Mind-body Adaptation to Adverse Experiences

Allen R. Dyer[1]

In these remarks, I would like to look how adverse experiences inform our understanding of mind and body, health and illness. I will draw on my educational and humanitarian experiences in areas of war, conflict, and complex emergencies (particularly in Iraq) to suggest a broader understanding of what has economically come to be called PTSD, post-traumatic-stress-disorder, a term I believe fails to encompass the complex impact of traumatic war experience or other adverse experiences. My reflections will be biological --in an evolutionary sense—psycho-social—in a developmental sense—and spiritual—in the sense of ultimate concerns—and they will be semantic in attempt to clarify how we try to communicate about some of the more elusive and troubling aspects of human experience.

Susan Sontag reminds us in her important book, *Regarding the Pain of Others*, that those beset by war and murderous politics are located on the same map as those of us less directly affected by such wars and murderous policies. Our privilege, she suggests, might be linked to their suffering – in ways we might prefer not to imagine – much as the wealth of some might imply the destitution of others. My remarks take up Sontag's challenge to look closely at the invisible wounds that wars and civil conflicts impose on those involved – everyone is involved – both soldiers and civilians alike.

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Nomenclature, the names we give things, can help us understand how we conceptualize these situations, the ones we call "traumatic" as a linguistic shorthand for experiences that may be so painful that even talking about them accentuates the pain. It has become convenient to talk about PTSD as a diagnostic entity that encompasses the psychological difficulties many soldiers have after war experiences.

The "symptoms" of this "disorder", P-T-S-D, were not just suffered by soldiers, we came to recognize, and notably people who had experienced sexual "abuse" in childhood had similar symptoms, notably flashbacks and intrusive memories, but not just these symptoms, also identified as the similar disorder, which we have come to call complex-PTSD (See Table1) (Herman, 1992, Cloitre, et al., 2011)

Civilians in war zones have been less studied, but certainly no less affected. My own experiences working with Iraqi health professionals since early 2001 and teaching in Iraq since 2007 have impressed on me the on-going stress that people have endured. I was impressed on my first trip to Iraq in 2007 by the stories people told about the horrors of life with uncertainties of possible loss of one's own life, but the inevitable loss of friends, murders of family members often in the most gruesome manners. As a physician I was also impressed by these narratives about the anxieties people faced, but also by the health impacts -- extraordinary incidence of heart attacks, cancer, headaches, difficulty sleeping, dermatologic conditions, diabetes and difficulty controlling weight – stories which were told as directly part of the stress under which they were living. Also to note was the extraordinary resilience of the Iraqi people, strong family and community ties and strong religious faith, even as communities were disrupted, families dislocated, and faith challenged – or perhaps worse – politicized.

The association of physical health problems in the context of on-going stress situations impressed on me that there was a dimension of the health impact that was not captured by the moniker PTSD and led me to suggest that when stress is ongoing rather than a single traumatic event, it might be useful to identify it as Ongoing Post Traumatic Stress Disorder, OTSD in order to emphasize both the physical and psychological health impacts on those affected. While we have long recognized the importance of a bio-psycho-social medical model and even a bio-psycho-social-spiritual model, in practical reality these dimensions are usually seen as separate concerns, often addressed by different people. Simply stated, war is bad for your health.

War is often cast as a moral struggle, two opposing sides, Us versus Them, Good versus Evil. In the words of Carl von Clausewitz, the famous Prussian general and student of warfare --who gave us perhaps the most accepted definition of war as "the extension of policy by other means"-- "military action is never directed against material force alone: it is always aimed simultaneously at the moral forces which give it life, and the two cannot be separated." (Clausewitz, 1984: p. 137) Whatever moral forces give rise to conflict, the effect is disastrous on ordinary people, soldier or civilian, caught in the crossfire. It may also be disastrous for humanitarian workers, whatever their moral persuasions regarding a particular conflict.

