and effects on language development.

Results suggest that educational outcomes of parents, trauma history, and previous diagnosis all intermix playing a negative role across domains of language. Four of seven parents in OHP repeated a grade, suggesting some difficulty with school and six of seven parents reported a family history of an unspecified learning disability. This suggests that language was difficult for these parents. This is significant because language disorders have a strong genetic component which in turn could affect their children's language.

Table 10. Average ACES scores of parents and children



## Discussion

The purpose of this investigation was to describe language profiles of children who have experienced out-of-home placement. Although the extant literature indicates that children who experience homelessness, for example, are at high-risk for poor linguistic outcomes (e.g., O’Neil-Pirozzi, 2003; Fantuzzo & Perlman, 2007), systematic investigations have not yet defined how biological risk factors, social risk factors, and protective factors for language development yield different outcomes in the out-of-home placement population. Overall, findings indicated children and parents from out of home placements scored lower across all domains of language testing except articulation and scored higher in regard trauma experiences (ACES score). We found that children in OHP were at higher risk for a language impairment, this is in agreement with what previous research suggests.

O’Neil-Pirozzi (2003), one of the few studies have explored language functioning of residents of homeless shelters, gathered a very limited amount of data on child language and

assessment was omnibus and not specific to domain (e.g., vocabulary, morpho-syntax, pragmatics, articulation). The children in the present study were within normal limits for articulation, but morphosyntax, vocabulary, and non-verbal cognition skills were below-average and lagged behind the control group. Findings that the domain of language that was most impacted was morph-syntax, which would be consistent with a high rate of DLD in children experiencing homelessness. Unfortunately, children with speech sound disorders, rather than children with morphosyntactic errors, are those most likely to be diagnosed with DLD in early elementary school (Tomblin et al., 1999). Impairments such as speech sound disorders are often quickly diagnosed, likely because they are obvious, even to non-professionals, whereas the deficits underlying a language disorder are difficult to recognize and in the case of most of the people we tested go completely undiagnosed.

Out-of-home placements has been notable for putting children at risk for poor academic outcomes (e.g., Fantuzzo & Perlman, 2007); however, direct impact on language (and subsequently, academics), has been difficult to study (for a review, see Fantuzzo & Perlman, 2007; Lum, Powell, Timms, & Snow, 2015). This was also true for this study due to sample size, time constraints, and consistency with families living in out-of-home placements. Often a meeting would be scheduled with a family at the night shelter and by the time the meeting occurred a week later, the family would have already moved out of the night shelter. Stability barriers that make this group of children difficult to study likely also make academic achievement difficult. However, the preliminary findings of this study suggest that children who have experienced homelessness are more delayed than their stable housing peers. Further, their parents also showed more indicators of language impairment, which may indicate generational language difficulties need to be addressed with residents of homeless shelters.

Despite the high rates of trauma among children, especially in the area of homelessness, there is limited research that has been done to look at how out-of-home placement impacts a child's language development. The findings of the present study suggest that children in the homeless shelter had much higher scores on their ACES. It is difficult to say if the trauma indicated by the ACEs measure directly impacted these children's language scores or if their language was impacted as a result of genetics, or both. Also, notable, the parents in the out-of-home placement group had high ACES scores, which leads to the question of if the trauma they experienced caused their low scores for language or again vice versa.

The limitations of this study provide avenues for future research. First, this study sample size was limited to due time constraints and unpredictable family availability. In future research, a larger sample size for both in-home and out-of-home place groups would be beneficial. Second, consistent language testing for both groups with an in-depth language sample analysis would allow researchers to further delve into the specific language discrepancies between the two groups. Language assessment in the present study's population was complicated by the presence of non-mainstream American English dialect, which is the dialect assumed for the majority of tests created to diagnose language impairment. In-depth language samples and interviews may allow researchers to diagnose language impairment despite dialect differences. Third, future research could and should explore the implementation of intervention with individual families experiencing homelessness. Research could look at the best way to serve this population and ways in which intervention may look different based off of this population. In particular, future research may need to consider that parents with a history of language impairment need language supports along with their children to further improve communication, academic and professional success.

It is difficult to draw generalizable conclusions from this initial study due to the limited sample size and inconsistency with language testing battery. However, this study may provide pilot evidence that children and parents from out of home placements are at a higher risk for a language impairment. This study also suggests that there are many factors that play a role in language outcomes such as trauma experiences, stability of housing, and family diagnoses. This information is valuable to Speech-Language Pathologists (SLPs) for understanding a full picture of children who may already on their caseload, or children who are at risk that may slip through the cracks otherwise. Furthermore, it is the SLP's role to empower clients to communicate. A better understanding of the possible risk of language impairment for children in homeless shelters could improve SLP service provision to children experiencing housing instability.

