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## An Ecological Perspective on the Comorbidity of Childhood Violence Exposure and Disabilities: Focus on the Ecology of the School

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### Abstract

Violence exposure and disabilities frequently co-occur. Rates of disabilities among children with violence exposure range from three to eleven times that of non-exposed children. Each can be causal in the development of the other both directly and through less direct pathways. In this paper both direct and indirect influences that can lead to a circular pattern of mutual reinforcement between violence and disabilities are identified. Childhood disability research has historically focused on the individual more than the ecological context. Within the field of childhood violence exposure, the focus is often on perpetrators within the family or community. In this paper the ecological framework is applied to violence and disabilities studies to help integrate the two different research literatures and to examine different levels of influence on the developmental course of both social problems. The experience of school is used as a framework for examining violence and disability transactions at each level of the ecological framework, including the role of bullying and school violence. Finally areas of intervention within the purview of schooling are identified, particularly those that empower students through mastery focused school climate and student involvement.

### Keywords

Child Maltreatment; Disability; Language Development; Ecological Framework; School Violence

### Introduction

Disabilities and violence exposure are inextricably linked (Brown, Cohen, Johnson, & Salzinger, 1998; Govindshenoy & Spencer, 2007; Randall, Sobsey, & Parrila, 2001; Sobsey, 2002; Spencer et al., 2005). Children with disabilities are maltreated at higher rates than children without disabilities (Brown et al., 1998; Horner-Johnson & Drum, 2006; Randall et al., 2001; Sullivan & Knutson, 2000) and violence exposure increases your risk of having disabilities (Bruhn, 2004; Jonson-Reid, Drake, Jiyoung Kim, Porterfield, & Han, 2004). This relation is so frequently documented that it has been argued that child abuse researchers should routinely include disability status as a factor in their studies (Kendall-Tackett, Lyon,

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Taliaferro, & Little, 2005). Violence exposed children with and without disabilities are more likely to experience myriad problems that include social and behavioral problems (Wigham, Hatton, & J. L. Taylor, 2011), leading to a greater likelihood of future violence exposure, a transactional pattern of mutual reinforcement. The purpose of this paper is three fold: 1) to examine this transactional pattern of reinforcement between disabilities and childhood exposure to violence, 2) to use Bronfenbrenner's ecological framework (Bronfenbrenner, 1976; 1977) to describe possible mechanisms of mutual reinforcement related to schooling and 3) to describe possible access points for intervention and prevention.

In the first section of this paper literature is reviewed on the prevalence of the comorbidity of violence exposure and disability as well as any evidence suggesting causal direction. This section focuses on child maltreatment where the relation and mechanisms are most clear. In the second section, Bronfenbrenner's ecological framework is used to examine the interactions between violence exposure and disabilities over the course of development in an attempt to disentangle the complex interactions between these two constructs. The ecological model can help illustrate how violence exposure and the challenges of disabilities are compounded at multiple levels both simultaneously and over the life course.

Childhood disability research has historically focused on the individual more than the ecological context. Within the field of child maltreatment, the focus has tended to be on perpetrators within the family or community. Using an ecological lens encourages researchers to look at a variety of contexts in which children are at risk. Using the ecological framework (Bronfenbrenner, 1976; 1977) can help researchers view family, school, or community level causes, contributing risk factors or moderators of the developmental course of children and how those influences build a connections between family violence, violence in school, community violence exposure and disabilities. Schooling from the level of the classroom to the level of national educational policy are important moderating factors that both compound problems of violence exposed children and ameliorate deficits.

## **Disability and Child Maltreatment**

According to the Americans with Disabilities Act, disability is defined as “a physical or mental impairment that substantially limits one or more of the major life activities of such individual.” Disabilities are defined as being either high incidence (cognitive impairment (CI), specific learning disabilities (LD), attention deficit hyperactivity disorder (ADHD), emotional and behavioral disorder) or low incidence (autism, hearing and visual impairments, traumatic brain injuries and physical disabilities). Emotional and behavioral disorders cover a wide range of childhood mental health problems, including anxiety, mood, adjustment and personality disorders, often referred to as emotional disorders or impairment (ED or EI) in special education. In this paper we often discuss academic and behavioral problems that are risk factors for the development of disabilities but are not considered disabilities themselves.