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Iraq Population Profile

- Extraordinary stress x 30 years
- Incredible resilience
- Decreased life expectancy
- Increased infant mortality
- Resurgence of tuberculosis
- Higher than expected incidence of cancer

➔(7-8 times world rates)➔

- Higher incidence heart disease, diabetes, etc.
- High rates of depression, other psychiatric disorders, and substance use disorders

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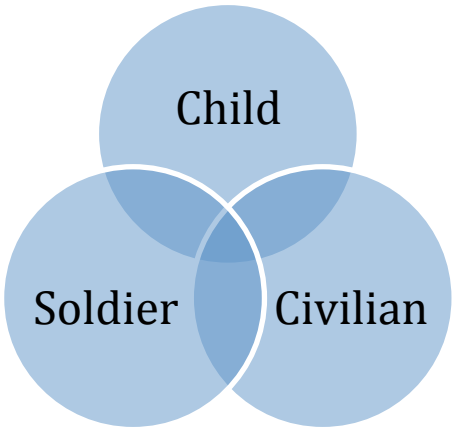

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Table 3 Alternative nomenclatures for describing traumatic stress experiences

PTSD Post-traumatic Stress Disorder	OTSD Ongoing Traumatic Stress Disorder	Complex PTSD
A: Stressor (experienced or witnessed) Reaction of fear, helplessness or horror B: Anxiety C: Dissociation D: Hyper-arousal E: Nightmares F: Flashbacks	• Stress endures in time • Person experiences psychological symptoms plus • Physiological correlates • Changes in vital signs: temp, BP, heart rate, respiratory rate, pain • Endocrine/ Metabolic changes • Difficulty maintaining internal milieu	• Severe relationship impairments • Disturbances of mood regulation (e.g. outbursts of anger)

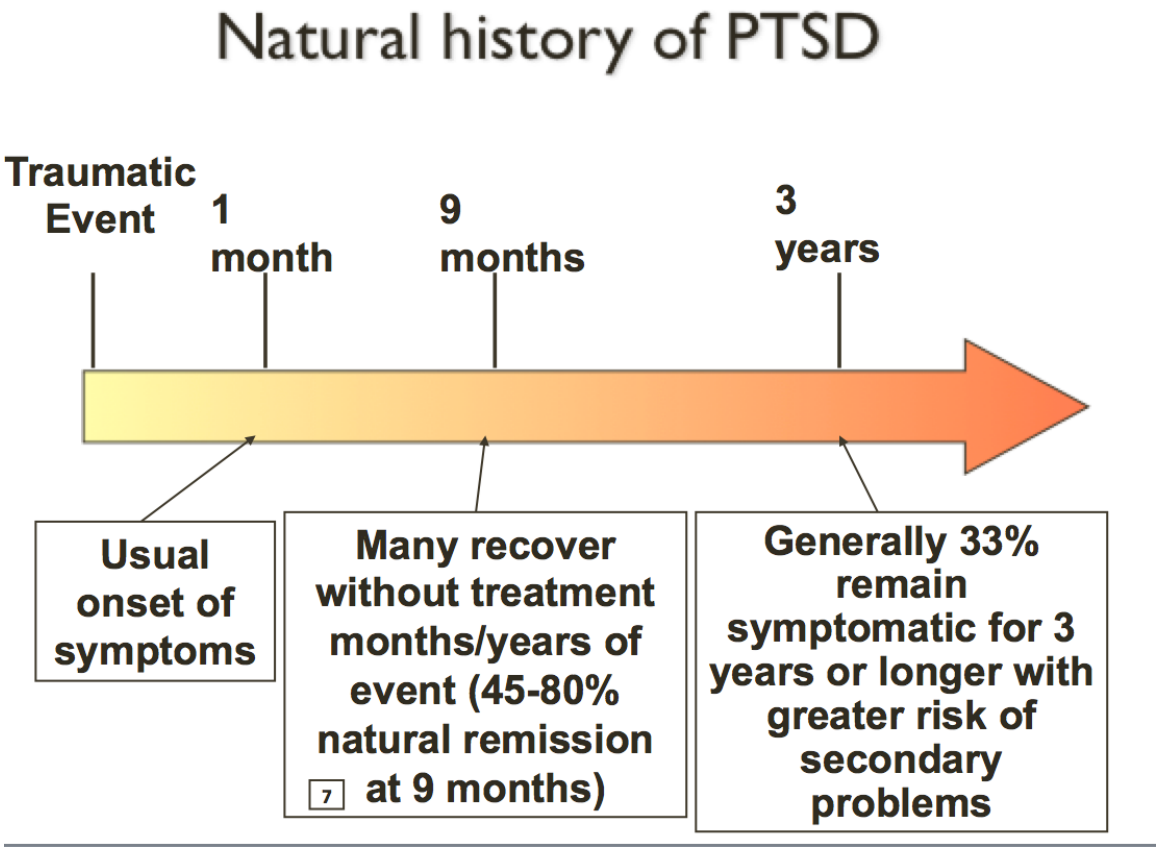
First of all, the definition of trauma is subjective. The dictionary defines trauma as a deeply distressing or disturbing experience. More recently trauma has come to be understood as an emotional shock following a stressful event or a physical, which may be associated with a physical shock and sometimes lead to long-term distress. Finally in medicine, trauma may be a physical injury, belying the etymological origin of the word (from the late 17th century, Greek origin) literally a wound

