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Child maltreatment, mental health and oral language competence: Inviting speech-language pathology to the prevention table*

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Abstract
Child maltreatment (neglect and abuse of various forms) is a serious global issue. Although Australia and New Zealand are both affluent, first world countries, child protection statistics indicate that much ground is yet to be covered with respect to ensuring that children are reared in environments that are safe and developmentally nourishing. Both neglect and abuse are associated with serious, pervasive and long-term sequelae for a range of neuropsychological functions, including expressive and receptive language abilities. In spite of its considerable body of knowledge regarding the nature and sequence of language development from infancy through to adulthood and across the lifespan, speech-language pathology (SLP) as a profession has failed to position itself as an agent of *prevention* where child safety is concerned. Language competence is acquired in the relational milieu of early infant-caregiver attachment, and cannot be separated out from mental health across the lifespan. Most significant mental health problems have their onset early in life, as do developmental language problems. Positioning SLP at the prevention table will require graduates of SLP programs to speak and understand the discourse of public health policy-making, advocacy, and resource-allocation, so that graduates can occupy positions of influence in government. At the current time, however, most undergraduate programs emphasize SLP as a 1:1 service-delivery profession, at the expense of important roles this profession could play in relation to prevention of language and mental health problems at a population level.

Keywords: *Child maltreatment, language and mental health.*

Introduction

The Scottish poet Robert Burns (1759–1796) was seated in church one Sunday in 1786, when he spotted a louse on the feathers of a hat worn by a lady sitting in front of him. This led Burns to reflect on that awkward gulf between how we see ourselves, and how we are actually seen by others. Naturally this reflection was made via his preferred medium of poetry, and he penned the following in a poem he entitled *To a Louse.*

> Oh wad some power the giftie gie us
> To see oursel's as others see us!
> It wad frae monie a blunder free us,
> And foolish notion (Burns, 1786)

These words are obviously concerned with the ways in which we, as individuals or groups are perceived by others, and touch on the uncomfortable reality that what we *think* we are projecting, and what others are actually perceiving, can be two quite different things. So—what does this quote have to do with speech-language pathology (SLP)? In my professional journeying away from SLP in the last decade, I have had a number of opportunities to reflect on both the unique knowledge and skill-base possessed by SLP and the way in which it is perceived by others. One such reflection that set me thinking was an observation by Fran Baum, Professor of Public Health at Flinders University in South Australia, that

> Victim blaming approaches to health-promotion sit well with health professionals whose main training, skills and techniques are based on individualistic perspectives such as psychologists, doctors, speech pathologists and physiotherapists. (1998, p. 76)

This quote struck me for a few reasons. First, I was surprised to see *any* reference to SLP in a public health textbook, given (as Baum notes), the

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profession's emphasis on 1:1 service delivery, and the fact that during my 4-year undergraduate training, I was certainly not equipped to understand, let alone speak, the language of public health discourse. However I also reacted with a peculiar combination of defensiveness and reluctant agreement. Defensive because I knew that the depth and breadth of knowledge, theoretical and clinical, that SLP has made its own, is poorly understood by others, and reluctant agreement because of my frustration that SLP graduates are not typically equipped with a grasp of public health principles nor are they fluent in policy-speak—the language of influence at government levels. I must add that I do not see a particular association between SLP as a profession and victim blaming, however I concur with Baum's general point, that such perspectives are fostered in contexts in which larger frameworks, such as the social determinants of health model, are not considered.

In this paper, I will examine child maltreatment, and the role of oral language competence as a mental health protective factor in the developmental years, and indeed across the whole lifespan. I will argue in particular that SLP as a profession has much to offer the public health discourse on children's physical and emotional safety, however may be unwittingly excluding itself from the debate on these important issues through an over-emphasis on 1:1 service delivery in undergraduate training programs. A quick check of the websites of undergraduate SLP programs in various Australian states and in New Zealand yielded the following excerpts from descriptions of what a SLP does:

- The prime concern of the SLP is to establish the best level of communication possible for that *particular client*.
- Graduates will bring knowledge and skills regarding normal communication and communication breakdown, identification and referral for full assessment and program development for *individuals with communication problems.*
- SLPs evaluate, give therapy and carry out research *on clients*.
- SLPs are involved in the assessment and diagnosis of communication and feeding difficulties in *adults and children*. They are also involved with treatment and/or long term management of these difficulties.
- As a SLP you will *work with those affected* to reduce the impact of communication difficulties on their lives.
- You can ... improve the quality of life for *individuals* with communication disorders.