## **Epidemiology**

Child abuse and neglect (together called maltreatment) and disabilities have a high rate of co-occurrence (Stalker & McArthur, 2010). After adjusting for risk factors associated with

poverty such as maternal age and birth weight, one study found odds for experiencing maltreatment in children with disabilities ranged from 1.23 to 11.58 (Spencer et al., 2005). In a sample of over 50,000 children enrolled in Omaha, Nebraska schools in 1994–1995, 11% of all children had experienced maltreatment, however, youth with disabilities were 3.76 times more likely to be abused than children without disabilities (Sullivan & Knutson, 2000). Children with language, learning and speech problems had incidences of maltreatment between 1.27 times and 6.38 that of other children (Spencer et al., 2005). In this study, only children with autism were maltreated at a rate less than the population average (Spencer, 2005). In a Canadian national study 9% of children reported for maltreatment had intellectual disability (ID), far exceeding rates in the general population (Schormans & Brown, 2002). Another similar study showed children with ID were 3.1 to 7.66 times more likely to experience maltreatment (Horner-Johnson & Drum, 2006). In one study of over 40,000 children reported for maltreatment, 11% of were classified as having a minor disability and 1.2% with severe disability (Hershkowitz, Lamb, & Horowitz, 2007).

Some interesting differences emerge in how types of maltreatment associate with different types of childhood disabilities. The highest rates of maltreatment are experienced by children with behavior disorders (over 50%), speech and language impairments (approximately 35%), health related conditions and mental retardation (each over 25%) (Sullivan & Knutson, 2000). In the Schormans and Brown study (2002), children with ID had higher rates of emotional abuse and neglect than other forms of maltreatment and children with low incidence disabilities had higher rates of physical abuse and neglect. For low incidence disabilities this may point to a specific vulnerability due to limited mobility or communication skills. Children with psychological problems, both conduct and non-conduct had higher rates of all forms of maltreatment but particularly emotional abuse (11.58 for children with conduct problems and 8.04 for children with non-conduct mental health problems), raising the question of the direction of the effect.

Gender, race and ethnicity of children with disabilities are important to consider as risk factors for different kinds of maltreatment. Although girls account for slightly more than half of maltreated children in the general population, boys account for approximately 60% of maltreated children with disabilities (Schormans & Brown, 2002; Sobsey, Randall, & Parrila, 1997). Boys with disabilities are at greater risk of both physical and sexual abuse than non-disabled peers. In the general population approximately 70% of child victims of sexual abuse are girls but in children with disabilities females make up closer to 60% of the population. Boys make up about 70% of physically abused youth with disabilities but less than 60% in of all physically abuse youth (Hershkowitz et al., 2007). Although, African American children have both higher rates of maltreatment and disability, disability status has not been shown to increase rates of maltreatment (Randall, Sobsey, & Parrila, 2001; Schormans & Brown, 2002).

### **Causal Relations Between Disability and Violence Exposure**

Very few studies have the necessary data to disentangle causal direction between maltreatment and disabilities. Underreporting or delayed reporting of maltreatment in children with disabilities may limit interpretability of data from child protective service

(CPS) reports (Stalker & McArthur, 2010). Maltreatment often occurs at a very young age and because many studies of youth with disabilities occur after maltreatment causal inferences are often difficult (Sullivan, Knutson, & Ashford, 2010). Maltreatment can be causal in the development of disabilities directly, through injury, and through less direct pathways, like developmental deficits (Stalker & McArthur, 2010, Sobsey et al., 1997). Disability can be a risk factor for abuse for a number of reasons, such as greater dependence and stress in caretakers. Finally, there are multiple indirect pathways like individual risk factors or combinations of risk factors that cause or contribute to both disability and maltreatment in children. This suggests that there exists transactional relation between maltreatment and disability that increase the likelihood of each (Sobsey, 2002).

**Violence exposure causes disability.**—Violence exposure, particularly child abuse and neglect, is directly related to subsequent development of disabilities (Bruhn, 2004; Crosse et al., 1992; Jonson-Reid, Drake, Jiyoung Kim, Porterfield, & Han, 2004; Sobsey, 2002). In one suggestive study of substantiated maltreatment during infancy or preschool, about 20% had Individual Education Plans (IEP) at school age (Scarborough & McCrae, 2009), which is far higher than the national average of 13.2% (U.S. Department of Education, 2011). In a study by Crosse, caseworkers believed that the maltreatment led to a permanently or long-term debilitating condition approximately one-third of the time (Crosse et al., 1992). Interestingly the highest rates of believed causal link following sexual abuse and may be related to the doubled rate of serious emotional disturbance (Crosse et al., 1992).

