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Oral language competence in incarcerated young offenders: Links with offending severity

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Abstract

Previous research in Australia and overseas has shown that young offenders serving community-based orders are at high-risk for undetected but clinically significant oral language difficulties. However, this phenomenon has received little attention in incarcerated samples, and links with offending severity, mental health, and other markers of early risk have not previously been systemically examined. A cross-sectional examination of 100 young offenders (mean age 19.03 years) completing custodial sentences in Victoria, Australia was conducted. A range of standardized oral language, IQ, mental health, and offending severity measures was employed. Forty-six per cent of participants were classified as language impaired (LI), and these were compared with the non-LI sub-group on background and offending variables. When the sub-group with high scores on a measure of offending severity was compared with those with (relatively) lower offending scores, significant differences on a range of language measures were identified. A range of early risk indicators (such as placement in Out of Home Care) was also examined with respect to language impairment in this high-risk group. Results are discussed with respect to policy and practice pertaining to early intervention for vulnerable children, and implications for service delivery within the justice system. In particular, emphasis is placed on the need to closely examine the oral language skills of children who struggle with the transition to literacy and then display behavioural difficulties in the classroom. Once a young person is engaged with youth justice services, a high index of suspicion should be maintained with respect to their oral language skills; for example, in relation to forensic interviewing and the ability to benefit from verbally mediated interventions.

Keywords: *Young offenders, oral language competence, developmental risks.*

Introduction

Serious young offenders are socially and economically expensive and challenging at every stage of their passage through the education and justice systems. They are often victims (of disadvantage and/or maltreatment) as well as being perpetrators of harm (O'Connor & Scott, 2006). Histories of maltreatment and social marginalization mean that they require complex multisystemic interventions, yet evidence indicates that the justice system frequently fails in its efforts to set these young people on a pathway away from antisocial behaviour upon release from a custodial sentence (Holland, Pointon, & Ross, 2007).

Given the intensive services and resources they require, young offenders represent a large burden on society, in financial, educational, welfare, and judicial terms, with much of this cost reflecting gaps in our understanding of pathways by which some high-risk young people disengage from, and in turn might be re-engaged with, the mainstream. Interpersonal competence is a basic pre-requisite for productive and prosocial lives away from the corrections system. Oral language competence is central to interpersonal behaviour but has only been considered in relation to this population in recent years. It was estimated in the UK in 2006 that a 16-year-old male with speech, language, and social deficits would cost the community an average of £200,000, assuming a custodial sentence can be averted; if not, in excess of a further £100,000 could be added to the bill (Hartshorne, 2006). Another UK-based analysis (Barrett, Byford, Chitsabesan, & Kenning, 2006) reported that an estimated £1000 million per year is spent on "processing and dealing with young offenders" (p. 541).

Research in Australia (Snow & Powell, 2004a; b; 2005; 2008) has contributed to a small but growing body of international research on the oral language skills of young offenders. These studies, together with work from the US (e.g., Blanton & Dagenais, 2007; Sanger, Creswell, Dworak, & Schultz, 2000; Sanger, Moore-Brown, Magnuson & Svoboda,

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2001) and the UK (Bryan, 2004; Bryan, Freer, & Furlong, 2007) show that, in addition to being socially and educationally marginalized, young offenders (particularly males) are at high risk of experiencing unrecognized oral language impairments, as evidenced by significantly compromised performance on standardized language measures when compared with controls of similar ages and demographic backgrounds. Snow and Powell (2008) found that over 50% of a sample of young offenders on community orders could be classified as language impaired, using measures of comprehension and verbal expression, particularly where these were sensitive to the processing and manipulation of abstract language. Snow and Powell also found that oral language skills and social skills were poorly correlated in the offender sample, in contrast to non-offending controls, in whom a significant positive correlation existed. This suggests that high-risk young people acquire and utilise both sets of skills in a haphazard manner during the developmental period. It is to be expected then that, with exposure to more complex interpersonal interactions, limitations in their communication repertoire will become more apparent, and incur greater social penalties.

Oral language competence also underpins the acquisition of literacy skills in the early school years, and subsequent academic achievement (Catts, Fey, & Tomblin, 2002). Reading achievement has been reported to be mediated by school performance more broadly (Brownlie, Beitchman, Escobar, Young, Atkinson, Johnson, et al., 2004), so it is unsurprising that in a recent study of a community sample of young offenders (Snow & Powell, 2008), 64% had left school before the end of year 8, and although 61.5% of the language-impaired young offenders reported having received some form of early intervention (e.g., Reading Recovery) this did not avert their early detachment from school. Instead, they departed the education system prematurely and without marketable employment skills—further exacerbating the risk of ongoing social marginalization.

