Narrative Language Skills of Maltreated Children Living in Out-Of-Home Care

Pamela Snow^a

p.snow@latrobe.edu.au

Lydia Timms^b

l.timms@curtin.edu.au

Jarrad Lum^c

jarrad.lum@deakin.edu.au

Martine Powell^d

martine.powell@griffith.edu.au

^a La Trobe Rural Health School, La Trobe University, Bendigo, Vic, Australia

^b School of Occupational Therapy Social Work and Speech Pathology, Curtin University, Bentley, WA, Australia

^c School of Psychology, Deakin University, Geelong, Vic, Australia

^d Centre for Investigative Interviewing, Griffith Criminology Institute, Griffith University, Brisbane, Qld, Australia

Funding: This work was supported by the Australian Research Council (Grant number: DP1095509).

Address correspondence to: Professor Pamela Snow, La Trobe Rural Health School, Bendigo, 3125, Australia. Tel: 61-3-5444 7974; Email: p.snow@latrobe.edu.au

Abstract

Objective

Children's narrative accounts of their experiences are central to the prosecution of perpetrators of alleged maltreatment. In this paper we describe the narrative language skills of children who were placed in out-of-home-care (OOHC) following substantiated maltreatment. It was hypothesized that (i) children with such histories would display narrative language skills that fall significantly below published age-expected norms, (ii) narrative language skills and core language skills would be positively correlated, and (iii) narrative language skills would be associated with measures of socio-economic disadvantage.

Method

Eighty-three children (40 males and 43 females) aged 5;3 to 12;10 ($M=7;9$, $SD=2;3$) from English-speaking home backgrounds were included. They were assessed using the Test of Narrative Language (Gillam & Pearson, 2004) which yields three scores, and the Clinical Evaluation of Language Fundamentals (CELF-4.) Core Language Score (Semel, Wiig, & Secord, 2003). A measure of nonverbal intelligence (Raven's Coloured Progressive Matrices (Raven, Raven, & Court, 1998) was also employed as a covariate.

Results

Forty-two percent (42%) of children scored in the below-average range on the Narrative Language Index Ability Index (a global score encompassing both comprehension and oral narration). The same proportion (42%) scored at or above age-expected levels on the narrative comprehension subtest, while only 19% scored at or above age-expected levels on the oral narration subtest. There was a significant correlation between CELF-4 Core Language Scores and the Narrative Language Index Ability Index. The education of the female carer was shown to have a statically significant positive relationship with overall

narrative language scores, however household income and index of socio-economic disadvantage were not significantly associated with narrative language scores.

Conclusions

Children who are victims of substantiated maltreatment should be considered high-risk for compromised ability to provide a narrative account of their experiences. The heterogeneity and often alarmingly poor oral narrative language skills of these children highlights the importance of police/human services training on best-practice forensic interviewing. Policy and practice implications for early intervention to support the language development needs of at-risk children are also discussed.

Keywords: Maltreatment; abuse; neglect; narrative language skills; interviewing; out-of-home care

Spoken narratives are the means by which people apply culturally relevant conventions to relate a story (e.g. about a personal experience) in a logical and sequential manner to a listener (Westby, 1982). The latter may occur as a monologue, or as a co-constructed exchange in the context of a conversation, and the listener's prior knowledge about the story can range from complete to absent (Snow & Douglas, 2017). Goldstein (2000) identified four narrative subtypes, all typically acquired in childhood: recast, event cast, account, and story, which respectively label retelling an event, explaining a procedure, sharing an experience, and providing fictional accounts. Each narrative subtype varies in structure, and hence the analytic tools used to describe children's developmental progress also vary. There are also a number of ways in which narrative samples can be elicited, in both clinical and experimental conditions, as summarized by Westerveld and Gillon, (2010). Norbury and Bishop (2003) and Westerveld and Gillon note that narratives may be analysed at a number of levels, including *global (macro) structure*, such as story grammar analysis (Stein & Glenn, 1979), in which a story episode produced by speakers in many western cultures will contain such elements as a setting, an initiating event, a protagonist internal response, a plan, an attempt, a consequence and a resolution. Some analytic frameworks also make provision for an evaluation which "...can be used to help explain the causes and consequences of such events and what they may mean to the protagonist" from the narrator's perspective (Norbury & Bishop, 2003, p. 289). A child's developmental level and skill, as well as the discourse context (e.g., monologue versus co-construction with a conversational partner) determine the inclusion, order, length, and detail of story grammar elements (Paul & Norbury, 2012). *Local (micro) structure* refers to markers of syntactic complexity, such as utterance length, and use of morphological markers and coordinating and subordinating conjunctions.

Children's early exposure to narratives typically occurs via early adult-led shared book reading and exposure to macro-structure templates such as story grammar (Stein & Glenn, 1979), which enable prediction and speculation, as well as discussion about protagonists' motivations and responses (Karrass & Braungart-Rieker, 2005). As children develop, their narratives become longer and more complex in terms of all three dimensions identified above by Norbury and Bishop (2003). Through children's demonstration of an increasingly sophisticated understanding of protagonist's motivations and intentions, narrative development is also related to the emergence of theory of mind (the ability to attribute mental states, including false beliefs, to self and others) in the pre-school years (Norbury & Bishop, 2003).

Norbury and Bishop (2003) reported a significant association between underlying language abilities (syntactic complexity) and frames of mind references in the narratives of both typically-developing and clinical groups of children. Notably, these workers reported that most children in the pragmatic language impairment and high-functioning autism subgroups ... "exhibited language impairments on standardized tests, and these deficits were even more apparent in the narrative task" (p. 310). Producing and understanding narrative language thus draws on high-order cognitive and linguistic skills and is one marker (and predictor) of success in using and understanding complex spoken and written language in the school years (Fiestas & Pena, 2004; Westerveld & Gillon, 2010). Literacy development, academic success and even social and grammatical skills have been associated with earlier narrative achievement (Boudreau, 2006; Chapman, 2000). Narrative language skills are relevant to many developmental domains, including the field of investigative interviewing, given that narrative accounts to police and human services personnel are the principal means by which allegations of maltreatment are conveyed to adults in authority (Powell & Snow, 2007; Snow, Powell & Sanger, 2012).

It is important to distinguish children's narrative *language* development, from the construct of "narrative" as it is applied at a discourse level in sociological research. A number of qualitative studies have examined the narratives of maltreated children at a supra-linguistic level, e.g., coding for content and themes that pertain to parent-child role reversal (Macfie, Toth, Rogosch, Robinson, Emde, & Cicchetti, (1999), emotion regulation (Macfie & Swan, 2009), and fear of abandonment (Hodges, Steele, Hillman, Henderson, & Kaniuk (2003). In the current paper, however, we are concerned with narrative *language* competence as a marker of linguistic development, at both the macro and micro-structure levels.

