

Preface

The *Encyclopedia of Clinical Child and Pediatric Psychology* is intended to be an authoritative and comprehensive resource that provides up-to-date information on a broad array of problems and issues related to children, adolescents, and their families as defined by the fields of clinical child and pediatric psychology. It is designed to be of particular interest and use to laypersons, parents and grandparents, and undergraduate and graduate students in training, as well as diverse medical and mental health professionals who live with and/or work with young persons but who have limited information on a particular topic. Inasmuch as the scope of clinical child and pediatric psychology is extensive, a range of topics is included that cover typical and atypical development, physical and mental health problems and disorders, assessment and treatment methods, and professional issues such as training and ethics. For those interested in further information a list of readings is included for each topic or entry. The topics are listed in alphabetical order to aid in the quick retrieval of information and the Index is extensive in its cross-listing of topics. We hope the Encyclopedia will be most beneficial to those who, for whatever reason, desire to obtain brief, authoritative, and up-to-date information on a particular topic or issue affecting children and their development, whether that development be characterized as typical or atypical.

A brief comment on the disciplines of Clinical Child Psychology and Pediatric Psychology is in order. Clinical child psychology is a specialty of professional psychology that attempts to integrate basic tenets of clinical psychology, developmental psychology, child psychopathology, and child and family development. Clinical child psychologists conduct scientific research and provide psychological services to infants, toddlers,

children, adolescents, and their families with a focus on understanding, preventing, diagnosing and treating psychological, cognitive, emotional, developmental, behavioral, and family problems of children. Of particular importance to clinical child psychologists is an understanding of the basic psychological needs of children and the social contexts that influence child development and adjustment. Thus, typical and atypical development and the impact of life stresses are of concern for the clinical child psychologist.

The specialty of pediatric psychology, like clinical child psychology, is interested in the psychological needs of children but the focus is on the psychosocial aspects of illness. In addition to child and family development, the knowledge base includes the biological, cognitive, affective, and social bases of health and disease. Pediatric psychologists engage in scientific research on how children's experiences and behavior are affected by physical illness, injury, and disability, and how their behavior in turn affects children's health. Pediatric psychologists, thus, work closely with other allied health professionals and their services include helping children and families deal with health issues through prevention and treatment. As a result, pediatric psychologists are found in health care settings such as children's hospitals, developmental clinics, pediatric or medical group practices, as well as in traditional clinical child or academic arenas.

Both of these disciplines are enjoined by their interest in infants, toddlers, children, adolescents, and their families. As such, they frequently complement one another, and many pediatric and clinical child psychologists work along side one another, as well as a host of other professionals, for the benefit and welfare of those they serve. Clinical child and pediatric

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psychology are emerging, exciting, and energetic fields of study and we are most pleased to be intimately associated with them. Although much remains to be learned, a lot has been learned in the last few decades—enough to warrant encyclopedic coverage.

In a comprehensive project such as this, many persons are to be acknowledged. Among the foremost are our distinguished Advisory Board and our equally distinguished list of contributors. Quite obviously, without them, up-to-date and scholarly treatment of topics and issues could hardly have been possible. We would also like to acknowledge Mariclaire Cloutier, Publishing Director, Behavioral Sciences, at Kluwer Academic/Plenum Publishers, for her commitment to this project and her encouragement to us to undertake it. Equally so, we thank Siiri Lelumees, Child Psychology Editor at Kluwer Academic/Plenum Publishers, for her editorial direction and encouragement. In addition, we would like to give thanks to the many youngsters and their families who have, perhaps unknowingly and

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Finally, we would like to thank our respective friends and mates, Mary (THO) and Steve (CSS) who tolerated, encouraged, and supported us during this long and seemingly endless process. They were real troopers! We also wish to thank our children, Laurie K. Perryman and Kathleen M. Smith (THO), and Mark S. Schroeder and Matthew E. Schroeder (CSS), as well as our children's children, Braden T. Perryman and Ethan R. Perryman (THO) and Zoe Margaret Schroeder (CSS). We have learned much from them as well. And, should our adult children read this Preface, we look forward to thanking more of our grandchildren in the future! Without them, life would be less meaningful and enjoyable for us. To our "grand" children, we dedicate this effort.

