

Assessing Psycho-Social Resilience in Diplomatic, Civilian & Military Personnel Serving in a High-Threat Security Environment during Counter-Insurgency and Counter-Terrorism Operations in Iraq

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Abstract

Currently thousands of military, diplomatic and civilian personnel are deployed under NATO, UN, and other multi-national, as well as national auspices in high-threat security environments, including active conflict zones such as Iraq and Afghanistan. Soldiers are generally well trained and prepared psychologically to face armed conflict. Civilian contractors and diplomats, on the other hand, often are not. Moreover in today's high-threat security environments terrorists, insurgents and even child soldiers may be the opposing force, creating a more uncertain and anxiety provoking environment and more difficult to identify security threat. These facts have serious implications for the psycho-social resilience of diplomatic, civilian and military personnel deployed in such environments. This article investigates psycho-social resilience in a small exploratory sample of US embassy staff, contractors and US forces serving in Iraq during 2007, a time when Improvised Explosive Devices (IEDs), roadside bombings, mortar attacks, kidnappings, murders and sniper fire were an everyday occurrence in Iraq.

Introduction

During the period 2005-2007, the US Embassy in Iraq was responsible for a staff of approximately five thousand; the majority being civilian contractors supporting diplomats and military staffed there. At the time the US State Department was just beginning to consider the psycho-social ramifications of deploying a large share of its personnel in high-threat security zones where they would be separated from family members and work long hours on a daily basis. Training at that time for deployment to Iraq for US State Department personnel included security and first aid training and a brief introduction to handling the psychological stress of dealing with serving in a war zone and facing terrorist threats (including car bombs, mortar attacks, and suicide bombers). In a similar fashion, US Department of Defense contractors underwent pre-deployment training; however their training units had no briefing on handling psychological stress responses to a high-threat environment. In 2007 the State Department had no mandatory debriefing for those coming out of high-threat security environments [2] and no study had been done to assess if diplomatic and civilian personnel were resilient working in active conflict zones or becoming psychologically traumatized during their service in Iraq. There was no good data collection on psycho-social resilience in civilian and diplomatic personnel serving in Iraq (only the military was conducting studies) and consequently no way of assessing if civilian and diplomatic personnel were suffering from negative psychological and social responses to being deployed under threat situations combined with the additional stresses

of working long hours and being deployed for long periods of time away from family members and social support networks. This study was a first attempt to remedy that situation.

Two of the authors (Speckhard and Verleye) were at the time serving on the *NATO Human Factors & Medicine, Research and Technology Task Group (140) – Psycho-social, Organisational, and Cultural Aspects of Terrorism*. This Task Group had the study of civilian and military resilience to terrorist and insurgent threats as one of its mandates. In addition, the lead author's spouse (Speckhard) was at the time serving as the US Deputy Chief of Mission in Iraq while she was going in and out of Iraq herself as a military contractor (designing and pilot testing the US Department of Defense's Detainee Rehabilitation Program). The confluence of these circumstances created an attractive opportunity for carrying out an exploratory pilot study on the psycho-social resilience of US civilian, diplomatic and military personnel serving in Iraq during those days. The current article describes the results of the author's efforts to conduct a Internet-based, low budget exploratory study of the psycho-social resilience of US diplomats, civilians and military service personnel working in a high-threat security environment (facing terrorist attacks and insurgent operations).

Assessing psycho-social resilience to deployment in a high-threat security environment is a challenging endeavor and requires creativity and the willingness to potentially confront danger in order to learn. In this case the researchers decided that there were two important questions to explore: (i) how resilient are our civilian and military personnel while serving in Iraq, and what variables influence positive and negative resilience, and (ii) is it possible to carry out a study of resilience to a high-threat security environment using available technology (Internet and web-based technology) without having to enter the threatening environment to carry out the survey?

The lead researcher (Speckhard), a psychologist who had traveled to and been working inside Iraq on three different occasions had a fair idea of the challenges faced by those serving there. She was thus able to build upon previous work of the team in studying and modeling psycho-social resilience to terrorism to design a resilience survey to reflect the "boots on the ground" experiences while the other team members were able to turn this survey into an Internet based tool that could provide an assessment from afar. The steps in carrying this out included: theoretically defining resilience in a manner that applied to a threatening security environment, designing a survey tool that reflected the variables, and doing so in a manner that appealed to very busy professionals, turning this survey into a web-based design, identifying a sample, inviting participants, collecting results and analyzing them. This article describes the process of this exploratory study and its outcomes.

Theoretically Defining Psycho-Social Resilience

The concept of resilience implies adaptability and a certain ability to "bounce back" in the face of a challenge or stressor. In this study the resilience model builds upon previous work of the authors studying societal resilience to terrorism in Belgium whereby the concept of resilience is defined as a dynamic variable, influenced by many co-variates (defined below), and existing on a continuum of adaptability [3]. According to this definition an individual who is resilient to serving in a high-threat security environment must retain, or in the best-case scenario even show gains in flexibility, adaptability, functionality and empathy. To show any losses in function,

flexibility, adaptability or empathy is to show a loss in resilience. A loss of resilience likewise is indicated by the appearance of pathological symptoms interfering with normal functioning including symptoms of posttraumatic stress (including flashbacks, high arousal states, loss of concentration, irritability, etc.), dissociation (a separation of normal cognitive functions, emotional numbing, inability to think, etc.), anxiety, depression, and panic, all of which interfere with and create a loss of normal functioning. Likewise a gain in xenophobia (hatred of outsiders such as Muslims or Arabs in this case) is also assessed in this model as contributing to a loss of resilience.