It is widely agreed that it is beneficial for children to be exposed to linguistically rich, nurturing environments which foster social-emotional and language development via adult-child exchanges in the pre-school years (Cohen, 2001; Snow, 2009; Vassallo, Smart, Sanson, Dussuyer, & McKendry, 2002; Weisberg, Zosh, Hirsh-Pasek, & Golinkoff, 2013). Unfortunately such backgrounds are often absent in the lives of children who experience maltreatment (Cicchetti & Toth, 2015; Cohen, 2001; Coster & Cichetti, 1993; Snow, 2009). Further, it is well-established that children from less socio-economically advantaged families demonstrate weaker oral language skills (e.g., expressive and receptive vocabulary and sentence complexity) compared to children from socially-advantaged backgrounds (e.g. Hart & Risley, 1995; Hoff, 2003; Locke, Ginsborg, & Peers, 2002; Roy & Chiat, 2013; Spencer, Clegg & Stackhouse, 2012; Weisleder & Fernald, 2013). These findings are generally presumed to reflect differences in parents' language skills, predominantly as a function of their own education attainment, which is also likely to have a genetic component (Bergen, Zuijen, Bishop, & Jong, 2017). The relationship between socioeconomic status (SES) and language skills is important to this field of research because of the significant over-representation of children from low-SES backgrounds in maltreatment statistics (Coster & Cichetti, 1993; Doidge et al., 2017; Eigsti, & Cicchetti, 2004).

SES has also been shown to be a factor influencing the narrative language skills of children. Peterson (1994) reported that children from economically disadvantaged backgrounds are less likely to use complex linguistic markers of temporal and causal relationships and their long narratives are less likely to display adequate chronological and logical sequencing. Fiorentino and Howe (2004) showed that in low-SES pre-schoolers, those with better-developed oral narrative skills showed better school-readiness than their peers with less well-developed narrative language abilities. In a recent meta-analysis (Lum, Powell, Timms, & Snow, 2015) of the language skills of maltreated children, no studies retained for the analysis included measures of oral narrative ability, instead focussing on structural language skills, such as vocabulary and syntactic complexity. Notably, Lum et al. found that children who have experienced maltreatment display language difficulties above and beyond what would be expected on the basis of low SES alone.

There is also evidence that narrative language skills are impaired in related populations, such as adolescent offenders, who may experience disadvantage in the judicial system as a result of difficulty providing a full and coherent account of circumstances surrounding their alleged wrong-doing (Snow & Powell, 2008). Large numbers (some 40-50%) of such young people have entered the youth justice system via contact with the child protection sector (Snow & Powell, 2011). This is thought to reflect common risk factors for both outcomes, most notably low SES, living in what have been described as “crime-prone communities”, and parental mental health problems (Stewart, Livingston, & Dennison, 2008). Better understanding of the language needs of maltreated children may, therefore, assist in the early identification of such children and their diversion away from the so-called “school-to-prison pipeline” (Christle, Jolivette, & Nelson, 2005).

Exposure to early maltreatment, which encompasses abuse and neglect of various forms, is known to have potentially longterm effects on child development, including

attachment, emotional and behavioral self-regulation, learning, memory, and language (Cohen, 2001; Cook et al., 2005; Lum et al., 2015; Perry, 2009; Snow, 2009). Neglect, in particular, can negatively impact language and social-emotional development by diminishing the opportunities for appropriate and engaging adult-child interaction (Hildyard & Wolfe, 2002; Pears & Fisher, 2005; Snow, 2009; Vassallo et al., 2002). A history of neglect has been shown to contribute to expressive and receptive language difficulties in young children (see Lum et al., 2015) and is likely to erode the full development of receptive and expressive discourse skills in later childhood and adolescence (Snow, 2009). This is significant, given that neglect of various forms is commonly reported in Australian child protection statistics, though maltreatment subtypes rarely occur in isolation (Australian Institute of Family Studies, 2017).

In Australia, in situations where maltreatment of children is suspected, they may be placed in out-of-home care (OOHC) by order of the State. OOHC of varying length and placement types was provided to 12,829 children in 2015-16 (Australian Institute of Health and Welfare, [AIHW] 2017a). Children can be placed in foster care (i.e., where the caregiver is authorised and reimbursed by the state/territory), kinship care (where the caregiver is considered family or a close friend of the child) or residential care (where paid staff provide care). The AIHW (2017b) reported on the National Assessment Program Literacy and Numeracy (NAPLAN) scores of 3,583 children (7 to 17 years) in OOHC in 2013 and identified them as an academically disadvantaged group. The report also showed that a significantly lower proportion of children in foster care achieved minimal national standards in reading and numeracy than children in kinship care, with even lower proportions of children in residential care achieving such benchmarks (AIHW, 2015). There were no consistently significant relationships between the academic outcomes and time in care or the

number of placements. However, NAPLAN does not measure oral narrative skills and these have not yet been documented in Australian children in OOHC.

Narrative Language Skills and Investigative Interviewing

Significantly, the information provided by a child to an adult is often the only evidence that child maltreatment has occurred (Aldridge & Wood, 1998; Rieser, 1991). Provisions are being increasingly made to allow for children's accounts to be used as evidence (Lamb, Malloy, Hershkiwutz, & La Rooy, 2015), however, little is known about the narrative profiles of such children compared to those who are not thought to have experienced maltreatment.

Hedberg and Stoel-Gammon (1986) observed that individuals who lack adequate story grammar (narrative language) skills "...will have difficulty reconstructing their own experiences and sharing them with others" (p.68). This is particularly relevant to children with a history of maltreatment when involved in an investigative interview. Such interviews are designed to facilitate child witnesses' recall and verbal reconstruction of their experiences in the most coherent and logically sequenced narrative possible (Lamb, Sternberg, & Esplin, 1998). Such narratives are central to prosecution cases against alleged perpetrators of harm to children (Powell & Snow, 2007).

International research in forensic interviewing over the past two decades has resulted in evidence-based developments in interviewing theory and practice, to emphasise the importance of non-leading open-ended questions that elicit and promote accurate free narrative accounts from children (Powell & Snow, 2007). In the past, over-used specific and leading questions reduced the accuracy and reliability of information gleaned from the interviewees (Cederborg, Orbach, Sternberg, & Lamb, 2000; Craig, Scheibe, Raskin, Kircher, & Dodd, 1999; Davies, Westcott, & Horan, 2000; Lamb, 1996; Sternberg et al., 1996). This

has changed the landscape of child forensic interviews, so that instead of affirming or rejecting propositions contained in an interviewer's directed questioning, children are asked to provide an extended narrative account, with as little interviewer prompting as possible (Powell & Snow, 2007). If executed well, a narrative-based interview followed by non-leading specific questions is less likely to interfere with or contaminate children's accounts than a specific questioning approach (Hershkowitz, Lamb, Orbach, & Katz, 2012; Orbach & Lamb, 2000; Saywitz, Snyder, & Lamphear, 1996). Narrative language skills are beneficial to a forensic interview setting because they enhance children's ability to relay their past experiences (Hershkowitz et al., 2012), and they encourage detail and accuracy in the child's account (Orbach & Lamb, 2000). Accounts need to be elicited, as much as possible however, through the use of interviewing techniques that are sensitive to the child's emergent oral language status and in ways that encourage continuity of narration by the child, so that details that emerge are uncontaminated by obtrusive adult questioning (Powell & Snow, 2007).

The primary aim of this study, therefore, was to describe the narrative language skills of elementary- school aged children living in OOHC as a consequence of substantiated maltreatment. Our first hypothesis was that children with a history of various forms of maltreatment would display narrative language skills that fall significantly below published age-expected norms, in line with elevated rates of impoverished language skills more broadly that have been reported in this population (see Lum et al., 2015). Given the significant knowledge-gap concerning the narrative language profiles of children in OOHC, two additional questions were addressed: associations between narrative language skills and structural language abilities, and the relationship between narrative language abilities and characteristics of OOHC circumstances e.g., carer education, length of stay, time elapsed since maltreatment was first reported, and disadvantage index of location. It was hypothesized that scores on structural and narrative language skills would be significantly

correlated. It was further hypothesized that higher levels of socio-economic disadvantage would be inversely correlated with narrative language scores.