As can be seen from the italics, the emphasis in these programs is fairly and squarely on treating individuals. While this is a legitimate part of the core business of SLP, a central thesis of this paper is that it is also important that graduates are equipped to speak and understand the language of policy-making, prevention, advocacy, and resource allocation. It is difficult to imagine a realm where this is of more importance that in the optimal development of children's mental and physical health from infancy, through early childhood, the school years, adolescence and into early adulthood. Why do SLPs study normal development in such detail if not to be able to promote it for those who are the most vulnerable? Surely the study of normal development is not simply the reference point against which deviations from normal can be examined on an individual basis?

Australia and New Zealand are, by global standards, affluent first world nations. Yet in both countries, significant numbers of children are raised in environments that are harmful (by virtue of neglect and/or abuse of various forms) and interfere, often permanently, with the biological, psychological, social, and educational development of the child. That such outcomes occur in Organisation for Economic Cooperation and Development (OECD) countries with generally high standards of living is a matter that should not escape the attention and scrutiny of SLP as a profession.

Definitions

The World Health Organization (WHO, n.d.) offers this definition of child maltreatment:

> Child maltreatment, sometimes referred to as child abuse and neglect, includes all forms of physical and emotional ill-treatment, sexual abuse, neglect, and exploitation that results in actual or potential harm to the child's health, development or dignity. Within this broad definition, five subtypes can be distinguished – physical abuse; sexual abuse; neglect and negligent treatment; emotional abuse; and exploitation (http://www.who.int/topics/child_abuse/en/)

Abuse of children may mean physical violence (e.g., hitting, pushing, shaking, deliberate burning), sexual violation of the child, or verbal aggression (e.g., shouting, taunting, berating); these can all also be considered forms of emotional abuse, as they arouse fear, distress, guilt, and anxiety on the part of the child. *Neglect* can also refer to different domains of the child's life—(e.g., physical needs such as shelter, food and water, warmth and clothing), socio-emotional needs, such as the reassurance and soothing that comes from the presence of secure and predictable attachment figures, and developmental needs, such as the provision of developmentally appropriate toys and books that stimulate sensori-motor and cognitive and linguistic development via exploration of and interaction with the world.

In some respects, abuse is easier to define because it tends to be ''incident-based'', especially its physical and sexual forms. However, the terms used

in the literature do not lend themselves to discrete definitions—how do we separate, for example, verbal from emotional abuse? If the adult who is verbally abusing a child is also the principle caregiver, the child must somehow resolve the cognitive and emotional dissonance associated with powerful but mixed (and usually unpredictable) messages coming from the same key adult. Caffo, Strik Levers and Forresi (2006) note that emotional abuse is a topic of active debate amongst child abuse experts, and there are currently six forms of psychological maltreatment under consideration: (i) spurning, (ii) terrorizing, (iii) exploiting/corrupting, (iv) denying emotional responsiveness, (v) isolating, and (vi) mental health, medical, and educational neglect.

Further, we need to consider that some forms of abuse to which children are exposed are vicarious—e.g., children being witness to verbal and physical aggression between their parents in the domestic setting, and children observing the physical punishment of siblings and/or cruelty to family pets. Exposure during childhood to vicarious violence within the family is a common comorbidity with direct maltreatment (Osofsky, 2003) and has been shown to lead to hyper-vigilance, anxiety, and inadequate problem solving in relation to interpersonal conflict (see Jaffe, Baker, & Cunningham, 2004, for review). These consequences will be considered further below in relation to the neurobiological framework for understanding child abuse and neglect that has been proposed by Perry (2006).

Increasingly, we also need to consider the effects of exposure to pornography on children. The advent of the Internet has made all forms of pornography, legal and illegal, more readily available. In particular, the last decade has seen a rapid and global explosion in the creation and dissemination of pornography involving children via the Internet. Children may be victims of this in a number of ways (e.g., as forced participants in sexual acts or as unwitting ''consumers'' of the material) because adults in the household are downloading it on computers to which children have access. This has serious implications for children's psychosexual development and their sensitization to cruelty, violence and other forms of depraved behaviour (Carr, 2003). The advent of computer technology has also seen a huge proliferation in the production and availability of violent videogames. Evidence links the use of these games by boys to increased aggression, lower empathy and reduced helping behaviour, and desensitization to violence (Anderson, 2003; Swing & Anderson, 2007; Unsworth, Devilly, & Ward, 2007). Further, these effects may be more marked in boys who are less well educated (Lemmens & Bushman, 2006). In a meta-analysis conducted in 2003, Anderson concluded that experimental studies show that the link between exposure to violent videogames and aggression is causal, not merely correlational.

