

Helping Children and Adolescents Cope with Violence and Disasters



From the National Institute of
Mental Health

FACT SHEET

Office of Communications and
Public Liaison
6001 Executive Blvd.
Room 8184, MSC 9663
Bethesda, MD 20892-9663
Phone: 301-443-4513
TTY: 301-443-8431
FAX: 301-443-4279
E-mail: nimhinfo@nih.gov
Web site: www.nimh.nih.gov

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Helping young people avoid or overcome emotional problems in the wake of violence or disaster is one of the most important challenges a parent, teacher, or mental health professional can face. The National Institute of Mental Health and other Federal agencies are working to address the issue of assisting children and adolescents who have been victims of or witnesses to violent and/or catastrophic events. The purpose of this fact sheet is to tell what is known about the impact of violence and disasters on children and adolescents and suggest steps to minimize long-term emotional harm.

In the aftermath of the terrorist attacks on New York City and Washington, DC, both adults and children are struggling with the emotional impact of such large-scale damage and losses of life. Other major acts of violence that have been felt across the country include the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City and the 1999 shootings at Columbine High School in Littleton, Colorado. While these disastrous events have caught the Nation's attention, they are only a fraction of the many tragic episodes that affect children's lives. Each year many children and adolescents sustain injuries from violence, lose friends or family members, or are adversely

An NIMH Snapshot

The National Institute of Mental Health (NIMH) is a component of the National Institutes of Health (NIH), the Government's principal biomedical and behavioral research agency. NIH is part of the U.S. Department of Health and Human Services. The actual total fiscal year 2000 NIMH budget was \$974 million.

NIMH Mission

To reduce the burden of mental illness through research on mind, brain, and behavior.

- NIMH conducts research on mental disorders and the underlying basic science of brain and behavior.
- NIMH supports research on these topics at universities and hospitals around the United States.
- NIMH collects, analyzes, and disseminates information on the causes, occurrence, and treatment of mental illnesses.
- NIMH supports the training of more than 1,000 scientists to carry out basic and clinical research.
- NIMH communicates information to scientists, the public, the news media, and primary care and mental health professionals about mental illnesses, the brain, mental health, and research in these areas.

affected by witnessing a violent or catastrophic event. Each situation is unique, whether it centers upon a plane crash where many people are killed, automobile accidents involving friends or family members, or natural disasters such as the Northridge, California Earthquake (1994) or Hurricane Floyd (1999) where deaths occur and homes are lost—but these events have similarities as well and cause similar reactions in children. Even in the course of everyday life, exposure to violence in the home or on the streets can lead to emotional harm.

Research has shown that both adults and children who experience catastrophic events show a wide range of reactions.^{1,2} Some suffer only worries and bad memories that fade with emotional support and the passage of time. Others are more deeply affected and experience long-term problems. Research on post-traumatic stress disorder (PTSD) shows that some soldiers, survivors of criminal victimization, torture and other violence, and survivors of natural and human-made catastrophes suffer long-term effects from their experiences. Children who have witnessed violence in their families, schools, or communities are also vulnerable to serious long-term problems. Their emotional reactions, including fear, depression, withdrawal or anger, can occur immediately or some time after the tragic event. Youngsters who have experienced a catastrophic event often need support from parents and teachers to avoid long-term emotional harm. Most will recover in a short time, but the few who develop PTSD or other persistent problems need treatment.

Trauma—What Is It?

“Trauma” has both a medical and a psychiatric definition. Medically, “trauma” refers to a serious or critical bodily injury, wound, or shock. This definition is often associated with trauma medicine practiced in emergency rooms and represents a popular view of the term. Psychiatrically, “trauma” has assumed a different meaning and refers to an experience that is emotionally painful, distressful, or shocking, which often results in lasting mental and physical effects.