It is difficult to accurately sub-classify children as a function of their reported or substantiated maltreatment experiences, and for this reason, previous researchers have argued in favor of a focus on the inherent interrelatedness of maltreatment subtypes and poly-victimization, because experiences of abuse or neglect rarely occur in isolation, and most individuals with histories of maltreatment report exposure to two or more subtypes (Bromfield & Higgins, 2004; Price-Robertson, Rush, Wall, & Higgins, 2013). Further, survivors of multiple maltreatment events are more likely to experience complex trauma and the negative effects of cumulative harm (Price-Robertson et al., 2013). In keeping with these findings, the measure of children's overall language functioning was not found to be differentially related to the presence of neglect or emotional abuse in the larger study (Lum et al., 2018) from which the current investigation is derived. Accordingly, we did not seek to sub-classify participants or examine narrative language skills on the basis of different types of maltreatment histories in this study.

Method

Participants

Following approval from the University Human Research Ethics Committee, children were recruited through one Australian state child protection agency. Eighty-three children (40 males and 43 females) aged 5;3 to 12;10 ($M=7;9$, $SD=2;3$) from English-speaking home backgrounds were included. Participants represented all three OOHC placement types: foster care, kinship care, and residential care, though a breakdown of these subtypes was not available.

Children were invited to participate if they were living in state-designated OOHC following at least one episode of substantiated maltreatment (neglect and/or abuse). A case of maltreatment was identified as substantiated by the government agency when the outcome of a formal investigation was a conclusion that a child had either been harmed or placed at significant risk of harm from maltreatment. According to these records, participants had experienced physical and/or sexual abuse (23%), emotional abuse (24%), or neglect (82%) as the primary indications for placement.

Children who identified as being from Aboriginal or Torres Strait Islander (indigenous) backgrounds were not included, as standardized assessments are not culturally sensitive and may misrepresent children's actual language abilities (McLeod, Verdon, & Kneebone, 2014; Pearce & Williams, 2013). Children were also excluded if they were known to have English as a second language, a diagnosed intellectual disability, and/or a diagnosed developmental language disorder, because of the known independent impact of such factors on narrative language skills.

Participants had been in OOHC for a mean of 5.90 years (range = 0.08-11.4; SD=2.87). Maltreatment was first reported when children were a mean of 2.71 years (range = 0.01-9.80; SD=2.30).

Measures

Maltreatment history.

Statutory maltreatment history for all children and details of their OOHC placements were obtained from records held by child protective services. As described by Lume et al. (2018) details regarding maltreatment history and OOHC placement were accessed by a social worker employed by the agency. To ensure information was systematically recorded, a coding instrument was used. For each child, the following aspects of maltreatment history

were collected: (i) type(s) of substantiated maltreatment to which the child was exposed, (ii) age of child when maltreatment was first documented, (iii) age of child at most recent substantiated maltreatment instance, and (iv) the relationship of the perpetrator to the child. The specific types of maltreatment recorded were neglect, emotional abuse, physical abuse and sexual abuse. The out-of-home placement information obtained was (i) length of time in current placement, (ii) total time in out-of-home care and (iii) the total number of out-of-home placements. Results pertaining to these variables for this sample were reported by Lum et al. (2018) and are not reproduced here as they did not correlate significantly with CELF-4 Core Language Scores (Semel et al., 2003) in Lum et al.'s study and did not form the basis of any hypotheses in the current study. It is noted, however, that neglect was the most common form of maltreatment in the sample (occurring in 86% of cases), with substantiated physical abuse occurring in 14% of the sample and sexual abuse being substantiated in 10%.

Care placement status. The Australian Bureau of Statistics (2011) uses Socio-Economic Indexes for Areas to calculate a disadvantage index (SEIFA), and this was recorded for the current residence of each participant. SEIFA is derived from five-yearly Australian Bureau of Statistics data and is used to determine the welfare and service needs of Australian communities (Australian Bureau of Statistics, 2013). It was not possible to obtain accurate demographic information on the biological parents of participants. Finally, we obtained demographic information about each carer, specifically, highest educational level and household income. Education level was coded using a 4-point scale where 1 = secondary/high school education, 2 = tertiary and further education colleges (equivalent to community college/junior college education in the United States), 3 = undergraduate/bachelor degree, 4 = postgraduate degree. The total household income of OOHC placement was recorded in one of five brackets (\$AUD): \$0 - \$6000 (0%); \$6,001 - \$21,600 (18%); \$21,601 - \$63,000 (36%); \$63,001 - \$95,000 (21%); and more than \$95,000 (25%).

Narrative Language, Nonverbal IQ, and Structural Language Measures

Narrative language skills. Narrative language skills were assessed using the Test of Narrative Language (TNL; Gillam & Pearson, 2004). The TNL provides a composite score of receptive and expressive narrative skills, referenced to age-equivalent norms. This test was designed for use with children aged 5 to 11 years, though it was also used with participants aged 12 years in this study given their anticipated language delay (Lum et al., 2015). The TNL is an established measure of comprehension and production of narrative skill, normed on 1059 children residing in the US. The test authors affirm the TNL for use in various populations of children (Gillam & Pearson, 2004), and it has been shown to have high inter-rater ($>.90$) and test-retest ($<.80$) reliability, and high validity (sensitivity = .92; specificity = .87) (Spaulding, Plante & Farinella, 2006).

Comprehension and oral narration is assessed in each of three narrative subtests. The three narrative formats are as follows (see Appendix): (1) comprehension and retell of a narrative without picture prompts, (2) response to comprehension questions and generation of a narrative from two sets of five sequenced pictures and (3) response to comprehension questions and generation of a narrative from two single picture scenes. The resulting responses were scored for micro elements (e.g., temporal relationships, grammatical errors and consistent reference to characters) and macro element (e.g., awareness of problem, actions, resolution and ending). The TNL scoring protocol provides a raw score, a standard score and a percentile rank for narrative comprehension (NC) and oral narration (ON). A composite index standard score (The Narrative Language Ability Index; NLAI), derived from the two subtests NC and ON scores) and a corresponding percentile rank was also calculated. The NLAI is the most reliable score derived from the TNL (Gillam & Pearson, 2004).

Narrative comprehension tests were scored at the time of assessment and the oral narrations were recorded and transcribed to be scored by speech-language pathologists. Specific instructions for administering and scoring the subtests can be found in the TNL manual (Gillam & Pearson, 2004). A randomly selected sample of 18 (20%) narratives were co-scored by a final year speech-language pathology student and a speech-language pathologist blind to the background of the children or purpose of the study. They scored using both the audio recording and transcript as per the TNL manual, discussing scoring criteria and resolving any contradictions. Inter-rater reliability was assessed using data from an additional nine (10%) participants using raw scores from the MacDonald's Recall subtest. The mean and standard deviations for both raters was comparable (rater 1: $M=8.1$, $SD=6.2$; rater 2: $M=8.6$, $SD=6.5$). The intra-class correlation was high and significant ($r = .997$, $p < .001$). This was similarly high for other subtests. The remaining participants' oral narrations were scored by the first speech-language pathologist.