Oral language deficits in boys have been closely linked with the development of externalizing behaviours, such as conduct difficulties and serious ongoing disorders of self-regulation (Beitchman, Douglas, Wilson, Johnson, Young, Atkinson, et al., 1999). While a number of cross-sectional studies have shown associations between language and behaviour problems in childhood (e.g., Cohen Davine, Horodezky, Lipsett, & Isaacson, 1993) longitudinal studies have pointed more clearly to the role of reduced oral language competence as a specific risk factor for adverse outcomes. Beitchman, Wilson Brownlie, Walters, Inglis, & Lancee, (1996), Beithchman et al. (1999), Beitchman, Wilson, Johnson, Atkinson, Young, Adlaf, et al. (2001), and Brownlie et al. (2004) reported that developmental language problems in boys predict engagement in anti-social activity by age 19. In their longitudinal cohort study of speech and language impaired children identified at age 5, Brownlie et al. found that at age 19 there was a direct effect of childhood language impairment on late adolescent delinquency, and this effect remained after control for verbal IQ. In considering the likely aetiological pathways at work, these workers argued that the role of language in social regulation, perspective taking, and mediating interpersonal exchanges with others may account for the adverse psychosocial outcomes in boys with developmental language problems. Recent Danish longitudinal evidence (Mouridsen & Hauschild, 2009) also suggests links between language impairment and some forms of serious interpersonal violence later on.

Two Australian longitudinal studies of large birth cohorts (Bor, McGee, & Fagan, 2004; Smart, Vassallo, Sanson, Richardson, Dussuyer, McKendry, et al., 2003) have reported that poor language ability in the early years increases the risk of anti-social behaviour at age 14. The authors of both studies have argued, therefore, that overcoming oral language deficits in the early years should be a focus of prevention and early intervention strategies aimed at reducing the prevalence of anti-social behaviour. In the absence of such targeted and strategic efforts (and arguably even in their presence), some high-risk young people will unfortunately "slip through the net" and commit crimes of sufficient gravity that a period of incarceration is deemed necessary. These young people were the focus of this study, as they are likely to remain on the margins of society across the lifespan unless intervention effectiveness can be enhanced.

The high cost of youth offending is compounded by the absence of effective treatments. Both researchers and clinicians have struggled to develop effective interventions for young offenders, particularly in the case of those who commit violent crimes and are high risk for re-offending. Recent Australian evidence (Holland et al., 2007) showed that some 60% of offenders aged 17–20 sentenced to custodial terms will return to prison within 2 years, compared to 5% of prisoners aged 50 and over. Recidivism in young offenders is strongly correlated with violent offending (Kenny & Press, 2006). Violence, in turn, is a form of dysfunctional interpersonal behaviour.

Language competence is central to interpersonal success, but, if compromised, can further stigmatize and marginalize the young person, e.g., in their interactions with the justice system, whether this be in the initial police interview, interviews with lawyers, or responding to questions in court (Snow & Powell, 2004b). Where linguistic competence is lacking, the young person is likely to revert to minimal responses such as "yep", "nup", "dunno", and "maybe". If these are accompanied (as is often the case) by poor eye contact and shrugs of the shoulders, it is likely that negative impressions will be formed about the young person's authenticity/level of respect for the

judicial process. Such negative judgements are likely to result in further social marginalization. Unrecognized oral language deficits may therefore compromise the young person's passage through the youth justice system, and their inadequate verbal responses may be mistaken for deliberate rudeness and wilful non-compliance when being interviewed by police or cross-examined in court—as suspects, victims, or witnesses.

Depression and anxiety are over-represented in the young offender population (Ryan & Redding, 2004), yet this group is likely to be further disadvantaged by the reduced efficacy of otherwise evidence-based interventions such as Cognitive Behaviour Therapy (CBT) for populations with compromised verbal skills (Sams, Collins, & Reynolds, 2006). Ryan and Redding also stressed the role of disruptive and aggressive behaviours as ways of expressing depression in high-risk boys. To date, however, associations between language impairment and mental health problems do not seem to have been explored in the young offender population.

Sadly, many young offenders reach youth justice via the child protection system, as has been shown in both Australian (e.g., Stewart, Livingston, & Dennison, 2008) and overseas studies (Courtney & Dworsky, 2006; Tweddle, 2007). This is significant (a) because it is known that children who are victims of maltreatment face a higher risk of language impairment (see Snow, 2009), and (b) because it means an early intervention opportunity has already been missed.

