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Fractured Minds, Fractured Bodies: A Study on Gulf War Illness and Post-Traumatic Stress Disorder in Gulf War Veterans, Kuwaiti Citizens, and Military Personnel

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Introduction

On the morning of 2 August, 1990 Saddam Hussein invaded Kuwait, releasing a vicious hailstorm of bombs, seizing Kuwait City and wreaking a deadly trail of destruction through the Kuwaiti landscape. This aggressive invasion set off a series of reactionary diplomatic events that culminated in the expulsion of Iraqi forces from Kuwait through effective military operations that ended on the 28th February in 1991 (Summers 1995, 17). Operations Desert Shield and Desert Storm were hailed as great political and media successes; the United States and its coalition of allies had effectively removed "the tumor" of Saddam Hussein and his forces from Kuwait in an efficiently orchestrated military and media operation (Kelly 993, xiii). From the beginning of the media campaign, "the Pentagon worked to project an image of a clean, precise, and efficient technowar war, in which the U.S. military was controlling events and leading the coalition inexorably to victory" (Kellner 1992, Ch. 5). In many ways, the events of the Gulf War was "written before it began…the military perceived the renewed image of a sensational, efficient war machine as a tool" with which to recover its image within the "hearts and minds" of the American public (Sturken 1997,123).

Following the conclusion of military operations, a disturbing trend of illnesses began to emerge among veterans returning from the theater, and "a quasi-defeat" began to surface "out of [the] victory soon grow[ing] much stronger and…much more defined" as "one forth of the nearly 700,000 U.S. military personnel that served" in the Persian Gulf War began to experience a complex variety of symptoms (Kelly 1993, 356,

Research Advisory Committee [RAC] 2008, 3). Soldiers displaying a variety of unexplained symptoms including memory loss, vision impairment, fatigue, intestinal disorders, aching joints, rashes, and headaches were admitted to hospitals. The Persian Gulf War was supposed to be a triumph of American military might, a display of power designed to reassert power following the conclusion of the Cold War. This set of conditions was later grouped under the broad heading of "Gulf War Syndrome" or "Gulf War Illness" by the media, dealing a serious "blow…to the military's credibility among many of its own people" (Quindlin 1994, 1). Articles began to appear in major news outlets questioning the ability of the military to investigate its policies and procedures regarding chemical contamination and war environment exposures. In 5 November 1995, LIFE Magazine published a set of stories and photographs on the families of veterans of the Persian Gulf War. The black and white photographs show young, bright children struggling to survive and cope with a variety of physical and mental birth defects, while their parents struggle to find adequate funding for medical costs from Veterans Affairs organization, and the recognition needed to generate research.

These symptoms and ensuing chronic illnesses began to be noticed, as the recognition of the symptoms "increasingly filtering into public discourse…[becoming] increasingly difficult for the government to ignore" (Sturken 1997, 125).After years of outright denial followed by at-first grudging admissions that Gulf War Illness might actually exist as a syndrome unique to the Gulf War, the Research Advisory Committee on Gulf War Veterans' Illnesses released *Gulf War Illness and the Health of Gulf War Veterans: Scientific Findings and Recommendations* in November of 2008. This detailed report officially recognizes Gulf War Illness as "the most prominent

health issue affecting Gulf War veterans" of the 1990- 1991 Gulf War (RAC 2008:1). The report represents a compilation of the most recent data regarding Gulf War Illness in veterans. In addition to recognizing the existence of the multi-symptom condition, the report seeks to identify its "foremost causes" and biological characteristics, and makes suggestions for the direction of future research (RAC 2008,1). The committee that prepared the report both recognizes the "tremendous success" of the military operations in the Gulf War and acknowledges the cost of "lasting health consequences that were poorly understood and, for too long, denied or trivialized" (RAC 2008, 17). However, such an acknowledgement of the extent of the disease is, by itself, incomplete, failing to pinpoint an exact cause of Gulf War Illness and develop a plan of action for treatment. To be sure, the highly individualistic nature of Gulf War Illness creates difficulties in identifying the exact triggers and causes; soldiers and civilians experienced a variety of hazardous environmental and medical exposures ranging from oil fires to questionable vaccines to highly stressful combat conditions. Yet, the gaps in knowledge as a result of the lack of information, research coherence, and the initial failure of various inquiries to delineate an exact set of causes regarding Gulf War Illness present a serious obstacle to ultimately developing the kind of dialogue necessary to establish effective research processes, thus hindering the process of collective acknowledgement and the clear disentanglement of the separate effects of Gulf War Illness and Post-Traumatic Stress Disorder.

As a complementary form of inquiry in order to explore the perspectives available outside of the U.S. veteran, I propose to study Kuwaiti civilians, military personnel, and environmental conditions to create a more complete profile of Gulf War Illness and Post-

Traumatic Stress Disorder among persons living in the Gulf War Theatre "to provide tangible results in achieving [the] ultimate objective…to improve the health of Gulf War veterans" (RAC 2008, 5). I conducted a set of interviews with those both directly involved in the war environment and the process of rebuilding Kuwait, as well as attempted to gain epidemiologic data to analyze the incidences of cancers, illnesses, and conditions within the Kuwaiti population that are known indicators of Gulf War Illness. Such information should help to generate a coherent and approachable model of Gulf War Illness that can be applied to veterans inside the United States to generate a firmer starting point for acknowledgment and a treatment policy that covers mental and physical dimensions of Gulf War Syndrome, a term describing the combination of distinct patterns of causation of this complex illness that affects multiple systems on different levels (RAC 2008, 23). This model will attempt to uncover the effects of denial on disease prognoses and attempt to counteract the stigma of Gulf War Illness.

Historical Background and Chronology of the Persian Gulf War

Iraq's violent and destructive invasion of Kuwait was one of the more shocking events of the post-Cold War era, a significant test of the New World Order, a world in which the United States was the sole emerging superpower; 140,000 Iraqi troops and 1,800 tanks moved into Kuwait, led by two divisions of Saddam's personal military force, the Republican Guard. A provisional government was installed within Kuwait on 2 August 1990, and six days later, on 8 August 1990, Saddam Hussein claimed Kuwait as its nineteenth province. The United States reacted quickly, as Operation Desert Shield commenced in full on the same day in alignment with previous agreements with Saudi Arabia and Article 51 of the UN Charter (Yetiv 1997, xix, 10-11). The orchestration of

the international cooperation and support for the Persian Gulf War itself was a representation of the president's flair and style with international diplomacy. Operations Desert Shield and Desert Storm were to become one of "history's largest military deployments," including a coalition of thirty-seven nations and more than half a million soldiers. For the president, the decision to invade Iraq rested on a series of higher principles; it was an intensely personal war on the level of his experience within World War II, "aggression must be punished [it was] a black and white struggle between good and evil" (Smith 1992, 1). The rhetoric of the conflict was couched within higher moral terms; Saddam Hussein was a tyrant, who must be removed from Kuwait. He was compared to Hitler, and his invasion of Kuwait was not to be appeased on the international stage. Following a series of diplomatic maneuvers and U.N. economic sanctions, the official, offensive operational force of Operation Desert Storm came into effect until 8 November 1990, following the passing of the United Nations Security Resolution 678, thereby authorizing the use of force against Iraq. With the consent of the international community, George Bush sought to gain domestic support and Congressional approval to "deal Iraq a potential knockout blow" (Yetiv 1997, 21). Despite George Bush's ability to "revitalize as dispirited and moribund United Nations," and develop an "unparalleled rapport" with world leaders, Bush faced considerable agitation at home; "the central debate over [the use of force] was so heated, emotional, and historic," that it "gripped" the nation in constant debate (Smith 1992, 8, Yetiv 1997, 18). Finally, on 12 January 1990, just three days before the president's deadline for withdrawal from Kuwait, the congressional votes were counted regarding the Nunn-Mitchell antiwar resolution. With the resolution narrowly defeated in both the House of

Representatives and the Senate, President Bush finally acquired the necessary consent to "provide the world with an awesome display of military prowess" (Smith 1992, 3).

The war itself lasted only forty-three days, with the ground assault lasting a mere one hundred hours. Iraq's "infrastructure…power and communication nets…and…armaments industry" were destroyed; "seldom…has a defeat been so massive" (Smith 1992, 9). The "100 Hour War" was hailed as a dominant victory; the United States had kicked Saddam out of Kuwait, and "the military worked in concert with the media to present the Gulf War as a single, tightly scripted narrative" (Sturken 1997,142). The event was a production, brilliantly coordinated between the military and the media, with widespread support and a successful ending; the victory shattered the image of the "Vietnam Syndrome;" the military was reconceived as a "sensational, efficient American war machine…[that] wip[ed] out the humiliating image…or emasculation" (Sturken 1997, 123). It was a dazzling production, "a neat narrative," in which the mighty U.S. military "liberates a desperate and weak country imperiled by a dangerous tyrant…it was expressly manufactured for the screen and a global audience…a spectacular orchestration of a new ending for the Vietnam War" (Sturken 1997,123). The returning veterans were expected to come home and resume a "normal" course of life within society without exhibiting any lingering effects from their time spent in the theatre. However, the emergence of Gulf War Illness, Post-Traumatic Stress Disorder, and increasingly toxic environmental conditions in post-war settings challenged the seemingly sterile and technological nature of this war, thereby confirming the deep trauma of the postwar experience with its deeply troubling and long-lasting consequences.