According to the model of resiliency used here, there are ten main covariates of resiliency. These include the following main categories: Posttraumatic Stress Disorder (PTSD), World Assumptions, Perceived Risk and Fear, Personal Preoccupation, Attitude towards Government Communications, Social Buffering, Social Capabilities, Life History, Sense of Mastery and Xenophobia. These concepts and the entire model of resilience is elucidated further in other publications and space here does not allow for a lengthy explanation.[4] However, it is important to note that PTSD, a challenge to world assumptions, perceived risk and fear, and personal preoccupation all relate to how the individual may lose functions in the face of a high-threat security environment, and become fearful and preoccupied by it. The life history, sense of mastery and social capabilities variables relate to previous challenges the individual has encountered (for good or for bad) and skills and losses that occurred as a result. Social buffering and attitude towards government communications has to do with how well social ties and government communications aid in coping with a high-threat security environment. Lastly xenophobia is included because it can be an ill effect of experiencing or witnessing terrorism that has been linked with Islam or other “outsider” groups, as in the case of the US and 9-11 for instance; this too is related to a loss of resilience (i.e. beginning to hate an ethnic or religious group as a result of exposure to terrorism). These ten variables both affect resilience to a stressor and may also be affected in turn by a traumatic stress event. They are defined at length in another paper (Speckhard, 2010) and the statistical clusters of variables that were examined are also discussed further in the results section of this paper. This paper focuses on the acute, posttraumatic and other psycho-social sequelae that occurred in response to serving in a threatening environment and being exposed to terrorist event(s) both of which resulted in a loss of resilience among portions of the sample.

Method

The design of the present study was to explore the concept of psycho-social resilience to a high-threat security environment for civilian and military personnel in theater while also exploring the assessment possibilities of carrying out the study via a web-based assessment tool served over the Internet. The use of an Internet based survey might prove a method to reach as large and varied a sample as possible within the high threat space, thereby keeping the costs low and bypassing the necessity to send survey researchers into a violent environment while also exploring how this method might work.

Web-based Survey

The survey instrument was constructed from previous work by the authors building upon their multidimensional model of resilience to terrorism. In this case the questionnaire was designed to query about exposure to terrorist and insurgent acts as well as multiple questions covering the ten main categories of interactive variables.[5] Where possible, questions were closely matched to already existing items from previously validated tests (i.e. items for assessing posttraumatic stress disorder) in order for the present items to have validity. However, the researchers rejected the use of whole scale batteries of standardized assessment tools because the idea was to have a coherent questionnaire that would appeal to respondents and flow smoothly as it questioned them about their responses to serving in a high-threat security environment. Offering a battery of psycho-social “tests” was judged as unlikely to garner a good response rate as it is an unappealing way to approach respondents who were already dealing with a great deal of stress. While the researchers had clusters of variables pre-defined at the outset of the study they were also interested to learn which variables would statistically cluster once the data was collected.

Sampling

The resulting questionnaire was then put into a web-based design to function as a web page questionnaire. A website was designated and a letter was sent out by e-mail through contacts that the first author had in both civilian and military circles, inviting participants to log onto the website and take part in the study. The letter outlined the study’s rationale, risks of taking part and ways of making contact with the researchers in order to receive help for any adverse reactions to participating as well as simply to give further feedback or to ask for help in dealing with the high-threat security environment. Likewise it requested potential subjects not only to take part in the survey but also to e-mail the invitation to participate to their circle of contacts serving in Iraq. As a result the sampling frame followed a snowball method. The letter also made clear to the participants that the study was being conducted by a multi-national university team (Belgian and United States) that was completely independent of both the US Department of Defense and the State Department and the results would be reported in aggregate, thus the participants could take part in the survey without any worries of negative reporting of individual results inside the work place.

Results

The Internet-based aspect of the study design turned out to be a double-edged sword. While the web-based design was attractive and allowed for automatic scoring of the results it turned out that the Internet speeds provided by the Multi National Forces in Iraq were too slow to support this aspect of the study design. Within the first days of inviting study participants over one hundred potential participants had logged onto the website and completed two to three pages (of the total ten pages) indicating interest in the study was high. However, only twenty percent of these participants finished the entire survey, most abandoning it because the web pages were too slow in opening for the subjects to complete the survey (some subjects told us that the pages took up to ten minutes to open at times). When this problem was discovered the survey was

immediately repackaged as a word file and resent to all the original invitees asking them to please give the survey another try in a new easier electronic format and to e-mail it to invite participation of their contacts as well. This design worked, although many potential subjects were lost with the first technology failure resulting in a smaller sample size.

The final result was a sample of fifty-three participants who took part in the survey during the time period of March 15 to April 1, 2007. This was enough for an exploratory study of the psycho-social responses of individuals serving in a high-threat environment and large enough to receive feedback on the survey design as well as the high-tech methodology used to conduct it but it lacked the size to conduct regression analysis of the results. The participants not only filled out the survey but over half also took the opportunity to provide detailed feedback to the research team, often in long letters explaining why certain items did not capture the full impact of what they were experiencing, nuances that they wanted to give to their answers, or how the study needed to be expanded to cover the additional stresses caused by separation from family for long periods of time and the long hours and weeks without breaks that many of the participants were working. It was clear that the participants trusted the researchers as independent as they made many intimate comments about their work places, colleagues and the challenges of working inside Iraq.

Sample

The final sample resulted in fifty-three participants, between the ages of twenty-seven and sixty-three. Nine were in active combat duty, the rest were diplomats and civilian support personnel. Thirty-eight were male, fifteen female. Eighteen were single, twenty-eight married and seven divorced.