In a recent study on language skills in young offenders (Snow & Powell, 2008) important questions were unanswered about comorbidity between violent offending and oral language impairment in a community sample ($n = 50$) of young offenders. Violent offending (present in 13% of the sample) appeared to be evenly distributed across the language impaired and non-language impaired offender subgroups. It is possible, however, that the generally low prevalence of violent offending in young offenders on community-based orders made this association difficult to examine. The optimal way of testing this association, therefore, is to examine the nature and extent of oral language impairments in a *custodial* sample, in whom violent offending is more strongly represented.

The first aim of this study, therefore, was to describe the nature and extent of oral language impairment in an incarcerated sample of young male offenders. It was hypothesized that oral language deficits would be present in a higher proportion of incarcerated young male offenders than in a community sample (previously reported as a prevalence of 52%; Snow & Powell, 2008).

The second aim of the study was to explore the relationship between oral language competence and the nature and severity of the offending histories in an incarcerated sample of young male offenders. We also examined the extent to which mental health problems such as depression and anxiety might be over-represented in young offenders with language impairments. Finally, we wished to explore the role of other developmental threats, in particular the experience of having been placed in out-of-home-care (OHC) placement, with respect to oral language impairment and violent offending as outcome variables. The study was approved by the Monash University Human Research Ethics Committee and also by the Victorian Department of Human Services Research Committee.

Method

Participants

A cross-sectional consecutive sample of 100 young male offenders aged 17–21 years completing custodial sentences at a youth detention centre in Victoria, Australia was studied. In Victoria, government policy seeks to divert lower risk young people from entering the criminal justice system, and does this in part through provision of a ''dual track'' system, which allows some 17–20 year olds to receive a custodial sentence in a youth detention centre instead of an adult prison, if the court believes the young person ''has reasonable prospects for rehabilitation, or is particularly impressionable, immature, or likely to be subjected to undesirable influences in an adult prison'' (Department of Human Services–Children, Youth and Families). Because of its diversionary focus, Victoria's incarcerated young offenders are generally considered to have a higher likelihood of re-offending than those in other jurisdictions (Department of Human Services, Victoria, 2001).Victorian Police data indicates that in 2008–2009, 66% of young offenders were apprehended in relation to property crime, compared with 46% of adult offenders (Richards, 2011).

In previous research, young people with a known history of traumatic brain injury, hearing impairment, or psychiatric illness with psychotic features (e.g., schizophrenia, bipolar affective disorder) have typically been excluded from studies such as this. As noted elsewhere, however (Snow & Powell, 2008), these exclusions almost certainly result in an *under*-estimation of the true prevalence of language impairment in the youth offender population. In this study, therefore, we noted, but did not exclude participants whose histories were positive for these. Participants were only included if they had completed their schooling in an English-speaking country.

Measures

The following language measures were administered: Three sub-tests of the *Test of Language Competence–Expanded edition* (Wiig & Secord, 1989):

- *Sub-test 1* (Ambiguous Sentences) requires the interpretation of sentences with lexical, surface structural, and underlying structural ambiguities, for which two alternative meanings are identified and explained by the participant, e.g., ''John was looking up the street''—he was either standing on the footpath looking up the street, or he was looking up the street in a map.
- *Sub-test 2* (Listening Comprehension: Making Inferences) requires the drawing of inferences based on incomplete information which is presented as an event chain, by choosing two plausible story outcomes from four choices.
- *Sub-test 4* (Figurative Language) requires the participant to interpret metaphoric expressions, by selecting an alternative from a choice of four options, e.g., recognizing that ''There is rough sailing ahead of us'' has a non-literal meaning concerning difficult times. In each of these sub-tests, the participant both heard and saw the printed stimuli, which were placed in clear view and read aloud by the examiner.

The Core Language Score was derived from four sub-tests of the *Clinical Evaluation of Language Fundamentals, 4th edition* (CELF4; Australian standardization; Semel, Wiig, & Secord, 2003). The Core Language Score is derived from the following scales: Recalling Sentences, Formulated Sentences, Word Classes (Receptive and Expressive), and Word Definitions. The CELF4 provides detailed, norm-referenced data, and is widely used in Australia and overseas, in both clinical and research circles, as the accepted measure to determine the presence of a clinical language disorder and entitlement to specialist services (e.g., speech-language pathology; SLP services in schools).