Nonverbal Intelligence. The Ravens Coloured Progressive Matrices (RCPM) (Raven, Raven, & Court, 1998) was administered to estimate nonverbal intelligence. The RCPM is well established for a range of populations, with norms for participants from 6 years. Australian workers have reported internal consistency of .89 for 618 children aged 6 to 11 years (Cotton, Kiely, Crewther, Thomson, Laycock, & Crewther 2005). RCPM scores have been found to correlate positively with Performance IQ ($r = 0.52$), Verbal IQ ($r = 0.54$) and Full-Scale IQ ($r = 0.55$) from the Wechsler Intelligence Scale for Children (Chalmers & Carleton, 1955). In the current study, standard scores ranged from 81 to 128 ($SD=10.8$; $M=105.6$). These standard scores were included as a covariate to control for the influence of general intelligence on narrative language skills.

Core Language skills. A Core Language Score (CLS) was calculated using relevant subtests of the Clinical Evaluation of Language Fundamentals (CELF-4; Australian

standardisation; Semel, Wiig, Secord, 2003) to gauge structural language skills across key domains of vocabulary and sentence structure, receptively and expressively. The CLS (derived from: Recalling Sentences, Formulated Sentences, Word Classes [Receptive and Expressive], and Word Definitions) has a mean of 100 (SD = 15) and strong validity in identifying children with/without language disorder (Specificity = .82, Sensitivity = 1.00). The CELF-4 also has a high average reliability coefficient (0.96) for the CLS sample (Pearson Education, 2008).

The CELF-4 provides detailed, norm-referenced data, and is widely used in Australia and overseas, in both clinical and research contexts, as an accepted measure to determine the presence of a clinical language disorder and entitlement to specialist services (e.g., speech-language pathology services in schools).

As described by Lum et al. (2018) the CELF-4 CLS (Semel et al., 2003) in the current study ranged from 49 to 125 ($M=91.72$; $SD=14.68$) and 30% of children performed below the expected level on this measure. A one sample t-test was conducted comparing the group's average score against the normative mean of 100. This analysis revealed that the CLS ($t(82) = 5.013$, $p < 0.001$) was significantly below the tests' normative mean.

Procedure

The language and intelligence tests were individually administered to each child in a single session lasting around 50–60 minutes. All measures were administered by a speech-language pathologist. Assessment took place in a meeting room located at the child protection agencies' offices. While this took place, the child's carer completed the demographics questionnaire. At the time of this assessment, neither speech-language pathologist was aware of the maltreatment or care placement backgrounds of the participants.

Data Analysis

This study was a cross-sectional, descriptive and correlational design with data analysed using IBM SPSS Statistics software, Version 22.0. No hypotheses concerning gender are proposed, however overall narrative language results (NLAI scores) for males and females are reported separately for descriptive purposes.

Results

Care placement status

Although not necessarily representative of their biological family demographics, details of the current carer(s) were used to determine associations between placement characteristics and narrative language scores. Table 1 summarises the data pertaining to carer education levels and income. The mean family disadvantage index was 1022.00 (range = 941.59 to 1109.61, SD = 43.20) where a lower score represents difficulty “accessing material and social resources, and [a reduced] ability to participate in society” (Australian Bureau of Statistics, 2001, p.6).

Mother’s education level was recorded for 85.5% of cases, household income was recorded for 90.4%, and the overall index of social disadvantage was known for 93.9%. As indicated via questionnaire on the day of assessment, 54% of female carers and 53% male carers had completed high school, with the remaining carers completing an advanced diploma (female=8%, male=25%), bachelor’s degree (female= 3%, male=13%), graduate degree (female=7%, male=10%), or postgraduate degree (female=6%, male=0%). Father’s education level was only available for 48.2% of participants, presumably due to the high number of demographic surveys completed by the female caregiver at the time of assessment.

[Table 1 about here]

Narrative Language Skills

Narrative language ability was documented for all 83 participants. Table 2 summarizes the descriptive statistics pertaining to standardised NC, ON and NLAI scores, and Table 3 displays the NLAI subgroups, as per the test manual descriptors (Gillam & Pearson, 2004). Group scores on all narrative measures were within one SD of the published test means.

[Table 2 about here]

As can be seen in Table 3, on the NLAI, 35 participants (42.1%) achieved scores that placed them in the below-average range. Fifty percent of males were below average, alongside 34% of females. Overall, 35 (42.2%) participants scored at or above the expected level for their age on the NC subtest, compared to only 16 (19.3%) on the ON subtest.

[Table 3 about here]

The correlation between Narrative Language Skills and Structural Language Skills

Correlations between the ON, NC and the NLAI and participants' CELF-4 (Semel et al., 2003) CLS were calculated using Pearson's *r*. Table 4 displays the significant positive correlations between all three narrative variables and participants' CELF-4 CLS. These relationships remained strong when including both age and nonverbal intelligence scores as covariates.

[Insert Table 4 here]

The Correlation between Narrative Language Skills and Characteristics of OOHC Care

Bivariate and partial (controlling for age and nonverbal intelligence) correlations between narrative language skills and carer education level and care placement disadvantage index are presented in Table 5. Modest significant correlations suggest that a higher

education level of the female carer is associated with stronger narrative language skills. No other associations were significant.

[Table 5 about here]

Discussion

This sample of children in OOHC performed below expected levels on the basis of their chronological age on narrative language measures, which confirmed our first hypothesis. Wide variability, however was evident in the children's performance. Participants performed close to the average range on narrative comprehension, but this was not matched by their performance on oral narration, which was, on average close to one standard deviation below the expected range. On the composite measure (NLAI), nearly half of the children achieved scores that placed them in the below-average range. This was the case for half of the males and a third of the females. Only one in five children performed at or above the expected level on the oral narration task. A US review of 29 papers concerning academic outcomes of children in OOHC (Trout, Hagaman, Casey, Reid, & Epstein, 2008) reported similar trends to those found in the current study; scores varied considerably, though children in all types of OOHC performed in the low to low-average range on academic measures, including language. Our results are the first to report specifically on oral narrative skills in an elementary-school aged OOHC population.

As would be expected on developmental grounds, there were consistently moderately strong correlations between narrative language skills and scores on standardized language measures, however it must be noted that these correlations account for only 27-46% of shared variance between the two language domains. In line with the findings of Norbury and Bishop (2003), this suggests that simply screening structural language skills (e.g., expressive vocabulary or listening comprehension) will not identify sufficient numbers of those children

whose expressive narrative language skills are poorly developed relative to those of their age peers.

Findings pertaining to the correlation between carer socio-economic status and children's narrative language skills suggest a significant association, as also reported by Lum et al. (2018) on the same sample, with respect to structural language abilities. Although only modest in strength, this association suggests that it is in children's best interests, if they are placed in OOHC, to be in the care of females with higher levels of education. The association between oral language skills and educational attainment is one that has its roots in children's early lives (Snow, 2016) hence this finding warrants ongoing investigation as to its policy implications for selection of appropriate carers during the developmentally-sensitive early years. Further, neglect of various forms is generally the most common form of maltreatment (Gilbert, Spatz Widom, Browne, Fergusson, Webb, & Janson, 2009) and was strongly represented in the backgrounds of these children. Ironically, neglect itself has been the subject of some empirical neglect by researchers (Stoltenborgh, Bakermans-Kranenburg, & van IJzendoorn, 2013). Our findings lend support to Heckman's (2008) call for the provision of high-quality early childhood care experiences and education for disadvantaged children (some of whom will also be victims of maltreatment of various forms, further compounding the deleterious effects of SES disadvantage alone).