The interrelationship of the physical and mental aspects of trauma hints at the stigma associated with PTSD (and any emotional distress) particularly in war situations where "heroism" is the expectation, and anything less may be associated with some overt or implicit culpability, an inability or unwillingness to hide one's vulnerability or to pretend it doesn't exist. Considered from the perspective of mental health (well-being) rather than illness, this may be an inability or unwillingness to recognize and

acknowledge the reality. Thus PTSD is heir of the misunderstandings of previous wars, where the psychological symptoms were identified as "shell shock", and treatments (often coercive behaviorist conditioning and shaming tactics) were aimed at getting the soldier back to the front. Current attempts to better understand Traumatic Brain Injury help us appreciate earlier misunderstandings of shell shock and redress the disservice to those who serve.

Recently the "D" in PTSD has come under question, suggesting posttraumatic stress is not a disorder, but rather an injury. Particularly in military circles, there has been advocacy for replacing the "D" for disorder with an "I" for injury, the argument being that soldiers and veterans would be more like to seek treatment and treatment would be less stigmatized. While PTSD is enshrined in the Diagnostic and Statistical Manuals, the abbreviation "posttraumatic stress" is gaining some currency over the more controversial acronym, PTSD.

Indeed calling the response people have in any disaster, natural or man made (human made) a disorder is probably a misnomer. These are NORMAL RESPONSES TO ABNORMAL SITUATIONS. And from a scientific point of view, looking at psychopathology in the way we look at pathophysiology from an ecological standpoint, that is a systems view or a bio-psycho-social-spiritual view, it only makes sense to realize the normalcy of response that are labeled pathological. We'd all be conflicted too if we had to adapt to such a conflicted environment.