Psychiatric trauma, or emotional harm, is essentially a normal response to an extreme event. It involves the creation of emotional memories about the distressful event that are stored in structures deep within the brain. In general, it is believed that the more direct the exposure to the traumatic event, the higher the risk for emotional harm.³ Thus in a school shooting, for example, the student who is injured probably will be most severely affected emotionally; and the student who sees a classmate shot, even killed, is likely to be more emotionally affected than the student who was in another part of the school when the violence occurred. But even second-hand exposure to violence can be traumatic. For this reason, all children and adolescents exposed to violence or a disaster, even if only through graphic media reports, should be watched for signs of emotional distress.

How Children and Adolescents React to Trauma

Reactions to trauma may appear immediately after the traumatic event or days and even weeks later. Loss of trust in adults and fear of the event occurring again are responses seen in many children and adolescents who have been exposed to traumatic events. Other reactions vary according to age:⁴⁻⁷

For children 5 years of age and younger, typical reactions can include a fear of being separated from the parent, crying, whimpering, screaming, immobility and/or aimless motion, trembling, frightened facial expressions and excessive clinging. Parents may also notice children returning to behaviors exhibited at earlier ages (these are called regressive behaviors), such as thumb-sucking, bedwetting, and fear of darkness. Children in this age bracket tend to be strongly affected by the parents’ reactions to the traumatic event.

Children 6 to 11 years old may show extreme withdrawal, disruptive behavior, and/or inability to pay attention. Regressive behaviors, nightmares, sleep problems, irrational fears, irritability, refusal to attend school, outbursts of anger and fighting are also common in

traumatized children of this age. Also the child may complain of stomachaches or other bodily symptoms that have no medical basis. Schoolwork often suffers. Depression, anxiety, feelings of guilt and emotional numbing or “flatness” are often present as well.

Adolescents 12 to 17 years old may exhibit responses similar to those of adults, including flashbacks, nightmares, emotional numbing, avoidance of any reminders of the traumatic event, depression, substance abuse, problems with peers, and antisocial behavior. Also common are withdrawal and isolation, physical complaints, suicidal thoughts, school avoidance, academic decline, sleep disturbances, and confusion. The adolescent may feel extreme guilt over his or her failure to prevent injury or loss of life, and may harbor revenge fantasies that interfere with recovery from the trauma.

Some youngsters are more vulnerable to the effects of trauma than others, for reasons scientists do not fully understand. It has been shown that the impact of a traumatic event is likely to be greatest in the child or adolescent who previously has been the victim of child abuse or some other form of trauma, or who already had a mental health problem.⁸⁻¹¹ In addition, the youngster who lacks family support is more at risk for a poor recovery.¹²

Helping the Child or Adolescent Trauma Survivor

Early intervention to help children and adolescents who have suffered trauma due to violence or a disaster is critical. Parents, teachers and mental health professionals can do a great deal to help these youngsters recover. Help should begin at the scene of the traumatic event.

According to the National Center for Post-Traumatic Stress Disorder of the Department of Veterans Affairs, workers in charge of a disaster scene should:

- Find ways to protect children from further harm and from further exposure to traumatic stimuli. If possible, create a safe haven for them. Protect children from onlookers and the media covering the story.

- When possible, direct children who are able to walk away from the site of violence or destruction, away from severely injured survivors, and away from continuing danger. Kind but firm direction is needed.

- Identify children in acute distress and stay with them until initial stabilization occurs. Acute distress includes panic (marked by trembling, agitation, rambling speech, becoming mute, or erratic behavior) and intense grief (signs include loud crying, rage, or immobility).

- Use a supportive and compassionate verbal or non-verbal exchange (such as a hug, if appropriate) with the child to help him or her feel safe. However brief the exchange, or however temporary, such reassurances are important to children.

After violence or a disaster occurs, the family is the first-line resource for helping. Among the things that parents and other caring adults can do are:

- Explain the episode of violence or disaster as well as you are able.

- Encourage the children to express their feelings and listen without passing judgment. Help younger children learn to use words that express their feelings. However, do not force discussion of the traumatic event.

- Let children and adolescents know that it is normal to feel upset after something bad happens.

- Allow time for the youngsters to experience and talk about their feelings. At home, however, a gradual return to routine can be reassuring to the child.