Our findings have significant implications for the way in which police and human services personnel are trained to conduct an investigative interview with a child who is suspected to have been maltreated. Firstly, in line with previous findings on language development and maltreatment (Lum et al., 2015; Sylvestre, Bussieres, & Bouchard, 2016), such children cannot be assumed to be displaying typical language development, notwithstanding their wide variability in performance. Secondly, such children are likely to display particular vulnerability in the very aspect of language that is central to success in a

well-conducted investigative interview (i.e. expressive narrative language skills). This should not mean that evidence-based protocols are not used with such children. Rather it may mean that such protocols will be even more important, given that children with weaker narrative language skills are likely to need additional time and opportunities to provide responses to broad open-ended questions, and to benefit from the use of minimal encouragers, aimed at fostering further spontaneous elaboration of the narrative (Benson & Powell, 2015; Bull, 2010; Powell & Snow, 2007).

Where children display weak oral narrative skills, it may be tempting for interviewers to resort prematurely to the use of specific and closed questions (Guadagno, Hughes-Scholes, & Powell, 2013), reducing the amount of information that is uncontaminated by interviewer questions and thus subject to challenge by defence counsel (Burrows & Powell, 2014). Previous investigators (Burrows & Powell, 2014; Guadagno, Powell, & Wright, 2006; Snow, Powell, & Murfett, 2009) have shown that when interviewers over-use specific open-ended questions, they elicit output from children that is peripheral to the substance of the story pertaining to an alleged maltreatment episode. This is damaging to interview efficacy in two ways: peripheral information, by definition, does not contribute to the main narrative to be relayed by the child, and the child may interpret the use of such questions as a signal to passively provide information only in response to questions (Powell & Snow, 2007). Our findings also reinforce the importance of interviewers knowing that receptive language skills typically exceed expressive language skills in children (Paul & Norbury, 2012), so it is not reasonable to expect children to be able to produce spontaneous narrative language at the same level at which they may be able to understand it.

The wide variability in our sample highlights that interviewers should anticipate potential relative weakness in oral narrative language skills, and apply assumptions and practices that cater to the lower end of the performance spectrum, to minimize possible

disadvantage in the interview context. For each oral narration subtest, the TNL manual allows one open prompt plus an additional open probe to elicit narrative samples, and most participants were able to respond with some accurate detail. Notably, however, nine children were unable to provide a response to the two allowable probes in one or more of the subtests. Most of these were among the youngest participants and represent the likely larger proportion of children in forensic interviewing who may be unwilling or unable to provide a narrative response to only a few open prompts. It is therefore necessary to be prepared with additional and alternative open prompts in order to persist with narrative elicitation, further supporting the benefits of interview protocols that provide such a structure (Benson & Powell, 2015).

Study Limitations and Future Directions

A number of limitations need to be borne in mind when considering our findings. The narrative task we used did not involve recalling an event directly experienced by the child, hence task saliency was low (though so too, were memory demands). Further, blinded ratings (i.e. blind to any knowledge of maltreatment history, not just type) may have strengthened scoring accuracy, to reduce expectancy bias. Although English was the first language of participants, we were not able to gather data about their ethnic backgrounds, and this should be considered in future studies, as should the possible influence of type of care setting. Our finding that NLAI scores appeared to be compromised in a higher proportion of males and than females is consistent with previous reports (e.g., Snowling, Duff, Nash & Hulme, 2016) of the role of gender in early language development, and warrants further consideration with respect to the possibility of greater vulnerability in the oral narrative language domain for children in OOHC.

Although a comparison-group of non-maltreated children from low-SES backgrounds was not included in this study, it is known that there is a reliable association between maltreatment and language skills even after controlling for SES (Lum et al., 2015). That said,

further exploration of the ways in which the SES gradient and oral language skills interact in OOHC samples is needed. More also needs to be known about the narrative language skills of children from low SES backgrounds in whom maltreatment is not suspected, so that the relative contributions of low SES and maltreatment to poorer narrative skills can be ascertained. Importantly, in a country where over 35% of the children in OOHC identify as indigenous (Australian Institute of Health and Welfare, 2016), this study fails to accurately represent the wider cohort of children in the care of child protective services. Further refinement of standardized language measures is needed so that the developmental needs of such children can be accurately tracked and responded to.

More needs to be known about (a) typical narrative language development in indigenous children, and (b) the impact of maltreatment on the narrative skills of these children, particularly in reference to their exposure to the criminal justice system (Hamilton, 2017). Further, the narrative language skills of other subgroups excluded from this study (those with known intellectual disability and/or developmental language disorder) probably results in an under-estimation of the prevalence of narrative language difficulties in this population, however their language profiles are no less important, from both developmental and forensic perspectives.

The narrative scores derived in the current study incorporate both microstructural (e.g. syntactic complexity) as well as macrostructural (story grammar) organisation levels. Consideration of these different levels of analysis has been said to be a sensitive approach to documenting breakdown in children's narrative language skills (Allen, Ukrainetz, & Carswell, 2012), and further individual micro-structure measures should be considered by future researchers.

Type of residential care was not considered in this study as we were unable to obtain these data on the sample. Future workers should consider this variable, bearing in mind,

however, that some children move through different care settings, and hence care-type alone may not be sufficiently stable as a predictor variable.

Conclusions

The results presented in this paper shed some light on the narrative language abilities of children who are living in OOHC following maltreatment. Little to no prior information exists on these skills in such children. This knowledge gap is important developmentally, as well as being relevant to the field of forensic interviewing. As with other language abilities in the OOHC population (Lum et al., 2015; 2018), there is greater risk of poor performance due to ongoing suboptimal environment (Weisberg et al., 2013), yet these children are often required to produce a narrative account of their experiences as part of investigative interviews (Powell & Snow, 2007), and in ongoing psychological therapies (Fujiki, Spackman, Brinton & Hallet, 2004; Hart et al., 2004; Horowitz et al., 2007). The results suggest that a reassuring number of children are capable of providing at least some information in response to narrative prompts, and hence our findings support the use of narrative-based interviews in the legal setting. Regardless of social disadvantage and characteristics of OOHC placement however, over half the children in our sample scored below the expected average age level for expressive narrative skills. Further research is needed to identify ways in which existing interview protocols can best support the expressive language skills of these children, and maximize their access to justice and procedural fairness in their contact with legal processes. Improved early environmental supports for language development in vulnerable children should also be a priority at policy and practice levels.