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Fetal Alcohol Syndrome (FAS)

DEFINITION OF THE PROBLEM

Fetal alcohol syndrome (FAS) was first identified in French medical journals in 1968, and then the English-language medical journals five years later. The syndrome is characterized by growth retardation, central nervous system (CNS) dysfunction, and a pattern of specific anomalies, particularly distortions of the form and structure of the face (facial dysmorphology). New findings suggest that FAS has specific structural brain abnormalities detected by magnetic resonance imaging (MRI), affecting preferentially the midline structures, basal ganglia, cerebellar vermis, and corpus callosum. However, diagnosis continues to be made solely on the clinical judgment of a physician. FAS is a clinical condition that occurs as a direct result of the mother's alcohol consumption during pregnancy. The Institute of Medicine suggested that alcohol exceeds all other substances of abuse in its deleterious effects on the fetus. As a result of maternal drinking, children with FAS and alcohol-related neurodevelopmental disorders (ARND), face a host of primary and secondary disabilities. Primary disabilities are those inherent in the diagnosis of FAS/ARND as a result of CNS dysfunction. Secondary disabilities are those that a person is not born with (e.g., school disruption, mental health difficulties, social skills problems, etc.) that could, in principle, be ameliorated through improved understanding and appropriate interventions. Drinking at any point during pregnancy can cause problems in the developing fetus. As a result, the

American Medical Association and the American Academy of Pediatrics have stated that abstinence throughout pregnancy is the only safe practice.

PREVALENCE

The prevalence of FAS is uncertain. The March of Dimes estimates that FAS occurs in 1 out of 750 births. Others estimate the average birth prevalence of FAS in the United States to range from 0.33–3.7 per 1,000 live births. In Native Americans, the risk is even greater with Southwestern tribes ranging from 3.9–33.3 per 1,000 women of childbearing age. It has been suggested that the variability and inconsistency across studies are due primarily to difficulties with definitions, diagnostic criteria, and methods of assessment. However counted, FAS is now the leading known cause of mental retardation in the United States, a staggering rate for a condition that, in theory, is totally preventable. The estimated cost for rearing a child with FAS is close to \$600,000. The emotional cost to the child and caregivers and the child's lost potential is immeasurable.

Studies looking only at those children who meet full criteria for FAS will underestimate the number of children who have significant difficulties that can be directly attributed to maternal alcohol use. The terms ARND and Alcohol Related Birth Defects (ARBD) are used to describe children with impairments as a result of alcohol exposure during pregnancy, but without the full spectrum of FAS; these terms replaced the term Fetal Alcohol Effects (FAE). Approximately 50,000 babies are born with ARND each year in the United States.

PSYCHOSOCIAL CORRELATES

Behavioral consequences of FAS/ARND often occur without problems in growth and physical development. It is the brain dysfunction caused by prenatal alcohol exposure, not the facial dysmorphology or physical growth impairment, that has the most serious functional consequences for affected individuals and their families. Brain dysfunction underlies the problem behaviors that lead to trouble in daily life, including learning disabilities, poor school performance, poor social skills and poor understanding of social rules and expectations, poor impulse and behavioral control, hyperactivity, problems with attention and concentration, and poor judgment and adaptive behavior problems. Many children with FAS/ARND are also diagnosed with Attention-Deficit Hyperactive/Disorder (ADAD). CNS dysfunction can also be expressed in speech/language difficulties, particularly language processing, and motor skill deficits.

Problems may be particularly difficult for the children with ARND who have few to no dysmorphic facial features and therefore, appear normal to others. Indeed, only about 25 percent of children with FAS and less than 10 percent of children with ARND readily qualify for special education services if mental retardation is used as a sole criterion. For example, the Intelligent Quotient (IQ) score of a child with FAS averages around 79 and that of a child with ARND around 90 (for the general population scores in the normal range are between 85 and 115). However, the adaptive behavior scores of both diagnostic groups is less than 70 (61 and 67, respectively). Streissguth (1997), a leading expert in the area of FAS, and her colleagues found that of children with FAS/ARND, 90 percent had mental health problems and 60 percent had disruptive school experiences characterized by suspension, expulsion, or dropping out. Other significant problems were noted as the children reached young adulthood (e.g., trouble with the law, substance abuse issues, homelessness, joblessness). Clearly, these problems go beyond what is expected based solely on IQ.

