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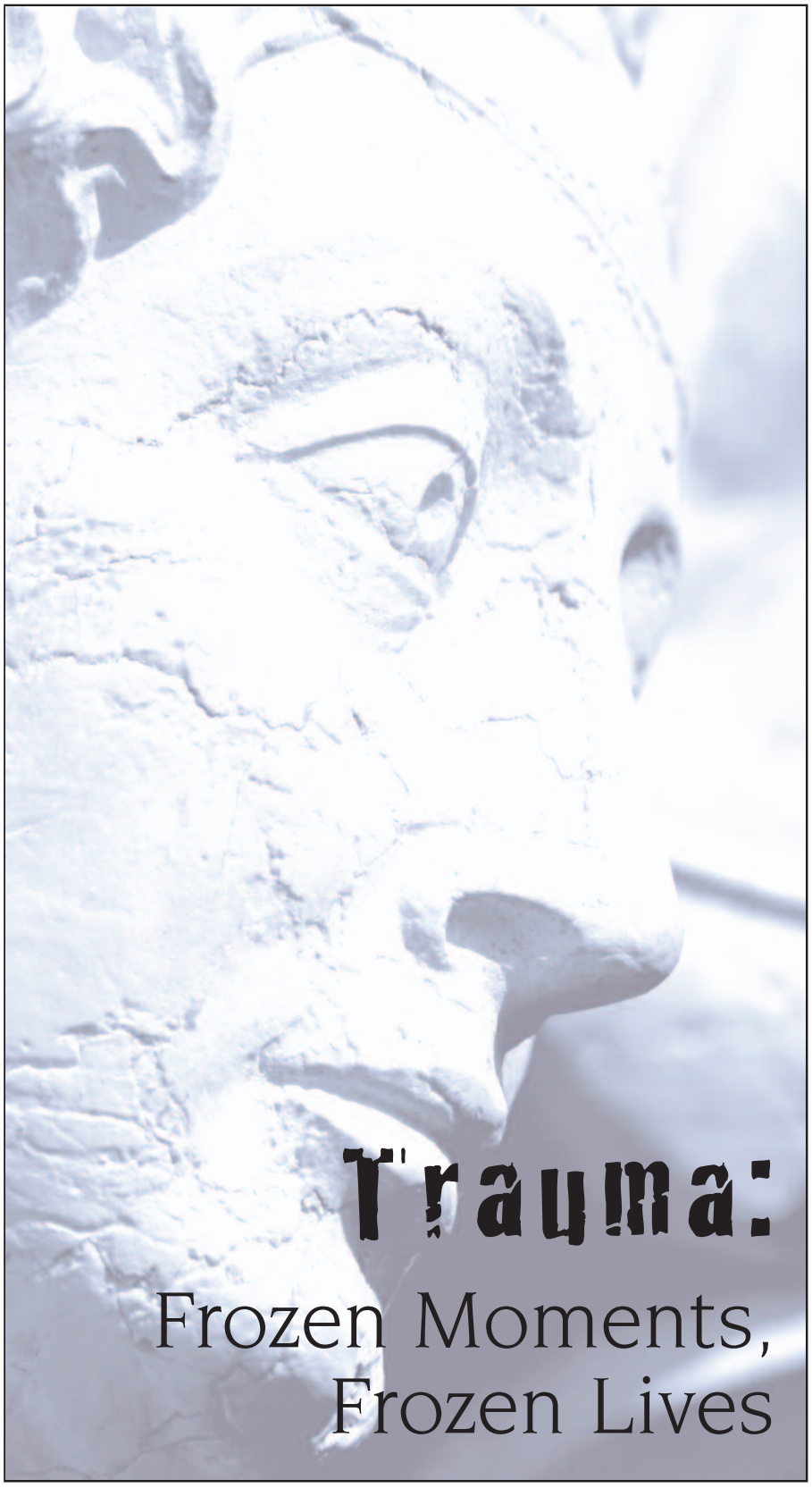

Trauma: Frozen Moments, Frozen Lives

"I can't remember anything after the first few words she said: 'I'm sorry to tell you that your test results came back positive.' After that, it was all just a blur of sounds and images—the traffic outside, my heart beating, the look on her face. Everything was moving in slow motion. I just kept hearing those five words echoing in my head: 'Your test came back positive.' How is it that five stupid words can change your whole life forever?"

Throughout our lives, we all experience significant events that impact our perceptions of the world and determine how we interpret and respond to future experiences. These events elicit powerful thoughts, emotions, and physical sensations that can become imprinted upon the mind. They are moments frozen in time.

When these moments represent painful experiences so severe that they overwhelm our ability to cope with the rush of thoughts and feelings they elicit—as in the HIV diagnosis described above—they are referred to as "trauma."

Everyone experiences traumatic events; it is not the presence of trauma but how an individual deals with a traumatic event that determines the impact it will have on his or her life.

If left unresolved, the feelings surrounding trauma can persist, impairing our judgment and effectively "freezing" us into harmful patterns of behavior, including sexual risk-taking, substance use, and poor self-care—behaviors that are closely connected with HIV infection and disease progression.