Neglect tends to be more pervasive and systemic and is usually present from very early on in the child's life. The effects of neglect are cumulative over time (Appleyard, Egeland, van Dulmen, & Sroufe, 2005). Physical neglect damages the healthy growth and development of children and may make them more vulnerable to disease and ill-health (Royal Australasian College of Physicians, 2006). In order to tailor intervention efforts, it is important to differentiate between mothers, (the usual primary caregiver), who are emotionally unavailable (e.g., as in the case of postnatal depression) and those who are more widely ''neglectful'' of all their children's needs. Emotionally unavailable mothers typically meet their child's physical needs, but are unable to engage with the infant at an emotional level in a way that fosters secure, well-organized attachment as a basis for language and cognitive development. Such children are found in later childhood and adolescence to be at higher risk for a range of developmental difficulties, and these difficulties may be more marked for boys than girls (e.g., Hay et al., 2001; Sharp et al., 1995). Mental health problems such as depression, anxiety, low self-esteem and poor coping in the face of adversity have also been demonstrated in children born to mothers suffering postnatal depression (e.g., O'Connor, Heron, Golding & Glover et al., 2003).

For the purposes of this paper, abuse and neglect will be considered together under the general rubric *child maltreatment.* The consequences of child maltreatment are pervasive and long-reaching. They include:

- Poor physical health: cardiovascular disease, asthma, gastrointestinal disorders, accidental injury, lifestyle-related illnesses (see Caffo et al., 2006; Royal Australasian College of Physicians, 2006).
- Poor mental health: anxiety, depression, personality disorders, relationship and adjustment disorders, self-harm/suicide, eating disorders, substance abuse, behaviour disturbances/antisocial behaviour (see Caffo et al., 2006; Royal Australasian College of Physicians, 2006; Terr, 2003).
- Poor educational/occupational achievement (see Caffo et al., 2006).
- Involvement with criminal justice systems (Stewart, Livingston, & Dennison, 2008).

It should also be noted that maltreatment histories are common in adult psychiatric populations but are frequently overlooked or not asked about (Arnow, 2004). Borderline Personality Disorder, for example, is strongly linked with a history of child maltreatment (Johnson, Cohen, Brown, Smailes, & Bernstein, 1999); other higher prevalence problems such as anxiety and depression are also over-represented in adults who were maltreated as children (e.g., Heim, 2001).

Australian statistics

Box 1 contains some summary statistics pertaining to child maltreatment in Australia.

It must be stressed that these figures pertain to *reports* of maltreatment as it is impossible to establish the true extent of child maltreatment in the community. It has been estimated however, that for every child death in Australia, there are 150 cases of *substantiated* physical abuse (UNICEF, 2003). Not all types of child maltreatment are incident-based however (e.g., pervasive emotional abuse and/or neglect), thus this figure is likely to be a modest under-estimate of the real magnitude of the problem. In 2002–2003, maltreatment was substantiated or confirmed by statutory child protection services for 4334 indigenous children (0–16 years of age) across the nation, representing a seven-fold risk above that faced by non-indigenous children.

A recent Australian study (Nathanson & Tzioumi, 2007) showed that children in out-of-home care are among the most vulnerable and disadvantaged in the community. Interestingly, the second most frequently indicated referral in this sample was to speech-language pathology. On the basis of data reported by Nathanson and Tzioumi, this equates to over 3000 children in New South Wales alone who require referral for SLP assessment, and says nothing of the thousands of children whose circumstances have either not been brought to the attention of authorities, or for whom out-of-home care has not been assessed as necessary. The Royal Australian College of Paediatrics recommended in 2006 that comprehensive health screening of children in out-of-home care should occur within 30 days, however this remains simply a recommendation, and referral tends to occur on an *ad hoc* basis.

Australian community attitudes to child abuse were examined by Tucci and co-workers in a national survey reported in 2004 (Tucci, Mitchell, & Goddard, 2006). Disturbingly, they found that Australians view child abuse as less concerning than rising petrol costs and problems with public transport and roads. Nearly one-third of respondents (31%) said they would not believe a child's stories about being abused, and 25% did not know they could make an anonymous report about suspected abuse to Child Protection authorities.