In a large study, 7,940 maltreated children were twice as likely to have later special education referral than children with similar risk backgrounds suggesting that developmental risk alone was not the reason for increased risk (Jonson-Reid et al., 2004). Children with a history of physical abuse had 50% greater likelihood of later special education referral than children who had been sexually abused. Taking the findings of these studies together it could be concluded that sexual abuse is leads to a greater risk for emotional impairment and physical abuse is more prominent for cognitive disabilities, however the mechanisms remain unclear.

There are several ways in which violence exposure could be causal in the development of both learning and emotional/behavioral disabilities in children. Violence exposure can cause changes in brain function through either stress mechanisms (Cicchetti, Rogosch, & Sturge-Apple, 2007; de Bellis, 2005; de Bellis et al., 1999) or through direct damage to the brain (Choi, Jeong, Rohan, Polcari, & Teicher, 2009; Ewing-Cobbs, Barnes, & Fletcher, 2003; Prasad, 2005). Serious brain injury in children, which is often underreported as maltreatment, can be the direct result of both single episode abuse and ongoing abuse (Sobsey, 2002). Between 15 and 25% of all childhood brain injuries are caused by abuse (Sobsey et al., 1997) and are more serious from accidental injury (Prasad, Ewing-Cobbs, Swank, & Kramer, 2002). Shaken baby syndrome (SBS) and other inflicted brain injuries put children at risk of long-term disability (Keenan, Runyan, Marshall, Nocera, & Merten, 2004) that may not be detected until several years after discharge from the hospital (Keenan, Hooper, Wetherington, Nocera, & Runyan, 2007).

Finally, maltreatment can affect social and academic functioning and this is particularly true of children with disabilities (R. Ryan, 1994; Springer, Sheridan, Kuo, & Carnes, 2007). These more subtle functioning deficits are important mechanisms to consider. Children who experience maltreatment suffer disruptions in their normal development, (Cicchetti et al., 2007) at a time when academic development, such as reading, numeracy, general knowledge and cognitive control development are paramount. Low incidence disabilities are less likely to be a result of violence exposure alone (Spencer et al., 2005) but maltreated children underachieve in school and suffer delays in cognition and both receptive and expressive language (Veltman & Browne, 2001). Prenatal violence exposure is related to low birth weight, (Rosen, Seng, Tolman, & Mallinger, 2007), a known cause of disability (Sobsey, 2006).

**Disability leads to violence exposure.**—Children with disabilities are vulnerable to violence exposure, in particular to maltreatment (Brown et al., 1998; Bruhn, 2004; Crosse et al., 1992; Randall et al., 2001; Sidebotham, 2003; Sobsey et al., 1997; Spencer et al., 2005). Children whose parents report developmental concerns before age three are almost twice as likely to be maltreated before age six (Sidebotham, 2003). A prospective study of children in special education found an increased risk of later sexual abuse and children with low verbal IQ had almost a three-fold increase in later neglect (Brown et al., 1998). In the Cross study, caseworkers believed that 50% of maltreated children with disabilities were maltreated as a result of their disability status (Crosse, Kaye, & Ratnofsky, 1992).

Reasons for these high rates of maltreatment vary. Children with disabilities are at greater risk of maltreatment because of their vulnerability, dependence upon others and frequent difference in physical or cognitive capacity. Children with disabilities are more likely to be in special home or school settings associated with higher risk of maltreatment. Finally, having a limited familial social network is a risk factor for maltreatment in all children (Sidebotham, Heron, Golding, ALSPAC study team, 2002). Although children with physical health problems are more likely to be abused, children with learning disabilities and emotional or behavioral disabilities are also at risk of maltreatment where family stress appears to be a factor (Sullivan & Knutson, 1998).