- If your children are fearful, reassure them that you love them and will take care of them. Stay together as a family as much as possible.

- If behavior at bedtime is a problem, give the child extra time and reassurance. Let him or her sleep with a light on or in your room for a limited time if necessary.

- Reassure children and adolescents that the traumatic event was not their fault.

- Do not criticize regressive behavior or shame the child with words like “babyish.”

- Allow children to cry or be sad. Don't expect them to be brave or tough.

- Encourage children and adolescents to feel in control. Let them make some decisions about meals, what to wear, etc.
- Take care of yourself so you can take care of the children.

When violence or disaster affects a whole school or community, teachers and school administrators can play a major role in the healing process. Some of the things educators can do are:

- If possible, give yourself a bit of time to come to terms with the event before you attempt to reassure the children. This may not be possible in the case of a violent episode that occurs at school, but sometimes in a natural disaster there will be several days before schools reopen and teachers can take the time to prepare themselves emotionally.
- Don't try to rush back to ordinary school routines too soon. Give the children or adolescents time to talk over the traumatic event and express their feelings about it.
- Respect the preferences of children who do not want to participate in class discussions about the traumatic event. Do not force discussion or repeatedly bring up the catastrophic event; doing so may re-traumatize children.
- Hold in-school sessions with entire classes, with smaller groups of students, or with individual students. These sessions can be very useful in letting students know that their fears and concerns are normal reactions. Many counties and school districts have teams that will go into schools to hold such sessions after a disaster or episode of violence. Involve mental health professionals in these activities if possible.
- Offer art and play therapy for young children in school.
- Be sensitive to cultural differences among the children. In some cultures, for example, it is not acceptable to express negative emotions. Also, the child who is reluctant to make eye contact with a teacher may not be depressed, but may simply be exhibiting behavior appropriate to his or her culture.

- Encourage children to develop coping and problem-solving skills and age-appropriate methods for managing anxiety.
- Hold meetings for parents to discuss the traumatic event, their children's response to it, and how they and you can help. Involve mental health professionals in these meetings if possible.

Most children and adolescents, if given support such as that described above, will recover almost completely from the fear and anxiety caused by a traumatic experience within a few weeks. However, some children and adolescents will need more help perhaps over a longer period of time in order to heal. Grief over the loss of a loved one, teacher, friend, or pet may take months to resolve, and may be reawakened by reminders such as media reports or the anniversary of the death.

In the immediate aftermath of a traumatic event, and in the weeks following, it is important to identify the youngsters who are in need of more intensive support and therapy because of profound grief or some other extreme emotion. Children and adolescents who may require the help of a mental health professional include those who show avoidance behavior, such as resisting or refusing to go places that remind them of the place where the traumatic event occurred, and emotional numbing, a diminished emotional response or lack of feeling toward the event. Youngsters who have more common reactions including re-experiencing the trauma, or reliving it in the form of nightmares and disturbing recollections during the day, and hyper-arousal, including sleep disturbances and a tendency to be easily startled, may respond well to supportive reassurance from parents and teachers.

Post-Traumatic Stress Disorder

As mentioned earlier, some children and adolescents will have prolonged problems after a traumatic event. These potentially chronic conditions include depression and prolonged grief. Another serious and potentially long-lasting problem is post-traumatic stress disorder (PTSD). This condition is diagnosed when the following

symptoms have been present for longer than one month:

- *Re-experiencing* the event through play or in trauma-specific nightmares or flashbacks, or distress over events that resemble or symbolize the trauma
- Routine *avoidance* of reminders of the event or a general lack of responsiveness (e.g., diminished interests or a sense of having a foreshortened future)
- Increased sleep disturbances, irritability, poor concentration, startle reaction and regressive behavior

Rates of PTSD identified in child and adult survivors of violence and disasters vary widely. For example, estimates range from 2% after a natural disaster (tornado), 28% after an episode of terrorism (mass shooting), and 29% after a plane crash.¹³