Exposure to High-Threat Events

By virtue of serving in Iraq everyone in the sample had exposure to multiple high-threats including: mortar fire, improvised explosive devices (IEDs -vehicular and human borne); bombings of buildings; roadside bombings and sniper fire in some areas. Exposure varied from witnessing on television, to learning from a witness, to witnessing a high-threat event in person or being personally involved in the event. With IEDs, mortar and sniper fire and explosions occurring near the workplace at least weekly, and sometimes daily, all of the respondents had multiple exposures to high-threats. For instance US embassy workers lived in trailers nearby to the embassy, one of which received a direct hit and was burned up during the time period of the study. Small cement bunkers for sheltering from incoming mortar attacks were located along the walkways to and from work and alarms were sounded frequently to alert of incoming mortar. Respondents also said they could feel the impact of bomb explosions (occurring outside the International Zone) while in their trailers at night and in the mornings. Workers traveled in convoys with heavy protection but still suffered roadside bombing and IED attacks.

Posttraumatic and Acute Stress Responses to the High-Threat Security Environment

After indicating the high-threat events they had some level of exposure to, the respondents were asked to think of the one event that had impacted them most and to which they had the strongest response and to answer all of the acute and posttraumatic stress response questions keeping that event in mind. Regarding reference to their exposure to the threatening event, 70 percent said they felt fear, horror and a sense of helplessness (with 46 percent endorsing these emotions on the sometimes, often and always level). This indicates that the majority of the sample experienced a stressor capable of causing posttraumatic stress disorder (PTSD). Moreover, 47 percent of the respondents endorsed that they felt detached from the traumatic event as it occurred, even as if watching from outside of themselves. This type of response is known as peri-traumatic dissociation, and is often a predictor of PTSD.

To learn about their acute and posttraumatic stress responses, the respondents were asked to reply to questions closely matched to items from standardized measurements of acute and posttraumatic stress disorder (PTSD) The six main axes of PTSD include: exposure to a traumatic stressor as defined by the PTSD criteria; psychological numbing and avoidance; flashbacks, intrusions and nightmares; hyperarousal and loss of concentration; inability to function in a significant aspect of life and duration of symptoms lasting beyond one month.

Posttraumatic and Acute Stress Symptoms

A high portion of the sample evidenced posttraumatic and acute stress symptoms in the first month following exposure to the traumatic event. All of the PTSD diagnostic criteria were endorsed as present by at least some portion of the sample and in some cases items were endorsed by as high as forty-seven percent of the sample for the first month after exposure (See Table 1). All of the responses in this section relate to the first month after exposure.

Table 1: Endorsement of Posttraumatic and Acute Stress Symptoms in the First Month Following Exposure to a Traumatic Event(s) in the High-Threat Security Environment				
Posttraumatic and Acute Stress Symptoms	Sometimes	Often	Always	Total Endorsement as Present
Criterion A: Traumatic Event				
Fear, horror and sense of helplessness	22.6	13.2	1	45.9 (with rarely 70.1)
Peri-traumatic Dissociation				
Became detached from it, even as if watching from outside of myself	20.8	18.9	7.5	47.2
Criterion B: Re-experiencing				
Nervous in my body upon reminders (B-5)	20.8	5.7	1.9	28.4
Criterion C: Avoidance				
Avoided reminders of it (C-1)	22.6	1.9	1.9	26.4
Tried not to think of it (C-1)	19.2	13.5	7.7	37.4
Tried not to talk about it (C-1)	26.4	9.4	1.9	37.7
Changed behaviors trying to avoid danger of this type	17.0	17.0	3.8	37.8
Avoided work assignments that could place me in a similar situation (C-2)	15.1	1.9	3.8	20.8
I had trouble remembering all of what had happened (C-3)	11.3	1.9	0	13.2
I felt alienated or isolated from others (C-5)	15.1	1.9	0	17.0
I felt emotionally numb (C-6)	26.4	15.1	5.7	47.2
Unease and uncertainty about the future (C-7)	15.1	17.0	0	22.1
Criterion D: Increased Arousal				
Hard time concentrating (D-3)	15.9	10.1	1.4	27.4
Criterion F: Clinically significant Distress or Impairment in Functioning				
Trouble working or doing normal tasks	18.9	1.9	1.9	22.7
Social life affected negatively	1.9	5.7	0	7.6
Physical Health Problems	7.5	3.8	1.9	13.2

Re-experiencing

28 percent of the respondents felt physiological responses (sweaty palms, heart racing or irregular breathing) upon reexposure to reminders of the event.

Avoidance

In regard to the traumatic event(s) 37 percent of the sample said in the first month after exposure they tried not to think about it; 38 percent avoided talking about it; and 26 percent avoided reminders of it. 38 percent changed their behaviors to avoid similar danger and 21 percent avoided work assignments that could place them in such danger. This latter type of avoidance is

likely positive coping but it could also evidence impairment in ability to function well as a worker in the high-threat security environment. 13 percent of the sample had trouble recalling the whole event; 17 percent felt isolated or alienated from others; and 47 percent felt emotionally numb. 22 percent felt unease and uncertainty about the future in response to the event.

Increased Arousal

27 percent had trouble concentrating in the first month following the event.

Clinically Significant Distress or Impairment in Functioning

22 percent of the sample had trouble working or doing normal tasks in response to the event; 8 percent said their social life had been negatively effected; and 13 percent reported physical health problems as a result.

Posttraumatic Stress Disorder Symptoms

As could be expected the acute and posttraumatic stress responses damped down in the months following the event and less of the respondents' endorsed symptoms in the present time for when they were filling out the survey (i.e. more than one month out from the attack and still in the high-threat security environment when answering the survey – i.e. anywhere from two to twelve or more months following exposure). Despite the decrease in numbers of respondents reporting symptoms of posttraumatic distress a significant portion of the sample evidenced PTSD symptoms enduring beyond a month in response to the traumatic event(s) they had been exposed to while working in a high-threat security environment. While symptoms decreased over time for the participants evidencing diminishing distress across the sample, all of the PTSD diagnostic criteria continued to be endorsed at the level of present beyond one month after exposure frequently in ranges as high as 30 percent of the sample (see Table 2). All of the responses in this section relate to responses enduring beyond one month following exposure.