Children with social skill or communications deficits whose behavior may be stressful and difficult to control are at risk too (Knutson & Sullivan, 1993; Knutson, Johnson, & Sullivan, 2004). Well-meaning parents and caregivers are often hard pressed to find disciplinary techniques that can control explosive behaviors (Sullivan & Knutson, 2000a). Behaviors of children that would in other circumstances be manageable, like impulsivity, aggression and hyperactivity, are vulnerabilities to abuse when parents and caregivers are more prone to abusive behaviors (Sullivan & Knutson, 2000b). Some children with disabilities have fewer skills, such as social interaction, language and communication skills, that might help them to avoid maltreatment or to report maltreatment when it occurs. The combination of learning disabilities and emotional or behavioral disabilities is likely to compound the risk for maltreatment.

**Disability and maltreatment transaction.**—There is likely a transactional relation where children with disabilities are at greater risk of being maltreated, compounding the

effects of their disability, and children who are maltreated are more likely to suffer from physical trauma, neurological impairment and academic or behavioral regression, which increases their risk of the development of disabling conditions. Maltreatment is often more serious in children with disabilities. They are more likely to receive both moderate and severe physical injuries as a result of physical abuse and are also more likely to be repeatedly sexually assaulted or assaulted with the use of coercion (Hershkowitz et al., 2007). Children with disabilities have a 1.33 odds of re-victimization compared to other maltreated children (Connell, Bergeron, Katz, Saunders, & Tebes, 2007) suggesting that maltreatment has particularly long term negative psychological and physical effect on children with disabilities. Empirical evidence for transaction is difficult to obtain. Jaudes and colleagues (2008) provide some clues in a birth cohort study of children in Illinois where maltreatment was substantiated before three and diagnosis of mental health problem happened after three. These children were 9.2 times more likely to be abused between the ages of three and six (Jaudes & Mackey-Bilaver, 2008).

Less clearly defined are the mechanisms of transaction. One indirect path is through ancillary outcomes of maltreatment that influence development, such as delayed social skills development, removal from school and normative learning contexts and development of internalizing and externalizing behaviors that put a strain on peer and family relationships. Children with disabilities are especially vulnerable to these negative effects of violence exposure (English, Bangdiwala, & Runyan, 2005; English & Widom, 2004). Early literacy and communication skills have also been implicated as mediating factors in the development of disability (McGee, Wolfe, & Olson, 2002). Children who have been maltreated differ in their early learning in ways that are risk factors for later disability. In addition, academic achievement is related to the development of emotional and behavioral disorders (Beitchman et al., 2001), where children have the highest rates of maltreatment (Spencer et al., 2005). This transactional pattern of reinforcement can be better understood by examining contextual influences at different levels of Bronfenbrenner's ecological framework (Bronfenbrenner, 1976; 1977).

## **The Ecological Framework Applied to Violence and Disabilities**

As children age they are increasingly influenced by multiple levels of the ecological framework, coming into greater contact with schools, peers and neighborhoods. The ecological framework can be applied to maltreatment and disabilities studies to help integrate the two different research literatures, examine different levels of influence on the developmental course of both and propose mechanisms that may mutually reinforce the susceptibility to each. At each level of the ecological framework there are ways in which educational experiences influence the development of children with disabilities and those who have been maltreated in either a negative or a positive direction. School related settings are particularly important for children with disabilities as they are more likely to be in institutional placements or separate classrooms where victimization or therapeutic practices that include physical restraint are common (Sullivan, 2009). Certain contextual factors limit early learning in children, putting maltreated children and children with disabilities at greater risk of learning and behavioral disorders or compounding disabilities. These contexts

can have a strong influence, negatively or positively, on the development of both learning disability and emotional or behavioral disability.

Families, neighborhoods, peers and certainly schools, influence the development of both behavior and learning. Families often are the context in which violence has occurred or is ongoing. Schooling can be considered simultaneously as a microlevel structure, a mesosystem in the ways that the school and family interact, and the macrosystem because policies at the district, state, and national level affect the development of individual students. Using the ecological framework researchers can define practices within schools that support families and children with disabilities and violence exposure histories in strengthening educational and social skills. The ecological theory can help to examine interactions between different levels and help to identify opportunities and challenges in the system.