## References

- Allen, R. E., & Oliver, J. (1982). The effects of child maltreatment on language development. *Child Abuse & Neglect*, 6(3), 299-305.
- Berzofsky, Creel, Moore, Smiley-McDonald & Krebs (2014). *Measuring Socioeconomic Status (SES) in the NCVS: Background, Options, and Recommendations*. U.S. Department of Justice.
- Brownell, R (2000a). Expressive One-Word Picture Vocabulary Test. Novato, CA: Academic Therapy Publications.
- Culp, R. E., Watkins, R. V., Lawrence, H., Letts, D., Kelly, D. J., & Rice, M. L. (1991). Maltreated childrens language and speech development: Abused, neglected, and abused and neglected. *First Language*, 11(33), 377-389.
- Deangelis, T. (2007). A new diagnosis for childhood trauma? *PsycEXTRA Dataset*.

- Ehrler, D. J., & McGhee, R. L. (2008). Primary Test of Nonverbal Intelligence (PTONI). Austin, TX: Pro-Ed.
- Fantuzzo, J., & Perlman, S. (2007). The unique impact of out-of-home placement and the mediating effects of child maltreatment and homelessness on early school success. *Children and Youth Services Review*, 29(7), 941-960. doi:10.1016/j.childyouth.2006.11.003
- Fenson, L., Marchman, V. A., Thal, D. J., Dale, P. S., Reznick, J. S., & Bates, E. (2007). MacArthur-Bates Communicative Development Inventories: User's guide and technical manual (2nd ed.). Baltimore, MD: Brookes.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14(4), 245–258.
- Fidler, L. J., Plante, E., & Vance, R. (2011). Identification of adults with developmental language impairments. *American journal of speech-language pathology*, 20(1), 2-13. [https://doi.org/10.1044/1058-0360\(2010/09-0096\)](https://doi.org/10.1044/1058-0360(2010/09-0096))
- Fox, L., Long, S. H., & Langlois, A. (1988). Patterns of Language Comprehension Deficit in Abused and Neglected Children. *Journal of Speech and Hearing Disorders*, 53(3), 239.
- Fudala, J. B. Arizona articulation proficiency scale (revised): Manual. Los Angeles: Western Psychological Services, 1970.
- Kinniburgh K., Blaustein M., Spinazzola J., van der Kolk B. Attachment, self-regulation, and competency: A comprehensive framework for intervention with childhood complex trauma.
- Hassink, J. M. & Leonard, L. B. (2010). Within-Treatment Factors as Predictors of Herbers, J. E., Cutuli, J. J., Supkoff, L. M., Heistad, D., Chan, C., Hinz, E., & Masten, A. S.

- (2012). Early Reading Skills and Academic Achievement Trajectories of Students Facing Poverty, Homelessness, and High Residential Mobility. *Educational Researchers*, 41(9), 366-374. doi:10.3102/0013189x12445320
- Ling, D. (1989). *Foundations of spoken language for the hearing-impaired child*. Washington, DC: Alexander Graham Bell Association for the Deaf
- Perry, B. D. (2009). Examining Child Maltreatment Through a Neurodevelopmental Lens: Clinical Applications of the Neurosequential Model of Therapeutics. *Journal of Loss and Trauma*, 14(4), 240-255.
- Rice, M., & Wexler, K. (2001). *Rice Wexler test of early grammatical impairment*. Hove: Psychological Corporation.
- Seymour, H. N., Roeper, T. W., & de Villiers, J. (2018). *Diagnostic evaluation of language Variation – Norm referenced*. Sun Prairie: Ventris Learning.
- Whitman, B. Y., Accardo, P., Boyert, M., & Kendagor, R. (1990). Homelessness and Cognitive Performance in Children: A Possible Link. *Social Work*, 35(6), 516-519.
- Wiig, E. H., Semel, E., & Secord, W. A. (2013). *Clinical Evaluation of Language Fundamentals- Fifth Edition (CELF-5)*. Bloominton, MN: NCS Pearson.

LANGUAGE PROFILES OF CHILDREN EXPERIENCING  
OUT OF HOME PLACEMENT

by J. Noelle Tomsic, M.S., 2020  
Davies School for Communication Sciences and Disorders  
Texas Christian University

Thesis Advisor: Emily Lund, Associate Professor of Communication Sciences and Disorders

Many children experience instability in their home life via homelessness or foster care. Speech-language pathologists often work with children in these difficult situations, but research guiding this area of practice is relatively sparse. This study examined the relation of out of homelessness and trauma experiences in relation to language success. Children between the ages of 3-10 years old were tested along with their primary caregiver. Nineteen children and twelve parents completed testing. We found that children in the group experiencing homelessness were at higher risk for a language impairment and trauma than a matched group not experiencing homelessness, which is in agreement with what previous research suggests. Approximately two-thirds of children in the night shelter met language disorder criteria, as compared to 0 children in stable housing. Seventy-one percent of the parents tested at the night shelter met criteria for a language disorder as well. Relative to trauma history, the parents were given an Adverse Childhood Experiences (ACES) questionnaire to complete which touches on 10 adverse childhood experiences. A high ACES score indicates a history of significant trauma. The average ACES score for parents in the night shelter was 3.5, and the average score for a child was 4. For the families in stable housing, parents had an average score of one, and children averaged zero. This preliminary research indicated children and parents from out of home placements scored lower across all domains of language testing and scored higher in regard trauma experiences (ACES score).