Re-experiencing

21 percent of the respondents evidenced thoughts of the traumatic event intruding in their minds, and 9 percent felt physiological responses (sweaty palms, heart racing or irregular breathing) upon re-exposure to reminders of the event. Interestingly, only 4 percent had nightmares, although we must keep in mind that as the respondents continued to be serving in the high-threat environment they may have kept nightmares at bay until returning to safety. Likewise, the author learned from conversations with many embassy workers and contractors that due to working long hours and their high-arousal states which made it difficult to fall and stay asleep, many made use of psychotropics to sleep. When one looks to arousal issues it is clear that sleep was disturbed.

Table 2: Endorsement of PTSD Symptoms More than One Month After Exposure to a Traumatic Event(s) in a High-Threat Security Environment

PTSD Symptoms	Sometimes	Often	Always	Total Endorsement as Present
Criterion A: Traumatic Event				
Fear, horror and sense of helplessness	22.6	3.8	0	26.4
Peri-traumatic Dissociation				
I became detached from it, even as if watching from outside myself	11.5	15.4	7.7	34.6
Criterion B: Re-experiencing				
Thoughts of it kept intruding in my mind (B-1)	15.4	3.8	1.9	21.1
I had nightmares about it (B-2)	3.8	0	0	3.8
Nervous in my body upon reminders (B-5)	7.5	1.9	0	9.4
Criterion C: Avoidance				
Avoided reminders of it (C-1)	15.1	1.9	3.8	20.8
Tried not to think of it (C-1)	9.4	9.4	7.5	26.3
Tried not to talk about it (C-1)	13.5	7.7	5.8	27.0
Avoided work assignments that could place me in a similar situation (C-2)	7.7	1.9	3.8	13.4
I felt alienated or isolated from others (C-5)	3.8	1.9	0	5.7
Became emotionally numb	18.9	7.5	5.7	32.1
Unease and uncertainty about the future (C-7)	13.2	5.7	1.9	20.8
Criterion D: Increased Arousal				
Difficulty Falling Asleep (D-1)	5.7	11.3	1.9	18.9
Sleep patterns disturbed (D-1)	15.1	13.2	1.9	30.2
Hard time concentrating (D-3)	9.4	3.8	1.9	15.1
Jumpy or easily startled (D-5)	20.8	7.5	1.9	30.2
Easily Agitated or Angry	15.1	1.9	1.9	18.9
Criterion F: Clinically significant Distress or Impairment in Functioning				
Trouble working or doing normal tasks	1.9	0	0	1.9
Social life affected negatively	1.9	5.8	0	6.7
Physical Health Problems as a Result	7.7	1.9	1.9	11.5

Avoidance

In regard to the traumatic event(s), 26 percent of the sample said they tried not to think about it; 27 percent avoided talking about it; and 21 percent avoided reminders of it. 13 percent of the sample avoided work that could place them in similar danger; 6 percent felt isolated or alienated from others; and 32 percent felt emotionally numb. 21 percent felt unease and uncertainty about the future in response to the event.

Increased Arousal

30 percent of the sample said their sleep patterns were disturbed in response to the event; 19 percent had difficulty falling asleep; 15 percent had trouble concentrating; 30 percent were jumpy or easily startled; and 19 percent were easily agitated or angered beyond one month following exposure to the traumatic event.

Peri-traumatic Dissociation

Peri-traumatic dissociation was reported even beyond one month following the traumatic exposure with 35 percent of the subjects still reporting feeling detached as if viewing it from outside of themselves. This effect perhaps persisted given that the subjects continued to be exposed to the high-threat security environment and dissociation continued to be a useful defense mechanism.

Clinically Significant Distress or Impairment in Functioning

22 percent of the sample reporting having trouble working or doing normal tasks in the month immediately after the event, this decreased to only 2 percent who reported such trouble in the months after the exposure. A constant 7 percent continued to report that their social life had been negatively affected; and 11 percent continued to report physical health problems that occurred in response to traumatic exposure.

*Other Posttraumatic Responses**Fear*

Additional posttraumatic responses were reported by the sample with the most reported symptom being fear that it could happen again; reported by 57 percent of the sample in the first month after exposure, with that diminishing to 20 percent beyond one month after exposure.

Psychosomatic Symptoms

Psychosomatic symptoms included more than normal fatigue (38 percent diminishing to 23 percent); stomach distress or nausea (21 diminishing to 10 percent); general aches in the body (15 diminishing to 8 percent); headaches (12 diminishing to 9 percent) dizziness or difficulty breathing (6 diminishing to 4 percent); and panic attacks (7 diminishing to 3 percent).

Depression

General depression was reported by 22 percent of the sample which diminished to 4 percent after the first month, and participants reported feeling sad for whole days (21 diminishing to 4 percent) and feeling worthless (6 diminishing to 4 percent) after exposure.