### Individual Level and Chronosystem

Timing of exposure to violence is critical. Concurrently developing systems of language, social processing, emotional regulation and cognition are threatened by violence exposure during critical periods (Andersen et al., 2008). Each stage of development has specific vulnerabilities. In early childhood, language development, attachment between children and caretakers and social interactions are paramount. In middle childhood, skill development is particularly salient. In adolescence, development of cognitive control over emotion is central (Dahl, 2004). The timing, duration and length of violence exposure determine at what point within normative development violence exposure influences the development of the brain (Andersen et al., 2008) and stress response systems (Cicchetti, Rogosch, Gunnar, & Toth, 2010). Internal biological systems are altered by exposure to violence and the intervening cascade of stress responses.

Normal brain development is disrupted by exposure to violence. Violence exposure has been tied to smaller brain volume (Andersen et al., 2008), developmental disruption in white matter connections (Choi et al., 2009), and connections between left and right hemispheres, necessary for flexible thinking (Miskovic, Schmidt, Georgiades, Boyle, & Macmillan, 2010). Dysregulation of autonomic stress response has been tied to academic deficits (Obradovi , Bush, Stamperdahl, Adler, & Boyce, 2010) and the combination of vulnerabilities in brain development can lead to a deficits in a variety of skills necessary for classroom functioning such as attention, self-regulation, social development, and academic skills (see Perkins and Graham-Bermann, in press, for a review). Programs that hope to intervene with children in behavioral and/or academic functioning need to understand how the timing of maltreatment will dictate types of vulnerabilities that children face.

### The Family Microsystem

**Violence in the family.**—Family composition seems to have almost no relation to whether or not children with disabilities are maltreated (Brown & Schormans, 2002). In the Canadian national prevalence study, children with ID had higher rates of maltreatment from biological mothers and foster parents but families headed by a single mother had slightly lower rates of maltreatment of children with disabilities (Schormans & Brown, 2002). There may be different explanations for each of these three findings. Higher rates of abuse in foster

families may be related to a lack of familial affiliation and among biological mothers might speak to caregiver stress but lower rates in single mothers would run counter to arguments that family stress is a causal in the maltreatment of disabled children.

Children with disabilities are at greater risk when certain parental qualities are present including cognitive impairment, mental health issues, physical health issues, drug abuse, criminal activity, lack of social support and having been maltreated themselves as a child (Schormans & Brown, 2002). It is important to note that sexual abuse is three times more likely to be perpetrated by a parent for children with disabilities than for children without disabilities (Hershkowitz et al., 2007). This may be related to parental factors, such as mental illness or drug abuse, that are reasons for increased maltreatment in children with disabilities generally.

**Family and academic development.**—Nonetheless, family relationships have an obvious influence on learning and development. Family environment and parenting style have a long-term influence on the development of cognitive function. A low level of reported parental warmth is associated with poorer cognitive skills including language while math and parental high expectations are associated with high achievement (Singh-Manoux, Fonagy, & Marmot, 2006). Children with violence histories are more likely to have both academic (Solomon & Serres, 1999) and language problems (Scarborough & McCrae, 2009), to have their academic ability underestimated by their parents (Kinard, 2001a; Veltman & Browne, 2001) and to overestimate their own reading and math skills compared to actual achievement (Kinard, 2001b). This overestimation of ability may lead to a circular pattern with limited attempts to improve leading to continued failure.

By four years old, children in the most talkative, high SES families hear 22 million words but in least talkative, low SES homes they only hear approximately seven million words (Risley & Hart, 2010). After accounting for poverty, children in over-crowded homes receive both fewer words and parental responses (Evans & Maxwell, 1997). In this study, greater parental responsiveness mediated the effect of over-crowding suggesting that responsive parenting, even in high stress situations, supports academic growth. The amount of language in the family is a major predictor of vocabulary growth and social interaction skills necessary for school-related peer and teacher bonding.

### The Classroom Microsystem

**Teacher-student relationships.**—Teachers have a wide-ranging influence on the lives of their students. Perception of negative treatment by teachers decreases student mental health and value for academics (Roeser, Eccles, & Sameroff, 2000). This is important for students who have not had success in the classroom. Although children with disabilities receive increased attention and more one-on-one instruction from teachers, this attention is often combined with lowered expectations and negative interpersonal interactions between teachers and students (D. Baker, Akiba, Letendre, & Wiseman, 2001).