Caregivers' perceptions of children with prenatal exposure to alcohol and other drugs are more negative than those of children without exposure. Furthermore, these caregivers report significantly higher levels of stress. The difficult behaviors often seen in the children, together with the caregivers' perceptions and stress, increase the risk for child abuse/neglect and disruptive foster care placements.

PSYCHOLOGICAL ASSESSMENT AND INTERVENTION

Ongoing comprehensive evaluations are recommended for children with prenatal exposure to alcohol. As the difficulties faced by children with FAS (and alcohol related disabilities) and their families change with age, assessments can help to identify areas of deficits as well as strengths in these children. Assessments should incorporate not only measures of IQ and executive functioning, but also other areas of development such as language processing, visuospatial and motor abilities, and behavior and social-emotional functioning. Measures of attention and concentration are also recommended. Finally, ongoing evaluations of caregivers' stress and family functioning are important.

Most children with FAS and problems related to alcohol exposure require some special education services through the local school system. As many children also meet criteria for ADHD, medication management is often part of a family's treatment plan. Consultation with a mental health professional with expertise in this area can be extremely helpful to the family in terms of both education related to FAS and behavior management issues.

Finally, as this syndrome and related problems are wholly preventable, special efforts should be taken in educating childbearing women about the dangers of alcohol use during pregnancy. Motivational interviewing techniques have been found to be effective in interventions with individuals abusing alcohol. In general, improving and increasing treatment services for women who abuse alcohol are critical to reducing the number of children and families impacted by FAS and related problems.

PROGNOSIS

The prognosis for children with FAS and alcohol-related disabilities is, unfortunately, not promising. As noted above, children are at increased risk for a variety of problems. They are also at increased risk for specific learning disabilities (e.g., arithmetic), problems with memory, judgment, abstract reasoning, and poor adaptive functioning. Through early assessment of the child and the caregivers, relative strengths can be identified. Targeted services can then address these areas of strength as well as deficits to enhance the ability of helping the child reach his/her full potential.

See also: Attention-Deficit/Hyperactivity Disorder; Behavior Modification; Child Maltreatment; Effects of Parental Substance Abuse on Children; Family Intervention; Substance Abuse

Further Reading

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<http://www.nofas.org>

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Learning Disorders

Learning disorders occur in persons who have at least average intelligence, but difficulty processing certain types of information; this difficulty leads to problems in learning to read, spell, write, perform math, listen, or speak. Learning disorders should be distinguished from other types of learning problems caused by such things as mental retardation, borderline intellectual ability, underachievement, primary sensory or motor disabilities, behavioral or emotional dysfunction, and/or environmental deprivation. According to *DSM-IV-TR*, the primary criterion for learning disorders is a failure to achieve at a level commensurate with one's chronological age, measured intelligence, and age-appropriate education. The learning disorder must also interfere significantly with one's academic achievement or activities of daily living. Learning disorders are commonly referred to as "learning disabilities" in school systems, and the child's eligibility for intervention services usually is determined by the presence of a severe discrepancy between the child's intellectual and academic functioning.

Children with learning disabilities comprise the largest group of children with disabilities from birth to 21 years who receive special education services in U.S. public schools. They receive 46 percent of the special education funding compared to the next largest group (speech or language impairments) that receives 17.6 percent of the funding. This corresponds to approximately 2.8 million students who have a primary diagnosis of learning disability severe enough to be eligible for special education services (U.S. Department of Education, June

2000). The terms learning disabilities and learning disorders will be considered interchangeable in this entry.

TYPES OF LEARNING DISORDERS

Early research on learning disabilities assumed that the disorder was homogeneous and possibly caused by a single underlying factor. Current researchers consider learning disabilities to be a heterogeneous set of disorders that may have several etiologies. Subtyping of learning disabilities and their underlying processing deficits has become common practice. The primary subtypes of learning disabilities are described in Table 1.