Table 3: Other Types of Posttraumatic Responses in the First Month Following the Event

Other Types of Posttraumatic Responses	Sometimes	Often	Always	Total Endorsement as Present
Depression				
Depression	22.6 (4.3)	0	0	22.6 (4.3)
I felt sad for whole days	11.3 (2.0)	7.5 (2.0)	1.9 (0)	20.7 (4.0)
I felt worthless	3.8 (3.8)	1.9 (0)	1.9 (0)	5.7 (3.8)
Psychosomatic Responses				
Panic Attacks	7.5 (2.9)	0	0	7.5 (2.9)
Psycho-Somatic Responses	7.5 (7.7)	3.8 (1.9)	1.9 (1.9)	2.9 (11.5)
More than Normal Fatigue	11.3 (15.1)	22.6 (5.7)	3.8 (1.9)	37.7 (22.7)
Headaches	9.4 (7.5)	3.8 (1.9)	0	12.2 (9.4)
Stomach Distress or Nausea	15.4 (5.9)	5.8 (3.9)	0	21.2 (9.8)
General Aches in my Body	11.5 (5.8)	3.8 (1.9)	0	15.3 (7.7)
Dizziness or Difficulty Breathing	3.9 (4.0)	2.0 (0)	0	5.9 (4.0)
Fear and Obsessive Responses				
Fear that it could happen again	26.4 (14.5)	15.1	15.1 (5.8)	56.6 (20.3)
Couldn't stop talking about it	13.2 (3.8)	5.7 (1.9)	5.7 (1.9)	24.8 (7.6)
Increased Fearlessness and Danger Seeking				
I became more fearless	22.6 (17)	3.8 (3.8)	1.9 (3.8)	28.3 (24.6)
I became excited by danger and sometimes sought it out more than before	13.7 (9.6)	5.9 (5.8)	0 (1.9)	19.6 (17.3)
*All values in parenthesis signify symptoms occurring at the present time period for the respondent which in all cases was more than one month beyond exposure to the traumatic event.				

Obsessive Need to Talk about It

Obsession in the sense of feeling the need to talk obsessively about the event is a posttraumatic response that is sometimes overlooked. In this sample 25 percent endorsed the item, “I couldn't stop talking about it” for the month immediately after exposure diminishing to 8 percent for the months after the first month.

Fearlessness and Danger Seeking

An effect often noted in youth exposed to conflict and gang violence is increased fearlessness and danger seeking. This seems to be a way to gain control over high-arousal states – if one seeks out danger the bodily arousal matches what one has chosen to confront by his or her own volition (Saltzman, 2001). Becoming fearless was endorsed by 29 percent of the sample in the first month after exposure diminishing to 25 percent of the sample in the months following.

Likewise 20 percent of the respondents said they became excited by danger and sought it out more following the exposure in the first month with this diminishing to 17 percent for the months following beyond one month (see Table 3 for a Complete List of Other Posttraumatic Responses).

Shattered World Assumptions

A common effect of traumatic exposure is to have one’s world view deeply shaken. This generally occurs in regard to one’s sense of predictability, safety in the world and sense of the goodness of others and is referred to as a shattering of world assumptions (Janoff-Bulman, 1992). While a complete shattering of world assumptions did not occur in this sample, the threat events did deeply shake the sense of predictability, safety, and sense of goodness that respondents felt after experiencing a high-threat event. In this sample 45 percent endorsed feeling that the world is less safe in reference to the month immediately after the trauma with this effect persisting in 39 percent of the respondents for the months following that; 26 percent said it made them trust others less for the first month after exposure with this effect persisting for 20 percent of the respondents. 43 percent disagreed with the statement that their world is relatively safe for the month after exposure with this persisting and increasing to 54 percent of the respondents for the following months. 36 percent disagreed with the statement that life is fairly predictable and this also increased to 45 percent of the respondents in the months following. 4 percent of the sample disagreed with the statement that people are basically good in the month immediately following exposure and this increased to 13 percent in the longer time period. Clearly traumatic exposure(s) within the high-threat security environment shook many of the respondents world views and continued exposure to threats and traumatic events appears to have shattered these world assumptions were even more as time went on (see Table 4).

Shattered World Assumptions	Sometimes	Often	Always	Total Endorsement as Present
It made me feel that the world is less safe.	26.4 (23.5)	13.2 (11.8)	5.7 (3.9)	45.1 (39.1)
It made me trust people less.	15.1 (15.7)	5.7 (2.0)	5.7 (2.0)	26.3 (19.7)
	Totally Disagree	Disagree		
My world is relatively safe	3.8 (11.3)	39.6 (43.4)		43.4 (54.7)
Life is fairly predictable	9.6 (18.9)	26.9 (26.4)		36.5 (45.3)
People are generally good	0 (1.9)	3.8 (11.5)		3.8 (13.4)

*All values in parenthesis signify symptoms occurring at the present time period for the respondent which in all cases was more than one month beyond exposure to the traumatic event.

Suicidal Ideation and Self Harm

Suicide out of despair and inflicting harm to oneself in order to be sent home has been a large concern for military leadership but has not been something State Department or contractors have had to consider up to now. In this sample, one person endorsed seriously considering suicide, inflicting self-harm and thought that it would be better to die than to continue to face the high-threat security environment. Likewise 8 percent of the respondents entertained thoughts that it might be better to get injured and sent home than to continue to face the threatening environment. State Department’s protocol is to medically evacuate those who present themselves as deeply distressed and it appears (from speaking to the medical unit’s psychiatrists) that more medical evacuations for PTSD related effects occur in the posting following the high-threat environment posting than during it. This is perhaps because once out of the high-threat environment the dissociative defenses relax allowing the person to feel the full impact of what he or she has witnessed. Likewise, once in a “normal” setting high arousal states, flashbacks, traumatic nightmares avoidance etc. can suddenly appear very abnormal where when working long hours, using psychotropics to sleep, working among others who feel the same way, etc. may mask these effects (see Table 5 for a Listing of Suicidal Ideation and Self Harm Effects).

Table 5: Suicidal Ideation and Self Harm Responses to the High-Threat Security Environment One Month and Longer after the Event*

Suicidal Ideation and Self Harm Items	Sometimes	Often	Always	Total Endorsement as Present
I sometimes thought it might be better to get injured and go home than continue to face this.	3.8 (3.8)	3.8 (1.9)	0	7.6 (5.7)
I sometimes thought it might be better to die than to continue to face this	1.9	0 (1.9)	0	1.9 (1.9)
I sometimes considered hurting myself or putting myself in a situation where I would surely be hurt to be sent home	1.9 (1.9)	0	0	1.9 (1.9)
I seriously thought about suicide	1.9 (1.9)	0	0	1.9 (1.9)

*All values in parenthesis signify symptoms occurring at the present time period for the respondent which in all cases was more than one month beyond exposure to the traumatic event.