Both the CELF4 and TLC-E were included in this study because they assess different aspects of language competence. Where the CELF4 is concerned with ''structural'' aspects of language (e.g., word definitions), the TLC-E looks at the ability to use and understand figurative language such as metaphor, and the ability to recognize more than one possible meaning in an utterance. Oral language competence in everyday life draws on the ability to operate at both the structural and metalinguistic levels (Nippold, 2007).

The *Depression, Anxiety and Stress Scale* (DASS, Lovibond & Lovibond, 1995) was used to detect high-prevalence mental health problems and quantify these as possible comorbidities with language impairments. This tool provides separate scores for depression, anxiety, and stress, which the individual rates on a series of 4-point ordinal scales. Scores on each parameter are considered to reflect no abnormality, or mild, moderate, severe, or very severe dysfunction. The DASS has been shown to have robust psychometric properties (e.g., Antony, Bieling, Cox, Enns, & Swinson, 1998). Self-report data was collected about history of diagnosis of Attention Deficit Hyperactivity Disorder (ADHD), traumatic brain injury resulting in loss of consciousness, diagnosis of psychiatric illness with psychotic features, and hearing impairment. Self-report data was also collected about participants' past involvement with Child Protection authorities (and, in particular, their placement in Out of Home Care), and also about receipt of intervention services in the early school years, e.g., speech-language pathology, Reading Recovery,[1] and/or other specific assistance.

The Matrices sub-test of the *Kaufman Brief Intelligence Test*, 2nd edition (Kaufman & Kaufman, 2004) was employed as a measure of non-verbal intelligence, so that language profiles could be examined against an estimate of IQ. This test is designed to measure fluid intelligence, i.e., the ability to problem-solve through the perception of non-verbal relationships, and by completing non-verbal analogies.

The *Cormier-Lang Crime Index* (CLCI; Quinsey, Harris, Rice, & Cormier, 1998) was used to quantify offending behaviour, based on detailed scrutiny of departmental files. The CLCI takes into account both the number and severity of offences in the conviction history, and yields three continuous scores, one each for violent and non-violent offending, and a total score. Convictions, rather than charges, were used as the variable of interest, as these were considered to have been substantiated in a court of law. Note was also made of the circumstances of the conviction that resulted in the current period of incarceration, and this was classified as property only, or involving interpersonal violence.

Procedures

With their key workers acting as intermediaries for the purposes of informed consent, participants were recruited sequentially in the intake unit of the detention centre. Assessments were all completed by the same research assistant, in a single session. No participant was assessed if, on clinical grounds, they appeared to be distressed or substance-affected. Four young people who were approached by their Key Workers declined the invitation to participate, and none were excluded because of concerns about their current mental state. Scoring accuracy was double-checked by the first author on the first 25 cases, to ensure adherence with the manual guidelines.

Results

Descriptive statistics pertaining to demographic, language, and mental health measures are displayed in Table I.

Because scores on the CLCI scales were highly skewed, medians rather than means were used as a basis for analysis. The medians and inter-quartile ranges for the group as a whole are displayed in Table II. Examination of the convictions that

Table I. Characterizing the sample as a whole: Descriptive statistics on demographic and test measures.

Variable	Mean	SD
Age (years)	19.03	.85
Years of formal education	9.8	1.7
K-BIT2 Matrices Sub-test Standardized Score	86.0	16.4
TLC-E Sub-test 1: Ambiguous Sentences Standardized Score	4.6	2.3
TLC-E Sub-test 2: Listening Comprehension Standardized Score	5.1	2.5
TLC-E Sub-test 4: Figurative Language Standardized Score	5.2	2.7
CELF4: Recalling Sentences	5.2	3.2
CELF4: Formulating Sentences	5.2	3.5
CELF4: Word Classes (Rec)	5.7	3.2
CELF4: Word Definitions	6.1	4.0
CELF4: Core Language	71.4	19.5
DASS: Depression Score	9.9	9.2
DASS: Anxiety Score	7.8	6.2
DASS: Stress Score	15.1	8.7

K-BIT2, Kaufman Brief Intelligence Test (2nd edition); TLC-E, Test of Language Competence–Expanded; CELF4, Clinical Evaluation of Language Fundamentals (4th edition); DASS, Depression, Anxiety and Stress Scale.

Table II. Cormier Lang Crime Index (violent and non-violent offending, and total) scores: Descriptive statistics for the sample ($n = 100$) as a whole.