In addition to subtyping according to the academic area affected by the learning disorder, it is important to subtype also by the information processing deficits that underlie the disorder. Much of the subtyping research to date has been done with dyslexia. For instance, a child with phonological processing deficits that underlie a reading disorder may have problems remembering or discriminating between similar phonetic sounds, or have problems blending phonetic sounds together into syllables and words. A child with visual perceptual deficits may have difficulty remembering or discriminating between similar graphemes (e.g., letters such as b-d, p-q) that leads to reading errors. This child may have a poor sight-reading vocabulary. Children with sensorimotor processing problems may manifest their problems more in writing. Their written production may be slow, poorly legible, disorganized, or replete with errors of spelling. Often individuals with this type of processing problem may demonstrate their knowledge well orally, but fail to communicate this

Table 1. Primary Subtypes of Learning Disability

Reading Disorder (Dyslexia)	A disorder in one or more of the basic skills involved in reading, including basic reading skills (e.g., letter–word recognition and identification, phonetic analysis and synthesis) and reading comprehension skills.
Mathematics Disorder (Dyscalculia)	A disorder in one or more of the basic skills involved in mathematics, including computational skills (e.g., the math operations of adding, subtracting, algebra and geometry operations, etc.) and math reasoning abilities.
Disorder of Written Expression (Dysgraphia)	A disorder in one or more of the basic skills involved in written expression. This disorder may be manifest in: <ul style="list-style-type: none"> • Knowledge of rules for spelling, grammar, punctuation, and capitalization • Motor production of writing, including letter formation, kinesthetic-motor sequencing of letters to make words, speed of writing production, and spatial organization of written material • Semantic and syntactic abilities that underlie clear expression of ideas in written language, using age-appropriate vocabulary and correct sentence structure • Organization of ideas and themes for writing longer passages, such as themes or essays.

information at a commensurate level in written form. Accurate subtyping of learning disorders is essential for development of appropriate educational intervention strategies that will strengthen the child's information processing weaknesses while attempting to teach through their processing strengths.

DIAGNOSIS

Learning disorders are diagnosed through an individual psychoeducational evaluation that includes measures of intellectual and academic functioning, and various types of information processing abilities. Information processing refers to the brain's ability to interpret information from various types of sensory input (e.g., visual, tactile, motor), and process that information in an integrated manner to facilitate academic performance. For example, the ability to take a spelling test in class involves a complex series of processing steps, including auditory input of the spoken word, perhaps visualizing the word mentally, associating the various phonetic sounds with specific letters in the word, remembering the correct kinesthetic-motor patterns necessary for writing the letters and sequencing them correctly, as well as accessing one's knowledge of specific spelling rules that govern the irregular spelling of many words in the English language. This complex processing ability is mediated by many different parts of the brain, specific to the particular type of academic skill being performed. Psychologists are the primary professionals to conduct this type of evaluation, although educators trained in assessment may sometimes conduct the academic portion of the examination.

In addition to the intellectual, academic, and information processing assessment, individuals with

suspected learning disorders should be examined medically to rule out even a subtle auditory or visual acuity deficit that could interfere with learning. A medical evaluation can also determine the integrity of the child's motor system as it supports writing skills. Often a speech/language pathologist will participate in an evaluation to examine whether receptive/expressive language, articulation, or auditory processing problems are present. Care should be taken to rule out primary sensory or motor deficits or mental retardation that could explain the individual's learning difficulty. Psychologists will also take a careful background history to determine if the child has had appropriate opportunities for learning (e.g., regular school attendance) and to rule out significant environmental deprivation and/or emotional problems as the primary cause of the child's learning problems.

COURSE OF THE DISORDER

Learning disorders typically are lifelong disabilities, although many individuals learn to compensate for the negative effects of the disorder through special education services they receive in school. A small number of children may experience a delay in maturation of functions needed for development of early academic skills, but they will typically catch up by 9 or 10 years of age. However, most individuals will continue to have some symptoms of learning disorders throughout their lives. The course of the disorder is also affected by the child's general intellectual ability and by the number of information processing areas affected by the learning disorder. For example, if a child has difficulty processing both auditory and visual information, their reading skills may be more seriously impaired than if only one

processing modality is affected. A child with a learning disability who has above average intelligence will likely fare better than one with below average intelligence. Family support, and the quality and timing of special education interventions, can also affect outcome.