Gulf War Illness: Characterization and Symptoms

Gulf War Illness is routinely defined by "the presence of multiple symptoms affecting different systems; the condition itself has a variety of different characterizations across personal testimony, reports in the media, and studies within the scientific community" (RAC 2008, 27). The condition is characterized by "multiple diverse symptoms…that include a combination of memory and concentration problems, persistent headache, unexplained fatigue, and widespread pain, and can also include chronic digestive difficulties, respiratory symptoms, and skin rashes" (RAC 2008, 4). In attempting to recognize and diagnose the condition, the existence of abnormal findings does not occur on routine clinical diagnostic tests of veterans. Thus, the condition is highly individualistic, and is defined on a case-by-case basis determined by the self-reported symptoms of the veteran. However, despite the disparate methods of collecting data and reporting symptoms, "the categories of symptoms that affect Gulf War veterans at excessive rates are quite consistent" across studies:

> The two symptom groups most commonly identified include those indicative of neurological/cognitive problems (e.g., chronic headache, cognitive difficulties, mood disturbances, vision and balance abnormalities) and symptoms of persistent, widespread pain in joints and muscles. Symptoms related to persistent fatigue (e.g. extreme tiredness, sleep abnormalities) are reported just as frequently…two additional symptom groups…include respiratory symptoms (e.g. wheezing, coughing) and gastrointestinal problems (e.g. chronic diarrhea, abdominal cramping). Skin symptoms (unexplained rashes and lesions) are also routinely reported (RAC 2008, 27).

Persistent and noticeable symptoms among Gulf War veterans occur in multiple systems of the body at differing rates of incidence and severity. Uncovering a unique pattern of Gulf War Illness requires the comparison of specific symptom groupings between deployed and non-deployed veterans, branches of service, levels of symptom severity, affected body systems, and an evaluation of exposures and related causes.

The severity of Gulf War Illness is "highly variable" with symptoms fluctuating over time; some veterans are only moderately affected and can maintain a fairly normal lifestyle, while other veterans report a more severe, disabling illness that affects their normal functional status and ability to work (RAC 2008, 30). This variability in severity and symptom appearance makes identifying standard, probable treatments difficult. In addition, instances and severity of Gulf War Illness is also dependent upon branch of service and military rank; Gulf War veterans who served within the Army and Marines have higher instances of multisymptom illness than those in the Navy and Air Force. Army veterans are disproportionately represented in VA and DOD Gulf War Registry programs, accounting for seventy seven percent of Gulf War veterans enrolled within registries (RAC 2008, 31).

Although Gulf War Illness remains the "most prominent health issue associated with military service" in the Gulf War, a number of other health issues are emerging as a result of other war exposures, complicating the identification of Gulf War Illness as unique syndrome with specific causes related to exposures within the theatre of the Persian Gulf War. Research has indicated that Persian Gulf War veterans have developed amyotrophic lateral sclerosis (ALS) at twice the rate of non-deployed veterans, developing at a much younger age than normal. In addition, veterans who reported by

being “downwind from nerved agent releases due to weapons demolition at Khamisiyah, Iraq” have been found to have twice the rate of death due to brain cancer (RAC 2008, 5-6). Higher incidences of occurrence were also reported for non-Hodgkin’s lymphoma among deployed veterans. The severity and increased incidences of both ALS, brain cancer, multiple sclerosis, Parkinson’s disease, and other neurological distoders “are clear causes for concern” and demand careful, and continued monitoring, as neurological diseases and cancers have only been “minimally assessed” within veterans (RAC 2008, 6, 44-45). Further studies also indicate higher incidences of birth defects among the children of Gulf War Veterans in comparison to the children of non-deployed veterans (RAC 2008, 6). However, despite this initial data, disease latency and the failure to report disease-specific mortality rates for Gulf War veterans continues to affect the creation of a comprehensive model of health issues that resulted from the Persian Gulf War because of a lack of a significant body of accurate data from which to generate high-quality studies.

Exposures and Probable Causes During Deployment

Although the combat period of the Persian Gulf War was brief, military personnel encountered a hazardous mix of chemical, biological, psychological, and physical exposures during deployment in the theatre. Military personnel who served within the Persian Gulf War were exposed to a variety of hazardous substances and situations outside of the normal physical and psychological challenges that are common to wartime deployments, including psychological stressors, Kuwaiti oil fire wells, Depleted Uranium (DU), vaccines, Pyridostigmine Bromide (PB), Pesticides, nerve agents, infections diseases, fine sand and airborne particulates, exhaust from tent heaters, fuel exposures,

solvents, and fumes from chemical agent resisting coating (RAC 2008, 7-9). The combination of these exposures creates difficulty in identifying a precise cause; soldiers experienced multiple exposures within the theatre, and Gulf War Illness may be attributed to a deadly "cocktail" of exposure agents. Complexities related to exposures what occurred within the theatre and the resulting intricacy of Gulf War Illness has engendered a widespread debate regarding the precise cause and subsequent treatment policy of Gulf War Illness. The scientific determination of "disease causality is neither routine nor straightforward;" the consideration of links between chronic instances of disease and illness is hampered by latency periods, incomplete information, difficulties in determining exposure levels, and multiple disease causes (RAC 2008, 215). Several factors must be weighed in making specific, and scientific decisions as to disease causation,

> Indicators…include the overall consistency of epidemiologic findings relating to an exposure to a disease, the biological plausibility of association, the presence of a dose/response effect, and where the exposure/illness link is consistent with other knowledge in the field…For each exposure topic, the committee systematically considered three general types of information: (1) what was known about the extent and patterns of exposure in the theatre, (2) what was known, overall, about adverse effects of the exposure from human and animal studies, and (3) what studies of Gulf War veterans have determined about associations between the exposure and Gulf War illness (RAC 2008, 215).

The information and patterns of data that were available for the differing experience and exposures were reviewed and the strengths of evidence in each area were then compared

to determine the strength of evidence in determining the causal relationships and factors of Gulf War Illness (RAC 2008, 215-216).

Psychological Stressors

The question of the impact of wartime psychological stressors has long been debated within public discourse, and the question of how to deal with the mental veterans who exhibit lingering symptoms of service remains a contested and heavily stigmatized topic. The major conflict regarding this collection of multi-symptom conditions is whether or not Gulf War Illness is the result of psychological factors or physical exposures during the Persian Gulf War. The mental healthcare providers and the internal medicine providers only complicate the situation, since mental healthcare providers were more apt to attribute Gulf War Illness to chemical or infectious exposure, whereas general internal medicine providers are more likely to label the symptoms as a mental disorder. Clinicians who are unable to adequately dose or treat Gulf War Illness tend to blame the symptoms on areas that lay outside of their own specialty (RAC 2008, 61). However, despite these difficulties, a considerable amount of information regarding the psychological stressors of the Persian Gulf War is available. Early stressors reported by troops during early deployment months included "not having the opposite sex around (69%), flies (54%), lack of family contact (46%), and lack of privacy (43%)" (RAC 2008, 62). The stressors most often reported by combat units during the conflict were more typical of those expected within war, including seeing "an enemy soldier killed or wounded (60%), being attacked by enemy fire (43%), and having a buddy wounded in action (30%)…or killed in action (9%). Post-Traumatic Stress Disorder and other psychological stressors mimic some of the symptoms of Gulf War Illness, such as sleep

disturbances and memory problems, thereby causing an over diagnoses of Post-Traumatic Stress Disorder in asymptomatic veterans who may suffer from a form of Gulf War Illness. This consistent over diagnoses of Post-Traumatic Stress Disorder illustrates the need to develop and use highly concise and accurate tests for Post-Traumatic Stress Disorder and Gulf War Illness so that veterans may be accurately diagnosed and treated as quickly as possible. While the incidence of psychological stressors or Post-Traumatic Stress Disorder may exacerbate symptoms of Gulf War Illness, they are not "significantly associated" the multisymptom condition and thus need to be separated from Gulf War Illness, and distinctly defined from so as to remove diagnostic confusion and treatment delays (RAC 2008, 72).