**Peer Relationships.**—Social interactions within the classroom can be affected. Children with disabilities sometimes have less positive behavior, greater internalizing and are less likely to be peer nominated as a friend (Estell et al., 2009). Children with violence



histories also show greater social isolation (Elliott, 2005). Children who are in special education classrooms have fewer opportunities for interactions with others. The United States Individuals with Disabilities Education Act (IDEA) recognizes that greater inclusion of children with disabilities is important for mutual understanding and incorporates that concept into law by requiring the least restrictive environment (LRE) for children with disabilities. This idea is not uniformly implemented across the country. The organization of a school influences the rate at which students with disabilities participate in school activities (Simeonsson, Carlson, Huntington, McMillen, & Brent, 2001). Less segregation leads to greater overall participation, which increases the opportunities for normative social and cognitive development and limit violence in schools for children with social and educational deficits.

**Bullying.**—Having a disability or exposure to violence is related to experiencing school violence (Baldry, 2003; Estell et al., 2009; Saylor & Leach, 2009; Sentenac et al., 2011), which is a risk factor for both perpetration of violence and mental health problems (Flannery, Wester, & Singer, 2004). In one study, over 80% of students with disabilities reported being bullied (Reiter & Lapidot-Lefler, 2007) compared to only around 40% in the general population (Kim, Leventhal, Koh, Hubbard, & Boyce, 2006). Social and communication problems are related to increases in victimization in children with disabilities (Sentenac et al., 2011). Level of school victimization differs based on the type of disability. Not surprisingly, students in classes for behavioral problems report more violent victimization than those in with learning disabilities (Morrison, 1994). In this population victims have more emotional problems and problems with interpersonal relations (Reiter & Lapidot-Lefler, 2007) but are also aggressive and isolated (Estell et al., 2009).

In the general population, there is a tendency for victims of bullying to also be perpetrators (Solberg & Olweus, 2003). This may be particularly true for children with disabilities, many of whom have social and emotional limitations that increase their isolation and social ostracism (Flynt & Morton, 2004). The rate of bully-victims, over 30%, is three times higher among children with disabilities (Kim et al., 2006; Reiter & Lapidot-Lefler, 2007; Solberg & Olweus, 2003). Violence in school may be related to previous violence exposure and distress related to violent victimization (Gellman & Delucia-Waack, 2006). In one study, maltreated children have twice the rate of violent perpetration as non-maltreated peers (Crooks, Scott, D. A. Wolfe, Chiodo, & Killip, 2007).

Bullies tend to have weaker social skills (Kim et al., 2006) but in populations of students with disabilities, this relation is more complex. Although, students with disabilities who are bullies are more hyperactive, overall differences between bullies, victims, and bully/victims in this group are minimal (Reiter & Lapidot-Lefler, 2007). Interestingly aggression and social prominence, or greater popularity, are associated with being a bully in children with disabilities (Estell et al., 2009). This may suggest that children with disabilities adopt behaviors that lead to becoming bullies to overcome struggles with social interactions. Exposure to violence, perhaps through social isolation, also leads to greater bullying in school (Baldry, 2003). Students who have academic and behavioral problems are provided fewer opportunities to interact with others and feel less support and approval from teachers and peers, serving to impede future progress.

**Teacher role.**—At the classroom level teachers need to be both supported and trained in how to manage social skills interaction problems. Within the classroom environment, teachers' feelings of efficacy and support around violence in the classroom may limit their response to violence and bullying in school. Teachers are less effective if they report concern for their own safety and concern that school administrations may not back-up their disciplinary decisions (Bon, Faircloth, & LeTendre, 2006). IDEA limits the length of suspension for children with disabilities, recognizing that disability may play a role in behavior. However, in classrooms, this can translate into teachers feeling threatened by students and frustrated about limited recourse to keep the classrooms safe (Bon et al., 2006).

### **School as a Macrosystem**

A number of studies have shown that school climate is an important determinant in students' level of participation and allegiance to the school. When students feel the climate of their school emphasizes mastery and effort and have meaningful curricula, overall mental health and academic competence increases, whereas, schools that emphasize the relative ability of students show increased problem behavior and more negative peer relationships (Roeser et al., 2000). School climates that emphasize safety decrease violent delinquency in school (Crooks et al., 2007) and the number one predictor of a safe school is the principal (Astor, Benbenishty, & Estrada, 2009). School level disorder, defined by student negative behaviors, is related to greater fear of victimization in schools (Akiba, Letendre, D. Baker, & Goesling, 2002). Schools where students feel that they are involved have less misconduct, which results in fewer examples of bullying and school violence (Welsh, 2003).