ETIOLOGY OF LEARNING DISORDERS

The cause of learning disorders is still under investigation, but there is wide agreement that they are neurologically based disorders that affect central learning processes. Learning disorders may be inherited, and a family history will often reveal one or more close relatives with some form of learning disorder. Often several generations will display the disorder, and the familial pattern lends strong evidence for a genetic etiology in these cases. However, researchers have explored a number of other possible etiologies as well. Culbertson and colleagues (1996) suggest that causes may include brain structural differences that underlie the information processing deficits, differences in brain activity level (e.g., glucose metabolism) during academic tasks such as reading, and even perinatal or postnatal events that affect the developing fetus or young child. At present, researchers have not determined a single cause for learning disorders, and often it is not possible to determine a specific etiology for a given individual.

TREATMENT

Learning disorders are best treated through special education provided by educators who are specially trained (usually with at least a Master's degree in special education, and certification in the area of learning disabilities). These educators are found in public school systems all across the United States, but not necessarily in every school. Special education and related services are provided free of charge to all eligible children through Public Law 101-476 (Individuals with Disabilities Education Act of 1990, or IDEA). Once a child is diagnosed with a learning disability and determined to be eligible for special education services by a multidisciplinary team of educators, ancillary professionals, and parents, the team will develop an Individualized Educational Plan (IEP) that is appropriate for the needs of the child. The type, intensity, and setting for provision of the special education services will be determined at that time. Although special education services are important in helping children learn despite their learning disability, these services should not be considered a "cure" for the disability. Often the focus in early

grades is upon remedial education, but eventually the focus will shift to assisting older elementary children and adolescents to develop compensation strategies for working around their disability. In addition, modifications in the child's curriculum may be detailed in the IEP. For example, a child with a disorder of written expression may need additional time to complete written tests, or may need to request that a good "note-taker" in class share his or her lecture notes.

With the passage of the Americans with Disabilities Act of 1990 (P.L. 101-336), individuals with learning disabilities are protected from discrimination. This law has led institutions of higher learning that accept public funding to institute policies and procedures to prevent discrimination against individuals with disabilities of all types. Most colleges and universities now have programs to assist students with disabilities who are willing to identify themselves and present documentation of their disability and need for accommodations. These events have opened the door to higher education to a growing number of students with learning disabilities who have the ability and desire to undertake higher education.

See also: Adolescent Assessment; Mental Retardation; Preschool Assessment; School Age Assessment; Underachievement

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Web Sites

- Learning Disabilities Association of America (<http://www.ldanatl.org>)
- LD OnLine (<http://www.ldonline.org>)
- National Information Center for Children and Youth with Disabilities (<http://www.nichcy.org>)
- National Adult Literacy and Learning Disabilities Center: Academy for Educational Development (<http://www.aed.org>)

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Posttraumatic Stress Disorder in Children

In recent years, media reports of devastating natural disasters, school shootings, and terrorist activities have drawn attention to the significant trauma that children and adults experience following such events. In fact, it has become apparent that children's exposure to traumatic events can lead to reactions that may interfere with their day-to-day functioning and cause them and their families significant distress. Specifically, exposure to natural disasters (e.g., hurricanes, tornadoes, fires, earthquakes, floods), as well as to man-made disasters (e.g., terrorist bombs, sniper shootings, plane crashes), represent traumatic events that frequently result in the emergence of a specific set of symptoms—those of posttraumatic stress disorder (PTSD). Moreover, exposure to life-threatening health conditions or medical treatments, and exposure to violence of a personal nature, such as through rape, kidnapping, physical and sexual abuse, and community violence, may also precipitate symptoms of PTSD.

PTSD DIAGNOSTIC CRITERIA AND RELATED SYMPTOMS

The diagnostic category of PTSD was introduced in the third edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (DSM)*. At that time, PTSD was primarily considered to be an adult disorder. However, in