	Median	Inter-quartile range
Violent offences	8.5	3–45
Non-violent offences	12.5	5–19.5
Total	27.5	12–66.5

resulted in the current period of incarceration showed that a large majority ($n = 87$) had committed offences that involved some interpersonal violence (e.g., assault).

Fifty participants were identified as language impaired (LI) on the CELF4 (as defined by a standard score below 2 SD below the mean), and 59 on at least two sub-tests of the TLC-E (using the same cut-off). A score below this on *either* (two of the three) TLC-E sub-tests *and* on the CELF4 Core Language Score was the operational definition of LI. Forty-six participants overall were identified as LI using this definition.

The LI sub-group mean standard score on the K-BIT Matrices (80.4, SD = 16.7) was significantly lower than that of the non-LI sub-group (M = 90.8, SD = 14.5; t = −3.3, p = .001). There was a modest and statistically significant positive correlation between CELF4 Core Language standard scores and KBIT Matrices scores for the group as a whole (r = .39, p = .000), however this association was not present in the 46 participants who were identified as LI (r = .053, p = .73). The LI sub-group did not differ significantly from the non-LI sub-group with respect to any DASS scores.

While the non-LI sub-group had completed a mean of 10.1 years of formal education (SD = 1.7), those in the LI sub-group completed 9.6 years (SD = 1.6) and this difference approached significance (t = −1.5, p = .06; d = .39). Of the 46 identified as LI, 22 (48%) indicated that they had received some form of early intervention (e.g., Reading Recovery), as against 12 (28%) of those who were identified as non-LI. Six people self-reported a history of traumatic brain injury, of whom one was in the LI sub-group. Four reported a history of hearing impairment, two of whom overlapped with the self-reported TBI group. All four were classified as non-LI. Three people reported having been diagnosed with a psychotic illness in the past, and one of these was identified as LI. Thirty-three participants said they had been diagnosed with ADHD, and 20 of these (61%) were identified as LI.

Of the total sample of 100, 29 reported that they had undergone a period of Out of Home Care Placement (OHCP) during their childhood, and of this sub-group 16 (62%) were identified as LI. Exactly 50% ($n = 23$) of the LI sub-group reported having undertaken some form of vocational training since leaving school, compared to 68% of their non-LI counterparts. No participants in either sub-group identified as being of Aboriginal or Torres Strait Islander (ATSI) background.[2]

The relationship between language impairment and patterns of offending

In order to determine whether those with higher offending scores differed from those with lower offending scores with respect to language competence, participants were classified according to a median split across scores on CLCI scales 1 and 2 (violent and non-violent offending, respectively). Just over a quarter of the group ($n = 26$) had scores in the upper 50% on *both* CLCI scales (''CLCI High''), and this sub-group was compared with the remainder of the sample ($n = 74$) whose scores were not in the upper 50% on both CLCI scales (''CLCI Not High'').[3] The two sub-groups differed significantly with respect to years of education (M = 9.1, SD = 1.5 in the CLCI High sub-group; M = 10.2, SD = 1.7 in the CLCI Not High sub-group; t = 2.8, p = .00; d = .68). However, there was no difference between the sub-groups with respect to K-BIT2 Matrices scores (M = 83.9, SD = 17.0 in the CLCI High sub-group; M = 86.8, SD = 16.2 in the CLCI Not High sub-group; t = .76, p = .45; d = .07).

Table III displays the descriptive and inferential statistics pertaining to the performance of the two offending sub-groups on the language measures. As can be seen, the high-offending sub-group scored more poorly on all language measures, with statistically significant differences occurring on Sub-test 4 of the TLC-E (Figurative Language) and a number of CELF4 sub-tests (Formulating Sentences, Word

Classes–Receptive) and the CELF4 Core Language Score, with effect sizes (Cohen's d) on the significant differences all in the medium to large range. The difference on CELF4 Word Definitions closely approached statistical significance. Inspection of the seven cases of *extremely high scores* ($>75^{th}$ percentile) on both the CLCI violent and non-violent offending scales showed that five were in the LI sub-group.

Table IV displays the medians and 75^{th} percentiles on the CLCI Violent and Non-Violent offending Scales for the LI and non-LI sub-groups. In both sub-groups, non-violent scores were higher than violence scores, and the medians on both CLCI scales were higher in the LI sub-group than in their non-LI counterparts. In order to determine whether these differences in offending profiles between the two language sub-groups were statistically significant, Mann-Whitney U-tests were carried out, and results are displayed in Table IV.

While the comparison between LI and non-LI offenders on the non-violence scale approached significance, the difference on violent offending was not significant.