Box 1. Australian statistics pertaining to child maltreatment 2006–07 (Australian Institute of Health and Welfare, 2008).

- 28,441 children in out-of-home care
- 29,406 children on care and protection orders
- During 2006–2007 there were 309,517 *reports* of suspected cases of child abuse and neglect made to state authorities (>50% increase on 2003–03)
- Emotional abuse and neglect account for mean of 70% of notifications across states and territories
- Physical abuse accounts for a mean of 22% across states and territories
- Sexual abuse—mean of 8% across states and territories
- Indigenous children are over-represented by a factor of 7

New Zealand data

Box 2 contains summary statistics pertaining to child maltreatment in New Zealand.

Partner violence has been described as being "deeply embedded" in Pacific Islander cultural values (Paterson, Gao, Cowley-Macolm, & Iusitini, 2008), and constitutes an important form of vicarious abuse for children, resulting in elevated stress levels, and demonstrated high rates of internalizing and externalizing problems among 4-year-old children of mothers who experience intimate partner violence (Paterson et al., 2008). Further evidence comes from the Christchurch Health & Development Study (http://www.chmeds.ac.nz/research/chds/)—a longitudinal study of a birth cohort of 1265 children born in mid-1977 in the Christchurch urban region. Participants have been followed regularly since birth, and a number of mental health outcomes have been studied as they have progressed through childhood, adolescence and into adulthood. At age 18, those who reported high levels of exposure to inter-parental violence in their early years had elevated rates of adjustment problems, including mental health problems, substance abuse, and criminal offending (Hansen, Thomas, Fergusson, & Horwood, 1998).

Comorbidities with child maltreatment

While poorer families, and those headed by single, less well educated parents are over-represented in child maltreatment statistics (Caffo et al., 2006), it is important to note that child maltreatment does not respect class or income boundaries. Nor should recent media coverage of abuse and neglect in Australian indigenous communities divert attention away from the fact that these problems are prevalent in non-indigenous communities also. The fact that problems such as child maltreatment are over-represented in indigenous families, however, means we need to address systemic and intergenerational factors to seek answers within a social determinants of health framework, not through victim blaming.

Box 2. Summary statistics pertaining to child maltreatment in New Zealand.

- Child deaths from maltreatment are approximately 6 times higher than the average for other leading countries (UNICEF, 2003)
- New Zealand police estimate they see only 18% of all violence within homes (New Zealand Family Violence Clearinghouse, 2007)
- Child maltreatment is strongly linked with poverty and ethnic background, with Maori children facing twice the risk and accounting for 45% of out-of-home care placements

Low educational attainment of parents means low health literacy, poor problem solving, poor impulse control, and a poor sense of control and mastery over one's life circumstances (Syme, 1998). Syme discusses *hope* as an important attribute for facing life's problems with a sense that one's problem-solving skills might effect a positive outcome. Linguistic competence needs to be positioned centrally in this debate, as many of life's everyday challenges need to be resolved by verbal means—either through verbal reasoning/problem solving "in one's head" or through discussion and negotiation with others. The latter requires a sophisticated toolkit of skills, ranging from core linguistic competencies such as expressive and receptive mastery of vocabulary and sentence structure, through to turn-taking, topic management, perspective taking, and the ability to use and understand non-literal language (e.g., metaphor, sarcasm, humour). Deficits in some or all of these areas have been demonstrated in young people with a range of emotional and behavioural disturbances (e.g., Cohen, 1991; Johnson et al., 1999; Snow & Powell, 2004, 2008; Voci, Beitchman, Brownlie, & Wilson, 2006). Sadly, however, young people whose poor language skills are unidentified and/or misdiagnosed as reflecting behavioural or other factors frequently fall through gaps in the education net. They are unlikely to complete secondary schooling and even less likely to achieve any certified postsecondary training. Rather, these young people show up as consumers of mental health, housing, welfare and justice services. In lives dominated by here-and-now imperatives, "mastery and control" could not be further from their imaginations. An early transition to parenting tends to perpetuate the pattern on an inter-generational basis.