recent years, there has been an increased awareness that children and adolescents also experience PTSD, and this is reflected in the fourth edition of the *DSM*, published in 1994. In *DSM-IV*, PTSD refers to a set of symptoms that develop following exposure to an unusually severe stressor or event; one that causes or is capable of causing death, injury, or threat to the physical integrity of oneself or another person. To meet criteria for a diagnosis of PTSD, a child's reaction to the traumatic event must include intense fear or helplessness; this may be expressed by agitated or disorganized behavior. Moreover, specific criteria for three additional symptom clusters must be met: reexperiencing, avoidance/numbing, and hyperarousal. *Reexperiencing* symptoms include recurrent or intrusive thoughts or dreams about the event and intense distress at cues or reminders of the event. For young children, reexperiencing may be reflected in repetitive play with traumatic themes or by reenactment of traumatic events in play, drawings, or verbalizations. *Avoidance* or *numbing* symptoms include efforts to avoid thoughts, feelings, or conversations about the traumatic event, avoiding reminders of the event, diminished interest in normal activities, and feeling detached or removed from others. *Hyperarousal* symptoms include difficulty sleeping or concentrating, irritability, angry outbursts, hypervigilance, and an exaggerated startle response; these behaviors must be newly occurring since the onset of the precipitating event. For a diagnosis of PTSD, the above symptoms must be evident for at least one month, and be accompanied by significant impairment in the child's functioning (e.g., problems in school, or in social or family relations). In addition, "types" of PTSD can be specified as follows: acute (duration of symptoms < 3 months), chronic (duration of symptoms

≥ 3 months), or delayed (onset of symptoms at least 6 months after the stressor).

Community studies suggest that reexperiencing symptoms are most commonly reported by child trauma victims; for example, Vernberg and colleagues found that 90 percent of children exposed to a catastrophic hurricane reported symptoms of reexperiencing 3 months after the disaster. In contrast, symptoms of avoidance and numbing are far less commonly reported by children, although Lonigan and colleagues found that their presence is a good indicator of the full PTSD diagnosis.

Diagnosing PTSD is especially difficult in very young children, such as infants, toddlers, and early preschoolers, in part due to their limited verbal capacity. With young children, generalized anxiety and fears, avoidance of certain situations that may be linked to the traumatic event, and sleep disturbances may be useful indicators of PTSD.

PTSD may be present or comorbid with other psychological difficulties. Following trauma, many children also report high levels of anxiety and/or depression. When trauma leads to the loss of loved ones, symptoms of bereavement may also be present.

PREVALENCE AND DEVELOPMENTAL COURSE

It is difficult to estimate the prevalence of PTSD in children and adolescents. Studies have been extremely diverse with respect to the type of trauma evaluated, assessment methods and sampling procedures used, and the length of time passed since the traumatic event occurred. Community studies suggest that approximately 24–39 percent of children and adolescents exposed to trauma (e.g., community violence, a natural disaster) meet criteria for PTSD. However, when subclinical levels of PTSD are considered, up to 55 percent of the children in large community samples have reported at least moderate levels of symptoms during the first 3 months following a traumatic event. Thus, PTSD symptoms are common among children exposed to trauma, although fewer youth will meet criteria for a PTSD diagnosis.

Little is known about the developmental course of PTSD in children over time. However, PTSD symptoms may emerge in the days or weeks following a traumatic event and can take months or years to dissipate. In the absence of reexposure to trauma or of the occurrence of other traumatic events, the typical developmental course of symptoms appears to be one of lessening frequency and intensity over time. For example, 3 months after a devastating and highly destructive natural disaster (Hurricane Andrew), La Greca and associates (2002) indi-

cated that 39 percent of the children in one community sample informally met criteria for PTSD, but this was reduced to 24 percent at 7 months postdisaster, and to 18 percent by 10 months postdisaster. A subgroup of children reporting moderate to severe PTSD symptoms was followed 42 months postdisaster, revealing that 40 percent continued to report moderate or more severe symptoms, as well as impairment in functioning; yet, almost none of the children who had mild or no symptoms at 10 months postdisaster reported any symptoms later on.

These data suggested a steady reduction in the frequency and severity of PTSD symptoms over time (with no further exposure to similar disasters), although a significant minority (approximately 7–10 percent) did not “recover” and continued to report substantial difficulties almost 4 years postdisaster. These findings also suggested that it may be highly unusual for children to report significant PTSD symptoms a year or more after a traumatic event, if they did not experience or report symptoms within 3 months of the event. Although there may be a brief period of “shock” or numbing, or sometimes elation and relief at still being alive, it is unusual to find a child reporting high levels of PTSD symptoms a year after the trauma, if no signs of distress were evident within the first few months after the traumatic event occurred.