References

- Aldridge, M., & Wood, J. (1998). *Interviewing Children: A Guide for Child Care and Forensic Practitioners. Wiley Series in Child Care and Protection*. New York: John Wiley and Sons, Inc. .
- Allen, M., Ukrainetz, T., & Carswell, A. (2012). The narrative language performance of three types of at-risk first grade readers. *Language , Speech and Hearing Services in Schools*, 43, 205-221. doi: 10.1044/0161-1461(2011/11-0024)
- Australian Bureau of Statistics. (2013). Socio-Economic Indexes for Areas (SEIFA), Australia. <http://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>
- Australian Institute of Family Studies (2017). The Prevalence of Child Abuse and Neglect. <https://aifs.gov.au/cfca/publications/prevalence-child-abuse-and-neglect>
- Australian Institute of Health and Welfare (2017). *Child Protection Australia 2015–16*. Child Welfare series no. 66. Cat. no. CWS 60 . Canberra: AIHW.
- Australian Institute of Health and Welfare (2017). *Educational Outcomes for Children in Care. Linking 2013 Child Protection and NAPLAN Data*. Cat. no. CWS 54. Canberra: AIHW.
- Benson, M., & Powell, M. (2015). Evaluation of a Comprehensive Interactive Training System for Investigative interviews of Children. *Psychology, Public Policy, and Law*, 21(3), 309-322. doi: <http://dx.doi.org/10.1037/law0000052>
- Bergen, E., Zuijen, T., Bishop, D., & Jong, P. F. (2017). Why are home literacy environment and children's reading skills associated? What parental skills reveal. *Reading Research Quarterly*, 52(2), 147-160.
- Boudreau, D. (2006). Narrative abilities in children with language impairment. In R. Paul (Ed.), *Child language disorders from a developmental perspective: Essays in honor of Robin Champan*. Mahwah, NJ: Erlbaum.

- Bromfield, L & Higgins, D. (2004). The limitations of using statutory child protection data for research into child maltreatment. *Australian Social Work*, 57(1), 19–30.
- Bull, R. (2010). The investigative interviewing of children and other vulnerable witnesses: Psychological research and working/professional practice. *Legal and Criminological psychology*(15), 5-23. doi: 10.1348/014466509X440160
- Burrows, K., & Powell, M. (2014). Prosecutors' recommendations for improving child witness statements about sexual abuse. *Policing and Society*, 24(2), 189-207. doi: 10.1080/10439463.2013.784305
- Ceci, S., & Bruck, M. (1993). Suggestibility of the child witness: A historical review and synthesis. *Psychological Bulletin*, 113(3), 403-439.
- Cederborg, A.-C., Orbach, Y., Sternberg, K. J., & Lamb, M. E. (2000). Investigative interviews of child witnesses in Sweden. *Child Abuse & Neglect*, 24(10), 1355-1361.
- Chapman, R. (2000). Children's language learning: An interactionist perspective. *Journal of Child Psychology and Psychiatry*, 41, 33-54.
- Christle, C. A., Jolivette, K., & Nelson, C. M. (2005). Breaking the school to prison pipeline: Identifying school risk and protective factors for youth delinquency. *Exceptionality*, 13(2), 69-88.
- Cicchetti, D., & Toth, S. L. (2015). Multilevel developmental perspectives on child maltreatment. *Development and psychopathology*, 27(4pt2), 1385.
- Cohen, N.J. (2001) *Language Impairment and Psychopathology in Infants, Children and Adolescents*. Thousand Oaks, CA: Sage.
- Cook, A., Spinazzola, P., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., & al., e. (2005). Complex trauma in children and adolescents. *Psychiatric Annals*, 35(5), 390-398.

- Coster, W., & Cicchetti, D. (1993). Research on the communicative development of maltreated children: Clinical implications. *Topics in Language Disorders*, 13(4), 25-38.
- Cotton, S. M., Kiely, P. M., Crewther, D. P., Thomson, B., Laycock, R., & Crewther, S. G. (2005). A normative and reliability study for the Raven's Coloured Progressive Matrices for primary school aged children from Victoria, Australia. *Personality and Individual Differences*, 39(3), 647-659.
- Craig, R. A., Scheibe, R., Raskin, D. C., Kircher, J. C., & Dodd, D. H. (1999). Interviewer Questions and Content Analysis of Children's Statements of Sexual Abuse. *Applied Developmental Science*, 3(2), 77-85. doi: 10.1207/s1532480xads0302_2
- Davies, G. M., Westcott, H. L., & Horan, N. (2000). The impact of questioning style on the content of investigative interviews with suspected child sexual abuse victims. *Psychology, Crime & Law*, 6(2), 81-97. doi: 10.1080/10683160008410834
- Doidge, J. C., Higgins, D. J., Delfabbro, P., Edwards, B., Vassallo, S., Toumbourou, J. W., & Segal, L. (2017). Economic predictors of child maltreatment in an Australian population-based birth cohort. *Children and Youth Services Review*, 72, 14-25.
- Dunn, J. (1991). Young children's understanding of other people: Evidence from observations within the family. In D. Frye & C. Moore (Eds.), *Children's Theories of Mind: Mental States and Social Understanding* (pp. 97-115). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Eigsti, I. M., & Cicchetti, D. (2004). The impact of child maltreatment on expressive syntax at 60 months. *Developmental Science*, 7(1), 88-102.
- Fiestas, C., & Pena, E. (2004). Narrative discourse in bilingual children: Language and task effects. *Language, Speech and Hearing Services in Schools*, 35, 155-168.

- Fujiki, M., Spackman, M. P., Brinton, B., & Hall, A. (2004). The relationship of language and emotion regulation skills to reticence in children with specific language impairment. *Journal of Speech, Language, and Hearing Research*, 47(3), 637-646.
- Gilbert, R., Spatz Widom, C., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *Lancet* 373, 68–81.
- Gillam, R., & Pearson, N. (2004). *Test of Narrative Language*. Austin, TX: Pro-Ed.
- Goldstein, B. (2000). *Cultural and Linguistic Diversity Resource Guide for Speech-Language Pathology*. San Diego: Singular Publishing Group.
- Guadagno, B., Hughes-Scholes, C., & Powell, M. (2013). What themes trigger investigative interviewers to ask specific questions when interviewing children. *International Journal of Police Science and Management*, 15(1), 55-60. doi: 10.1350/ijps.2013.15.1.301
- Guadagno, B., Powell, M., & Wright, R. (2006). Police Officers' and legal professionals' perceptions regarding how children are, and should be, questioned about repeated abuse. *Psychiatry, Psychology and Law*, 13(2). doi: 10.1375/pplt.13.2.251
- Hamilton, G., Powell, M. B., & Brubacher, S. P. (2017). Professionals' Perceptions Regarding the Suitability of Investigative Interview Protocols with Aboriginal Children. *Australian Psychologist*, 52(3), 174-183.
- Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*: Paul H Brookes Publishing.
- Heckman, J. J. (2008). The case for investing in disadvantaged young children. *CESifo DICE Report*, 6(2), 3-8.