### **Macro Level Influences on Schools**

**Community poverty.**—In 1996 children living in poverty had an 86% increased risk of having a disability (Fujiura & Yamaki, 2000). Poverty has a direct influence on school stability and victimization on school grounds, as well (Chen & Weikart, 2008; Welsh, Stokes, & Greene, 2000). Higher poverty schools have increased victimization (Wilcox, Augustine, & Clayton, 2006). Corporal punishment in schools, which is more likely in states with high poverty, is related to higher overall school violence (Hyman & Perone, 1998), more incidents of school shootings and more school shooting-related deaths even after controlling for differences in state levels of poverty (Arcus, 2002).

**Poverty and disability.**—Reasons for the relation between poverty and disability status are complex. Long-term poverty is related to deficits in cognitive functioning including reading, vocabulary and math skills (Singh-Manoux et al., 2006). Poverty during childhood affects adult occupational and educational status and can have a negative influence on the development of language (Hart & Risley, 1995; Noble, Tottenham, & Casey, 2005) and a direct influence on brain correlates of reading competence, as well (Noble, Wolmetz, Ochs, Farah, & McCandliss, 2006). Poverty differentiates rates of maltreatment between children with ID and children with normal intelligence. In fact, maltreatment of children with ID is higher in low income families, families with an unemployed parent and families in unsafe housing (Schormans & Brown, 2002).

**Minority status and disability.**—There is an overrepresentation in special education of minority groups nationwide (Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006). Explanations for this bias in special education are complex. African American toddlers show increased odds of learning related problems at age two but these differences are mostly explained by socio-economic status (SES) and parental support (Morrison, 1994). African American students are less likely to be referred for special education and to be found eligible (Colarusso, Keel, & Dangel, 2001), but are more likely, once in special education, to spend more time in restrictive environments, outside of the regular education classroom (Achilles, McLaughlin, & Croninger, 2007). This would suggest that fewer minority children receive appropriate interventions.

**Government educational expenditure.**—Finally, in nations where there is greater expenditure of the Gross National Product (GNP) on education, “shadow” educational expenses (private payments for education and tutors) are more likely to be for high achieving students whereas in nations with a lower percent of GNP going to education the shadow education system is primarily remedial, suggesting that basic educational needs of students with learning difficulties are not being addressed when education is not a financial priority (J. Baker, 1998). Communities characterized by greater socioeconomic status are less likely to segregate children with disabilities and report more cohesiveness and less friction in their classrooms (Allodi, 2002; 2007). Macro level factors, such as GNP spent on education, poverty and minority status, influence exposure to violence in schools and intervention programming available to students to optimize development.

## Conclusions

The ecological framework is useful in expanding the scope of research questions and making cross-disciplinary connections. By illuminating these connections between school-related findings in education, psychology and social work, researchers can step out of their current fields and see the problem from another perspective. The ecological framework can help us to examine ways in which children with disabilities are vulnerable in micro contexts and how macro contextual characteristics influences each lower level and the mesosystemic relations between microsystems. Focusing specifically on schooling, researchers can define points of access for intervention, specifically, in home language development, the relation to social development, and how social and language deficits lead to bullying and victimization in schools.

## Research Implications

Children with disabilities frequently experience maltreatment before age four (Sullivan et al., 2010), necessitating prospective studies that identify children with disabilities at birth. Mandated expansion of disability reporting in maltreatment reports will simplify national studies. One thread that runs through all levels of the ecological model is poverty. Poverty influences increase rates of premature births (Rosen et al., 2007), and number of words spoken in the home (Hart & Risley, 1995), which are, in turn, related to academic achievement, levels of violence exposure (Drake & Pandey, 1996) and school-related skills (Noble et al., 2006) as well as victimization at school and higher use of outside sources

to educate children with disabilities (J. Baker, 1998; Welsh et al., 2000). Research into maltreatment of children with disabilities needs to move beyond epidemiology and into programs that support cognitive and social development.