Numerous studies have shown a link between trauma—particularly sexual abuse during childhood—and high-risk behaviors that may lead to HIV acquisition. In people with HIV disease, symptoms of unresolved trauma (including anxiety and depression) are often associated with reduced quality of life, poor general health, and progression to AIDS. Making sense of traumatic experiences—how they affect us and how they can trap us—is the first step in healing the wounds of trauma.

The Trauma Continuum

Trauma can take many forms and occur at any life stage. The impact of trauma is especially pronounced in childhood. For children, even seemingly minor events—such as schoolyard bullying or an encounter with an aggressive dog—can have profound effects. Infancy and childhood are the most critical developmental periods; the human brain completes 75% of its total development within the first six years of life.

A child's earliest experiences, even those beyond conscious recall, play a crucial role in his or her behaviors, attitude development, relationships, and sense of self in later life. A stable childhood can provide some protection against the effects of trauma, but no one is completely immune. Cataclysmic events, such as riots, natural disasters, and war, can traumatize entire groups of people, regardless of their past experience or current resilience. Diagnosis of a life-threatening illness can traumatize even the most self-confident individual.

Trauma must always be considered in the context of each person's individual perception. What may be traumatic to one individual may not be traumatic to another; it is the subjective perception of "threat" that determines the intensity of each person's reaction. In the field of trauma therapy, traumatic events are classified as degrees on a continuum: "big-T" trauma, "little-t" trauma, and cumulative trauma (also called chronic unremitting stress).

Big-T trauma is generally associated with discrete, identifiable events and usually involves distinct memories that the individual can recall. A person who has suffered rape, severe childhood abuse, or a catastrophic illness or injury; unexpectedly lost a relative or friend; or witnessed violence or war has experienced big-T trauma. In the short term, these traumas generally exert the most debilitating physical and psychological effects.

Little-t trauma and cumulative trauma, in contrast, are associated with continual or recurring situations and have more global and lasting effects on the individual. Little-t trauma stems from situations that may seem insignificant or only mildly distressing, but which can lead to extreme reactions. These may include physically uncomfortable experiences like dog bites, dental procedures, or minor automobile accidents, or emotionally painful experiences such as criticism or verbal abuse, repeated failures at school or work, intermittent childhood neglect or isolation, or being bullied or teased.

For young people, little-t traumas may also include "empathic failures" on the part of caregivers. Continual dismissal of a child's feelings—for example, with words like "you aren't hurt" or "don't be sad"—represents a caregiver's failure to empathize, or perceive and understand the child's emotional state. When this occurs, there is no "relational home" for the child's feelings, no sense of the safety or security required for the child to express emotions and learn to regulate them.

The effects of cumulative trauma result from recurring situations or experiences. The constant pressures that contribute to cumulative trauma make it extremely resistant to treatment; it cannot be easily alleviated or temporarily managed through common stress-reduction techniques. As with other trauma, pain inflicted over time can become "frozen" into physical symptoms. Cumulative trauma can lead to a state of apathy, hopelessness, and even rage. Examples of cumulative trauma include extended exposure to frightening or stressful situations, homophobia/heterosexism, racism, sexism, classism, poverty, and neglect.

Immediate Effects of Trauma

Humans have evolved highly effective conscious and unconscious response patterns to manage stressful or threatening situations. The brain and body make up a complex interdependent

Common negative beliefs associated with big-T trauma:

"I should have done something."
"I am powerless."
"I can't protect myself."
"I am in danger."
"I am weak."

Common negative beliefs associated with little-t trauma:

"I am insignificant."
"I am a failure."
"I am unlovable."
"I can't trust anyone."
"I am broken."
"I don't deserve to be happy."

system. Every sensory experience triggers a chain of electrochemical reactions throughout the body: thoughts and impulses in the brain release molecules (neurotransmitters) that transmit information to organs, muscles, and nerves, and then back to the brain in a continuous cycle, stimulating reflexes and reactions, voluntary movements, and thoughts. Most of the affected body systems, known collectively as the "autonomic nervous system," are automatic and operate beyond conscious control.

The autonomic nervous system has two complimentary divisions: the sympathetic nervous system, which activates our nerves, organs, and muscles into a heightened state of arousal and regulates the "fight or flight" mechanism, and the parasympathetic nervous system, which controls the body's calming mechanisms (as well as the "freeze" response) and is designed to shut down body systems or return the body to baseline arousal levels. These two systems regulate our emotional and physiological states: they become activated and prepare us to respond when we are confronted by a threat, and calm us after the danger has passed.

However, under the pressure of trauma or chronic stress, both of these systems can malfunction, becoming hyperactive and over-functioning (experienced as anxiety, panic, or dissociation from negative sensations) or frozen and unresponsive (resulting in constant activation). The parts of the brain associated with emotions (particularly the "fear" centers, such as the hypothalamus and amygdala) and the parts that stimulate our conscious responses to danger (such as the limbic system and the reticular activating system) cease to function properly. When this happens, the brain cannot differentiate between threats that are real and threats that are simply perceived.