- Hedberg, N. L., & Stoel-Gammon, C. (1986). Narrative analyses: Clinical procedures. *Topics in Language Disorders*, 7(1), 58-69.
- Hershkowitz, I., Lamb, M., Orbach, Y., & Katz, C. (2012). The development of communicative and narrative skills among preschoolers: Lessons from forensic interviews about child abuse. *Child Development*, 83(2), 611-622.
- Hildyard, K., & Wolfe, D. (2002). Child neglect: developmental issues and outcomes *Child Abuse and Neglect*, 26, 679-695. doi: 10.1016/S0145-2134(02)00341-1.
- Hodges, J., Steele, M., Hillman, S., Henderson, K., & Kaniuk, J. (2003). Changes in attachment representations over the first year of adoptive placement: Narratives of maltreated children. *Clinical Child Psychology and Psychiatry*, 8(3), 351-367.
- Hoff, E. (2003). The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech. *Child development*, 74(5), 1368-1378.
- Karrass, J., & Braungart-Rieker, J. M. (2005). Effects of shared parent–infant book reading on early language acquisition. *Journal of Applied Developmental Psychology*, 26(2), 133-148. doi: <https://doi.org/10.1016/j.appdev.2004.12.003>
- Lamb, M., & Fauchier, A. (2001). The effects of question type on self-contradictions by children in the course of forensic interviews. *Applied Cognitive Psychology*, 15, 483-491. doi: 10.1002/acp.726
- Lamb, M., Malloy, L., Hershkiwutz, I., & La Rooy, D. (2015). Children and the Law. *Handbook of Child Psychology and Developmental Science* (Vol. 3, pp. 1-49): John Wiley & Sons.
- Lamb, M. E. (1996). Effects of Investigative Utterance Types on Israeli Children's Responses. *International Journal of Behavioral Development*, 19(3), 627-638. doi: 10.1080/016502596385721

- Lamb, M. E., Sternberg, K. J., & Esplin, P. W. (1998). Conducting investigative interviews of alleged sexual abuse victims. *Child Abuse & Neglect*, 22(8), 813-823.
- Locke, A., Ginsborg, J., & Peers, I. (2002). Development and disadvantage: Implications for the early years and beyond. *International Journal of Language & Communication Disorders*, 37(1), 3-15.
- Lum, J., Powell, M., & Snow, P. (in press). The influence of maltreatment history and out-of-home-care on children's language and social skills. *Child Abuse & Neglect*. Accepted October 14, 2017.
- Lum, J., Powell, M., Timms, L., & Snow, P. (2015). A Meta-Analysis of Cross Sectional Studies Investigating Language in Maltreated Children. *Journal of Speech, Language and Hearing Research*, 58, 961-976. doi: 10.1044/2015_JSLHR-L-14-0056
- Macfie, J., Toth, S. L., Rogosch, F. A., Robinson, J., Emde, R. N., & Cicchetti, D. (1999). Effect of maltreatment on preschoolers' narrative representations of responses to relieve distress and of role reversal. *Developmental Psychology*, 35(2), 460.
- Macfie, J., & Swan, S. A. (2009). Representations of the caregiver–child relationship and of the self, and emotion regulation in the narratives of young children whose mothers have borderline personality disorder. *Development and Psychopathology*, 21(3), 993-1011.
- McLeod, S., Verdon, S., & Kneebone, L. (2014). Celebrating young Indigenous Australian children's speech and language competence. *Early Childhood Research Quarterly*, 29, 118-131. doi: 10.1016/j.ecresq.2013.11.003.
- Norbury, C. F., & Bishop, D. V. (2003). Narrative skills of children with communication impairments. *International Journal of Language & Communication Disorders*, 38(3), 287-313.

- Orbach, Y., & Lamb, M. (2000). Enhancing Children's Narratives in Investigative Interviews. *Child Abuse and Neglect*, 24(12), 1631-1648.
- Paul, R., & Norbury, C. (2012). *Language Disorders from Infancy Through Adolescence: Listening, Speaking, Reading, Writing and Communicating* Elsevier: St Louis, MO.
- Pearce, W., & Williams, C. (2013). The cultural appropriateness and diagnostic usefulness of standardized language assessments for Indigenous Australian children. *International Journal of Speech Language Pathology*, 15, 429-440.
- Pears, K., & Fisher, P. (2005). Developmental, cognitive and neuropsychological functioning in preschool-aged foster children: Associations with prior maltreatment and placement history. *Developmental and Behavioural Pediatrics*, 26(2), 112-117.
- Pearson Education (2008). *Technical Report: CELF-4*
http://images.pearsonassessments.com/images/tmrs/tmrs_rg/CELF_4_Tech_Report.pdf
- 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.
- Poole, D., & Lamb, M. (1998). *Investigative interviews of children: A guide for helping professionals*. Washington, DC, US: American Psychological Association.
- Powell, M., & Snow, P. (2007). Guide to questioning children during the free-narrative phase of an investigative interview. *Australian Psychologist*, 42(1), 57-65. doi: 10.1080/00050060600976032.
- Price-Robertson, R., Rush, P. Wall, L. & Higgins, D. (2013). Rarely an isolated incident: Acknowledging the interrelatedness of child maltreatment, victimisation and trauma. *Australian Institute of Family Studies Child Family Community Information Exchange*. <https://aifs.gov.au/cfca/publications/rarely-isolated-incident->

[acknowledging-interrelatedn/child-maltreatment-victimisation](#) Accessed February 4, 2018.

- Raven, J., Raven, J. C., & Court, J. H. (1998). *Manual for Raven's progressive matrices and vocabulary scales*. Oxford: Oxford Psychologists.
- Rieser, M. (1991). Recantation in child sexual abuse cases. *Child Welfare*, 70(6), 611-621.
doi: 10.1300/J146v02n02_06
- Ripich, D. N., & Spinelli, F. M. (1985). *School discourse problems*. London: Taylor & Francis.
- Roy, P., Chiat, S., & Marshall, C. (2013). Teasing apart disadvantage from disorder. *Current issues in developmental disorders*, 125-150.
- Saywitz, K., Snyder, L., & Lamphear, V. (1996). Helping children tell what happened: A follow-up study of the narrative elaboration procedure. *Child Maltreatment*, 1(3), 200-212. doi: 10.1177/1077559596001003003
- Semel, E., Wiig, W., & Secord, W. (2003). *The Clinical Evaluation of Language Fundamentals* – 4th edition (Australian standardisation). St Peters, NSW: Harcourt Assessment.
- Snow, P. (2009). Child maltreatment, mental health and oral language competence: Inviting speech-language pathology to the prevention table. *International Journal of Speech-Language Pathology*, 11(2), 95-103. doi: 10.1080/17549500802415712
- Snow, P.C. (2016). Elizabeth Usher Memorial Lecture: Language is literacy is language. Positioning Speech Language Pathology in education policy, practice, paradigms, and polemics. *International Journal of Speech Language Pathology*, 18(3), 216-228. DOI: 10.3109/17549507.2015.1112837.
- Snow, P., & Douglas, J. (2017). Psychosocial aspects of pragmatic language difficulties. In L. Cummings (Ed.), *Research in Clinical Pragmatics, Series: Perspectives in*

Pragmatics, Philosophy & Psychology (Vol. 11, pp. 617-649). Cham, Switzerland: Springer-Verlag.

Snow, P.C. & Powell, M.B. (2008). Oral language competence, social skills, and high risk boys: What are juvenile offenders trying to tell us? *Children and Society*, 22, 16-28. DOI: 10.1111/j.1099-0860.2006.00076.x.

Snow, P. C., & Powell, M. B. (2011). Oral language competence in incarcerated young offenders: Links with offending severity. *International Journal of Speech-Language Pathology*, 13(6), 480-489.

Snow, P., Powell, M., & Murfett, R. (2009). Getting the story from child witnesses: exploring the application of a story grammar framework. *Psychology, Crime and Law*, 15(6), 555-568. doi: 10.1080/10683160802409347

Snow, P, Powell, M. , & Sanger, D., (2012). Oral language competence, young speakers, and the law. *Language, Speech, and Hearing Services in Schools*, 43(4), 496-506.