Posttraumatic Growth

Traumatic events also present opportunities for growth or positive resilience. In this sample 64 percent reported a sense of increased love and appreciation for those close to them in the first month after exposure with this persisting in months following for 57 percent of the respondents.

Positive Posttraumatic Growth	Sometimes	Often	Always	Total Endorsement as Present
Sense of increased love and appreciation for those close to me	26.4 (21.2)	22.6 (11.5)	17 (25.0)	64.0 (57.2)
Felt a sense of hope for a good outcome	17 (17.3)	17 (11.5)	11.3 (17.3)	45.3 (45.8)
I tried to look for the positive meanings in it, for what I could learn from it	9.4 (7.5)	18.9 (15.1)	18.9 (18.9)	47.2 (41.5)

*All values in parenthesis signify symptoms occurring at the present time period for the respondent which in all cases was more than one month beyond exposure to the traumatic event.

This follows closely with observations of increased community orientation and high attachment following other varied traumatic events ranging from the 9-11 events to earthquakes and fires. In this sample, 45 percent felt a sense of hope for a good outcome in the future and 46 percent tried to look for positive meanings and what they could learn from the traumatic event, with these effects persisting for the respondents beyond the first month following exposure (see Table 6).

Coping Mechanisms

The sample were queried on a range of both positive and negative coping mechanisms. In terms of using positive coping mechanisms, 57 percent reported using humor when talking or thinking about the traumatic event; 32 percent reported working out more; 38 percent used television or unrelated reading to distract themselves; 30 percent sought out more information to understand what had occurred and 11 percent watched or participated in sports more. In terms of negative coping, 22 percent (diminishing to 11 percent in following months) reported eating more than usual and 19 percent (diminishing to 15 percent in following months) drank more alcohol than usual. A constant 6 percent reported increased sexual activities in all the time periods following traumatic exposure (see Table 7).

Table 7: Positive and Negative Coping Mechanisms for Dealing with a High-Threat Security Environment One Month and Longer After the Event*				
Coping Mechanisms	Sometimes	Often	Always	Total Endorsement as Present
Used humor when talking/thinking about it	30.2 (26.4)	17 (15.1)	9.4 (9.4)	56.6 (50.9)
Working out more	18.9 (13.5)	5.7 (1.9)	7.5 (11.5)	32.1 (26.9)
Watching or participating in sports more than before	5.7 (7.7)	3.8 (1.9)	1.9	11.4 (9.6)
Cope by distracting myself with tv or unrelated reading	11.5 (13.7)	19.2 (7.8)	7.7 (3.9)	38.4 (25.4)
Engaged in sexual activities more than usual	3.9 (3.9)	2.0 (2.0)		5.9 (5.9)
Sought out information to understand	18.9 (17.0)	5.7 (3.8)	5.7 (5.7)	30.3 (25.5)
Ate more than usual	13.2 (5.7)	7.5 (3.8)	1.9 (1.9)	22.6 (11.4)
Drank more alcohol than usual	9.6 (9.6)	7.7 (3.8)	1.9 (1.9)	19.1 (15.3)
Talked to chaplain, counselor or doctor to cope	7.5 (3.8)	1.9 (1.9)	0	9.4 (5.7)
*All values in parenthesis signify symptoms occurring at the present time period for the respondent which in all cases was more than one month beyond exposure to the traumatic event.				

Attachment Relationships

Attachment relationships often form a buffer for traumatic stress, although they can also be a source of distress as well. In this sample 45 percent of the respondents agreed that it was very important for them to get in touch with loved ones following exposure to the traumatic event. 24 percent said that discussion with loved ones calmed them while another 34 percent disagreed with this statement making it clear that for some, discussion is useful whereas for others, it is not. Talking about the attack was helpful for 29 percent of the respondents, whereas 27 percent found it unhelpful to talk about it. It may be that the type and emotional tenor of the discussion is the deciding factor here or that individuals vary in whether or not talking after traumatic exposure is useful for them. 68 percent of the respondents felt it very important to reassure themselves that loved ones had not become victims of the attack. 17 percent of the sample said that distress from their loved ones was hard to detach from and that it transferred to distress for them (see Table 8).

Items about Attachment Relationships	Totally Agree	Agree	Totally Disagree	Disagree	Total Presence
Important to get in touch with loved ones after Discussion with loved ones calmed me	22.6	22.6			45.2
Talking about the attack was helpful for calming myself	2.6	21.2	23.1	11.5	23.8 agree 34.6 disagree
It is very important to me to reassure myself that loved ones are not victims	13.5	25.0	5.8	21.2	28.5 agree 26.8 disagree
Distress from loved ones transferred to me	34	34			68.0
	3.8	13.2			17

*All values in parenthesis signify symptoms occurring at the present time period for the respondent which in all cases was more than one month beyond exposure to the traumatic event.

Posttraumatic Interventions

The sample was queried about potential and actual posttraumatic interventions. 17 percent reported they would have liked someone to have explained to them the normalcy of their posttraumatic responses; 23 percent endorsed that they would have liked if their unit had some group discussion about such thoughts, feelings and responses. 8 percent endorsed that they would have liked individual counseling to help with posttraumatic responses. These figures remained steady over time (see Table 9).