These malfunctions produce a chronic, underlying state of "dysregulation" or imbalance in the body, which may result in over-arousal and hypervigilence (in which a person seems to overreact to every situation) or sluggishness and dissociation (in which a person seems numb and disconnected in stressful or dangerous situations). This dysregulation of the brain and body systems perpetuates mental, emotional, and physical distress.

Long-Term Effects of Unresolved Trauma

The brain is the central processing organ for all sensory information and the primary regulator of all mental and emotional functions. It is divided into two hemispheres that regulate different mental attributes. The right hemisphere (or "right brain") regulates non-verbal information, visual-spacial perception, autobiographical details, abstract thinking, creativity, and intuition. The right brain deals with procedural memory, which is long-term memory of skills and procedures, such as driving a car or tying a shoe. The right brain is the locus of the unconscious, where self-awareness begins. The left hemisphere (or "left brain") is associated with logical, linear, analytical thinking. It is the primary center for linguistic and verbal functions and declarative memory, which is the conscious recall of information and events.

An important feature of trauma is how traumatic experiences become encoded in the brain as memories and throughout the body as sensory information. Big-T trauma is usually associated with specific large-scale events

Common negative beliefs associated with cumulative trauma:

"The world is unsafe."
"I need to protect myself at all times."
"Nothing will ever change."
"There is no point in trying."

that elicit strong "affective sensations" (sensations accompanied by a strong compulsion to respond, such as the reflex of withdrawing one's hand from a hot object) as well as powerful visual images, called "snapshot memories."

Being both sensory and visual, the memories of big-T traumas are stored in both hemispheres of the brain, but primarily in the right hemisphere. Conversely, "little-t" traumas are not discrete events or situations, but rather continual attitudes and sensations that a person experiences over time (such as ongoing criticism or neglect). Little-t traumas are primarily recorded in the right hemisphere as "memory imprints" (such as negative self-concepts, negative beliefs, or feelings of isolation).

In a simplistic sense, in order for any traumatic experience to be processed, it must be felt by the right brain, then analyzed, interpreted, and understood by the left brain. Otherwise, a traumatized person may relive an event over and over again without examining it and coming to terms with what it means.

Many trauma therapies (discussed in detail on pages 36–41) concentrate on activating the traumatic memory through visualization (a right-brain function), discussing the memory and making sense of it through logical analysis (a left-brain function), and then acknowledging the body sensations and reactions (such as muscle tension and elevated breathing and heart rate) associated with the memory of the event. As the right and left hemispheres of the brain work together to process the traumatic experience, the individual develops the capacity to tolerate the associated upsetting thoughts and feelings, while understanding on a deeper level the meaning he or she has given to the experience.

Unresolved trauma can manifest in many ways, including anxiety disorders, panic attacks, intrusive memories (flashbacks), obsessive-compulsive behaviors (such as triple-checking the front door lock or the stove burners), addictions, self-injury, and a variety of physical symptoms (see sidebars below and at right).

Individuals may also suffer from repetition compulsions, which are unconscious, habitual reenactments of elements of a past traumatic experience (if not repetitions of the precise trauma itself). Repetition compulsions are frequently seen in the area of physical, emotional, or sexual abuse. For example, a survivor of childhood abuse may unwittingly select an abusive partner in adult life, and adults who grew up witnessing domestic violence may demonstrate the same abusive behaviors toward others that were modeled to them in the past.

Growing up in an unsupportive or unstable environment can create negative inner models and beliefs that have a destructive effect on future feelings and behavior. Childhood trauma often results in an impaired ability to feel emotions (affective blunting), reduced thinking and reasoning capacity (cognitive deficits), poor behavioral self-regulation, and diminished ability to develop and maintain healthy relationships.

Cumulative trauma or chronic stress can freeze a person into rigid response patterns that cannot be adapted to new situations. Untreated trauma survivors may be sensitive to flashbacks and prone to exaggerated emotional responses, and may have difficulty dealing effectively with new stressful situations. These individuals lack resilience and display exaggerated responses to even relatively benign events—they habitually react to "level-two" threats with a "level-ten" response.

Post-traumatic stress disorder (PTSD) is another common effect of trauma. Generally associated with "Big-T" trauma, PTSD can result from any overwhelming and disturbing event or psychologically unmanageable situation. People with PTSD continually experience the emotional and physical sensations associated with a traumatic experience, sometimes for years after the event occurred. The original situation was so overwhelming that the person cannot release the feelings of anxiety, panic, or helplessness that were elicited at the time.

War veterans and disaster workers, for example, are often bombarded with such disturbing and incomprehensible images that they continually re-experience the horror of the original event. Simple, everyday sounds (a car backfiring) or smells (a fire burning) can trigger a panic reaction or a flashback memory.

For many people with HIV disease, the circumstances surrounding their infection or their diagnosis can be traumatizing, and they may feel

Getting Help for Serious Symptoms

Flashbacks and intrusive thoughts can be disturbing or even debilitating, and thoughts of self-injury—or actual self-harm—should not be dismissed.