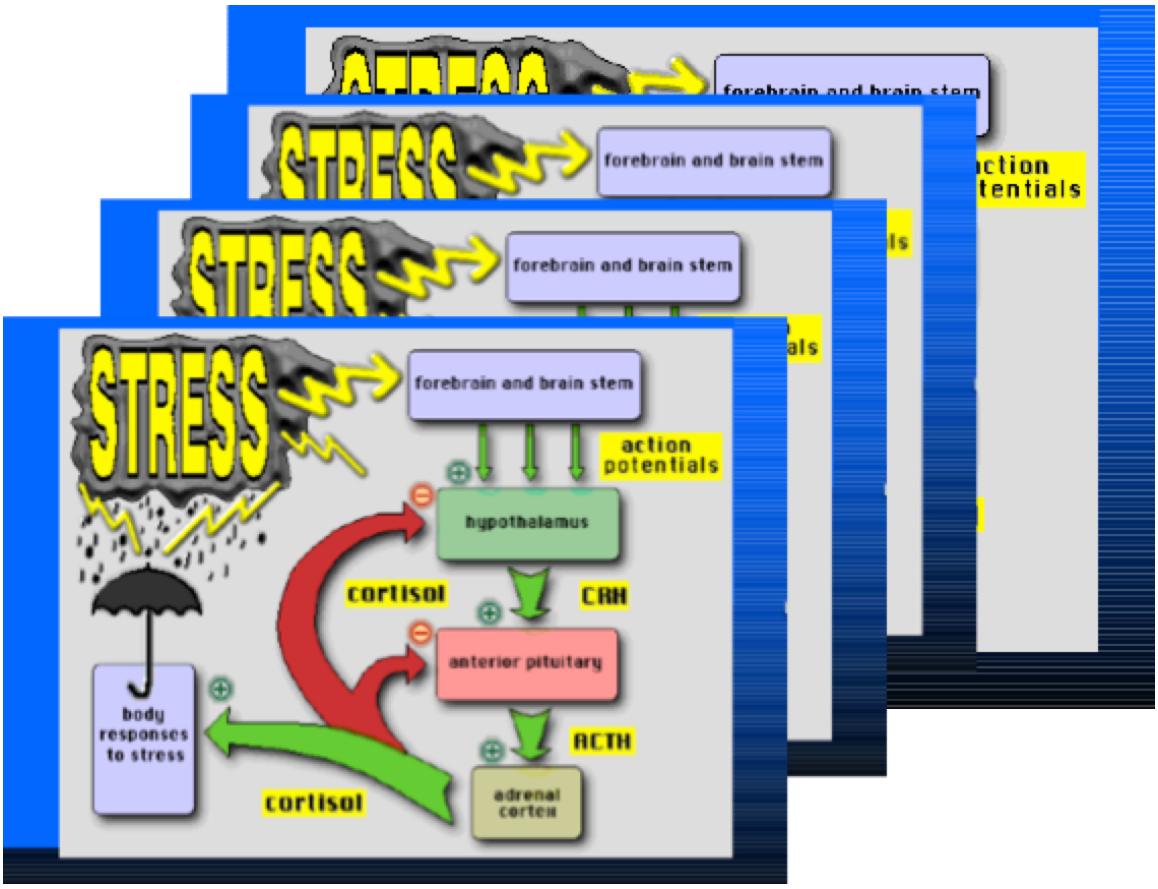


This diagram suggests that PTSD is a result of a single traumatic event. Not everyone who experiences a shocking event develops PTSD. But some people develop secondary problems

- Substance use disorders
- Depression including the risk of suicide
- Other anxiety disorders e.g. panic attacks

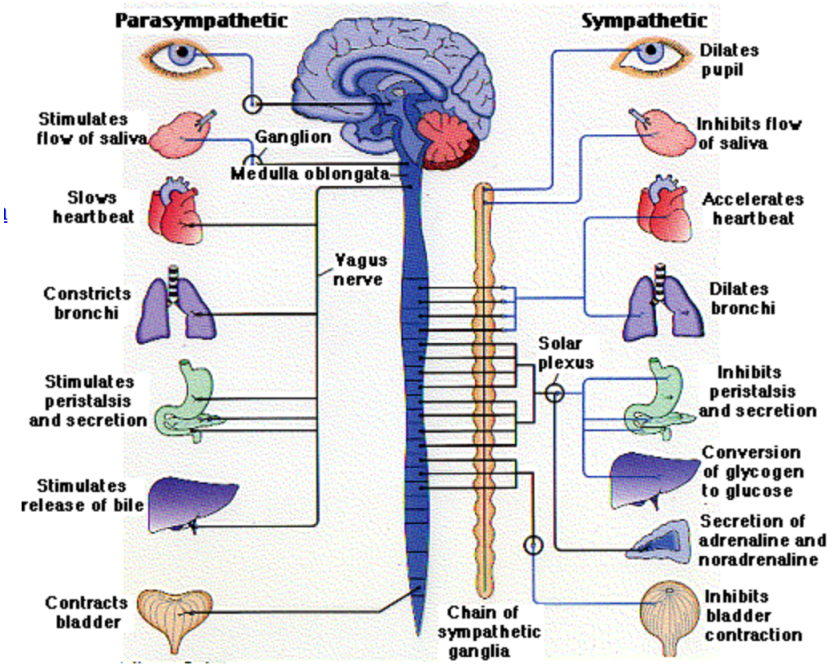
Stress and trauma are related concepts and experiences at basic biological and psychosocial levels. It is worth remembering that "stress" was originally an engineering term applied to materials, which entered the biological lexicon with Walter B Cannon's *The Wisdom of the Body* (1932) and Hans Selye's classic studies of the *Stress of Life* (1956). Stress involves the complex interactions of mind and body mediated through the

endocrine and immune systems. Trauma also has physical roots, damage to materials, but understood psychologically, trauma refers to experiences, such as experiencing or witnessing an event that involves threatened death or serious injury, which are overwhelming and thus change the person in profound ways. Because stress and trauma are not synonymous, and because not everyone who experiences stressful situations becomes traumatized, *IASC Guidelines* (Inter-Agency Standing Committee on Mental Health and Psycho-Social Support, 2011) recommend not using the word "trauma" when stress is meant.