Kuwaiti Oil Fires

During the final moments of the Persian Gulf War, a variety of toxic environmental hazards began to emerge within the conflict theater. As the success and victory of coalition forces became more apparent, Iraqi forces set out to destroy the infrastructure of Kuwait as violently and completely as possible. Saddam Hussein ordered the release of massive amounts of crude oil into the Gulf of Kuwait through valves at the Sea Island oil terminal, the destruction of oil tankers within the area, and the destruction or ignition of oil wells. Dense, black smoke fired into the air, as oil rained down from the skies; at the peak of destruction, an "estimated 605 wells were on fire with another 46 gushing oil" (RAC 2008, 75). Following the ceasefire, Kuwaiti teams and international alliances rushed to prevent further environmental catastrophes, extinguishing the fires by 6 November 1991, just five months after the start of the effort. Soldiers who were in the theatre experienced smoke from the oil fires, however the levels of exposure and rates of

intensity were highly variable. Reports of the types of exposure are also vastly different; "many soldiers have reported that the smoke was at times so thick that a sunlit bright day was turned into the dark of night…troops reported being soaked with unburned oil that rained from the sky" (RAC 2008, 75). Studies that were conducted upon U.S. civilian firefighters indicated "symptoms of eye, nose, and throat irritation," but none of the workers exhibited multisymptom illness comparable to Gulf War Illness (RAC 2008, 79). Despite the apparent dangers of the oil fires, a number of questions remain unanswered, and the preliminary evidence indicates that exposure to the fires resulted in increased levels of asthma and other respiratory conditions. The lack of cohesive data and evidence indicated that the Kuwaiti oil fires were not the sole or most significant cause of Gulf War Illness, although the severity of the fires and the burn time represent a significant cause of concern for Kuwaiti citizens and the Kuwaiti environment.

Depleted Uranium

The Persian Gulf War was the first conflict in which ammunitions and armaments containing depleted uranium (DU) were widely used within the war zone, troops fired DU munitions and tanks were often coated with DU armoring to increase strength. DU is a "dense, weakly radioactive metal" that make it both useful and effective in weapons; it can penetrate a variety of metals easily, and it bursts into flames upon hitting a target (RAC 2008, 85). The resulting fires and explosions contain DU dust and aerosols, which can be inhaled by near personnel before settling into the surrounding environment and the remains of the target. Nearly 320 tons of DU was engaged during the conflict, raising several questions about the substance as a health and environmental hazard (RAC 2008, 86). At the time of the Persian Gulf War, relatively information or policies existed to

deal with the issue of health concerns related to DU, many troops reported being in areas that contained high numbers of destroyed targets. The largest numbers of exposures occurred with troops who were engaged on the ground and in contact with destroyed Iraqi vehicles, including those around destroyed vehicles as a result of "official duties," or "those just interested in…taking souvenirs after the battle," with exposures primarily related to inhalation, ingestion, and dermal contact (RAC 2008, 86). The highest rates of DU exposure occurred in individuals who where involved in friendly fire incidents, or those who were hit by shrapnel while located in or around American tanks. These personnel would have also been exposed to and experienced increased levels of dust inhalation at higher concentrations (RAC 2008, 86). The second main incident regarding DU exposure is in relation to the munitions fires and explosions at Camp Doha in July of 1991, where a munitions carrier caught fire, exploded, and set off a series of deadly explosions and fires (RAC 2008, 86). Thos involved within the explosion and in the clean up process were exposed to significantly higher levels of DU contamination and effects.

The health effects of DU exposure remain unclear; there is very little data regarding the levels of exposure and the times of exposure experience by troops, and relatively few studies have significantly evaluated the side effects generated by DU exposure. Specific health risk assessments have focused on DU's potential for causing lung and bone cancer, since the main concern and health hazards are believed to be "those [associated] with tissues where DU accumulates in [the] highest concentrations, cells that are most vulnerable to its effects, and biological processes known to be affected by metal and/or radiological toxicity" (RAC 2008: 88). With reference to the relation of DU as a causal

factor of Gulf War Illness, limited research has indicated that despite continued exposure, DU exposure is not likely to have contributed to the emergence of a persistent multisymptom illness or increased rates of lung or kidney cancer. However, several questions remain concerning the long-term effects of exposure, suggesting the need for increased epidemiologic research to more comprehensively assess the health effects of DU as a war exposure (RAC 2008, 99).

Vaccines

Following the evaluation of the environmental hazards of the Persian Gulf War, the administration of vaccines and the types of vaccines that were administered during the Persian Gulf War continue to be one of the most "prominent, controversial, [and] suspected causes of Gulf War Illness (RAC 2008, 101). Both deployed and non-deployed veterans were given a series of vaccinations in preparation for the theatre, however, the number, type, and dosage of shot varied from soldier to soldier, depending on previously given shots, required boosters, branch of military service, and occupation. According to a U.S. Department of Defense information paper on vaccine use (2007), personnel could have received a vaccine for Adenovirus, Influenza, Measles, Meningococcal, Plague, Polio, Rabies, Rubella, Smallpox, Tetanus-diptheria, Typhoid, Yellow Fever, Anthrax (AX), Botulinum Toxoid (BT), and Immune globulin. The existence of chemical and biological weapons within Iraq has been well documented; "The CW (chemical weapon) threat by Iraq [during the Persian Gulf War] was the most serious since the use of mustard gas in World War I" (Rettig 1999). Saddam Hussein repeatedly used chemical weapons as a terror mechanism against Kurdish populations in Halabja and in the al-Anfal campaigns. As a result of these hazards, the Department of

Defense created a series of countermeasures that would both protect against a joint chemical and biological weapon attack while maintaining an acceptable level of military effectiveness. This plan included "detection and early warning devices, use of chemical protective masks and protective clothing, and a cocktail of various vaccines and pills in order to provide adequate protective mechanisms for troops against these threats. However, significant research directed toward identifying vaccines as a causal factor of Gulf War Illness has lagged as a result of limited data regarding which vaccines veterans were given and the common inaccuracy of self-reported data. The vaccines were administered in a rapid and highly mobile fashion, yielding the record of shot cards both sloppy and incorrect; "Individuals were not told what they had received…there was no uniformity of record keeping during the conflict" (Rettig 1999). Due to the multiple vaccinations, and the use of vaccines such as Anthrax for the first time within the theatre, the exact "potential for [vaccines] causing adverse health effects" is difficult to measure (RAC 2008, 125). The methods of production and standards of safety for vaccines have changed over time, and it is difficult to project the effects of these vaccines without sufficient data, as few Gulf War studies have created a comprehensive analysis of whether or not vaccines or combinations of vaccines contributed to Gulf War Illness.

Pyridostigmine Bromide, Pesticides, and Nerve Agents

Military personnel serving within the Gulf War were exposed to variety of potentially toxic substances that have "the potential to adversely affect the central nervous system…include[ing] pyridostigmine bromide (PB) pill, pesticides, and…low level exposure to chemical nerve agents" (RAC 2008, 129). Although the records for these exposures are incomplete, government investigations into the subject have yielded

considerable information regarding the use of PB and pesticides, as well as creating accurate models depicting nerve agent exposures. In addition to protecting troops from chemical and biological weapon exposures, "control of disease-carrying pests is an important part of force protection and readiness" (RAC 2008, 131). The U.S. military implemented several measures to prevent vector transported illness including creams and sprays for personal use, as well as the implementation of large scale operations to eradicate pests in the area through the use of "environmental fogging and surface spraying" (RAC 2008, 131). The research in human populations has indicated, "low level exposure…can be associated with persistent symptomatic illness…that parallel the types of problems affecting Gulf War veterans" (RAC 2008, 184). However, of the many epidemiologic studies that evaluated exposures for Gulf War veterans, only PB and pesticides were consistently identified as "significant risk factors" (RAC 2008, 184). All sources of evidence indicate that PB and pesticides caused "neurocognitive and nueroendicrine alterations" following the conclusion of the war (RAC 2008, 225).

Infectious Diseases

Prior to the Persian Gulf War, high rates of infectious diseases such as sandfly fever and malaria plagued soldiers stationed within the area, and a variety of organisms "can produce persistent conditions with symptoms that can, in some cases, resemble the symptoms of Gulf War Illness" (RAC 2008, 187). Careful precautions were taken during Operation Desert Storm and Operation Desert Shield to prevent issues with infectious diseases, including the use of vaccines, repellents, and pesticides. Previous infectious diseases that had hampered operations prior to the Persian Gulf War presented little to no threat to troops stationed within the theatre. However, other infectious diseases emerged,

with short-term diarrheal and respiratory conditions, and “two comparatively novel infections,” viscerotrophic leishmaniasis and *mycoplasma fermentans*, have emerged as issues of significant concern with regards to their possible contribution to chronic health problems associated with Gulf War Illness (RAC 2008, 187). Despite the emergence of these new pathogens, relatively few studies have systematically evaluated the effects of these infections, whether active or latent, on Gulf War veterans, and questions still remain as to the prolonged health effects of these diseases.