Notably, children who were abused as children do not necessarily grow up to abuse their own children (Narang & Contreras, 2005; Schuetze & Eiden, 2005). Factors such as maternal depression, the family's affective style, and the presence of intimate partner violence all exert an influence on this outcome. Although there is an increased *risk* of intergenerational transmission occurring, this is neither causal nor deterministic. This means that early and systematic intervention aimed at changing the life trajectory of such children is of utmost importance. We know that risk and protective factors in childhood are cumulative on both sides of the ledger (Bond, Toumbourou, Thomas, Catalano, & Patton, 2005) and we also know that systematic early interventions are better value, economically and socially, than those that are introduced *post hoc* and less likely to influence life trajectories of the target population (Heckman & Carneiro, 2003).

Developmental disability as a specific risk for child maltreatment

Sadly, children with a developmental delay and/or disability face an increased risk of being abused and/or neglected by their caregivers (American Academy of Pediatrics, 2001). This represents a tragic "double jeopardy" for the children concerned, and reflects in many cases sustained high levels of parental stress and the poor mental health supports available to families of children with disabilities. Having a child with a developmental disability can mean having to cope with wide ranging and complex physical, cognitive, communicative, and/or behavioural difficulties. This places emotional, social, financial and professional pressures on parents and can have negative psychological implications for siblings also. In addition, such children may be cared for by a range of both trained and untrained staff, having to be accustomed to having intimate parts of their bodies touched and handled by others in the course of everyday care. In such cases, it can be difficult for children to differentiate between physical contact that is appropriate and that which is abusive (American Academy of Pediatrics, 2001). The low probability of reports of abuse is compounded by the fact that speech and language impairments are frequently experienced by such children. Even if such a child did recognize the inappropriateness of their handling, they may not have the communicative means to convey this information to a trusted adult (Agnew, Powell, & Snow, 2006).

A further disability-related child welfare issue that is of direct relevance to SLP as a profession is the fact that children with language impairments may elicit particular frustration for parents, resulting in emotional/verbal abuse and/or neglect (Westby, 2007). Emergent communication skills are fragile and inconsistent under the best of developmental circumstances but the communication landscape is more complex and unpredictable for parents of children with disabilities. The ability to achieve meaningful two-way communication with one's child has enormous emotional and practical significance for parents and its absence is likely to be a source of much distress, grief, and frustration. Sadly, these can all be precursors to child maltreatment.

Parental discipline and child maltreatment and speech-language pathology

It is an uncomfortable reality that child abuse sits on a continuum that includes discipline of children by their parents. The debate about this quickly becomes emotive and sensitive to cultural relativism; what parents in one culture call discipline, others call abuse. In this sense "culture" can simply mean differences in SES and education level of parents who live 5–10km apart. The literature tells us that approaches to child discipline are generally part of a cultural system handed down from one generation to the next, and are therefore difficult to change (Whipple & Richey, 1997).

Westby (2007) reminds us that there are cultural differences with respect to what is regarded as "abuse". She notes, for example, that:

- two-thirds of Singaporean families cane their children on the limbs and buttocks and half believe that this is the best discipline approach;
- some Asian and African cultures require children who have misbehaved to kneel on substances such as rice, salt, or even gravel;
- harsh corporal punishment is common in Caribbean cultures, for misdemeanours ranging from not eating a meal, to lying, stealing, impoliteness and not completing chores;
- corporal punishment has most support in those parts of the US where African American families, and/or low SES and conservative religious groups are aggregated.

Westby (2007) contends that the appropriate way to deal with cultural relativity in this debate is to place the focus of reporting of child maltreatment on outcomes for the child, not on the caregiver's intent. In reminding us that "No practice that is harmful to a child should be condoned in the name of culture or tradition" (2007, p. 141) Westby echoes the UN Convention on the Rights of the Child (United Nations, 1990). Whilst this debate is challenging at the level of a topical issue such as parents smacking their children, it must be remembered that constant berating, criticism and "put-downs" by parents are no doubt as harmful as physical punishment, but much harder to observe and harder still to modify through legislative approaches. As experts on interpersonal communication, however, SLPs have an important skill-set to bring to parenting programs, at both the universal and targeted ends of the spectrum. Language competence is acquired through the relational milieu of parent-child interactions. Where these are positive and secure, both language and mental health develop synchronously and in ways that promote both intra and inter personal skills in the child. SLPs are an untapped resource in the lives of high-risk families, given their expertise in all aspects of communication, ranging from the phonological, to pragmatic. This expertise must be contextualized, however, within the broader milieu of mental health promotion for children and their families. SLPs have an important role in working with parents and foster-parents to help them reinterpret cues from children who are ill-equipped to illicit nurturing behaviour from carers. In this way, patterns of insecure and otherwise disorganized attachment can be identified and addressed during the developmental period.