Intervention	Sometimes	Often	Always	Present
I would have liked someone to explain these symptoms as normal	5.7 (7.5)	3.8 (5.7)	7.5 (5.7)	17.0 (18.9)
I would have liked if our unit had some discussion about such thoughts, feelings and responses	11.3 (9.4)	3.8 (7.5)	7.5 (5.7)	22.6 (22.6)
I would have liked individual counseling to help me with my responses	0 (3.8)	1.9 (3.8)	5.7 (3.8)	7.6 (8.4)

*All values in parenthesis signify symptoms occurring at the present time period for the respondent which in all cases was more than one month beyond exposure to the traumatic event.

Correlational Analysis

Correlational analysis was conducted for all of the variables in relationship to having been personally involved in a terrorist event; witnessed it in person, heard about it from the actual victims and witnessed it on television. There were 17 variables that turned up with significant correlations at the $p < .05$ level of significance. Personal involvement in a terrorist event correlated to depression (.34); coping by engaging in sexual activities more often (.39); becoming excited by danger and sometimes seeking it (.39), feeling it better if one was injured and sent back home (.57); feeling it might be better to die than continue to face the high-threat security environment (.53); and strongly endorsing feelings of horror, helplessness and terror (.45). Personally witnessing events had strong correlations to family distress with reports of children having many posttraumatic symptoms (.56); with spouse or significant other having many posttraumatic symptoms (.64) and reporting that the spouse or significant other copes so differently that it caused distress (.63). These relationships likely reflect that when an individual in a threatening environment personally witnesses violence his/her family is also likely to be traumatized when they learn of it and their distress can cause more stress for the individual in the threatening environment. These same relationships were reported at similar levels for having learned of the trauma from another witness or having watched on television. Having personally witnessed the traumatic event was also correlated to being afraid that the self or loved ones would be hurt in such an incident (.29) (see Table 10 for a complete list of all the correlations with these four variables at the $p < .05$ level of significance).

Table 10: Correlation Table: Significant at $p < .05000$. Personally Involved (PI); Witnessed in Person (WP); Heard about from actual victims (HAV); Witnessed on TV (WOTV) in the First Month Following the Event				
	PI	WP	HAV	WOTV
I became detached from it		0.33		
I couldn't stop talking about it to the others	0.28			
I became depressed	0.34			
I engaged in sexual activities more often	0.39			
I became excited by danger and sometimes...	0.39		0.38	
I sometimes thought it might be better if...	0.57			
I sometimes thought it might be better if I...	0.53			
For me being exposed to these events was...	0.45			
My children back home had many of these..		0.56	0.64	0.56
My spouse or significant other had...		0.64	0.67	0.65
My spouse or significant other copes so..	0.38	0.63	0.63	0.56
People are generally good				0.28
I'm afraid I or those I care for will..		0.29		
I'm afraid I or those I care for will be..	0.34			

Composite Variables

Analysis of the clusters among variables revealed four potential composite variables. Dimension One consisted of seven variables:

- Thoughts of it keep intruding into my mind
- I found it hard to go to sleep.
- My sleep patterns were disturbed
- I was jumpy or startled easily.
- I felt afraid it could happen again.
- I drank more alcohol than usual.
- I tried to cope by distracting myself

Clearly this first dimension is made up of hyper-arousal, avoidance and re-experiencing which are all symptoms of PTSD.

The second dimension that emerged was made up of four items:

- For me being exposed to these events was traumatic.
- I avoided work assignments that could place me in a similar situation.
- I had panic attacks.
- It made me feel the world is less safe.

This second dimension appears to reflect a shattering of the world assumption that the world is a fairly safe place with panic, avoidance and fear clustering in this dimension.

The third dimension was made up of four items:

- I engaged in sexual activities more often than usual.
- I had headaches after
- I had general aches in my body after
- I had dizziness or difficulty breathing
- These are all psychosomatic responses.

The fourth dimension was made up of three items:

- I felt sad for whole days
- It made me trust people less.
- I changed some of my behaviors to try to avoid danger of this type.
- This appears to be some level of depression and avoidance with alienation.

The fifth dimension concerned suicide ideation and self harm and consisted of two items:

- I seriously considered hurting myself
 - I seriously thought about suicide.
-

Conclusions

Our exploratory study demonstrates that it is possible to design and conduct a useful study administered from afar using Internet as a means of reaching subjects while minimizing danger to the researchers. The web-based automatically scored survey did not work given the slow Internet speeds in Iraq necessitating tooling down to a Word document that was e-mailed to participants and then hand scored when received. This made assuring anonymity impossible since participants e-mail addresses were linked to the return of their survey but confidentiality still was assured. It was clear that many individuals were willing and tried hard to participate. Over one hundred respondents tried to respond using the web-based survey in the first days.

Even with the difficulties it appeared clear from comments and even long letters that participants attached to their returned surveys that they appreciated that an independent research group was interested to study their psycho-social welfare and that they trusted in the confidentiality of the study enough to give what appeared to be honest and reliable answers. We especially trusted their candor as many participants took the time to write detailed comments at the end of the survey about their responses to the high-threat security environment. Some also commented on how to improve the survey. Some respondents even continued to correspond with the lead author over the year following it, sharing their experiences coping with having served in Iraq and about how they fared upon return. From the comments it appeared that the respondents appreciated that the survey and researchers were not attached to the US government and that answering honestly would have no potential detrimental effect on their security clearances – a comment that also came up frequently in informal follow-up interviews with some of the respondents. Thus the researchers concluded that ensuring anonymity, confidentiality and, if possible, being independent is a valuable attribute to such research attempts.

Many who included comments stated that it was not only the threatening security environment but the posting away from family and long hours with few, if any weekends free, that also caused them significant distress. Some responded to the questions about increased xenophobia stating their response was opposite: they had watched their Iraqi counterparts suffer and some had deaths among their staff that distressed them greatly and as a result they had come to strongly admire the Iraqi people they worked with.