If you are experiencing any of these serious symptoms of trauma, seek help immediately: contact your doctor's office, call 911 for emergency services, go to the nearest hospital or emergency room, or call the National Institute of Mental Health's toll-free, 24-hour crisis hotline at 1-888-826-9438.

the same fear, anxiety, or panic the next time they are in a similar situation. Some people with HIV/AIDS re-experience the cascade of emotions felt during their original HIV diagnosis with every doctor's appointment and every antiretroviral pill.

Trauma and HIV

A large body of research suggests that the various types of trauma—and childhood sexual abuse in particular—can play a significant role in the acquisition of many diseases, including HIV. The incidence of childhood trauma has been linked to high-risk sexual behaviors and substance use that promote HIV transmission, and this and other forms of trauma are associated with poor general health and faster disease progression in people living with HIV.

Trauma and HIV Risk

Jay Paul, PhD, of the University of California at San Francisco and colleagues reported in 2001 on findings from the Urban Men's Health Study, a telephone survey of men who have sex with men in San Francisco, New York, Los Angeles, and Chicago.

Of the 2,881 men surveyed, 20.6% reported a history of childhood sexual abuse. Men who had experienced abuse on six or more occasions were more than five times as likely as non-abused participants to have taken "serodiscordant sexual risk"; that is, they reported having had unprotected anal sex with a partner of unknown HIV status or known to be of the opposite HIV status, thereby risking acquiring or transmitting HIV.

In a smaller study by David J. Brennan, MSW, and colleagues, published in the June 2007 issue of the *American Journal of Public Health,* gay and bisexual men who reported experiencing repeated childhood sexual abuse were significantly more likely as adults to have engaged in risky behaviors (such as using methamphetamine and exchanging sex for money) and to be HIV positive compared with men who had not been abused.

Another recent study, conducted by Helen Wilson and Cathy Spatz Widom, PhD, of the City University of New York, found a strong association between neglect or sexual abuse during childhood and HIV risk behaviors, including sexual activity at an early age, multiple sex partners, and sex work. HIV was twice as prevalent among the trauma survivors as in the group that had not experienced neglect or abuse.

Research on addiction indicates a strong correlation between childhood trauma and substance use, a key HIV risk factor. A large study by Mardge Cohen, MD, and colleagues examined childhood sexual abuse among participants in the Women's Interagency HIV Study and found that women who had been sexually abused as children were more than four times as likely to have used drugs, even after controlling for age, race, and income. As observed in the Urban Men's Health Study, survivors of childhood sexual abuse tend to rely heavily on "escape-avoidance coping strategies," including drug and alcohol use.

The connection between trauma and HIV infection is not difficult to understand. As discussed previously, people who have unresolved trauma, particularly sexual abuse, are prone to repetition compulsions and may unconsciously reenact their traumatic experiences or be attracted to abusive adult partners. As Paul and colleagues point out, these individuals may feel powerless in their adult relationships and are therefore unable to insist on or consistently practice safer sex, thereby putting them at risk for HIV and other sexually transmitted infections.

People with a history of severe trauma or chronic stress may also find it difficult to self-soothe, as their autonomic nervous system fails to return them to baseline levels of relaxation. Substance use offers a temporary escape from the chronic activation that characterizes unresolved trauma, but may also impair judgment and increase the risk of acquiring or transmitting HIV through unprotected sex or shared injection equipment. And in traumatized individuals whose autonomic nervous systems respond only weakly to threats, behaviors such as needle sharing and unsafe sex may not be perceived as "risky" in the first place; they do not fully realize that these behaviors put them in danger of acquiring a life-threatening illness.

Trauma and HIV Health

There is now a well-established correlation between trauma and health con-

Common Symptoms of Unresolved Trauma:

Anxiety	Hypervigilance	Sleep disturbances, nightmares
Panic attacks	Avoidance behaviors	Heart palpitations
Intrusive thoughts, flashbacks	Attraction to dangerous situations or high-risk behaviors	Irritable bowel syndrome
Shame	Nausea	Back pain, generalized pain, numbness
Exaggerated emotions	Headaches	Chronic fatigue
Irritability	Dizziness, trembling, fainting	Extreme sensitivity to heat or cold
Mood fluctuations		
Disorientation		

ditions such as heart disease, strokes, hypertension, and cancer. As early as 1946, endocrinologist Hans Selye documented the connection between stress and certain diseases. Selye described the effects of prolonged stress on the body as the "general adaptation syndrome," and identified the hypothalamus-pituitary-adrenal system as the seat of a complicated, automatic chemical process through which the body copes with stress and trauma. The result of this process is the production of certain chemicals, called cytokines, which trigger inflammation and can damage the cells of organs and tissues.

Research has demonstrated an association between traumatic events or periods of stress and elevated cytokine levels resulting in inflammation, which in turn leads to increased vulnerability to disease. For example, Gregory Miller, PhD, of the University of Washington and colleagues have reported on the relationship between stress, immunity, and disease. Their study found that chronic psychological stress may reduce the immune system's sensitivity to hormonal signals that normally halt the "inflammatory cascade." Therefore, as a result of stress, the body remains in a state of inflammation that impairs immune function and leaves the body less able to fight illness.