Human beings are relational creatures who acquire cognitive schema about the world, language and social skills, social cognition and empathy via their early relationships—most particularly relationships with parents and other key caregivers. The degree of parental warmth at one end of the spectrum, and coercion and frank violence at the other, cannot be separated out from the way in which a child learns about relating to others. Relating to others is the bedrock on which language is acquired and refined. It is also the bedrock on which one's view of the world as either a safe, reasonably predictable place, or a scary, random space in which physically and emotionally unpleasant interactions may occur at any time, is formed.

The neurobiology of child maltreatment

There is good evidence from both animal and human neuro-endocrine studies that we should be concerned about the levels of stress to which some infants and children are exposed in the home environment. In general, the literature refers to tolerable stress and toxic stress. Special mention is made of the significance of high evening cortisol levels (Mustard, 2006; National Scientific Council on the Developing Child, 2005).

Tolerable stress refers to stressful events that could be damaging if they were sustained, but its effects are buffered by supportive relationships. Under some circumstances, tolerable stress can have positive effects for acquisition of adaptation and coping skills. *Toxic stress* occurs in response to events that are chronic, uncontrollable, and/or experienced without access to the buffering effect of reassurance from a caring adult (National Scientific Council on the Developing Child, 2005). These types of events create a prolonged stress response for the child and can disrupt the developmental "sculpting" of neural architecture that continues into the third decade of life. Toxic stress lowers the child's threshold response for what might otherwise be seen as "tolerable" stress, and in extreme cases, toxic stress will result in a decrease in brain size. High evening cortisol levels have been identified as a particular concern in children exposed to chronically elevated levels of stress (Mustard, 2006; National Scientific Council on the Developing Child, 2005). Cortisol is produced by the hypothalamic–pituitary-adrenocortical system. Sustained high levels of cortisol result in damage to the hippocampus, leading to impairments in memory, learning, and the ability to regulate stress responses. No doubt these children come to the attention of their teachers early in their school careers—as the ones who do not seem to pay attention, to remember simple instructions, and/or to benefit from experience. They may also be children who have a brittle and low threshold for reacting adversely to social situations that other children interpret as benign, rapidly earning for themselves labels such as antisocial, ADHD, and/or learning disordered (Perry & Szalavitz, 2006).

In the last decade, there have been significant advances in the understanding of child maltreatment from a neurobiological perspective. Professor Bruce

Perry from the Child Trauma Academy (http://www.childtrauma.org) in Houston, Texas, has proposed a detailed neurobiological framework for understanding child abuse and neglect that has been adopted internationally as a basis for both understanding child maltreatment and intervening in the lives of affected children. This model is outlined in detail by Perry (2006) and its key features are summarized briefly in Box 3.

This framework for considering child maltreatment and its effects on the developing brain has great relevance to the role of SLP as a profession concerned with fostering optimal language and psychosocial development in children. Perry is at pains to emphasize in his work that human beings are fundamentally *relational* creatures, and of course communication, verbal and nonverbal, is the vehicle by which infants and young children form and maintain relationships with key caregivers. In cases of child maltreatment, communicative competence is frequently a casualty of disrupted relational (attachment) experiences, and this can have life-long implications for the child. Neuropsychological studies link childhood neglect with particularly adverse outcomes in relation to auditory attention, verbal comprehension, performance on verbal and nonverbal subtests of IQ batteries, and mental inflexibility (see Nolin & Ethier, 2007, for review). Specific linguistic sequelae have also been described (e.g., by Coster & Cicchetti, 1993; Culp et al., 1991; McFadyen & Kitson, 1996) in sub-populations of maltreated children. Deficits described include delayed syntactic development, reduced vocabulary size, poor auditory comprehension skills and pragmatic impairments. As with other neuropsychological sequelae, neglect has been shown to be more damaging than abuse alone, and/or abuse and neglect (e.g., Culp et al., 1991).