With respect to the persistence of PTSD symptoms, findings suggest that children’s reactions to disasters and other traumatic events are not merely transitory events that quickly dissipate. On the contrary, they appear to linger and persist and, thus, are likely to cause distress to children and their families for some time. One factor that contributes to the persistence of PTSD symptoms over time is the occurrence of other significant life stressors. For example, La Greca and colleagues (2002) found that children who encounter major life stressors, such as a death or illness in the family or parental divorce, in the months or first few years following a traumatic event, do not appear to recover quickly, and report persistently high levels of PTSD over time.

DEMOGRAPHIC TRENDS

Several studies suggest that PTSD appears more frequently among girls than boys, although this has not consistently been the case. In addition, it is difficult to draw generalizations regarding children’s vulnerability to PTSD at different ages, as findings on age-related differences have been inconsistent and are probably influenced by diverse developmental manifestations of PTSD (see the report of the American Academy of Child and Adolescent Psychiatry published in 1998).

PTSD occurs across diverse ethnic and cultural groups. Community studies suggest that some minority youth exposed to severe natural disasters report more symptoms of PTSD and have a more difficult time recovering from such events than nonminority youth. It is possible that, at least in part, socioeconomic factors might account for such findings, in that children and families from minority backgrounds may have less financial resources or less adequate insurance to deal efficiently with the rebuilding process. This, in turn, could prolong the period of life disruption and loss of personal possessions that typically ensues after destructive natural disasters.

FACTORS THAT CONTRIBUTE TO PTSD IN CHILDREN

A wide range of traumatic events has been linked to the emergence of PTSD in children. However, first and foremost of these factors is children's *exposure to the traumatic event*. Two aspects of exposure that are important are: (1) the presence or perception of *life threat*, and (2) *personal loss or disruption* of everyday events. In fact, the presence or perception of life-threat is considered to be essential for the emergence of PTSD. Children who witness or are exposed to acts of violence, such as sniper shootings or severe physical abuse, understandably may feel that their life is in danger (i.e., life-threat). It is also the case, however, that catastrophic natural disasters or personal disasters (e.g., residential fires, motor vehicle accidents) can elicit perceptions of life-threat in children, *even if no one is injured or hurt*. For example, although relatively few lives were lost in South Florida as a result of Hurricane Andrew, the extensive destruction of homes and property that occurred during the storm was terrifying to many children and adults. In a study conducted by Vernberg and colleagues, 60 percent of the children interviewed "thought they were going to die" during the storm. Thus, perceptions of life-threat can occur in the absence of actual loss of life or serious injury. In addition to life-threat, the experience of loss (of family and friends, of personal property) and disruption of everyday life (displacement from home, school, community) also contribute to PTSD in children. The life-changes that result from this aspect of exposure to trauma also predict PTSD symptoms in children.

A second factor that contributes to PTSD in children following traumatic events is the presence of prior psychological difficulties. Children with preexisting psychological problems, especially anxiety, seem to be more vulnerable to PTSD reactions following trauma. For

example, in another study conducted by La Greca and associates (2002), children's anxiety levels 15 months *before* a traumatic event were found to predict their levels of PTSD symptoms 3 and 7 months postdisaster, even when controlling for children's exposure to the event. In addition, children who had greater levels of exposure to the disaster showed an increase in anxiety symptoms following the disaster. These findings are interesting in that the current conceptualization of PTSD, as reflected in *DSM-IV*, suggests that trauma must be present for PTSD to emerge. However, anxious children may have a vulnerability to PTSD, even if their degree of exposure to a trauma is relatively low.

Other factors that predict the severity and persistence of PTSD symptoms in children following trauma are the occurrence of intervening life events and reexposure to the traumatic event. On the other hand, factors that have been found to mitigate the impact of trauma include the availability of social support and the types of coping skills children use. Following traumatic events, children with higher levels of social support from significant others (especially parents, teachers, friends, and classmates) report fewer symptoms of PTSD than those with low levels of social support. Some community studies have found that children with more negative coping strategies for dealing with stress (e.g., anger, blaming others) show greater persistence in their PTSD symptoms over time. Because of these findings, efforts to enhance the social support of children exposed to trauma, and to encourage adaptive coping skills, may be useful for strategies for interventions with children following traumatic events.

See also: Acute Stress Disorder; Anxiety Disorders; Child Maltreatment; Cognitive-Behavior Therapy; Eye-Movement Desensitization and Reprocessing; Specific Phobia

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