

“Operator syndrome”: A unique constellation of medical and behavioral health-care needs of military special operation forces

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Abstract

Objective: U.S. military special operation forces represent the most elite units of the U.S. Armed Forces. Their selection is highly competitive, and over the course of their service careers, they experience intensive operational training and combat

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deployment cycles. Yet, little is known about the health-care needs of this unique population.

Method: Professional consultations with over 50 special operation forces operators (and many spouses or girlfriends) over the past 6 years created a naturalistic, observational base of knowledge that allowed our team to identify a unique pattern of interrelated medical and behavioral health-care needs.

Results: We identified a consistent pattern of health-care difficulties within the special operation forces community that we and other special operation forces health-care providers have termed "Operator Syndrome." This includes interrelated health and functional impairments including traumatic brain injury effects; endocrine dysfunction; sleep disturbance; obstructive sleep apnea; chronic joint/back pain, orthopedic problems, and headaches; substance abuse; depression and suicide; anger; worry, rumination, and stress reactivity; marital, family, and community dysfunction; problems with sexual health and intimacy; being "on guard" or hyper-vigilant; memory, concentration, and cognitive impairments; vestibular and vision impairments; challenges of the transition from military to civilian life; and common existential issues.

Conclusions: "Operator Syndrome" may be understood as the natural consequences of an extraordinarily high allostatic load; the accumulation of physiological, neural, and neuroendocrine responses resulting from the prolonged chronic stress; and physical demands of a career with the military special forces. Clinical research and comprehensive, intensive immersion programs are needed to meet the unique needs of this community.

Keywords

veterans, military, special forces, traumatic brain injury, posttraumatic stress disorder, endocrine, sleep, pain, suicide

Introduction

Approximately 8% of all veterans from recent wars in Iraq and Afghanistan suffer from posttraumatic stress disorder (PTSD) and other forms of psychiatric illness stemming from deployment experiences.¹ Clinical trials show the effectiveness of psychotherapy for PTSD in combat veterans.² However, there is one group of military personnel and veterans who, because of the unique and extreme nature of their military service, are likely not well served by current programs or traditional models of care: the special operation forces (SOFs) community.

SOFs represent the most elite personnel and units of the U.S. Armed Forces and exist within each of the major branches: Army (Green Berets, Rangers, Delta, and other special mission units); Navy (Sea Air and Land Teams

[SEALS] and Special Warfare Combatant-Craft Crewmen); Marines (Marine Corps Forces Special Operations Command [MARSOCC] and Force Recon); Air Force (Special Operation Squadrons, Combat Controllers, and Pararescue [PJs]); and explosive ordinance and demolition personnel who serve across branches. There are also personnel from other military and intelligence agencies (e.g., Central Intelligence Agency) who train and deploy with SOF. Selection for these units is extremely competitive (e.g., typically fewer than 5%–15% who try are selected) and has been the subject of ongoing classified research for over 70 years.³

SOF training is mentally, emotional, and physically demanding, and service includes intensive operational training and combat deployment cycles. It is not unusual for an operator with 10 years or more of service to have up to 15 combat deployments and hundreds of individual direct-action missions. The nature of service includes years away from spouses and family; physical danger; death of friends and comrades in training and combat; combat and training injuries, acute and chronic, including both concussive impact injuries and blast-wave exposure that cause traumatic brain injuries; and existential and psychological damage.

There is now a wave of retirements from the SOF community including many who have spent their entire adult lives in conflict or harm's way and in a constant state of readiness for immediate deployment. Although they have many strengths, including high intelligence and extraordinary physical and mental toughness,^{4,5} many SOF operators now face a cascade of medical, emotional, and social problems that are not adequately captured by psychiatric diagnoses of depression or PTSD as they transition to civilian life. We describe the unique constellation of medical and behavioral health-care needs of this population.

Method

Over the past six years, a team of mental health clinicians (BCF, AM, JCF, MB, BW, and DCB), all with extensive experience treating military personnel and veterans in a variety of contexts, consulted with SOF operators and their families. We created a naturalistic, observational base of knowledge that allowed our team to identify a common pattern of interrelated medical and behavioral health-care needs that appear to be unique to SOF operators. This led to further inquiry, systematic observation, and feedback from SOF operators, their families, and relevant military health-care providers regarding our emerging hypotheses regarding a potential syndrome. We consulted with over 50 SOF operators from Army, Navy, Marine, and intelligence units who provided verbal informed consent to be represented in this descriptive study. This involved thousands of hours of conversations with these operators (and in many cases their spouses or girlfriends) about their lives, experiences, medical and psychological health, and current functioning. We also had extensive conversations with individuals

closely associated with the SOF community including military officers ($n > 5$) and leaders throughout the ranks, psychologists ($n > 5$), psychiatrists, physicians ($n > 5$), speech therapists, and physical therapists. The effort included visits to military commands as well as attendance at presentations and review of documents related to SOF brain health and functioning.