In an evolutionary sense, the body has selected mechanisms to survive stressful experiences. The fight or flight mechanism of the autonomic nervous system has enabled our ancestors to survive encounters with saber-tooth tigers, increased heart

rate, increased blood pressure, conversion of stored glycogen in the liver to ready-energy glucose adaptive in a short-term, keep you alive long enough to pass your genes to another generation, but repeated stresses, with the exaggerated cortisol response lead to the adverse health outcomes, hypertension, diabetes, hypercholesterolemia, asthma, decreased immune function, increased infections, depression, attempts to solve these imbalances with drugs, possibility of neoplasms, and early death.



The sympathetic nervous system pictured on the right is the fight or flight mechanism.

The parasympathetic nervous system on the left is the rest and relaxation response.

All of these physiological changes are automatic and out of our direct control – except – breathing.

Ancient traditions have long recognized that we can calm our nerves by deep, slow breathing, which provides oxygen to the lungs, heart, brain, and restores equilibrium.

One of the most compelling demonstrations of the impact of traumatic experiences – or adverse experiences—on health (outcomes) is the famous ACE (Adverse Childhood Experiences) study (Felitti, et al., 1998). Significant is the direct, rigorous, graded correlation of adverse childhood experiences (such as psychological, physical or sexual abuse, violence against mother, or living with household members who were alcohol and/or substance abusers, someone who is chronically depressed, mentally ill, institutionalized or suicidal, mentally ill or suicidal, or even imprisoned, having only one or no parents, and emotional or physical neglect) on the one hand with (physical) symptoms and illnesses, leading causes of death including ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease. Perhaps even more important is the intermediate association with a number of maladaptive attempts to cope with the trauma including increased health risks for alcoholism, drug abuse, depression, and suicide attempts, 2-4 fold increase in smoking, poor self-rated health, sexual grazing (>50 sexual partners) and sexually transmitted disease, and increase in physical inactivity and severe obesity. These intermediate symptoms may be considered in isolation as problems in themselves, thus overlooking their multiple and antecedent causes and failing to respond appropriately and effectively to real need. Briefly, the more types

of adverse childhood experiences (Column 1), the greater the neurobiologic impacts and health risk behaviors (Column 2), and the more serious the lifelong consequences to health and well-being (Column 3) (Feletti, 1998). Notable is the intermediate column of Health Risk Behaviors, smoking, obesity (or eating disorders), alcohol or drug misuse, other compulsive behaviors, which are often seen as problems in themselves, rather than understood as unsuccessful attempts to ease the pain of dealing with the memories of adverse childhood experiences. Furthermore a large array of chronic "medical" conditions may be understood biologically as entitles unto themselves, when in fact they have complex psychosocial antecedents.

People with an ACE score of 4 were seven times more likely to be alcoholics as adults than people with an ACE score of 0. They were six times more likely to have had sex before age 15, twice as likely to be diagnosed with cancer, four times as likely to suffer emphysema. People with an ACE score above 6 were 30 times more likely to have attempted suicide. Later research suggested that only 3 percent of students with an ACE score of 0 had learning or behavioral problems in school. Among students with an ACE score of 4 or higher, 51 percent had those problems.