The disorder may arise weeks or months after the traumatic event. PTSD may resolve without treatment, but some form of therapy by a mental health professional is often required in order for healing to occur. Fortunately, it is more common for traumatized individuals to have some of the symptoms of PTSD than to develop the full-blown disorder.¹⁴

As noted above, people differ in their vulnerability to PTSD, and the source of this difference is not known in its entirety. Researchers have identified factors that interact to influence vulnerability to developing PTSD. These factors include:

- characteristics of the trauma exposure itself (e.g., proximity to trauma, severity, and duration),
- characteristics of the individual (e.g., prior trauma exposures, family history/prior psychiatric illness, and gender—women are at greatest risk for many of the most common assaultive traumas), and
- post-trauma factors (e.g., availability of social support, emergence of avoidance/numbing, hyperarousal and re-experiencing symptoms).

Research has shown that PTSD clearly alters a number of fundamental brain mechanisms. Abnormal levels of brain chemicals that affect coping behavior, learning, and memory have been detected

among people with the disorder. In addition, recent imaging studies have discovered altered metabolism and blood flow in the brain as well as structural brain changes in people with PTSD.¹⁵⁻¹⁹

Treatment of PTSD

People with PTSD are treated with specialized forms of psychotherapy and sometimes with medications or a combination of the two. One of the forms of psychotherapy shown to be effective is cognitive behavioral therapy, or CBT. In CBT, the patient is taught methods of overcoming anxiety or depression and modifying undesirable behaviors such as avoidance of reminders of the traumatic event. The therapist helps the patient examine and re-evaluate beliefs that are interfering with healing, such as the belief that the traumatic event will happen again. Children who undergo CBT are taught to avoid “catastrophizing.” For example, they are reassured that dark clouds do not necessarily mean another hurricane, that the fact that someone is angry does not necessarily mean that another shooting is imminent, etc. Play therapy and art therapy also can help younger children to remember the traumatic event safely and express their feelings about it. Other forms of psychotherapy that have been found to help persons with PTSD include group and exposure therapy. A reasonable period of time for treatment of PTSD is 6 to 12 weeks with occasional follow-up sessions, but treatment may be longer depending on a patient’s particular circumstances. Research has shown that support from family and friends can be an important part of recovery.

There has been a good deal of research on the use of medications for adults with PTSD, including research on the formation of emotionally charged memories and medications that may help block the development of symptoms.²⁰⁻²² Medications appear to be useful in reducing overwhelming symptoms of arousal (such as sleep disturbances and an exaggerated startle reflex), intrusive thoughts, and avoidance; reducing accompanying conditions such as depression and panic; and improving impulse control and related

behavioral problems. Research is just beginning on the use of medications to treat PTSD in children and adolescents.

There is accumulating empirical evidence that trauma/grief-focused psychotherapy and selected pharmacologic interventions can be effective in alleviating PTSD symptoms and in addressing co-occurring depression.²³⁻²⁶ However, more medication treatment research is needed.

A mental health professional with special expertise in the area of child and adolescent trauma is the best person to help a youngster with PTSD. Organizations on the accompanying resource list may help you to find such a specialist in your geographical area.

What Are Scientists Learning About Trauma in Children and Adolescents?

The National Institute of Mental Health (NIMH), a part of the Federal Government's National Institutes of Health, supports research on the brain and a wide range of mental disorders, including PTSD and related conditions. The Department of Veterans Affairs also conducts research in this area with adults and their family members.

Recent research findings include:

- Some studies show that counseling children very soon after a catastrophic event may reduce some of the symptoms of PTSD. A study of trauma/grief-focused psychotherapy among early adolescents exposed to an earthquake found that brief psychotherapy was effective in alleviating PTSD symptoms and preventing the worsening of co-occurring depression.²⁷
- Parents' responses to a violent event or disaster strongly influence their children's ability to recover. This is particularly true for mothers of young children. If the mother is depressed or highly anxious, she may need to get emotional support or counseling in order to be able to help her child.²⁸⁻³⁰
- Either being exposed to violence within the home for an extended period of time or exposure to a one-time event like

an attack by a dog can cause PTSD in a child.