The first study to specifically address the effects of trauma (including chronic stress) on HIV-related immune parameters, reported in 1999 by Rachel Kimerling, PhD, and colleagues, examined the trauma histories and lab results of 67 HIV positive women in New Orleans. The researchers found that women who reported traumatic experiences—including rape, assault, and unexpected bereavement—saw more rapid decline in their CD4:CD8 cell ratio, an indicator of immune suppression (a lower ratio indicates greater damage to the immune system). Meeting the diagnostic criteria for PTSD was associated with even greater CD4:CD8 cell ratio decreases.

Another key player in immune function, the hormone cortisol, has been linked with PTSD and HIV disease progression; however, data are mixed regarding the relationship between cortisol levels and PTSD. Cortisol secretion increases during periods of stress and suppresses immune function at high levels. However, an investigation by Douglas Delahanty, PhD, conducted in a Midwestern city, showed that participants who developed PTSD in response to their HIV diagnosis exhibited lower cortisol levels and higher CD4 counts compared with non-traumatized participants.

Although the relationship between cortisol levels, PTSD, and HIV disease progression is not fully understood, the connection between trauma and poor HIV health is well supported by recent research. In a study led by researchers at the University of North Carolina at Chapel Hill, more than half of the 490 HIV positive participants had experienced three or more traumatic events, and those who reported experiencing a greater number of traumatic events had faster progression to death from all causes and from AIDS. The aforementioned study by Delahanty and colleagues found that avoidance behaviors and intrusive thoughts, two of the hallmarks of PTSD, were correlated with late or missed doses of antiretroviral medicines and skipped medical appointments—both of which are associated with reduced effectiveness of antiretroviral treatment and poor general health.

Past traumatic experiences can create a heightened sensitivity to stress—including the stress of managing a chronic illness. HIV positive people are continually confronted with stressful situations; getting lab results, dealing with drug side effects, and disclosing serostatus are just a few of the stressors that are part of life with the virus. The cumulative trauma that can result from these repeated negative experiences may take a toll on the individual's mental and physical health in multiple ways. Cumulative trauma and chronic stress set the stage for anxiety disorders and depression—both of which are associated with reduced adherence to antiretroviral therapy and poorer general health—and may also undermine immune function by elevating cytokine levels. People with a history of childhood trauma may be more susceptible to the cumulative trauma that can result from the stress of living with HIV—all the more reason to seek treatment for unresolved trauma.

Trauma Therapy

"Trauma that is not genuinely felt will be reenacted in either symptom or behavior and ultimately recreated in intimate relationships"

—Robert Naborsky, MD

As a general rule, anything destructive that is left untreated—disease, trauma, stress, psychological disorders—can become progressively worse over time. Research suggests that untreated survivors of childhood trauma and abuse and those suffering from PTSD experience greater morbidity and higher mortality from all causes, including accidents and homicide.

The central challenges of trauma therapy are to reprocess traumatic experiences, un-coupling thoughts (perceptions and interpretations), emotions, and physical sensations that have become locked into rigid patterns, and to reintegrate the experiences as memories that do not elicit those anxious and uncomfortable reactions in the present.

The work of therapy can be painful and often difficult, but without some form of therapy, symptoms of trauma tend to worsen over time. The symptoms of untreated trauma may also become more complicated as time passes and it becomes more difficult to link present behaviors to the original trauma. Feelings and behaviors linked to past traumatic experiences are reinforced by new traumatic experiences, and symptoms and coping behaviors become more se-

vere. Over time, "acting out," repetition compulsions, and episodes of dissociation can become debilitating.

Research on various trauma therapies indicates that individuals who undergo treatment show a decrease in symptoms and marked improvement in mood, social functioning, and quality of life compared with those who do not seek treatment.

Therapy can also improve the quality of interpersonal relationships by helping the client resolve deeply held fears of abandonment and feelings of worthlessness and shame, thereby strengthening the client's sense of safety and security in relationships with others. This is called an "earned-secure attachment strategy," and it is achieved when the therapist helps the client learn how to self-soothe and regulate feelings and emotions, a capacity that is often deficient in people with a history of trauma.

In the field of trauma therapy, coming to terms with the past is often referred to as "integration," or achieving resolution. One way this resolution can be accomplished is by verbally and somatically reprocessing the trauma (through talk therapy and body-centered therapies), integrating the traumatic experience into the landscape of life experiences, positive and negative, and discovering the deeper meaning of the trauma for future growth and development.

Treatments that many therapists—including the authors of this article—have found to be most effective in reducing the symptoms of trauma tend to link sensorimotor responses (body movements and sensations) to thoughts and feelings. These treatments are based on the theory that focusing attention on the traumatic responses of the body and mind will allow an individual to stimulate inherent self-regulatory abilities. The traumatic experience is then reprocessed and integrated in a new way using self-soothing and self-calming techniques (relaxation exercises) and supportive mental interpretations (such as repeating to oneself, "the trauma is over," "you are safe," "you can take care of yourself now").