### **Clinical Implications**

Mental health, family stress, drug and alcohol abuse are risk factors for this high rate of maltreatment in children with disabilities. Primary health care providers are most likely to be able to assess when families may be at-risk and to refer for appropriate services through mental health providers including parenting classes and stress management. At school entry is another opportunity to assess for violence exposure. School psychologists should be trained in the overlap of maltreatment and disabilities so that they are prepared to intervene and develop programming. Children tested for special education should be routinely probed for violence exposure. School achievement, cognitive processing, and self-esteem are decreased in children who experienced maltreatment (Veltman & Browne, 2003). Subclinical cognitive processing deficits in children with violence histories should be considered as a very real risk factor for later maltreatment and the development of disabilities.

Involving youth in decision making at schools and in peer mediation or conflict resolution programs empowers students to make good decisions. Schools that involve students in decision making and emphasize student mastery have climates that support students in mental health and behavior (Roeser et al., 2000; Welsh, 2003). Bullying programs in schools often ignore the national decrease in school violence and use punitive practices in the guise of “zero tolerance” (Bickmore, 2011). Practices that teach youth conflict resolution skills impart good social skills without further isolation of students and deterioration of pro-social school behaviors. Examining the different levels of the ecological framework and the support of students at each level including, school-wide, in classrooms and in interpersonal relations with teachers and peers, will help to develop programs. Violence in particular locations within a school can be dramatically reduced by student involvement in reporting violence and response planning (Benbenishty & Astor, 2007). Teacher involvement is equally important. When teachers are involved in planning and implementing programs they can address lack of safety and support (Bon, Faircloth, & LeTendre, 2006). Finally, programs need to have a home-school component. Social skills training programs that integrate home and school are more successful in changing behavior with the most challenging students (Reddy, De Thomas, Newman, & Chun, 2009).

### **Policy Implications**

Schools have a unique responsibility and opportunity to be a positive force in the development of violence exposed children and children with disabilities. Emotional lability decreases opportunities for successful social interactions with peers and teachers in schools. Classrooms where teachers use individualize instruction including small group instruction, strategic planning and classroom management techniques can improve the emotional function of their students (Connor et al., 2010). Children with violence exposure histories and disabilities are more likely to have school failures that lead to removal from the regular school environment (Veltman & Browne, 2001) and increases in both victimization and

perpetration of violence (Crooks et al., 2007; Estell et al., 2009; Gellman & Delucia-Waack, 2006; Reiter & Lapidot-Lefler, 2007; Saylor & Leach, 2009). Increased funding of programs for children with disabilities that focus on social skills and prevention of violence from pre-school through high school is necessary to help combat violence exposure in the home and at school. A pilot study of trauma focused cognitive behavioral therapy in schools has shown promising results in decreasing depression and PTSD in children with violence exposure (Jaycox et al., 2009).

Fear of victimization increases at schools with poor climates for learning (Akiba et al., 2002) and community level practices, such as greater integration of special education students and support for the decisions of teachers by principals, can do a lot to influence the positive climate of schools (Allodi, 2002; Astor et al., 2009; Bon et al., 2006; Simeonsson et al., 2001). Schools that have systems for working with children and families to integrate children with special needs or social problems into all aspects of schooling, improve the school experience, and the social and cognitive development of those children. Programs that use students to evaluate violence in schools and the proactively find ways to decrease violence prone areas help address concerns of parents, children and teachers (Benbenishty & Astor, 2007).

Teachers and principals are in need of training on exposure to violence in school and the role of violence in the development of emotional and academic deficits. Failure to understand the links between violence, school functioning and disabilities diminishes our ability to develop and expand prevention and intervention programs. Programs for violence prevention need to have an understanding of child abuse and how to report it, both for the implementers and the participants. Talking about violence in school will necessarily bring up out-of-school situations that are equally troubling for children and teachers. Identifying maltreated and violence exposed children in school and providing for treatment will help children to avoid bullying and being bullied.

We are not a nation that has prioritized education as a large percentage of GNP. Using the ecological framework to examine the role of poverty at multiple levels highlights the need for greater national prioritization of education, particularly for at-risk children. Nations that put a higher priority on educational and social programs have better outcomes for children born in to poverty both exposed to violence and born with disabilities and in positive outcomes related to their development. In high poverty states and cities children with disabilities are more isolated in school, schools are more dangerous places to be and children are more likely to come from homes where they have been maltreated. Having an understanding of broad social factors on the school experience can help ensure these factors are considered when developing intervention programs and research questions. Using the ecological perspective as an organizing framework can help to illustrate how the levels interact to mutually reinforce the relation between violence and disabilities.

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