- Community violence can have a profound effect on teachers as well as students. One study of Head Start teachers who lived through the 1992 Los Angeles riots showed that 7% had severe post-traumatic stress symptoms, and 29% had moderate symptoms. Children also were acutely affected by the violence and anxiety around them. They were more aggressive and noisy and less likely to be obedient or get along with each other.³¹
- Research has demonstrated that PTSD after exposure to a variety of traumatic events (family violence, child abuse, disasters, and community violence) is often accompanied by depression.^{3,32-35} Depression must be treated along with PTSD, and early treatment is best.
- Inner-city children experience the greatest exposure to violence. A study of young adolescent boys from inner-city Chicago showed that 68% had seen someone beaten up and 22.5% had seen someone shot or killed. Youngsters who had been exposed to community violence were more likely to exhibit aggressive behavior or depression within the following year.^{36,37}

NIMH-supported scientists are continuing to conduct research into the impact of violence and disaster on children and adolescents. For example, one study will follow 6,000 Chicago children from 80 different neighborhoods over a period of several years.³⁸ It will examine the emotional, social and academic effects of exposure to violence. In some of the children, the researchers will look at the role of stress hormones in the response to traumatic experiences. Another study will deal specifically with the victims of school violence, attempting to determine what places children at risk for victimization at school and what factors protect them.³⁹

It is particularly important to conduct research to discover which individual, family, school and community interventions work best for children and adolescents exposed to violence or disaster, and to find out whether a well-intended but ill-designed intervention could set the youngsters back by keeping the trauma

alive in their minds. Through research, NIMH hopes to gain knowledge to lessen the suffering that violence and disasters impose on children and adolescents and their families.

The General Public can obtain publications about PTSD and other anxiety disorders by calling NIMH's toll-free information service, 1-88-88-ANXIETY, or calling the Institute's public inquiries office at 301-443-4513. Information is also available online from NIMH's Web site: <http://www.nimh.nih.gov/anxiety/anxietymenu.cfm>. The accompanying resource list below indicates agencies or organizations that may have additional information about helping children and adolescents cope with violence and disasters. *Reporters* interested in PTSD and other anxiety disorders may contact the NIMH press office at 301-443-4536.

Violence/Disasters/PTSD Resource List

National Institute of Mental Health (NIMH)
Information Resources and Inquiries Branch
6001 Executive Boulevard, Rm. 8184,
MSC 9663
Bethesda, MD 20892-9663
PTSD/Anxiety Disorders Publications:
1-88-88-ANXIETY
Public Inquiries: 301-443-4513
Media Inquiries: 301-443-4536
TTY: 301-443-8431
E-mail: nimhinfo@nih.gov
Web site: <http://www.nimh.nih.gov>

Center for Mental Health Services (CMHS)
Emergency Services and Disaster
Relief Branch
5600 Fishers Lane, Room 17C-20
Rockville, MD 20857
Phone: 301-443-4735
E-mail: ken@mentalhealth.org
Web site: <http://www.mentalhealth.org/cmhs/emergencyservices/index.htm>

U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202
Phone: 1-800-USA-LEARN
TTY: 1-800-437-0833
E-mail: customerservice@inet.ed.gov
Web site: <http://www.ed.gov>

Center for Mental Health Services (CMHS)

CMHS is a component of the Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services. The Federal Emergency Management Agency, working with the CMHS' Emergency Services and Disaster Relief Branch (ESDRB), provides funding support for mental health services following a disaster. The Crisis Counseling Assistance and Training Program is implemented at the request of a state or territory when a "Major Disaster" has been declared by the President. Funding for the Crisis Counseling Program (CCP) is not automatic. Funding is provided if the need is beyond the means of state and local providers. Legislative authority is based on the Robert T. Stafford Disaster Assistance Act, Section 416 (Public Law 100-707). There are three components to the CCP program: Immediate Services, Regular Services, and Training and Preparedness. The 60-day Immediate Services Program (ISP) provides services from the date of the incident. The Regular Services Program (RSP) follows the ISP when there is a proven need and provides services for up to 9 months. A week-long training program is completed each year for state mental health authorities to assist in planning for mental health response to disasters. For more information about the CCP program, call the Emergency Services and Disaster Relief Branch, CMHS, at 301-443-4735.