Reprocessing trauma by understanding both the body's reactions and the way that the mind has made meaning of the trauma are essential aspects of these approaches. By practicing the therapeutic techniques over time, the individual can build resilience and develop a greater capacity to counteract the effects of trauma.

Some currently used trauma therapy techniques include Somatic Experiencing and other somatic therapies, mindfulness training, mentalization-based treatment, and eye movement desensitization and reprocessing (EMDR). None of these techniques asks the client to relive or re-experience trauma in order to heal it (in contrast with prolonged exposure therapy, described in the sidebar on page 40).

Somatic therapies and mindfulness training lend themselves to a "do-it-yourself" approach to healing trauma; both are self-directed therapies that can be practiced as daily hygiene for mind and body to facilitate the healing of stress, and both techniques help people access their own resources without the use of medication or outside intervention. Mentalization treatment and EMDR, on the other hand, are facilitated therapies that focus on the healing relationship between client and therapist in a traditional psychotherapeutic setting.

Somatic Experiencing

Somatic Experiencing, developed by Peter Levine, PhD, is a therapy based on "restoring the wisdom of the body" as a way to gain access to our inner resources, restore the autonomic nervous system's ability to self-regulate, and repair the damage caused by trauma.

In Somatic Experiencing, the client begins by learning how to "track" what is happening in the body. Tracking involves bringing awareness to the body and noticing neutral, pleasant, or unpleasant sensations. In addition to tracking, Somatic Experiencing relies on "resourcing," the rediscovery and development of resources—such as people, pets, places, skills, accomplishments, hobbies, and religious and spiritual beliefs—that remind the client of his or her own strengths. The inner sensation of strength is often forgotten after

Psychotropic Medications

Referrals for psychiatric care are given based on the severity of symptoms related to trauma, and many people find relief by combining talk therapy and/or somatic therapy with temporary or long-term use of psychotropic medications.

Two such medications—sertraline (Zoloft) and paroxetine (Paxil)—are currently approved by the U.S. Food and Drug Administration to treat the debilitating effects of PTSD; other drugs are frequently used to treat anxiety, panic attacks, depression, and other symptoms associated with trauma.

For more information on medications used to treat these symptoms, see "Conquering Anxiety" in the Winter 2007 issue of *BETA* and "Overcoming Depression" in the Winter 2004 issue.

traumatic events. Establishing resources can provide greater strength and the courage to confront and overcome past traumatic experiences.

To heal trauma through Somatic Experiencing, the client must gradually achieve a level of activation in the body that replicates the traumatized state. Sensations associated with trauma typically include rapid heart rate, increased body temperature, difficulty breathing, pain, and agitation. In contrast, joy and other pleasant states are often characterized by a steady heartbeat, relaxed muscles, and sensations of flowing energy, calmness, and vitality.

Many individuals who have experienced trauma are cut off from their bodily sensations. Somatic Experiencing involves gradually ratcheting up the level of activation in tiny increments, a process called "titration." Once the body is activated, the individual can learn to stimulate the parasympathetic nervous system and return to a calmer state, all the while keeping in mind and drawing on those important resources. As treatment progresses, larger and larger elements of the once-overwhelming traumatic experience are recalled and integrated into the process, until the client has mastery over his or her responses.

This therapeutic approach can be very empowering; it provides a sense of self-agency (ownership of one's actions) and shows the traumatized person that she or he can cope with the thoughts and sensations that accompany activation. Reprocessing and uncoupling thoughts of trauma from the accompanying bodily sensations requires patience and discipline, but the rewards can be transformative.

Mindfulness Training

Mindfulness-based stress reduction (MBSR), the work of Jon Kabat-Zinn, PhD, is a form of mental training involving a series of exercises that enable the participant to focus awareness on present experiences—in other words, mindfulness encourages "living in the present." Mindfulness training is derived from traditional practices of various cultures, for example meditation, yoga, and tai chi.

The first step in mindfulness training is learning to become aware of the difference between "bottom-up" sensory experience and the "top-down" narrative chatter of our own minds. Top-down mental processes influence all mental functions, including planning, memory, and attention. They can be judgmental or non-judgmental and involve the reflective capacity of self-observation. (The common negative beliefs described in the sidebars on pages 32 and 33 are examples of top-down process.)

Bottom-up processes are more primary sensory experiences. At the simplest level of experience, a bottom-up process is the linkage of brain activity

Ten-Minute Somatic Practice

Step One: Finding a resource (3–5 minutes)

While sitting comfortably, imagine the first moment you knew you had survived your trauma. Take a breath.

Now notice the sensations you feel in your body. You might feel relief as an "opening" sensation in your heart, strength as power in your legs, grounding through sensing your feet planted firmly on the floor.

While noticing these sensations, think back to a time when you felt safe or happy. What were you doing? Who were you with? Hold those activities or accomplishments, people or even pets in your mind: these are your resources. Let them remind you of and reinforce your own unique strengths as you continue tracking your body's sensations and proceed to step two.