Figures 1 and 2 display box-plots of CLCI violent and non-violent offending scores as a function of the LI sub-group. As may be seen in these figures, there was considerably more heterogeneity on both offending sub-scales within the LI sub-group, with more LI than non-LI participants achieving offending scores well above the sub-group median.

The boxes in these figures represent the median, while their lower borders represent the 25^{th} percentile and the upper borders the 75^{th} percentile. The "whiskers" represent outlying values, and extreme outliers are identified by case number.

Discussion

This study explored the prevalence of language impairment in a sample of incarcerated young offenders, and also examined associations with offending type and severity, mental health, and early risk markers such as placement in OHC. Findings lend further support to the growing international evidence that young people from high-risk backgrounds who enter the youth justice system are highly likely to have an unidentified language impairment, as measured by standardized language measures. While we did not confirm the hypothesis that LI would be more prevalent in a custodial sample than in a community sample of young offenders, nearly half (46%) of the sample was identified as language impaired on standardized measures, using what might be regarded as a conservative operational definition.

Table III. Cormier Lang Crime Index (CLCI) sub-groups: Descriptive and inferential statistics on language measures. Cohen's d is included as a measure of effect-size.

	High offending scores on CLCI scales 1&2 ($n=26$)		*Not* high offending scores on CLCI scales 1&2 ($n=74$)				
Measure	Mean	SD	Mean	SD	t	p*	d
TLC-E Sub-test 1: Ambiguous Sentences Standardized Score	4.2	1.9	4.8	2.5	1.1	.14	.27
TLC-E Sub-test 2: Listening Comprehension Standardized Score	4.9	2.6	5.2	2.5	.48	.31	.12
TLC-E Sub-test 4: Figurative Language Standardized Score	4.2	2.1	5.6	2.8	2.3	.01	.56
CELF4: Recalling Sentences	4.7	2.9	5.4	3.2	.97	.16	.23
CELF4: Formulating Sentences	3.8	3.3	5.6	3.4	2.3	.012	.53
CELF4: Word Classes (Receptive)	4.0	2.6	6.3	3.1	3.3	.00	.80
CELF4: Word Definitions	5.0	3.8	6.5	4.0	1.5	.055	.38
CELF4: Core Language Score	63.7	19.9	74.1	19.1	2.4	.01	.53

*p-values one-tailed.

TLC-E, Test of Language Competence–Expanded; CELF4, Clinical Evaluation of Language Fundamentals (4^{th} edition); DASS, Depression, Anxiety and Stress Scale.

Table IV. Medians and 75^{th} percentiles on Cormier Lang Crime Index (CLCI) violent and non-violent offending scales × language impairment sub-groups.

	Language impaired ($n=46$)		Non-language impaired ($n=54$)			
	Median	75^{th} percentile	Median	75^{th} percentile	U	p*
CLCI non-violent offending score	15.5	53.0	10.0	35.5	999.0	.06
CLCI violent offending score	9.0	16.5	7.0	21.25	1147.5	.25

*p-values one-tailed.

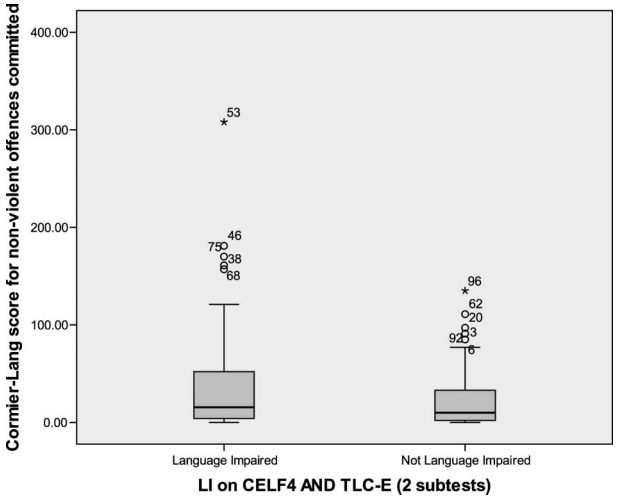

Figure 1. Box-plots displaying Cormier Lang Crime Index non-violent offending scores as a function of language impairment sub-group based on scores on the *Clinical Evaluation of Language Fundamentals* (4th edition) (CELF4) and the *Test of Language Competence–Expanded* (TLC-E).