U.S. Department of Justice
950 Pennsylvania Avenue, NW
Washington, DC 20530-0001
E-mail: AskDOJ@usdoj.gov
Web site: <http://www.usdoj.gov>

Federal Emergency Management Agency
(Information for children and adolescents)
P.O. Box 2012
Jessup MD 20794-2012
Publications: 1-800-480-2520
Web site: <http://www.fema.gov/kids>

International Society for Traumatic Stress Studies (ISTSS)

60 Revere Drive, Suite 500
Northbrook, IL 60062
Phone: 847-480-9028
E-mail: istss@istss.org
Web site: <http://www.istss.org>

National Center for PTSD

215 N. Main Street
White River Junction, VT 05009
Phone: 802-296-5132
E-mail: ptsd@dartmouth.edu
Web site: <http://www.ncptsd.org>

National Center for Victims of Crime

2111 Wilson Boulevard, Suite 300
Arlington, VA 22201
Phone: 703-276-2880
E-mail: mail@ncvc.org
Web site: <http://www.nvc.org>

National Organization for Victim Assistance (NOVA)

1757 Park Road, NW
Washington, DC 20010
Phone: 1-800-879-6682 or 202-232-6682
E-mail: nova@try-nova.org
Web site: <http://www.try-nova.org>

Office for Victims of Crime Resource Center

National Criminal Justice Reference Service
P.O. Box 6000
Rockville, MD 20850
Phone: 1-800-627-6872
E-mail: askncjrs@ncjrs.org
Web site: <http://www.ncjrs.org>

American Psychiatric Association

1400 K Street, NW
Washington, DC 20005
Phone: 1-888-357-7924 or 202-682-6000
E-mail: apa@psych.org
Web site: <http://www.psych.org>

American Psychological Association

750 First Street, NE
Washington, DC 20002
Phone: 202-336-5500
Web site: <http://www.apa.org>

American Academy of Child and Adolescent Psychiatry

3615 Wisconsin Avenue, NW
Washington, DC 20016-3007

Phone: 202-966-7300

Web site: <http://www.aacap.org>

Anxiety Disorders Association of America (ADAA)

11900 Parklawn Drive, Suite 100
Rockville, MD 20852
Phone: 301-231-9350
E-mail: AnxDis@adaa.org
Web site: <http://www.adaa.org>

References

- ¹Yehuda R, McFarlane AC, Shalev AY. Predicting the development of posttraumatic stress disorder from the acute response to a traumatic event. *Biological Psychiatry*, 1998; 44(12): 1305-13.
- ²Smith EM, North CS. Posttraumatic stress disorder in natural disasters and technological accidents. In: Wilson JP, Raphael B, eds. *International handbook of traumatic stress syndromes*. New York: Plenum Press, 1993; 405-19.
- ³March JS, Amaya-Jackson L, Terry R, Costanzo P. Posttraumatic symptomatology in children and adolescents after an industrial fire. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1997; 36(8): 1080-8.
- ⁴Osofsky JD. The effects of exposure to violence on young children. *American Psychologist*, 1995; 50(9): 782-8.
- ⁵Pynoos RS, Steinberg AM, Goenjian AK. Traumatic stress in childhood and adolescence: recent developments and current controversies. In: Van der Kolk BA, McFarlane AC, Weisaeth L, eds. *Traumatic stress: the effects of overwhelming experience on mind, body, and society*. New York: Guilford Press, 1996; 331-58.
- ⁶Marans S, Adelman A. Experiencing violence in a developmental context. In: Osofsky JD, et al., eds. *Children in a violent society*. New York: Guilford Press, 1997; 202-22.