Snowling, M. J., Duff, F. J., Nash, H. M., & Hulme, C. (2016). Language profiles and literacy outcomes of children with resolving, emerging, or persisting language impairments. *Journal of Child Psychology and Psychiatry*, 57(12), 1360-1369.

Spaulding, T. J., Plante, E., & Farinella, K. A. (2006). Eligibility criteria for language impairment: Is the low end of normal always appropriate? *Language, Speech, and Hearing Services in Schools*, 37(1), 61-72.

Spencer, S., Clegg, J., & Stackhouse, J. (2012). Language and disadvantage: a comparison of the language abilities of adolescents from two different socioeconomic areas.

International Journal of Language & Communication Disorders, 47(3), 274-284.

Stein, N., & Glenn, C. (1979). An Analysis of Story Comprehension in Elementary School Children In R. Freedle (Ed.), *New Directions in Discourse Processing* (Vol. 2, pp. 53-120). Norwood, NJ: Ablex.

Sternberg, K. J., Lamb, M. E., Hershkowitz, I., Esplin, P. W., Redlich, A., & Sunshine, N.

(1996). The relation between investigative utterance types and the informativeness of child witnesses. *Journal of Applied Developmental Psychology*, 17(3), 439-451. doi:

[http://dx.doi.org/10.1016/S0193-3973\(96\)90036-2](http://dx.doi.org/10.1016/S0193-3973(96)90036-2)

Stewart, A., Livingston, M., & Dennison, S. (2008). Transitions and turning points:

Examining the links between child maltreatment and juvenile offending. *Child Abuse & Neglect*, 32, 51–66.

Stoltenborgh, M., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2013). The

neglect of child neglect: a meta-analytic review of the prevalence of neglect. *Social Psychiatry and Psychiatric Epidemiology*, 48(3), 345-355.

Sylvestre, A., Bussieres, E., & Bouchard, C. (2016). Language problems among abused and

neglected children: A meta-analytic review *Child Maltreatment*, 2(1), 47-58. doi:

10.1177/1077559515616703.

Trout, A. L., Hagaman, J., Casey, K., Reid, R., & Epstein, M. H. (2008). The academic status

of children and youth in out-of-home care: A review of the literature. *Children and Youth Services Review*, 30(9), 979-994.

Vassallo, S., Smart, D., Sanson, A., Dussuyer, I., & McKendry, B. (2002). *Patterns and*

precursors of adolescent anti-social behaviour. Melbourne: Australian Institute of Family Studies.

Weisberg, D. S., Zosh, J. M., Hirsh-Pasek, K., & Golinkoff, R. M. (2013). Talking it up:

Play, language development and the role of adults support. *American Journal of Play*, 6(1), 39-54.

Weisleder, A., & Fernald, A. (2013). Talking to children matters: Early language experience

strengthens processing and builds vocabulary. *Psychological science*, 24(11), 2143-2152.

- Westerveld, M. F., & Gillon, G. T. (2010). Profiling oral narrative ability in young school-aged children. *International Journal of Speech-Language Pathology*, 12(3), 178-189.
- Westby, C. (1982). Cognitive and linguistic aspects of children's narrative development. *Communication Disorders*, 7(1), 1-16.

Table 1

Carer Demographic Characteristics at Time of Assessment

	Female Carer (%)	Male Carer (%)
Year 10/12	38 (53.5)	21 (52.5)
Advanced Diploma	13 (18.3)	10 (25.0)
Bachelor Degree	9 (12.7)	5 (12.5)
Graduate Diploma	5 (7.0)	4 (10.0)
Postgraduate	4 (5.6)	0 (0.0)
Household Income (%)		
\$AUD0-\$6000	0 (0.0)	
\$AUD6001 - \$21,600	13 (17.3)	
\$AUD216 001 - \$63,000	27 (36.0)	
\$AUD63 001 - \$95,000	16 (21.33)	
More than \$AUD95,000	19 (25.3)	

Table 2

Descriptive Statistics Pertaining to Narrative Comprehension, Oral Narration and the Narrative Language Ability Index Scores

Measure	Mean	SD
Narrative Comprehension Standard Score	9.9	3.4
Oral Narration Standard Score	7.5	3.3
Narrative Language Ability Index Standard Score	92.3	17.4

Note. Narrative Comprehension and Oral Narration subtests have a mean of 10, SD of 3;

NLAI has a mean of 100, SD of 15

Table 3

Description of Narrative Language Ability Index Scores

Description ^a	Number (%)
Very superior	1 (1.2)
Superior	4 (4.8)
Above average	4 (4.8)
Average	39 (47%)
Below average	18 (21.7)
Poor	10 (12.0)
Very poor	7 (8.4)
Total	83 (100)

Note. ^a NLAI descriptions taken from the TNL examiner's Manual and represent NLAI stores of <130, 121-130, 111-120, 90-110, 80-89, 70-79, <70 respectively (Gillam & Pearson, 2004).

Table 4

Correlations between Narrative Language and Standardized Language Scores

	Core Language Score (CELF-4) ^a	
	No covariates	Controlling for Age & RCPM ^b Scores
Oral Narration	$r=.57, p<.005$	$r=.55, p<.005$
Narrative Comprehension	$r=.61, p<.005$	$r=.60, p<.005$
Narrative Language Ability Index	$r=.68, p<.005$	$r=.67, p<.005$

Note. ^a *Clinical Evaluation of Language Fundamentals-4 Core Language Score* (Semel et al., 2004)

^b *Ravens Coloured Progressive Matrices* (Raven et al., 1998)

Table 5

Correlations between Care Status and Narrative Language Outcomes

Care Status	Oral Narration Scores		Narrative Comprehension Scores		Narrative Language Ability Index Scores	
	No	Controlling:	No	Controlling:	No	Controlling:
	Covariates	Age and RCPM ^a Scores	Covariates	Age and RCPM ^a Scores	Covariates	Age and RCPM ^a Scores
Female carer education	.141	.088	.344 ^b	.332 ^b	.279 ^b	.264 ^b
Male Carer education	-.122	-.241	-.020	-.116	-.069	-.182
Household income	-.0.098	.038	-.124	-.133	-.133	-.142
Socioeconomic advantage and disadvantage for area	-.045	.063	.120	.119	.073	.066

Note. ^a *Ravens Coloured Progressive Matrices* (Raven et al., 1998)

^b Indicates statistical significance where $p < 0.05$

Appendix

Test of Narrative Language Subtests

Subtest		
Format	Narrative Comprehension	Oral Narration
No Picture	<i>McDonald's Story</i>	<i>McDonald's Retell</i>
	Examiner tells story with no picture cues; child answers questions	Child retells the McDonald's story
Five sequenced pictures	<i>Shipwreck Story</i>	<i>Late for School Story</i>
	Examiner tells story as child looks at five pictures sequencing the events in the story; child answers questions	Child tells a story that corresponds to five sequenced pictures illustrating events that cause a boy to arrive at school late
Single picture	<i>Dragon Story</i>	<i>Aliens Story</i>
	Examiner tells story as a child looks at single picture of a dragon guarding a treasure; child answers questions	Child tells a story to go with a picture depicting aliens landing on Earth

Note. (Gillam & Pearson, 2004)