Other Exposures in the Theatre: Sand, Tent Heaters, Solvents, Jet Fuel, and CARC

In addition to focusing on the main probable causes of Gulf War Illness, more minor exposures, such as sand particulates, other petrochemical exposures, and chemical agent resistant coating must be evaluated for their relative effects upon the health of veterans within the theatre. With reference to sand and particulate exposures, troops were constantly in the midst of sandstorms, and “levels of airborne particulates in Kuwait are among the highest in the world…newly arriving troops often developed what is commonly called the ‘Kuwaiti crud,’ a limited-duration cough or flu-like conditions” that resulted from breathing in the ultrafine particulates that circulate in the region. However, particulate matter is an unlikely cause of some of the neurological behavioral symptoms of Gulf War Illlness as exposure to particulate matter was widespread, and a common exposure among veterans. Additional widespread exposures include exposures to multiple fuel fumes, including jet fuel diesel fuel, and kerosene. However, data and research regarding these exposures is limited, and there is little indication of how these exposures may affect incidences of Gulf War Illness. Troops were also exposed to

chemical agent resistant coating, as large-scale painting operations were needed to convert the painting schemes of military vehicles to a desert environment. However, there is little data to support the hypothesis that these exposures contributed to incidences of Gulf War Illness (RAC 2008, 210-213). The exposures of the Persian Gulf War Theatre are numerous indeed, and the combination of their effects raises the question regarding the plausibility of a chemical cocktail and its link to Gulf War Syndrome. However, the persistent failure of research to produce significant results with regards to a definitive cause or set of causes for Gulf War Illness, which has allowed for the recognition and acknowledgement of the condition to be ignored by the government, military, medical community, and the public.

Modes of Denial

The persistent denial of the existence of Gulf War Illness and Post-Traumatic Stress Disorder takes several perspectives with one "common thread…people, organizations, governments, or whole societies are presented with information that is too disturbing, threatening or anomalous to be fully absorbed or openly acknowledged" (Cohen 2001, 1). In the case of Gulf War Illness, the wide disparity and differences in intensities of the multi-system condition, the nature of the war itself, and the lack of funding of quality research has combined to create an interconnected web of denial that exists within the military, the medical community, and the media. Denial itself is a "psychological defense mechanism" that is intended to obscure a reality, writes Michael A. Milburn and Sheree D. Conrad in *The Politics of Denial*, it is an "unconscious mental maneuver that cancels out or obscures a painful reality" (Milburn and Conrad 1996, 1-2). Denial affects the perception and understanding of events, as well as influencing

approaches to political issues by allowing for the manipulation of issues to ignore the evil realities or atrocities in history. Operation Desert Storm was supposed to be part of a "good war," complete with "smart bombs;" dissent was virtually non-existent and approval ratings were upwards of ninety percent (Milburn and Conrad 1996,1). However, the in the discussions of war planning, the heavy rhetoric of the air attack did not mention the human consequences of the techno war, and "the whole discussion sounded like nothing so much as a pregame warmup for the Super Bowl" (Milburn and Conrad 1996, 174). The actual effects of the attacks upon civilians were devastating, however, in discussions involving the attacks, government and military personnel couched the violence within techno jargon to lesson the impact of the bombing campaigns. Following the war, the unspoken agreement and subsequent sanitization of the horrors of the Persian Gulf War occurred within the military, the political sphere, and public; their silence hid the costs of human life and the grievous consequences of the war for both the victors and the victims.

Definitions of Denial

In *States of Denial: Knowing About Human Atrocities and Suffering,* Stanley Cohen develops the concept of denial in full encompasses several different forms and levels, each with their own nuances and applications to states, agents, and events. The psychological status of denial can be divided into two categories: conscious or unconscious. Statements of denial are assertions that either the event or object did not happen, the event or object did not exist, or the truth about the event or object is not really known. The first assertion is quite common and easy to remedy through the presentation of evidence, fact checking, and the subsequent exposure of lies through this

process. The assertion about the event or object was "made in good faith," as certain situations can occur without the knowledge of individuals, governments, or organizations (Cohen 2001, 3-4). The second assertion, that the event or object does not exist, is slightly more complex; "this is the deliberate, intentional, and conscious statement which is meant to deceive…lying" (Cohen 2001, 4). This process can occur at the individual level through statements and deception, or at the "organized" level, which includes the use of lying in public life through propaganda, spin, or misinformation (Cohen 2001, 4). The third, and final possibility is arguably the most captivating; the denial "may be neither a matter of telling the truth nor intentionally telling a lie" (Cohen 2001, 4). The assertion itself lies within a gray zone as it is neither fully calculated, and nor has the truth completely emerged, "this is the [area] of open secrets, turning a blind eye, burying one's head in the sand and not wanting to know" (Cohen 2001,6).

What Is Being Denied?

The next section of denial deals with a delineation of the possibilities of exactly "what" is being denied: "literal," "interpretive," and "implicatory denial." Literal denial is the statement that something is not true, and that the event or situation in question did not occur. In "literal denial," the fact as well as the knowledge surrounding that fact is denied; "nothing happened here…they are all lying…we don't believe you" (Cohen 2001, 7). On the other hand, the facts themselves are not denied, they are simply given a different meaning; "officials do not claim that 'nothing happened'," rather, they claim that what happened is not what it seemed to be within its original context (Cohen 2001, 7). The final form of denial within the possibilities of "what" is being denied occurs when there is no attempt to deny the statement of facts or shift the meaning. Implicatory

denial involves “minimizing” or “rationalizing” the implications that follow an event. The event is no longer seen as “psychologically disturbing,” or “as carrying a moral imperative to act” (Cohen 2001, 8). Individuals no longer see themselves as actors within a situation, and they rely on the rationalization that others will deal with the consequences of an event; implicatory denial becomes easier with distance and often can be quite “perfectly justified both morally and factually” (Cohen 2001, 8). In addition, each mode of denial holds its own “psychological status,” literal denial may be a genuine ignorance, a “deliberate aversion” from a truth or reality that may be far too difficult to acknowledge (Cohen 2001, 9). Interpretive denial, however, ranges from incapacity to understand the facts and their subsequent relation to others or by changing the dialogue to avoid accountability. Finally, implicatory denial can arise from “banal folk techniques” through “idioms of detachment” or a deep, highly sensitive rhetoric that widens the moral and psychological gap between inaction and avoidance (Cohen 2001, 9).

Organizations of Denial

With reference to organization, denial can be “individual, personal, psychological and private – shared, social, collective and organized” (Cohen 2001, 9). Personal denial itself is an individual process without public access as to how people deny everyday occurrences within their lives. Conversely, “official denial” are denials that “are initiated, structured and sustained by the massive resources of the modern state…denial is thus not a personal matter, but it is built into the ideological façade of the state” (Cohen 2001,10). Cultural denial falls between personal and official denial, as it is neither a private matter nor a form officially organized by the state. The absence of an official state position or a push toward acknowledgement, societies and organizations of people

arrive at a general agreement about what is denied and about what is acknowledged. Groups become censored by “micro-cultures” of denial, in which “ the group censors itself,” creating a silent agreement about situations whose open discussion would engender at threat to self-image (Cohen 2001, 11).

Modes of denial can also be described with reference to time, is the mode of denial a historical denial, “a matter of memory and history,” or the mode of denial can deal with contemporary matters. Historical denial itself deals with how things are remembered, and what exactly is remembered. Memories are represented in terms of “what has happened to you (as victim), what you have done (as perpetrator) or know about (as observer)” (Cohen 2001, 12). Historical denial can be the result of a deliberate campaign against the historical truth or a “gradual seepages of knowledge down some collective black hole” (Cohen 2001, 12). Societies themselves are complicit within this process as well, as victims become unimportant and the details of the event become distant with lack of interest or the adequate flow of information. Conversely, contemporary denial deals with what is happening now and the current flow of information that surrounds an individual at any given time. Each item of suffering and each atrocity cannot simply carry the same weight,

> According to the ‘compassion fatigue’ thesis, the potential for response is gradually blunted (‘I just can’t take anymore photos of starving children’), and filtering becomes even more selective. In our message-dense environment there is no need to wait for historical denial...The problem is not to explain how anyone ‘denies’, but how information is ever held (Cohen 2001,13).

Often, the sheer amount of information that surrounds us at any time produces too many items to process, and we have to be "highly selective" with the amount and types of information we are able to process (Cohen 2001, 13).

Actors Within Denial

The next component of denial involves agents and how they interact within the culture of denial. Cohen creates "an atrocity triangle" in order to organize the agents into three separate corners of action: victims, perpetrators, and bystanders (Cohen 2001, 14). The corners and roles that they convey are not fixed, and the agents have the ability to move around the triangle dependent upon their actions. Victims suffer as the result of something that happens to them, or they suffer from the consequences of a deliberate action against their person. Denial in the instance of the victim can occur at both an individual and group or cultural level; victims deny the action and refuse to believe that it is happening to them, or deny a clear warning of an imminent, impending fate. However, despite the "maladaptive" nature of denial of danger, denial can become "healthy and adaptive" as most people cannot "live in a permanent state of heightened awareness" (Cohen 2001, 15). With reference to perpetrators, denial allows for "ordinary people" to perform atrocities, and to "continue with the rest of their lives as if nothing unusual was happening" (Cohen 2001, 15). These denials are helped along by official discourse and rhetoric. Bystanders are by far the most intriguing agents within modes of denial, as they can be direct and visible witnesses to atrocities, or they can receive their information from secondary sources including but not limited to the media and non-governmental organizations. Bystanders can also include international actors such as other governments or international organizations (Cohen 2001, 15-18).