Table 4 – Adverse Childhood Experiences (ACE) Study Findings

Adverse Childhood Experience* ACE Categories (Birth to 18)	Impact of Trauma and Health Risk Behaviors to Ease the Pain	Long-Term Consequences of Unaddressed Trauma (ACEs)
Abuse of Child Emotional abuse Physical abuse Contact Sexual abuse ***Trauma in Child's Household Environment*** Alcohol and/or Drug User Chronically depressed, emotionally disturbed or suicidal household member Mother treated violently Imprisoned household member Not raised by both biological parents (Loss of parent – best by death unless suicide, - Worst by abandonment) ***Neglect of Child*** Physical neglect Emotional neglect * Above types of ACEs are the "heavy end" of abuse. *1 type = ACE score of 1	***Neurobiologic Effects of Trauma*** Disrupted neuro-development Difficulty controlling anger-rage Hallucinations Depression - other MH Disorders Panic reactions Anxiety Multiple (6+) somatic problems Sleep problems Impaired memory Flashbacks Dissociation ***Health Risk Behaviors*** Smoking Severe obesity Physical inactivity Suicide attempts Alcoholism Drug abuse 50+ sex partners Repetition of original trauma Self Injury Eating disorders Perpetrate interpersonal violence	***Disease and Disability*** Ischemic heart disease Cancer Chronic lung disease Chronic emphysema Asthma Liver disease Skeletal fractures Poor self rated health Sexually transmitted disease HIV/AIDS ***Serious Social Problems*** Homelessness Prostitution Delinquency, violence, criminal Inability to sustain employment Re-victimization: rape, DV, bullying Compromised ability to parent Negative alterations in self perceptions and relationships with others Altered systems of meaning Intergenerational trauma Long-term use of multiple human service systems

ACE>4
AlOH x 7
Sex<15 x2
Cancer x2
Emphysema x 4

ACE>6
suicide attmp x30

The World Health Organization has designed an ACE International Questionnaire – ACE-IQ.

Questions cover family dysfunction; physical, sexual and emotional abuse and neglect by parents or caregivers;

peer violence; witnessing community violence, and exposure to collective violence.

ACE-IQ is currently being validated through trial implementation as part of broader health surveys.

The WHO Iraq Mental Health Survey conducted in 2008 indicates the types of violence experienced by Iraqis at the height of the war

Note that in the Kurdistan, where many people fled, experienced higher values for the categories of life threatening illness.

Table 5 Trauma Experience

WHO Iraq Mental Health Survey (2008)

Exposure to traumatic events

- C*apture/kidnapping,*
-
- *imprisoned*
-
- *purposely causing harm to others*
-
- *arrest,*
-
- *being beaten by spouse-*
-
- The south/centre shows higher values for the following categories: *refugee, internal displacement, exposure to bomb blast, capture, public humiliation, accused of collaboration, beaten by parents as child, beaten by someone else, sexual assault, causing accidental harm to others, witness to killing, death of dear one, family member kidnap, any war related trauma, any trauma* and *other*.
-
- The Kurdistan region shows higher values for the categories *life threatening illness.*

Resilience is the positive capacity of people to cope with stress and adversity. The term, "resilience" like stress also derives from engineering (the ability of a strained body to recover its size and shape after deformation caused by stress), and like Selye's "stress of life", resilience has a biological parallel in what Selye called the "General Adaptation Syndrome". Psychologically as well as physically and biologically, resilience is understood as the ability to "bounce back" from adversity (Bonnano, 2004). Across cultures, family support, social support, civil society, religion and spirituality are among

the recognized factors that promote resilience. Humanitarian assistance may be seen as among those factors in which the international community allies with local support systems to tip the balance from distress to adaptation and promote resilience and recovery.

While families in communities are among the most robust resilience factors, the world is currently facing a global refugee crisis, the largest since WWII. Medécines Sans Frontier MSF has organized an exhibit on the refugee crisis focus on three desperate situations, the so-called Syrian refugee crisis, Burundi, the long-standing ethic tensions where currently 170,000 Burundians have fled to Tanzania, and Hondurans, fleeing organized crime and murders into Mexico in hope of reaching the United States (or Canada).

"George Washington University is an innovator in Global Health and Global Mental Health programming recognized internationally for preparing students, residents and faculty to respond to global crises and complex emergency situations. The GWU has touched the lives of vulnerable populations worldwide through programs that foster community support and healing. The GWU community approach builds medical infrastructure through education and consultation and strengthening civil society institutions."

This photo was taken by one of our GW psychiatry residents, Dr. Nicole Nguyen Perras, who was part of a team that did a psychiatric needs assessment in November, 2015. Another resident, Dr. Fatima Noorani, was part of the faculty for our GW Resilience workshop in Athens in June, 2016. This workshop, sponsored by the US Embassy with support from the Greek NGO Metadrasi addressed vicarious trauma, stress, and burnout in humanitarian workers, employing mindful meditation, Hope modules, and Psychological First Aid (PFA) in small group exercises. More information at "GW Resilience Workshop" (https://sites.google.com/site/**gwresilienceworkshop**/)

SUMMARY

In consideration of the relationships between stress, trauma, and resilience, both psychologically and physiologically, I would like to suggest that health is an integrative concept involving biological, psychological, and social factors, which are all interrelated.

