

PTSD Threatens Global Economies

RECENT NEWS REPORTS reveal the tip of an iceberg that is threatening to sink the ship of state in countries worldwide—the iceberg known as posttraumatic stress disorder (PTSD). PTSD increasingly threatens to swamp health systems and social support systems, even as some of these budgets are cut for lack of funds as a result of the global economic crisis. The human toll is even more devastating.

- On May 12, 2009, the Associated Press (AP) reported that a 44-year-old U.S. sergeant, nearing the end of his third tour in Iraq, was so angry at the Army he opened fire in the combat-stress clinic in Baghdad, killing five people.
- On May 22, 2009, AP related the story of a 24-year-old ex-soldier on trial in Kentucky for raping a 14-year-old Iraqi girl and murdering her parents and sister while on duty in Iraq. The jury cannot agree whether or not to sentence him to death.

It is probable we will see more headlines like these in the next 6 months because the U.S. Army will not be able to give soldiers adequate time at home between tours of duty until the end of 2010. Since 2001, the U.S. has deployed nearly 1 million soldiers to Iraq and Afghanistan, and more than 300,000 of them have served multiple tours. About 20% of these soldiers return with psychological damage, most commonly PTSD and depression. At least half of PTSD sufferers smoke, and others become dependent on alcohol or prescription drugs. PTSD increases risk of cardiovascular disease, and multiple traumas have a deleterious effect on many aspects of physical health. Overall, the U.S. Army's suicide rate reached an all-time high in 2008. For those who survive, lifetime benefits for a U.S. service member permanently disabled because of PTSD may top \$1 million. Finally, the most recent estimate of the annual cost of anxiety disorders in the United States, with PTSD ranking highest in terms of per-person health care expenditures, was \$42.3 billion in mental and physical health services alone.

In Europe, about 41 million people have anxiety disorders, and PTSD may occur in up to 37% of those exposed to trauma such as combat, sexual and physical assault, being held hostage or imprisoned, terrorism, torture, natural and manmade disasters, accidents, and receiving a diagnosis of a life-threatening illness.

Because PTSD has such varied symptoms, a combination of treatments is often necessary. Anxiety-reducing medications, antidepressants, support from friends and family, and cognitive-behavioral therapy (CBT) involving exposure can help with recovery. However, these types of traditional therapies do not have acceptable recovery rates. Front-line antidepressant medications for the disorder—such as selective serotonin reuptake inhibitors—rarely yield better than a 40% reduction in symptoms. Traditional psychotherapy fares only slightly better, with only 44% of all those entering treatment classified as improved at the end of the treatment period.

Fortunately, we live in a time when advances in medical technology abound. A recent Google search of “PTSD technology issues 2009” revealed that two of the five top links addressed the value of virtual reality (VR) therapy for PTSD.

A panel of experts has published a consensus opinion that exposure therapy is the most appropriate therapy for PTSD. Prior to the availability of VR therapy applications, the existing standard of care for PTSD was imaginal exposure therapy in which patients “relive” the traumatic event in a graded and repeated process. Exposure therapy is based on emotional processing theory (EPT). Applying EPT to PTSD, fear memories are stored as a “fear structure” and include psychological and physiological information about stimuli, meaning, and responses. Once accessed and emotionally engaged, the structure is open to modification through CBT, and over time, treatment will result in extinction of the fear response.

Although exposure therapy has been shown to be effective, one hallmark of PTSD is avoiding reminders of the trauma. Because of this, many patients are unable or unwilling to visualize the traumatic event during imaginal therapy. In studies that address treatment nonresponders, failure to engage emotionally or visualize well enough to elicit an emotional response are cited as most predictive of nonresponse to treatment, since the fear structure is not accessed during therapy and is therefore not open to change.

This is where VR can step in to enhance treatment. In recent years, VR has been shown to improve treatment efficacy for PTSD in survivors of many types of trauma, including motor vehicle accidents, war, earthquake, and terrorism such as the 9/11 World Trade Center attacks. By being placed in an environment where a trauma has occurred (in war veterans, it could be a virtual combat setting; in armed conflict survivors, a virtual countryside under attack), and then slowly experiencing that situation in a controlled way, patients may begin to habituate to the PTSD symptoms and come to reappraise the instigating situation. This allows emotional processing to occur and may free PTSD sufferers from their intrusive memories and disturbing symptoms. Unlike in vivo therapy, which takes the patient into real-world scenarios (which is not practical or even possible with war veterans), VR permits the patient to interact with anxiety-inducing scenarios in the safety and confidentiality of the therapy room. Early results indicate response rates as high as 80% with VR exposure therapy.

In Europe and America, decision makers are beginning to focus attention on technology solutions to this problem. A NATO-supported advanced research workshop, Wounds of War: Addressing Posttraumatic Stress Disorder (PTSD) in Peacekeeping and Combat Troops, organized by the Interactive Media Institute and also supported by the U.S. Army's

Military Operational Medicine Research Program, brought together experts from 14 countries in October 2009 in St. Kanzian, Klopeiner See, Südkärnten, Austria.

The American Recovery and Reinvestment Act (ARRA) of 2009 provides the U.S. Department of Veterans Affairs (VA) with \$1.4 billion, most of which is to be spent on facilities upgrades, health information technology, and other programs designed to create jobs. The U.S. Department of Defense will receive \$7.4 billion under ARRA, most of which will be used in a similar fashion. ARRA requires an unprecedented level of accountability and transparency, so world citizens can track the projects completed with these funds. At this, just one third of ARRA funds have been released.

If one of the aims of ARRA funding is, as DoD states, to “care for U.S. Service members and their families,” surely some of these funds can be directed to large-scale research studies designed to prove the efficacy and cost effectiveness of VR therapy for current and former service members with PTSD. While a growing number of Veterans Administration facilities are using VR therapy in controlled studies that allow veterans to receive this most effective treatment, only when governments consider it a priority to mainstream such therapy can we avoid our ships of state becoming the next Titanic.

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