Times and Spaces of Denial

The final component of denial deals with space, and where the boundaries of suffering are defined and held; the ties of the "moral universe vary from person to person…and…local people normally have more and better-quality information than outsiders" (Cohen 2001, 18). First hand accounts of information, and first hand experience of atrocities is far more powerful, it is "rich, personal, multi-dimensional and historically layered," unlike the heavily censored and constructed media reports which provides second hand information (Cohen 2001, 19). If your government stands within the role of the perpetrator, this must evoke a reaction pertaining to personal identity, social roles, and political identities. As an individual, you cannot be held personally responsible, but "you are bound by collective ties of culture, history and loyalty…any outcome of the conflict will directly affect your life" (Cohen 2001, 19). However, due to distance, international observers take very little risk in taking a stand and have a much minor role with reference; "moral indignation about a remote place is sage, cheap and uncomplicated" (Cohen 2001, 19). However, despite the smaller requirements of action, the denial becomes much easier as the flows of information can be turned off or simply avoided all together to create a culture of denial that extends far beyond the original spheres if influence.

Applications and Instances of Denial

The network of denial that serves to propagate the positive and successful images of the Persian Gulf War negatively affects the recognition of Gulf War Illness and Post-Traumatic Stress Disorder. The "war's elaborate staging before and international audience" creates extreme difficulty in acknowledging the deadly consequences of the

wars upon the veterans and civilians involved within the conflict (Sturken 1997, 122). Indeed, the Persian Gulf War was a "masterpiece of collusive denial between the producers and reproducers of denial" as the government, military, medical community, and media "choreographed" a war worthy of effectively ending the Vietnam Syndrome and reestablishing the United States as a successful interventionist actor (Cohen 2001, 11). The Persian Gulf War offered a "certain symbolic closure," however the emergence of Gulf War Illness within veterans has "prevented" the narrative of this war from remaining unchallenged (Sturken 1997, 124). The desire of the government, military, medical community, and media to control the images and representation of the Persian Gulf War create a culture and network of denial that affects the ability to understand and provide adequate perceptions and treatment of Gulf War Illness and Post-Traumatic Stress Disorder in veterans and exposed civilians.

The Government, Organizations, and the related Medical Community

The government of the United States and related governmental organizations including the Department of Defense (DOD), the Department of Veterans Affairs (VA), and the Centers for Disease Control and Prevention (CDC) within Department of Health and Human Services has reported "expenditures of hundreds of millions of dollars" for hundreds of individual research projects and studies since 1992. However, despite increased funding efforts, the research projects have failed to emphasize the need and importance of studies that "provide insights into biological processes underlying veterans' symptoms or contribute directly to identifying diagnostic tests and treatments" (RAC 2008, 289). These "central objectives" and the health of the individual veteran have not traditionally been the focus of such research, and federal research itself has

provided little information for “advanced understanding” of the nature of Gulf War Illness thereby creating an “unsatisfactory pace of progress” for creating an adequate model of treatment (RAC 2008, 289).

With reference to content, the initial literal denial of the existence of Gulf War Illness was short-lived given the variety and severity of the physical symptoms of the condition, as multiple investigations and research studies “as all sides called for research to better understand the dialogue” (RAC 2008, 3). However, with the emergence of new bodies of research, the dialogue turned to become a representation of “interpretive denial.” Officials are no longer able to claim that ‘nothing happened’ or that nothing is fundamentally wrong with these veterans, as the “presence of survivors...testify through the very presence of their bodies to the materiality of memory…the body of a disabled veteran standing…speaks volumes about the war’s cost…offering evidence of the multiplicity of memory stories (Sturken 1997, 12). As an alternative to outright denial, they shift the meaning, claiming that the symptoms of Gulf War Illness are not what. They seem, “and government officials and special committee reports maintained that there was little evidence” that these chronic health conditions are indeed unique (RAC 2008, 3). By changing the discourse, “by euphemism, by technical jargon, the observer disputes the cognitive meaning given to an event and re-allocates it to another class of an event” (Cohen 2001, 8).

Interpretive denial emerges most often in the case of Gulf War Illness because it “ranges from a genuine inability to grasp what the facts mean to others, to deeply cynical renamings to avoid moral censure or legal accountability” (Cohen 2001, 9). The facts themselves are acknowledged; the government has spent millions of dollars on research

under the pretext of finding adequate treatment for Gulf War Illness, but ignores the responsibility of choosing studies whose research methods would produce material that is related to the multisymptom condition itself. The "persistent shortcomings" of individual federal-sponsored studies are due to the specific types of studies that are chosen and the "overall lack of cohesion and results-focused management" (RAC 2008, 290). Indeed, many of the projects that are funded under the heading of "Gulf War Researsh" have little to do with the health of Gulf War veterans, and a substantial portion of the research has focused on "stress and psychiatric disease as the central explanation for Gulf War Illness" (RAC 2008, 290). Thus, this incomplete model of the condition and the continual lack of data and coordinated studies dedicated to improving the health of veterans allows for a variety of calculated interpretive denials by the military and medical communities.

With reference to the organization of the denial of Gulf War Illness, it is "public, collective and highly organized…denials that are initiated, structured and sustained by the massive resources of the modern state" (Cohen 2001, 9). The state apparatus makes in difficult to acknowledge and create a dialogue about past and present realities and actions.

> In more democratic societies, official denial is more subtle – putting a gloss on the truth, setting the public agenda, spin – doctoring, tendentious leaks to the media, selective concern about suitable victims, interpretive denial regarding…policy. Denial is thus not a personal matter, but build into the ideological façade of the state…social conditions merge into the official techniques for denying these realities (Cohen 2001, 10).

The vigorous debate and diverse set of view presented that have been put forward regarding the nature and cause of Gulf War Illness have created a sporadic pattern of research that has funded studies that have "little or no relevance to the health of Gulf War veterans…and overall federal funding for Gulf War research has declined dramatically since 2001" (RAC 2008, 2). The DOD and VA are "not ideally suited" for carrying out the "required research and…multi-faceted, highly coordinated effort involving top investigators" (RAC 2008, 289). However, this delegation and concentration of research power and funding within these two organizations can be attributed to "political or fiscal…disincentives…for providing definitive answers" to Gulf War veterans (RAC 2008, 289).

In addition, the lack of cohesive data and research has contributed to the development of historical denial with reference to time; the official acknowledgement of Gulf War Illness did not occur until eighteen years after the conclusion of the war, on November 18, 2008 ("National Briefing…" 2008, 1). Historical denial with reference to the Persian Gulf War is a matter of both lost memories and a collective effort at the reconstruction of memory by the simultaneous occurrence of amnesia and the reconstruction of the perception of the war through the media and the presentation of a "neat" war narrative (Sturken 1997, 123). Despite this loss of presence on a national level within the United States, the memories of the Persian Gulf War remain present and visible within the bodies of veterans, and in the territory of the war itself; environmental hazards and broken and bullet ridden buildings bear a painful reminder of the violent occupation within Kuwait.

The government of the United States, the DOD, and the VA all act as agents of denial within the system, oscillating between an active role as a perpetrator and a more passive role as observer. As a perpetrator of denial of the existence of Gulf War Illness, the government exhibits a denial of responsibility for the health and safety of the veterans by failing to actively pursue effective research opportunities and provide adequate funding for the treatment of veterans. Although total expenditure on "Gulf War research" ranged from forty three to fifty million dollars annually, with nearly "345 distinct projects sponsored by the federal government between 1992 and 2007," "Gulf War research" studies have failed to produce cohesive research profiles that adequately address the health and treatment of veterans (RAC 2008, 291-292). As a mode of "partial acknowledgement," the DOD and the VA allocate significant amounts of funding toward "Gulf War research" in order to "appear to take the allegations seriously" (Cohen 2001, 113). However, the "exact amount" spent by the United States government have year-t-year inconsistencies with reference to direct and indirect costs, "introducing substantial uncertainty" with reference to the specific amount spent by the government on research. With approach to funding, the government employs a policy of "self-correction," however, this policy is often ineffective as the studies grouped under "Gulf War research" overemphasize studies that deal with stress and psychiatric illness within federally funded programs and lack a cogent and organized program that is can achieve previously identified scientific objectives (Cohen 2001, 114; RAC 2008, 293-294). Many studies are unrelated, and often fail to include Gulf War veterans at all,

> The Millennium Cohort Study, for example, received over $18 million in DOD funding between 2000 and 2007. This ambitious project involves long-term

> assessment of an initial sample of nearly 80,000 personnel serving in the military after October 2000. The study includes relatively few personnel who served in the 1991 Gulf War…Some other projects identified as "Gulf War Research" in interagency reports to Congress have even less connection…These include studies of infectious diseases, such as pertussis, never identified in Gulf War veterans (RAC 2008, 292).