- ⁷Vogel JM, Vernberg EM. Psychological responses of children to natural and human-made disasters: I. Children's psychological responses to disasters. *Journal of Clinical Child Psychology*, 1993; 22(4): 464-84.
- ⁸Garbarino J, Kostelny K, Dubrow N. What children can tell us about living in danger. *American Psychologist*, 1991; 46(4): 376-83.
- ⁹Duncan RD, Saunders BE, Kilpatrick DG, Hanson RF, Resnick HS. Childhood physical assault as a risk factor for PTSD, depression, and substance abuse: findings from a national survey. *American Journal of Orthopsychiatry*, 1996; 66(3): 437-48.
- ¹⁰Boney-McCoy S, Finkelhor D. Prior victimization: a risk factor for child sexual abuse and for PTSD-related symptomatology among sexually abused youth. *Child Abuse and Neglect*, 1995; 19(12): 1401-21.
- ¹¹Roth SH, Newman E, Pelcovitz D, Van der Kolk BA, Mandel FS. Complex PTSD in victims exposed to sexual and physical abuse: results from the DSM-IV Field Trial for Posttraumatic Stress Disorder. *Journal of Traumatic Stress*, 1997; 10(4): 539-55.
- ¹²Morrison JA. Protective factors associated with children's emotional responses to chronic community violence exposure. *Trauma, Violence, and Abuse: A Review Journal*, 2000; 1(4): 299-320.
- ¹³Smith EM, North CS, Spitznagel EL. Posttraumatic stress in survivors of three disasters. *Journal of Social Behavior and Personality*, 1993; 8(5): 353-68.
- ¹⁴Breslau N, Kessler RC, Chilcoat HD, Schultz LR, Davis GC, Andreski P. Trauma and posttraumatic stress disorder in the community: the 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry*, 1998; 55(7): 626-32.
- ¹⁵Bremner JD, Randall P, Scott TM, Bronen RA, Seibyl JP, Southwick SM, Delaney RC, McCarthy G, Charney DS, Innis RB. MRI-based measurement of hippocampal volume in combat-related posttraumatic stress disorder. *American Journal of Psychiatry*, 1995; 152(7): 973-81.
- ¹⁶Stein MB, Hanna C, Koverola C, Torchia M, McClarty B. Structural brain changes in PTSD: does trauma alter neuroanatomy? In: Yehuda R, McFarlane AC, eds. *Psychobiology of posttraumatic stress disorder. Annals of the New York Academy of Sciences*, Vol. 821. New York: The New York Academy of Sciences, 1997; 76-82.
- ¹⁷Rauch SL, Shin LM. Functional neuroimaging studies in posttraumatic stress disorder. In: Yehuda R, McFarlane AC, eds. *Psychobiology of posttraumatic stress disorder. Annals of the New York Academy of Sciences*, Vol. 821. New York: The New York Academy of Sciences, 1997; 83-98.
- ¹⁸De Bellis MD, Baum AS, Birmaher B, Keshavan MS, Eccard CH, Boring AM, Jenkins FJ, Ryan ND. Developmental traumatology part I: biological stress systems. *Biological Psychiatry*, 1999; 45(10): 1259-70.
- ¹⁹De Bellis MD, Keshavan MS, Clark DB, Casey BJ, Giedd JN, Boring AM, Frustaci K, Ryan ND. Developmental traumatology part II: brain development. *Biological Psychiatry*, 1999; 45(10): 1271-84.
- ²⁰Golier JA, Yehuda R. Neuroendocrine activity and memory-related impairments in posttraumatic stress disorder. *Development and Psychopathology*, 1998; 10(4): 857-69.
- ²¹Cahill L. The neurobiology of emotionally influenced memory: implications for understanding traumatic memory. In: Yehuda R, McFarlane AC, eds. *Psychobiology of posttraumatic stress disorder. Annals of the New York Academy of Sciences*, Vol. 821. New York: The New York Academy of Sciences, 1997; 238-46.
- ²²Gold PE, McCarty RC. Stress regulation of memory processes: role of peripheral catecholamines and glucose. In: Friedman MJ, Charney DS, Deutch AY, eds. *Neurobiological and clinical consequences of stress: from normal adaptation to post-traumatic stress disorder*. Philadelphia: Lippincott-Raven, 1995; 151-62.
- ²³Yule W, Canterbury R. The treatment of post traumatic stress disorder in children and adolescents. *International Review of Psychiatry*, 1994; 6(2-3): 141-51.