Many also pointed out that the researchers had tried to ask too many questions and the questionnaire needed to be shortened. With analysis of the composite dimensions it is possible to omit some questions and tighten up the survey to better model psycho-social resilience in a high security threat environment.

The reality of military, diplomatic and civilian government service today is that it often involves serving in high-threat security environments. While military members have more training to deal with these threats, diplomats and civilian contractors have less pre- and post- deployment training and often lack previous experience with high-threat environments. Comparing the responses of the few soldiers who took part in the survey ($n = 9$) it appears that the contractors and diplomats were less prepared in terms of training and prior experience coping with security threats and far more vulnerable to more stress responses than were their military counterparts who for the whole evidenced far less distress.

Individuals cope with the rigors of working in high-threat security environments in different ways and the hope is that few will suffer major psychological consequences. However this study reveals that under the conditions of today's often high-tempo operations, with long separations from family and loved ones, potentially significant numbers of diplomats and the civilian contractors that serve along with military personnel are subject to acute and post-traumatic responses and other psychological and behavioral health issues brought on by the threatening environment. From our exploratory study it is clear that diplomats, contractors and even military personnel (though to a far lesser degree) serving in high-threat security environments suffer to some degree acute and posttraumatic and psychosomatic responses to traumatic events, including depression; anxiety and fear responses; threats to world assumptions; obsessive need to talk; and even suicidal ideation and self harm responses. Coping methods vary from positive to negative and significant numbers stated that simple tools like learning that acute and posttraumatic responses are normal, and offering group and individual counseling would be helpful. Likewise from the responses of some, including negative coping, it appears that referrals for psychological help should in some cases be made. It should be noted that there was also evidence of positive resilience with positive coping methods employed and gains occurring as a result of service in the high threat environment.

On the whole, from this exploratory study it is possible to conclude that the present resilience model and preliminary survey is a useful one for measuring such effects and that an Internet-based approach to studying psycho-social resilience in a high-threat security environment works. Individuals participate and appear to appreciate the effort and the care put into a survey that asks them how they are doing while serving in a threatening security environment. Improvements need to include shortening it; obtaining a larger, more representative, sample; and including items that take into account other factors that also cause significant distress other than the high-threat security environment (i.e. family separation and long work hours).

While funding was not available for a follow-up survey of those who returned from Iraq, the lead author did make many informal face-to-face interviews with diplomats who had participated in the survey as well as with others who had not taken part. She learned from these interviews that all of those interviewed described their most difficult posttraumatic responses arising only after they had been removed from the high-threat security environment and that more than a few requested *med evacs* and intensive psychological treatment for overwhelming posttraumatic arousal and emotionally painful flashbacks on the posting *following* their deployment in Iraq. It appears that once in safety and when no longer immersed in working a heavy schedule (sometimes working long shifts seven days a week) the defenses that had been erected while on duty were relaxed, and for some, a flood of posttraumatic recall occurred, causing significant enough distress that some respondents curtailed onward assignments to be flown home for intensive short-term psychological assistance. Others also referred to a period of intense emotional recall and distress upon leaving the high-threat security environment that they worked through while seeking psychological help over a period of months. Some also referenced difficulty weaning themselves from sleeping aids that they had become dependent on during their deployment in the high-threat security environment or finding the need to take anti-anxiety or anti-depressant medications upon return for a period of time. These interviews underline the

need to study the same population not only while deployed but in the months following deployment to understand the challenges and needs they face in terms of resilience.

It is our recommendation to construct a tighter version of this resilience survey based on the tested questions in this model to be used in Iraq as well as other similar high-threat security theaters (eg. Pakistan, Afghanistan, Yemen, Syria, etc.) where diplomats, civilian contractors and soldiers are serving. It could then be used to sample larger populations and used on a yearly basis for monitoring, comparing and benchmarking responses to working in such environments. Such a tool would be useful for designing improved services before, during and after deployment.

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Verleye, G., Maesele, P., Stevens, I., & Speckhard, A. (2012, in press). Resilience in an Age of Terrorism: Psychology, Media and Communication [in this study an earlier, jointly authored model of resilience was presented and tested in Belgium. The present model has been developed as a result of that earlier work and owes much to the contributions of Gino Verleye, Pieter Maesele, Isabelle Stevens and Anne Speckhard].

Notes

[1] An earlier version of this paper was first presented at the NATO Research and Technology Military Mental Health and Ethical Dilemmas Group Meeting in Bergen, Norway on March 25, 2010. A previous version also appeared in the NATO Human Factors and Medicine Research Task Group 140 Final Report to NATO: Psycho-Social, Cultural and Organisational Aspects of Terrorism. <http://ftp.rta.nato.int/public//PubFullText/RTO/TR/RTO-TR-HFM-140//STR-HFM-140-ALL.pdf>

[2] A high-threat security environment in regard to deployments for US State Department, US DOD and contractors includes, for our purposes: (i) active combat zones as well as (ii) areas with insurgent activity, (iii) high level of criminal activity/violence against persons and (iv) high probability of terrorist incidents.

[3] To our knowledge, none of these concepts, other than looking at acute and posttraumatic stress responses, has been used by others as applied in studies of resilience to terrorism. Resilience itself is a concept that has multiple definitions, depending upon the population in which it has been studied. For this reason, our study began first with developing a comprehensive model of resilience in response to terrorism. Verleye has also successfully applied a version of this model to studies focusing on first responders.

[4] P. Maesele, G. Verleye, I. Stevens & A. Speckhard. (2008). Psycho-social resilience in the face of mediated terrorist threat. *Media War & Conflict*, 1(1), 50-69; A. Speckhard (2010). Modeling Psycho-

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[5] The survey was ten pages long and consisted of over 400 questions. Based on cluster analysis it is possible to considerably shorten it in future iterations.