The inadequate search for quality research that is driven to improve the health of veterans as well as the mislabeling of studies give the "impression to Congress and the general public that more federal funding has been provided" for Gulf War research than has actually been the case in reality (RAC 2008, 293). This further enhances the culture of denial that surrounds Gulf War Illness, further complicating the search for adequate treatment that focuses on the health of the veteran. In addition, the support of poor research initially causes further degeneration of necessary data and generates a severe lack of interest and further adherence to the "denial narrative" within the government and related organizations (Cohen 2001, 114).

The Military

The denial of the existence of Gulf War Illness by the military also started out as literal denial; the military denied the existence of Gulf War Illness as multisymptom condition unique to the Persian Gulf War, denying any responsibility or culpability in the event. However, with the emergence of symptoms of Gulf War Illness within veterans, it became difficult to perpetuate a culture of outright denial. The military chose instead to create a "micro-culture" of "interpretive denial;" "the [military] censors itself, learns to keep silent about matters whose open discussion would threaten its self-image" (Cohen

2001, 11). Thus, the perception of Gulf War Illness becomes stigmatized, it is a sign of weakness, and those who succumb publically are ridiculed and separated from their peers. The military must maintain the "clean" image of this war within the context of history. These "vital lies" are a means of maintaining control and preventing drops in morale; such "a benevolent self-righteousness disguises the many motives for political lying which could not serve as moral excuses…these self serving ends provide the impetus for countless lies that are rationalized as 'necessary' for the public good" (Bok 1978, 182-183). The military is at once a perpetrator, bystander, and victim of the denial of Gulf War Illness; with the rising costs of the wars in Iraq and Afghanistan, funding for Gulf War research has been reduced dramatically, and the responsibility to care for new veterans has increased dramatically (RAC 2008, 295). As the funding shifts, the individual veteran as a victim becomes "unimportant," as the knowledge and desire for adequate research seeps "down some collective black hole" (Cohen 2001, 12). The suffering of veterans and the environmental impacts of the Persian Gulf War become subject to "deletion through the 'politics of ethnic amnesia'" and the search for adequate treatments becomes irrelevant as the military moves on with other conflicts (Cohen 2001, 11).

The Media

The media both prior to and after the Persian Gulf War remains an important force in developing the culture of official and cultural denial that surrounds the conflict. The media image of the war itself was "a masterpiece of collusive denial between the producers and reproducers of reality" (Cohen 2001, 11). Popular support for the war was garnered through an intense build-up campaign that featured "Saddam Hussein as the

next Hitler" (Milburn and Conrad 1996, 174). However, following the conclusion of the war, the media became involved in an interpretive denial of Gulf War Illness that emerges from a "genuine inability to grasp what the facts mean to others" (Cohen 2001, 9). There is a clear recognition of Gulf War Illness as a serious multisymptom condition affecting Gulf War veterans, yet the media is in possession of so much information that the acknowledgement of the disease becomes lost in the bombardment of information and testimonies, and entangled within the narrative of the Persian Gulf War. The media as agents of denial are both perpetrators and bystanders; they helped to create the culture of historical denial that prevents "private knowledge" from being officially confirmed and entered into the public discourse. In the contemporary sense, the media presents "too many stimuli for the mind to process" at any given time, thereby causing the information and testimonies of the victims from elicited a response or action from individuals. Thus, the appropriate recognition required to stimulate research and the quest for adequate funding and treatment for Gulf War Illness.

Field Work

From 10 March 2010 to 21 March 2010, I conducted a series of interviews and performed field work within Kuwait with regards to Gulf War Illness and Post-Traumatic Stress Disorder in Kuwaiti citizens and military personnel. I interviewed seven people: Sarah Ackbar, the CEO of Kuwait Energy, Muhammed Boodai, owner of PIKA International and several other companies, Dr. Juliet Dinkha, psychologist and professor at the American University of Kuwait, Andrea Al Adwani, a family counselor, Dr. Nasra Shah, a professor within the community medicine and behavioral sciences at Kuwait University, Dr. Ali Al-Sayed, a statistician, Fatima Abdaly, a specialist on the

environmental impacts on the Gulf War, Chris O'Han, a collector of oral histories at the American University of Kuwait, and Lubna Saif Abbas, a Kuwaiti business woman trained by the United States to collect information on war crimes perpetrated by Saddam Hussein and his forces. During these interviews, I collected a basic set of information about their experiences within the Persian Gulf War by asking about their location and relevant experiences in Kuwait before, during, and after the war, whether or not they had experienced any lingering health (physical or psychological) effects from the war, the health of their family and friends, what environmental impacts they saw during and after the war, and their general perceptions of the Persian Gulf War. During my time in Kuwait, I had hoped to find a great deal of hard data and analysis regarding rates of Post-Traumatic Stress Disorder, studies on environmental impacts of the war, and health statistics pertaining to known symptoms and conditions linked to Gulf War Illness.

Upon arriving in Kuwait, however, I found a consistent lack of data regarding all three inquiries. Mental health in Kuwait is heavily stigmatized; families with children or family members with mental health disorders or diseases generally consider it shameful, and do not with to acknowledge the issue or even seek care for the individual outside of Kuwait (Al Adwani, A., personal communication, 17 March 2010). Care for individuals with PTSD is not well-developed, and there is little research on the subject, most patients with a case of "nerves" are given a "plastic baggie of Valium" without any instructions or mention of side effects, or alternative coping mechanisms (Al Adwani, A., personal communication, 17 March 2010). Most individuals rely on self-medication through drugs such as heroin, hash, or opium, alcohol, or prescription medication (Al Adwani, A., personal communication, 17 March 2010). With this data lacking, it is difficult to gauge

the effects of Post-Traumatic Stress Disorder on the general population; however, the general consensus among the individuals I interviewed was that there were lingering psychological effects of the war, and that they were consistently manifesting themselves in various ways within society.

With reference to certain health statistics, I was able to find data on the top causes of death within the country from 1995-2008. Most data from the years prior to 1995 had either been destroyed by Saddam's forces, or neglected during the years of reconstruction (Al-Sayed, A., personal communication, 15 March 2010). However, I was able to gain data on cancers, specifically neo-plasms (cancers), Non-Hodgkin's, lymphoma, and neurological cancers, all three of which are known indicators and associated conditions of Gulf War Illness.

Table 1. NEOPLASMS (R/100,000)	KM	KF	NKM	NKF	T
1995	41.9	36.7	12.2	22	25.1
1996	36.9	34.9	14.1	18.7	23.9
1997	38.9	30.5	14.7	19.7	23.8
1998	42.1	32.2	11.1	19.4	22.7
1999	40.9	33.9	11.3	15.7	22.1
2000	40.4	37.3	11.2	21.3	23.7
2001	38.9	40.8	11.4	18.5	23.7
2002	36	35	30.5	21.4	23.4
2003	35.6	35.3	10.6	19.7	21.6
2004	42.5	32.7	9.7	15.8	20.9
2005	33.5	35.1	11.8	15.4	20.2
2006	44.8	37.1	11	17.5	22.2
2007	40.9	38.1	10.2	16.6	20.7
2008	41.8	41.6	7.8	13.9	19.2

(Ministry of Health, State of Kuwait, 1995-2008).
(KM=Kuwaiti male, KF=Kuwaiti female, NKM=non-Kuwaiti male, NK=non-Kuwaiti female, T=Total)

Table 2. BRAIN NEOPLASM (R/100,000)	KM	KF	NKM	NKF	T
1995	0.6	0.3	0	0.3	0.2
1996	1.1	0.3	0.8	0	0.6

1997	1.3	1.4	0.3	1.2	0.9
1998	1.3	0.8	0.6	0.5	0.7
1999	1.5	0.5	0.7	0.2	0.7
2000	1.7	1.4	0.7	0.2	0.9
2001	2.1	0.5	0.5	0.7	0.8
2002	1.8	1.8	0.7	0.6	0.9
2003	2.4	0.4	0.5	0.6	0.8
2004	2.2	0.4	0.5	0.4	0.8
2005	1	0.4	0.7	0	0.6
2006	2.2	1	0.6	0.8	1
2007	2	1.3	0.6	0.4	0.9
2008	2.9	2	0.6	0.5	1.1

(Ministry of Health, State of Kuwait, 1995-2008).
(KM=Kuwaiti male, KF=Kuwaiti female, NKM=non-Kuwaiti male, NK=non-Kuwaiti female, T=Total)

NON-HODGKIN'S LYMPHOMA (R/100,000)	KM	KF	NKM	NKF	T
1995	0.6	0.3	0	0	0.2
1996	0.6	0.6	0.4	0.9	0.6
1997	0.8	0.8	0.7	0.9	0.8
1998	3.1	0.8	0.7	1.2	1.3
1999	2.5	2.7	1	1	1.6
2000	2.7	1.4	1	1.1	1.4
2001	2.6	1.2	0.8	0.7	1.2
2002	3.9	3.1	1.8	0.6	1.8
2003	2	2.6	0.7	0.8	1.3
2004	3	0.8	0.7	0.7	1.1
2005	2.1	1.8	0.8	0.9	1.2
2006	2.4	1.6	0.6	0.3	1
2007	1.6	0.4	0.5	0.7	0.7
2008	2.3	2	0.5	0.5	1

(Ministry of Health, State of Kuwait, 1995-2008).
(KM=Kuwaiti male, KF=Kuwaiti female, NKM=non-Kuwaiti male, NK=non-Kuwaiti female, T=Total)

This information confirmed rising rates of cancer within Kuwait, as well as the general consensus among the individuals I interviewed that cancer is rapidly rising in Kuwait, and that the incidences and severity of the cancers are increasing. However, more research needs to be done with regards to specific cancers and conditions linked with Gulf War Illness.