Disaster situations, like tsunamis, earthquakes, and especially wars, remind us that physical health cannot really be separated from mental well-being.

Trauma has health consequences, physical and mental, and coping with trauma requires an integrated understanding.

In Iraq, people have shown extraordinary resilience; yet they suffer increased susceptibility to cancer, heart disease, and a host of physical manifestations of stress-related conditions.

CONCLUSION

- The World Health Organization long ago recognized the importance of not only biological but also psychosocial factors in illness, when it offered its significant definition of health as "bio-psycho-social well-being, not just the absence of disease." (WHO,1946).
- Because of the dynamic interactions between biological and psychosocial factors we witness in global disasters and complex emergencies, I believe that there is a stronger statement that needs to be made. The artificial distinction between health and mental health obscures rather than clarifies the integral relationship of mind and body. There is no real difference between health and mental health. Health is health.
- The bio-psycho-social approach is not just a good idea, it is a reality based on an increasing body of scientific evidence.
- The challenge now is to apply that knowledge to practice in both resource rich and resource poor settings.
- "Global" health is not just about health somewhere else.

  "Global" in this sense means "comprehensive".

References

Bonnano,GA (2004) Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events? Am Psychol 2004 Jan 59 (1) 20-8.

Cannon WB. The wisdom of the body. New York, NY: Norton; 1932.

von Clauzewitz C. On war. Howard M, Paret P, editors and translators. New Haven, CT: Princeton University Press; 1984:137, 1984: p. 13.

Dyer, AR, S Bhardra (2013) "Global Disasters: War, Conflict and Complex Emergencies" in E. Sorel ed., 21st Century Global Mental Health. Burlington, MA, Jones & Bartlett Learning.

Dyer, A (2016) GW Resilience Workshop https://sites.google.com/site/gwresilienceworkshop/

Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med. 1998;14(4):245-258.

Griffith, JL (2010) Religion that Heals, Religion that Harms: A Guide for Clinical Practice, New York: Guilford Press.

Herman, J, 1992, Trauma and Recovery: The Aftermath of Violence—from Domestic Abuse to Political Terror. New York, Basic Books.

Cloitre, M, CA Courtois, A Charuvastra, R Carapezza, BC Stolbach, BL Green, 2011 Treatment of Complex PTSD: Results of the ISTSS Expert Clinician Survey on Best Practices. Journal of Traumatic Stress, Vol 24, No 6, December 2011, pp. 615-627.

Selye H. The stress of life. New York, NY: McGraw-Hill; 1956.

Inter-Agency Standing Committee (IASC). Mental health and psychosocial support in emergency settings checklist for field use. Geneva, Switzerland: IASC; 2008.

Snyder, Leslie, Psychological First Aid

Sontag, Susan (2003), *Regarding the Pain of Others*, New York, Farrar, Straus and Girroux.

World Health Organization. WHO definition of health, preamble to the constitution of theWorld Health Organization; 1946.

WHO (2008) Iraq Mental Health Survey

Adverse Childhood Experiences International Questionnaire – ACE-IQ. WHO, 2015

Sadik S, Al-Jadiry M. Mental health services in Iraq. Int Psychiatry. 2006;3:11-13.

Ministry of Health. Baghdad, Iraq: Ministry of Health Report 2007.

Alhasnawi S, Sadik S, Rasheed M, et al. The prevalence and correlates of DSM-IV disorders in the Iraq Mental Health Survey (IMHS). World Psychiatry. 2009;8:97-109.

World Health Organization. Iraq Mental Health Survey; 2007 [Internet] [cited 2011 Sept 29]. Available from: http://www.emro.who.int/iraq/pdf/imhs_report_en.pdfhttp://www.emro.who.int/iraq/pdf/imhs_report_en.pdf.

Sadik S, Abdulrahman S, Bradley M, et al. Integrating mental health into primary healthcare in Iraq. Ment Health Family Med. 2011;8:39-49.

Miller KE, Rasco LM. The mental health of refugees: ecological approaches to healing and adaptation. New York, NY: Psychology Press; 2004.