- ²⁴Goenjian AK, Karayan I, Pynoos RS, Minassian D, Najarian LM, Steinberg AM, Fairbanks LA. Outcome of psychotherapy among early adolescents after trauma. *American Journal of Psychiatry*, 1997; 154(4): 536-42.
- ²⁵March JS, Amaya-Jackson L, Pynoos RS. Pediatric posttraumatic stress disorder. In: Weiner JM, ed. *Textbook of child and adolescent psychiatry, 2nd edition*. Washington, DC: American Psychiatric Press, 1997; 507-24.
- ²⁶Murphy L, Pynoos RS, James CB. The trauma/grief-focused group psychotherapy module of an elementary school-based violence prevention/intervention program. In: Osofsky JD, et al., eds. *Children in a violent society*. New York: Guilford Press, 1997; 223-55.
- ²⁷Goenjian AK, Karayan I, Pynoos RS, Minassian D, Najarian LM, Steinberg AM, Fairbanks LA. Outcome of psychotherapy among early adolescents after trauma. *American Journal of Psychiatry*, 1997; 154(4): 536-42.
- ²⁸Deblinger E, Steer RA, Lippmann J. Maternal factors associated with sexually abused children's psychosocial adjustment. *Child Maltreatment*, 1999; 4(1): 13-20.
- ²⁹Bromet EJ, Goldgaber D, Carlson G, Panina N, Golovakha E, Gluzman SF, Gilbert T, Gluzman D, Lyubsky S, Schwartz JE. Children's well-being 11 years after the Chernobyl catastrophe. *Archives of General Psychiatry*, 2000; 57(6): 563-71.
- ³⁰McFarlane AC. Family functioning and overprotection following a natural disaster: the longitudinal effects of post-traumatic morbidity. *Australian and New Zealand Journal of Psychiatry*, 1987; 21(2): 210-8.
- ³¹Stuber ML, Nader KO, Pynoos RS. The violence of despair: consultation to a HeadStart program following the Los Angeles uprising of 1992. *Community Mental Health Journal*, 1997; 33(3): 235-41.
- ³²Pfefferbaum B, Nawaz S, Kearns LJ. Posttraumatic stress disorder in children: implications for assessment, prevention, and referral in primary care. *Journal of the Oklahoma State Medical Association*, 1999; 92(7): 309-15.
- ³³Lipschitz DS, Winegar RK, Hartnick E, Foote B, Southwick SM. Posttraumatic stress disorder in hospitalized adolescents: psychiatric comorbidity and clinical correlates. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1999; 38(4): 385-92.
- ³⁴McCloskey LA, Walker M. Posttraumatic stress in children exposed to family violence and single-event trauma. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1999; 20(1): 108-15.
- ³⁵Ackerman PT, Newton JEO, McPherson WB, Jones JG, Dykman RA. Prevalence of post-traumatic stress disorder and other psychiatric diagnoses in three groups of abused children (sexual, physical, and both). *Child Abuse and Neglect*, 1998; 22(8): 759-74.
- ³⁶Bell CC, Jenkins EJ. Community violence and children on Chicago's Southside. *Psychiatry*, 1993; 56(1): 46-54.
- ³⁷Bell CC, Jenkins EJ. Traumatic stress and children. *Journal of Health Care for the Poor and Underserved*, 1991; 2(1): 175-88.
- ³⁸Earls FJ. Child exposure to violence and PTSD across urban settings. NIMH Grant No. 5R01-MH56241-05. In progress.
- ³⁹Richards MH. Risky context and exposure to violence in urban youth. NIMH Grant No. 5R01-MH57938-02. In progress.

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