The final inquiry I made was with regards to the environmental impacts of the war. Unlike the U.S. veterans who were in the Persian Gulf for a relatively short time, Kuwaiti citizens and military personal are constantly exposed the environmental hazards and toxins left over from the conflict. Large quantities of depleted uranium are still present within the desert and bodies of water despite the clean up efforts of entrepreneurs like Muhammad Budai, who cleaned up and transported over three hundred tanks with both low and high level radiation contamination left over from the Gulf War (Budai, M., personal communication, 15 March 2010). However, there is still much more to be done; he claims that there are still large amounts of depleted uranium contaminating the desert and Persian Gulf. Other contamination hazards include oil lakes leftover from the oil fires, which exude large amounts of toxic gases into the atmosphere, mercury contamination, and leftover ammunitions. However, the Kuwaiti government has largely stalled clean-up efforts and recognition efforts by activists such as Muhammed Budai and Fatima Abdaly, and the environment remains a large concern for those who are aware of the scale and severity of the problem (Budai, M., personal communication, 15 March 2010). Overall, this is most likely the most pressing issue with regards to identifying probable causes of Gulf War Illness in Kuwait, and research on this front is severely lacking in data and adequate interest.

Conclusions

Gulf War Illness, is, as the Research Advisory Committee on Gulf War Veterans' Illnesses states "the most prominent health issue affecting Gulf War veterans" of the 1990-1991 Gulf War (RAC 2008, 1). However, the problem extends far beyond the veterans themselves. The identification of the condition itself will require a larger, more

comprehensive research process that seeks to identify the precise cause of Gulf War Illness from several different perspectives and several different sources of data. Veterans continue to be treated as symptoms arise as attempts are made to first identify a cause, the knowledge of which will undoubtedly lead to more effective and efficient treatments. The psychological aspect of the condition must not be ignored; Post-Traumatic Stress Disorder must continue to be recognized as a separate but linked condition that does impact the many manifestations of Gulf War Illness. Clinicians and mental health providers must work in tandem to create a treatment plan that encompasses the mental and physical health of the patient without compromising one treatment in favor of the other. However, in order for this to occur, the network and culture of denial of Gulf War Illness and Post-Traumatic Stress Disorder must be removed so that the conditions may be collectively acknowledged as lingering symptoms from the Persian Gulf War. I propose a collective operation, funded by both the United States and Kuwait, to gather data, share information, and start the process of acknowledging and dealing with the lingering effects of the Persian Gulf War. This will allow for more effective and adequately funding research and data collection that has the potential to identify the causes of Gulf War Illness and Post-Traumatic Stress Disorder, allowing for the creation of adequate treatment plans that address the physical and mental dimensions of the veteran or citizen, and address the lasting consequences of the environmental effects of the Persian Gulf War.

References

Al-Adwani, A. Personal Communication, 17 March 2010.

Arlen, M. (1966*). Living Room War*. New York, NY: Viking

Ayres Jr., D. B. (8 November, 1970). "The Vietnam Veteran: Silent, Perplexed, Unnoticed: The Vietnam Veteran: Silent, Perplexed, an 'Old Soldier' Already Fading Away." *New York Times*. http://www.proquest.com/

Baudrillard, J. (1995). *The Gulf War Did Not Take Place*. Bloomington, IN: Indiana University Press.

Beall, L. S. Post-Traumatic Stress Disorder: A Bibliographic Essay. *CHOICE* 34:6 (1997), 917-930.

Bloom, S. ed. et al. (Eds.) (1994). *Hidden Casualties: Environmental, Health and Political Consequences of the Persian Gulf War*. Berkeley, CA: North Atlantic Books.

Bok, S. (1978). *Lying: Moral Choice in Public and Private Life*. New York, NY: Vintage Books.

Bok, S. (1982). *Secrets: On the Ethics of Concealment and Revelation*. New York, NY: Vintage Books.

Budai, M., Personal Communication, 15 March 2010

Caputo, P. (1977). *A Rumor of War*. New York, NY: Henry Holt.

Christenson, R. M. (3 July 1971). "Vietnam and Public Opinion." *New York Times*, http://www.proquest.com/.

Chomsky, N. (1992). The Media and War: What War? in *Triumph of the Image: The Media's War in the Persian Gulf-A Global Perspective*, H. Mowlana, G. Gerbner and H.I. Schiller. (Eds). (1992). Boulder, CO: Westview Press.

Cohen, S.. (2001). *States of Denial*. Cambridge, England: Polity.

Cummings, M. L. (2002). "Informed Consent and Investigational New Drug Abuses in the U.S. Military." *Accountability In Research 9*, 93-103.

Denton Jr., R. E. (Ed.). (1993). *The Media and the Persian Gulf War*. Westport, CT: Praeger.

Emerson, G.. (1974). *Winners and Losers: Battles, Retreats, Gains, Losses, and Ruins From a Long War*. New York, NY: Random House.

Elder Jr., G.H., Clipp, E.C. (1989). "Combat Experience and Emotional Health: Impairment and Resilience In Later Life." *Journal of Personality, 57*(2), 311-341.

Gerbner, G. (1992). Persian Gulf War, the Movie. In *Triumph of the Image: The Media's War in the Persian Gulf-A Global Perspective*, H. Mowlana, G. Gerbner and H.I. Schiller (1992). Boulder, CO: Westview Press.

Golomb, B. A. (1992). *A Review of the Scientific Literature As It Pertains to Gulf War Illnesses: Volume 2 Pyridostigmine Bromide*. RAND.

Gonzalez, D. (29 April 1991). 2 Welcomes For Veterans Of Gulf War: Veterans of Gulf War Get a Stirring Welcome. *New York Times*. http://www.proquest.com/.

Herr, M. (1991). *Dispatches*. New York, NY: Vintage Books.

Hilts, P. J. (3 November 1993). "Gulf War Syndrome: Is It A Real Disease?" *New York Times*, http://www.proquest.com/.

Institute of Medicine. (1996). Health Consequences of Service During the Persian Gulf War: Recommendations for Research and Information Systems. Washington, DC: National Academy Press.

Kelly, M.(1993). *Martyrs' Day: Chronicles of a Small War*. New York, NY: Vintage Books.

Kellner, D. (1992). *The Persian Gulf TV War*. Boulder, CO: Westview.

Milburn, M. A., and Conrad, S. D. (1996). *The Politics of Denial*. Cambridge, MA: MIT Press.

The Militarily Critical Technologies List Part II: Weapons of Mass Destruction Technologies (ADA 330102), (February 1998). "Chemical Weapons Technology," U.S. Department of Defense, Office of the Under Secretary of Defense for Acquisition and Technology.

Miller, R. K. (4 June 2009). Informed Consent in the Military: Fighting a Losing Battle Against the Anthrax Vaccine. *American Journal of Law and Medicine, 28.*

National Briefing: Science and Health; Gulf War Syndrome is Real, Report Concludes. (18 November 2008). *New York Times*, http://proquest.com/.

Norris, C. (1992). *Uncritical Theory: Post-Modernism, Intellectuals, and the Gulf War.* London: Lawrence and Wishart, 1992.

O'Brien, T. (1990). *The Things They Carried*. New York, NY: Broadway Books.

Ottosen, R. (1992). Truth: The First Victim of the War? in *Triumph of the Image: The Media's War in the Persian Gulf-A Global Perspective*, H. Mowlana, G. Gerbner and H.I. Schiller. (1992). Boulder, CO: Westview Press.

Quindlin, A. (5 October 1994). Casualties of War, *New York* . http://www.proquest.com.

U.S. Government. U.S. Department of Veterans' Affairs.Research Advisory Committee on Gulf War Veteran's Illnesses. (2008). *Gulf War Illness and the Health of Gulf War Veterans*. Washington, DC: U.S. Government Printing Office.

Ryan, R. P. (1997). Should Combat Troops be Given the Option of Refusing Investigational Drug Treatment. *Food and Drug Law Journal*. *52*.

Shatan, C. F. (6 May 1972). Post-Vietnam Syndrome. *New York Times*, http://www.proquest.com/.

Nessen, S.C., Lounsbury D.E., Hetz S.P., *War Surgery in Iraq and Afghanistan: A Series of Cases 2003-2007*. Washington, DC: Borden Institute.

Schiller, H. I. (1992). Manipulating Hearts and Minds, in *Triumph of the Image: The Media's War in the Persian Gulf-A Global Perspective.* H. Mowlana, G. Gerbner and H.I. Schiller. (1992). Boulder and Oxford: Westview Press, 1992.