Step Two: Titration and deactivation (5–7 minutes)

Trauma survivors are often plagued by unpleasant physical sensations that can become overwhelming. Being able to identify those patterns is the first step in learning to reprocess them.

Once again, sit in a comfortable position and take a breath. Now imagine the smallest piece of a traumatic event. You might imagine the first moment you sensed you were in trouble, or a sound that activates your emotions.

Notice how your body responds to this thought. If there is sadness, notice the urge to cry; if anger or fear, notice how your heart rate increases or how the rhythm of your breathing changes. If the sensation becomes too strong, focus your attention outside your body. Open your eyes if they are closed, scan the room you are sitting in, and notice the color of the walls or the view outside. Remind yourself of the sensations you felt in step one and imagine your resources; they will remind you of your inner strengths and help you to deactivate.

to our senses (sight, smell, hearing) and bodily sensations. Awareness of bottom-up processes can start with as simple an action as noticing our breathing, becoming aware of inhalation and exhalation. Bottom-up processes are "in the here and now," and recognizing them is achieved through direct focus on our senses.

Healing trauma with MBSR starts with acknowledging the mind's top-down thoughts and feelings and linking them with bottom-up sensory awareness. In his book, *The Developing Mind,* Daniel Siegel, MD, explains that mindful awareness may lead to enhanced well-being by changing our view of our own mental processes. When we refine and investigate the ways in which we see how our minds work, we are better able to alter our own mental experiences. Simply put, figuring out what the mind is up to helps us control our responses to traumatic events, painful memories, and physical symptoms of trauma.

Many mindfulness practices can stimulate awareness, increase attention and emotional regulation, and reduce stress. One MBSR exercise involves chewing and tasting a raisin for five full minutes, as part of a guided group meditation. Tai chi and yoga both help encourage mindfulness by focusing one's awareness on movement of the body. Prayer, meditation, and other spiritual practice can also promote mindfulness. Much of what happens in psychotherapy promotes mindfulness by helping us to see ourselves through the eyes of another, to feel attunement, and to develop a sense of authenticity.

Mentalization Treatment

Peter Fonagy, PhD, contributes a mentalization-based treatment to the trauma therapy toolkit. This form of psychodynamic therapy aims to enhance individuals' capacity to "mentalize," or understand the thoughts, feelings, wishes, and beliefs of themselves and others in the context of attachment relationships (that is, relationships that are essential to an individual's sense of security and emotional stability) and through modeling a safe, secure relationship between client and therapist.

Attachment relationships in childhood are most often formed with a parent or other relative, or another caregiver. These primary relationships lay the foundation for organized representations of relationships in adulthood. The attachment relationships most often formed during adulthood involve a partner, spouse, intimate friend, sibling or other close relative, or a healing professional like a psychotherapist.

Well-established attachment relationships in childhood form a solid basis for mentalization. The mentalization process begins during childhood and is deeply rooted in the sense of having one's own mental states (including needs, desires, and goals) understood by the figure in an attachment relationship with the child.

Poorly established mentalization during the first decade of life undermines the capacity to think about one's own mental states and those of others. Neglected young children engage in less symbolic and dyadic play (such as sharing toys or "playing house" with another child), fail to show typical empathic responses to distress in other children, and have a higher incidence of emotionally dysregulated behavior. As adults, these individuals tend to have a poor understanding of social causality: they misunderstand other people's actions and intentions, and are likely to lose their capacity to mentalize under conditions of high emotional arousal.

People with undermined mentalization often feel relationships to be unsafe and even frightening. Recovery of the mentalizing capacity in the context of relationships is the primary objective of mentalization treatment for trauma. Therapy can provide a safe haven in which the feelings surrounding trauma no longer present a barrier to self-exploration. As the individual becomes more self-reflective thanks to the empathy and attunement of the therapist, he or she becomes better able to understand and relate to others.

Eye Movement Desensitization and Reprocessing

Developed by Francine Shapiro, PhD, eye movement desensitization and reprocessing (EMDR) is a well-researched intervention for the treatment of trauma; dozens of studies have examined its mechanism of action and efficacy. The goal of EMDR is to reprocess and reintegrate traumatic experiences in order to change the negative interpretations and re-

MBSR in Clinical Trials

Mindfulness training is being studied as a tool for managing the side effects of anti-HIV drugs, and for reducing depression and improving quality of life in HIV positive people not currently on antiretroviral therapy.

For study details, see "Open Clinical Trials," page 53.

Prolonged Exposure Therapy

Prolonged exposure (PE) therapy, developed by Edna B. Foa, PhD, is a well-researched cognitive behavioral approach for the treatment of PTSD that helps clients process traumatic events by repeatedly describing in detail the traumatic experience, and by gradually approaching trauma reminders (objects or situations) that—although now safe—have been feared and avoided. These techniques are often referred to as "flooding" or "systematic desensitization" treatment.