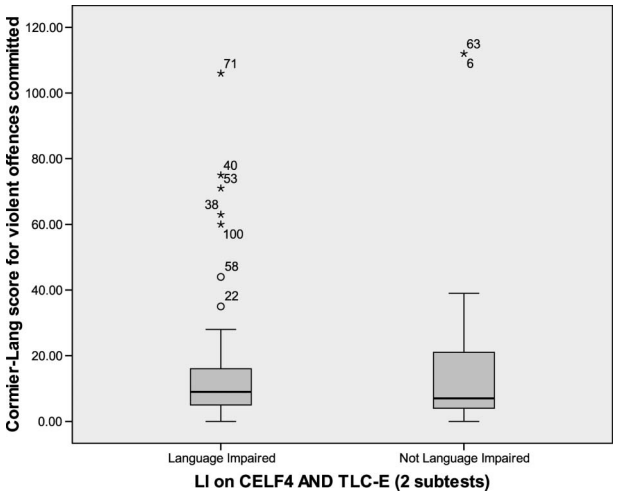

Figure 2. Box-plots displaying Cormier Lang Crime Index violent offending scores as a function of language impairment sub-group based on scores on the *Clinical Evaluation of Language Fundamentals* (4th edition) (CELF4) and the *Test of Language Competence–Expanded* (TLC-E).

When language competence was examined as a function of offending severity, it was evident that those young people who had higher offending scores across both violent and non-violent dimensions performed more poorly on language measures than their counterparts with relatively lower offending scores. Notwithstanding the fact that this is a skewed sample of young offenders, this aggregation of language impairment with higher offending scores is a matter of concern for educators, policy-makers, and justice administrators. We also found that young offenders who had very high scores ($>75^{th}$ percentile) on measures of violent criminality were likely to have a language impairment.

Some findings about the relationship between IQ and language skills in this sample are noteworthy. First, the lower mean non-verbal IQ in the LI sub-group, while perhaps not surprising, is a finding that differs from a previous examination of a community-based sample of young offenders (Snow & Powell, 2008). Second, while a correlation was found between non-verbal IQ and language performance for the *group as a whole*, this association was not evident in the nearly one in two participants who were identified as LI. It may be that when poorer cognitive function and language decrements co-exist in high-risk young people, this elevates their risk of engagement in higher-end anti-social activities, and reduces their exposure to pro-social values and behaviours. Decrements in language/communication skills in the early years of ''at-risk'' males, coupled with the emergence of anti-social activity of sufficient gravity to warrant youth justice engagement in the adolescent years is a highly concerning public health challenge. Educators and policy makers are encouraged to note that low language and cognitive function, when coupled with other psychosocial risks, bodes poorly for school attachment and the attainment of skills that are fundamental to employment. While it is pleasing to see population-based interventions targeting early language skills being developed and evaluated; for example, the *Pathways to Prevention* project in a disadvantaged region of Australia (Homel, Freiberg, Lamb, Leech, Batchelor, Carr, et al., 2006), it is disappointing that in the main, the expertise behind such programs does not include SLP.

Early language difficulties have been identified as a common comorbidity with behaviour and/or reading difficulties in the early school years (Tomblin, Zhang, & Buckwalter, 2000). The current study had a particular focus on *oral* language skills, not directly measuring literacy skills. It is notable, however, that this group left school early (on average after only 9.8 years of formal schooling), and the LI sub-group showed a trend towards completing fewer years of formal schooling than their non-LI peers. Further, half of those in the LI sub-group reported having received targetted intervention services such as Reading Recovery or SLP in the early school years. Sadly, however, such interventions would appear to have done little to alter the life-trajectories of these young men. Literacy programs do not resolve oral language deficits. More vigorous and wide-ranging attention to oral language competence is needed when boys display both behaviour and learning difficulties in the early school years.

No attempt has been made in this study to determine the underlying basis of the language impairment identified in the young offender sample. While it is possible that some may meet diagnostic criteria for Specific Language Impairment (SLI), it is more likely that the patterns of decrement evident in this group are of a generalized and *non*-specific nature—reflecting perhaps early disruptions in attachment, low parent–child attunement, and other

socio-environmental factors that militate against the development of robust oral language skills (Beeghley & Cicchetti, 1994; Clegg 2006; Cohen, 2001; Snow, 2009). Beeghley and Cicchetti reported that maltreated toddlers had fewer emotion words in their lexicons, and were poorer than non-maltreated controls at verbally describing their own emotional state. This early association between verbal competence and emotional modulation underlines the role of language competence not simply as a tool of information transfer, but also as an important mechanism in regulating affective state. This is nowhere more important than in our interactions with others, particularly when social cues may be ambiguous and/or hostile.