Smith, T. W. (1985). America's Most Important Problems Part I: National and International. *The Public Opinion Quarterly*, *49*(2), 264-272.

State of Kuwait. (1995-2008). Health, Kuwait, Kuwait: Health and Vital Statistics Division, Department of Statistics and Medical Records, Ministry of Health.

Phillips, T. (8 October 1967). Vietnam Blues. *New York Times*, http://www.proquest.com/.

Rettig, R. A. (1999). *Military Use of Drugs Not Yet Approved by the FDA for CW/BW Defense: Lessons from the Gulf War*. Wesport, CT: RAND.

Sloane, L. (14 May 1972). Uphill Battle For Veterans. *New York Times*, http://www.proquest.com/.

Smith, J. E. (1992). *George Bush's War*. New York, NY: Henry Holt and Company.

Summers Jr., H.G. (1995). *Persian Gulf War Almanac*. New York, NY: Facts on File..

Sturken, M. (1997). *Tangled Memories: the Vietnam War, the AIDS epidemic, and the Politics of Remembering.* Los Angeles, CA: University of California Press.

Thompson, P. (2001*). Into the Storm: A U.S. Marine in the Persian Gulf War.* Jefferson, NC: McFarland & Company Publishers, Inc.

U.S. Department of Defense, Office of the Special Assistant For Gulf War Illness. (2 December 2007). *Infromation Paper: Vaccine Use During the Gulf War*. Washington, DC: U.S. Government Printing Office.

Van Devanter, L. (1983). *Home Before Morning*. New York, NY: Warner.

Welles, B. (6 February 1966). Veterans Rebuffed :Official Cold Shoulder. *New York Times,* http://www.proquest.com/.

Wren, C. S. (14 March 1973). Thousands of Vietnam Veterans on Welfare Here: Veterans of Vietnam Getting Welfare Here Many on Hard Times Bronze Star and Heroin Prejudice Charged. *New York Times*, http://www.proquest.com

Yetiv, S. A. (1997). *The Persian Gulf Crisis*. Westport, CT.

Zaffiri, S. (1988). *Hamburger Hill*. California: Presidio.

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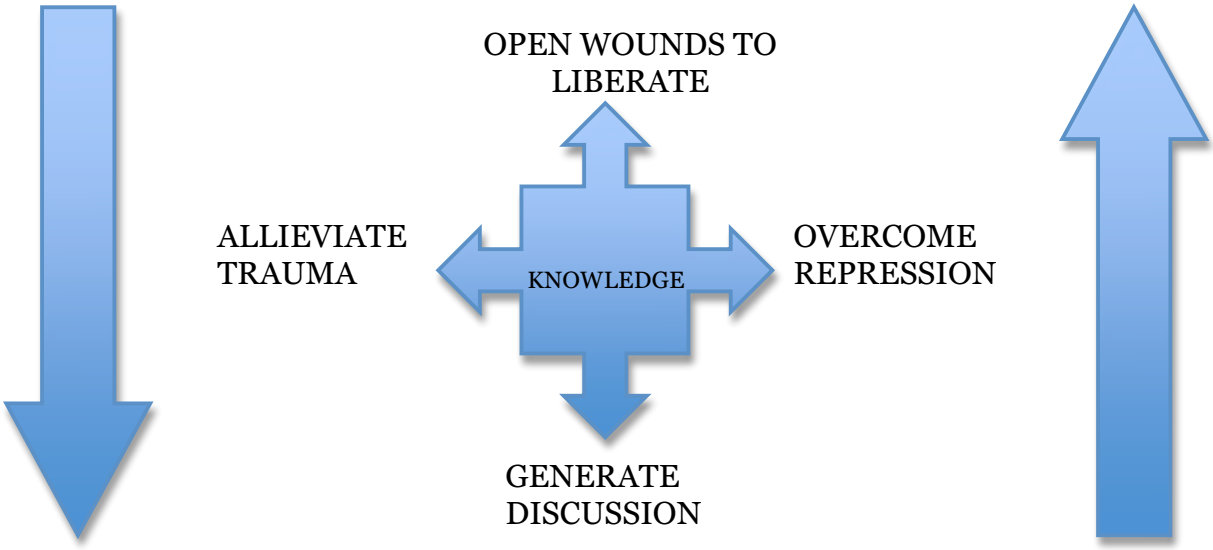

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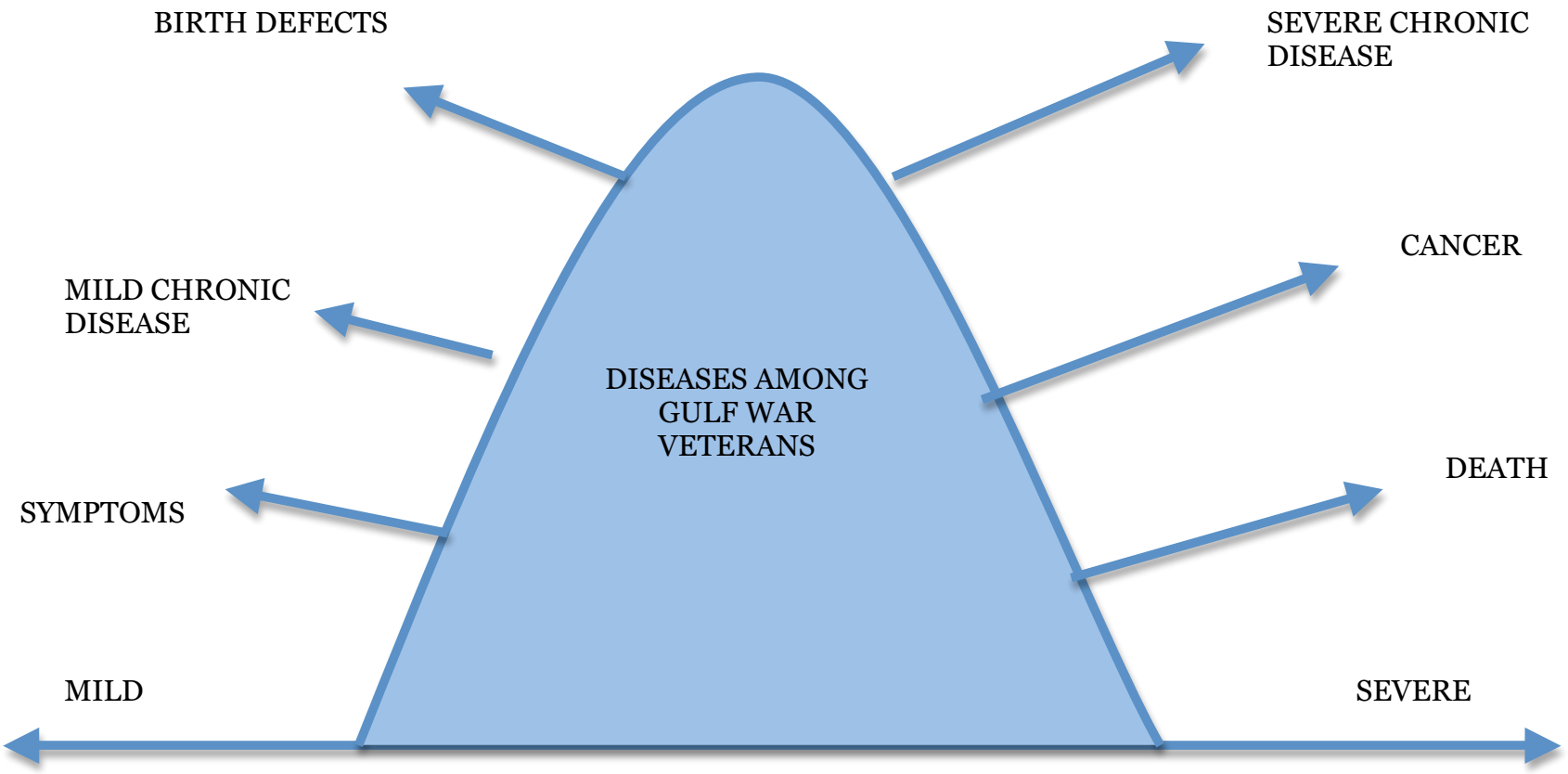
CIVILIAN (PTSD)- Being shot at, life threatened, displaced, tortured, violence, and rapes. Problem with refugees. Recover quickly once war is over. Not long term.

MILITARY (PTSD)- Combat stressors are extremely high and frequent, increased levels of stress, no safe place, no safe role, if war perceived as failure, chronic, difficult to recover

CIVILIAN (GWI)- High cancer rates and other symptoms, assumed to be more acute and prolonged with increased exposure

MILITARY (GWI)- Neurological problems, fatigue, treat symptoms only, not everyone develops similar symptoms

SPECTRUM OF ALLEGED MORBIDITY AMONG GULF WAR VETERANS



GRAY, GREGORY. "POST WAR SYNDROMES AND THE 1991 GULF EXPERIENCE." RESEARCH CHANNEL.