Over the past two decades, PE has been used successfully to treat PTSD in survivors of rape, assault, and childhood sexual abuse, as well as among individuals traumatized by combat and serious accidents. PE is used in private clinical practices and in veteran's centers, community mental health clinics, and rape counseling centers. Numerous studies have found the approach to significantly reduce intrusive thoughts, emotional distress, flashbacks, anger, and hypervigilence.

Unlike the therapies described in the main text, PE requires a client to re-experience trauma through vivid descriptions and confronting physical reminders of the traumatic event. PE may therefore be too stimulating and stressful for some people. An individual with a history of severe repetitive trauma, for example, might find this approach highly activating and could suffer retraumatization during treatment. Like any treatment approach, PE is not appropriate for everyone, and some trauma survivors may prefer methods that focus on relieving symptoms and reducing over-arousal.

duce the distressing physiological arousal associated with traumatic memories and events.

The theory underlying EMDR is that traumatic memories are "linked" in mental networks that contain visual images of the event as well as related thoughts, emotions, and sensations. The entire experience—including every physical sensation, every emotion, and every perception or interpretation of the trauma—is encoded and stored in the brain and throughout the body.

When a traumatic event occurs, the processing of information about that event may be incomplete, perhaps because the person has not developed the emotional or mental faculties to effectively manage or correctly interpret the situation (often the case with children) or because processing is hindered by strong negative feelings (such as shame, helplessness, and denial) or dissociation (mental "checking out"). This incomplete processing prevents the forging of connections with more adaptive information or new learning that is held elsewhere in the mind, and which might help the person release the trauma.

For example, a survivor of childhood sexual abuse may "know" that the abuser is responsible, but this information does not connect with or contradict the feeling that he or she is somehow to blame for the abuse. In adulthood, the person may gain new understanding of the past situation, but unless he or she can reprocess the traumatic event to unlock and alter the meaning assigned to it and diffuse the associated emotional reactions, the original interpretation that was "encoded" with the traumatic memory will persist.

The memory of the traumatic experience is therefore improperly stored without appropriate associative connections and with many elements still unprocessed. When the individual thinks about the trauma, or when the memory is triggered by similar situations, the person may feel like he or she is reliving it, or may experience strong emotions and physical sensations. Prime examples are the intrusive thoughts, flashbacks, emotional disturbance, and negative self-referencing beliefs characteristic of PTSD.

EMDR uses an eight-phase treatment approach, during which the client acknowledges visual images, negative beliefs, emotions, and body sensations associated with the trauma, and also identifies a preferred positive belief about the event. The sexual abuse survivor, for example, may focus on a belief such as "it wasn't my fault." The client then thinks about both the past experience of the event and present thoughts and feelings about it while simultaneously fo-

cusing on an external stimulus—typically eye movements, auditory tones, or touch (such as light taps on the arm)—that alternates from the left side to the right side of the body.

The purpose of EMDR is to stimulate both hemispheres of the brain (called "bilateral stimulation") to reprocess the original linkage of thoughts and sensations associated with the trauma and integrate new interpretations, while diffusing the intensity of physical sensations (such as fear, panic, or pain) through relaxation techniques. Reprocessing the traumatic event through EMDR, while reinforcing a positive belief system and self-efficacy, reduces an individual's distress and increases confidence. The result is a newly integrated memory of the event that is less emotionally or physiologically charged and carries a different meaning.

Conclusion

Trauma is an inescapable part of life; every individual is subjected to some form of trauma at some point. Painful events, life challenges, and emotional struggles are an integral part of the human experience, as are happiness, joy, and achievement. All of these elements frame our development and influence our perception of ourselves and the world around us.

Therefore, it is not the mere history of traumatic experiences, or even their severity, that exerts the greatest influence over our future perspectives and behaviors, but rather how well we have made sense of those experiences and come to terms with what they mean to us.

Challenging experiences can help us establish valuable inner resources such as determination, resilience, and adaptability. In most cases, people are able to harness the resources gained in early life to face later challenges, as long as these have been well established and reinforced. However, when a child's inner resources have been severely undermined through negative interactions with parents or other adults (or even other children), or when the magnitude of current challenges are so great that an adult cannot cope, a traumatic reaction may occur.

Fortunately, the past ten years have seen great advances in the study of trauma and its management. New professional journals like *Traumatology* and *The Journal of Traumatic Stress* have legitimized trauma research and "alternative" therapies (such as the ones described above) that can be used effectively with or without concomitant psychotropic medication. Trauma is now a multidisciplinary study: clinical trauma therapy practice now draws on research in the fields of neuroscience, education, somatic science, and medicine—including HIV medicine.

As further research elucidates how chronic stress and the long-term effects of unresolved trauma influence HIV risk and disease progression, trauma therapy becomes all the more important for HIV positive people living with unresolved trauma. Therapy "unfreezes" lives by helping trauma survivors reprocess traumatic events, examine and understand how the meaning assigned to those past events has shaped personal development, and mitigate the impacts of the trauma on current thinking, behavior, and physical health—thereby improving quality of life and perhaps even enhancing longevity.

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