While 29 participants in this sample reported some history of OHC placement, it is possible that there was some under-reporting on this due to perceived stigma. It is also possible that mere involvement with child protection services, irrespective of whether removal is deemed necessary (not directly assessed in this study), is an adequate means of differentiating those at higher psychosocial risk with respect to language development in the early years. It was notable, however, that of the 29 who reported OHC placement, over half were identified as LI. A recent Australian study (Nathanson & Tzioumi, 2007) showed that children in OHC are among the most vulnerable and disadvantaged in the community, and the second most frequently indicated referral in their sample was to speech-language pathology. The shared risk factors for maltreatment and offending mean that without systematic intervention early in the lives of vulnerable children, the natural trajectory for many is going to be towards social marginalization. Ignoring such children, or imposing unrealistically stringent service eligibility criteria simply further erodes their educational opportunities and imposes significant barriers to workforce participation. This is particularly so in a labour market that increasingly favours skilled, rather than unskilled workers, such as that which exists in Australia. In 2005, an Australian Bureau of Statistics *Australian Social Trends* paper reported that in Organization for Economic Co-operation and Development (OECD) countries, male labour force participants aged 25–64 years with educational qualifications below upper secondary education are $\sim$1.5-times as likely to be unemployed as those who have completed upper secondary education. Young people with a history of offending are already over-represented in such statistics, but virtually nothing is known of the contribution that unidentified LI makes to this longer-term picture. This is a question that should be pursued in future studies.

Together with implications for early intervention, findings from this research will also be relevant to program delivery for identified high-risk youth. Restorative Justice Conferencing, for example, is a conversational process that is increasingly offered through the courts as an alternative to traditional adversarial justice administration, but may be excessively taxing on the limited language processing and production skills of high-risk young males and may, therefore, require some re-conceptualization (see Snow & Sanger, 2010). While mental health problems did not emerge as a significant concern in this sample, this may reflect selection bias and/or inadequate sensitivity of the measure employed. Further research will be required to examine this possible association further, as widely endorsed counselling approaches such as Cognitive Behaviour Therapy are highly verbally mediated.

Some limitations of this study need to be borne in mind when considering the findings. This study was cross-sectional, so no causal or temporal inferences can be drawn about the role that a developmental history of language impairment plays in later engagement in crime. In all probability, both outcomes share many common antecedents, although much more research is needed to understand why some at-risk young people commit serious crimes, and others do not. It is possible that those with developmental difficulties with respect to language and cognition may simply be less skilled at evading detection or providing plausible verbal explanations for their actions when initially intercepted by police.

Our loosening of the inclusion criteria (i.e., to retain participants with a history of TBI, hearing impairment, etc.) did not appear to significantly influence the proportion of participants identified as LI, although this should be investigated further in future studies, given that such comorbidities are likely to be more prevalent in the custodial setting. Reliance on self-report/recall regarding early developmental histories is always imperfect (because of memory and/or reluctance to disclose issues), however it is not feasible to access accurate retrospective records for a state-wide sample such as the one described here. The fact that we used only three of the four sub-tests of the TLC-E may also have reduced the sensitivity of our data.

Examination of oral language competence in an incarcerated sample of young offenders has been an important step in more fully characterizing the young offender population, and underlines the urgent need for more targeted and sustained early intervention for boys who are identified as having learning and behaviour difficulties early in their school careers. This knowledge should also assist with refining existing intervention approaches that may be under-performing with young offenders because oral language competence has been inadequately taken into account. Intervening early in the developmental trajectory is far more likely to be successful than attempts to alter the life-course of a 20 year-old who has already been incarcerated, and has few pro-social assets on which to draw when it is time to re-enter the community.

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Notes

1) Reading Recovery is a school-based intervention aimed at those children whose reading skills at the end of the first year of school place them at the lowest level of performance in their class. It is delivered via 1:130-minute interventions and focuses on core skills such as letter identification, word knowledge, and phonemic awareness. It is used in all Australian states and territories as well as in countries such as New Zealand, Canada, the UK, and the US.
2) Young people from ATSI backgrounds are over-represented in youth justice settings in Australia (Australian Institute of Health & Welfare, 2010), although this is less evident in Victoria (where this study was conducted) due to the uneven geographical representation of people from ATSI backgrounds in Australia.
3) The term "not high" is used in preference to "low", because it is being used in a relative, rather than an absolute sense within a skewed sample.

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