Neglect has, ironically, suffered some neglect itself in research terms, but its effects on the developing brain are devastating and in many cases, irreversible. It is not hard to understand why the limited Child Protection resources tend to be skewed towards keeping children safe from active episodes of abuse, but we need to remember that in a neuropsychological sense, neglect is more damaging to cognitive and language development than is abuse alone (Hildyard & Wolfe, 2002). Some studies have even suggested that the combination of neglect plus abuse is less damaging than abuse alone, because parents who are being abusive towards their children are, at a minimum, attempting to engage with them in some way (see Nolin & Ethier, 2007, for review). Neglected children, on the other hand, experience a chronic lack of relational experiences on which to construct their representations of the world. A longitudinal study by Kotch and co-workers (2008) in the US suggests that neglect in the first 2 years of life is a stronger predictor of aggression than later neglect or physical abuse at any age.

Box 3. Perry's (2006) neurobiological framework for understanding child abuse and neglect.

1. The brain is organized in a hierarchical fashion
2. Neurons and neural systems are designed to change in a use-dependent fashion
3. The brain develops in a sequential fashion
4. The brain develops most rapidly in early life
5. Neural systems can be changed, but some systems are easier to change than others
6. The human brain is designed for a different world

Neglected children do not have enough of the vital relational experiences described by Perry (above) to build mental representations that form the basis of linguistic competence, social cognition, problem solving, emotional self-regulation and the development of coping strategies. It is generally accepted that there is a marked reduction in the plasticity of neural circuits once a sensitive developmental period has ended. Early and strategic intervention is therefore needed to avert life trajectories marred by learning difficulties, low academic achievement, and chronic mental health problems. SLPs have a vital role to play in ensuring that all children have appropriate relational experiences to support the rapidly evolving neural architecture in the developing brain when the appropriate developmental windows are open. This is also central to averting outcomes such as behavioural and emotional disturbances, which add further disadvantage in terms of early detachment from school and academic underachievement (Snow & Powell, 2004).

Speech-language pathology and the discourse of prevention

SLP has traditionally been conceptualized as a 1:1 treatment discipline, as evidenced by the sample excerpts from program web-sites cited earlier in this paper, and documents such as Speech Pathology Australia's *Scope of Practice in Speech Pathology* document, published in 2003. While this is a legitimate and important part of the profession's remit, I would argue that the profession also has a vital, but largely unmined role to play in the public health and policy discourse pertaining to child safety and health and wellbeing. Prevention science needs to find a place alongside the clinical sciences in order for SLP graduates to exert influence in public health policy and practice debate. Failure to address this gap in undergraduate training can only perpetuate the marginalization of SLP where important questions of prevention and health promotion at population levels are being debated.

The relational milieu in which children are raised cannot be separated from the nature of the verbal input to which they are exposed. Happily, for the majority of children, both are positive and promote optimal development of cognitive, linguistic

and socio-emotional competencies. For too many children, however, dysfunction in the home environment means that the relational milieu compromises, rather than supports, the development of communicative competence. Given the clear neurobiological evidence that critical developmental windows open and close during the early years, it is simply not acceptable for SLP to wait until child maltreatment has occurred, and then attempt to "back-fill" years of abuse and neglect via 1 or 2 hours of therapy per week, at best. Instead, graduates need to be able to occupy positions of influence in government in order to systemically influence the way in which early years health promotion services to all families, but particularly those facing higher psychosocial risks, are conceptualized, delivered, and evaluated. Without knowledge of the language of public health, however, SLPs will be excluded from the prevention discourse, and the complex needs of at-risk children will continue to go unmet.

Some suggested starting points as to public health concepts that could be introduced into SLP curricula are included in Box 4.

This is intended neither as a prescriptive, nor a comprehensive list. Rather, it is provided here as a beginning point for consideration of the ways in which SLP as a profession can gain a seat at the prevention table, in order to alter the life trajectories of high risk children. Oral language competence is fundamental to much of what we define as success in Western society—good interpersonal skills and the ability to acquire literacy skills. Just as these constitute tickets to inclusion for individuals, a knowledge of public health principles in SLP graduates should help foster these outcomes on a population basis. The United Nations Children's Fund (2003, p. 3) reminds us that:

> The challenge of ending child abuse is the challenge of breaking the link between adults' problems and children's pain.

SLP as a profession has much to offer this important endeavour. Equipping graduates with a grasp of prevention science is the clear starting point in bringing SLP graduates to the child protection table, at both practice and policy levels.

Box 4. Some public health principles and concepts that need to be understood by SLPs.

- Social Determinants of Health
- Equity Vs Equality
- Individualism Vs Collectivism
- Ottawa Charter for Health Promotion
- Health Education Vs. Health Promotion
- Whole of Government Approaches
- Social Justice
- Sustainability
- Advocacy Vs Lobbying

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