Results

Based on our experiential work with the SOF community, it is clear that damage to mature operators' health and quality of life is profound. Research already points to the heightened challenges of veterans with comorbid symptoms^{6,7} and the increased risk of developing additional combat-related disorders if one is present.^{8,9} This is known as cumulative disadvantage, or the *burden of adversity*.⁶ We identified a set of health-care difficulties within the SOF community that we and others have termed "Operator Syndrome" because of the unique and common pattern of interrelated medical, psychological, and quality of life impairments in this group including the following.

Traumatic brain injury effects

Blast-wave exposure and concussive impact forces are known to cause significant traumatic brain injury (TBI),¹⁰⁻¹² and anecdotal estimates suggest 85% of SOF operators experience TBI from *training* alone. There are two types of long-term brain injury other than concussions that have been posited in recent years: (1) chronic traumatic encephalopathy (CTE) from impact trauma and (2) interface astroglial scarring caused by the shearing forces of blast-wave exposure.¹³ People with TBI are more likely to experience memory and cognitive impairments, chronic pain and headaches, depression, and suicide.¹⁴ TBI in combat veterans is also associated with PTSD^{7,15,16} as well as sleep disorders and a range of other health consequences.^{17,18} The centrality of TBI will become apparent as we discuss other features of this syndrome.

Endocrine dysfunction

TBI has a powerful dysregulating effect on the endocrine system¹⁹ and particularly TBI secondary to blast-wave exposure.²⁰ It is believed that overactivity of the "hypothalamic-pituitary-adrenal" axis, through acute or chronic stress, disrupts the hormonal interaction (including gonadal and thyroid axes) between this region of the brain and the adrenal gland. This increases the secretion of cortisol and norepinephrine, leading to insomnia or sleep disruption. Hypogonadism is especially associated with TBI.²¹ Moreover, certain types of hormonal imbalances (low testosterone) contribute to poor sleep and chronic fatigue, can mimic those of depression (low mood, fatigue, irritability, and impaired concentration), and even can lead to gynecomastia. The only way to

diagnose hormonal imbalances is through a diagnostic blood test, which care providers often neglect to do. Therefore, it is imperative that operators receive a comprehensive panel of blood lab tests regularly. Current research is being conducted to identify the normative hormonal values for operators related to their training cycle. Some data suggest operators have total testosterone below age-based normative reference ranges.²²

Sleep disturbance

The presence of sleep disturbance among operators is nearly universal. Operators face a number of concerns that put them at risk for problems with sleep including TBI, headaches, pain, endocrine dysfunction, psychiatric illness, being “on guard” or hypervigilant, and alcohol abuse, all of which negatively affect circadian rhythms. Deployment schedules and mission requirements (traveling across time zones and shifting sleep schedules) also disrupt normal sleep–wake cycles.

Research shows that sleep disturbance is common after TBI, occurring in 30% to 70% of individuals with head injuries.^{23,24} TBI likely changes the brain’s ability to appropriately control breathing during sleep and affect circadian rhythms via hormonal channels such that the internal “clock” in the brain may become disoriented. In turn, sleep disturbance complicates the resolution of TBI symptoms²⁵ and contributes to irritability, cognitive impairment, memory loss, impulsivity, poor concentration, depression, and even hallucinations and paranoia.^{26,27} Moreover, the physical and medical effects on the human body are also profound. Chronic sleep deprivation contributes to the increased risk of impaired immune functioning, Type 2 diabetes, heart disease, obesity, and chronic pain.²⁸ Conversely, research shows that good-quality sleep in people with TBI is protective.²⁹

Obstructive sleep apnea

Obstructive sleep apnea, caused by a blockage of the airways during sleep, is a common disorder among operators. This is probably due to the cascade effects of TBI.³⁰ If untreated, it can lead to a number of serious health problems including high blood pressure, strokes, heart failure, headaches, diabetes, and depression. Research has shown the detrimental effects of sleep apnea on cognitive functioning in TBI patients.³¹

Chronic joint/back pain, orthopedic problems, and headaches

Because of the intensity of training and combat service, most operators have lengthy histories of injuries (chronic and acute) to their joints, ligaments, tendons, and skeletal system as well as other types of focal injuries or

wounds. Research also shows there is a relationship among TBI, PTSD, and pain severity.³²

Substance abuse

Substance abuse in the SOF community is common. In part, this reflects a way to cope with pain, depression, loss, and sleep impairment. However, alcohol is a depressant that disrupts sleep maintenance (fragmenting sleep periods) and sleep architecture (the pattern and duration of sleep cycles). Heavy use of alcohol also contributes to depression and many adverse physical health and interpersonal outcomes.

Depression and suicide

Depression in the SOF community is common, and there is an increased risk of depression in veterans with PTSD and/or TBI.³³ We also know there is an increased risk of suicidal behaviors following TBI.^{29,34} Suicide is a significant concern to the SOF community. Virtually all the operators reported knowing one or more comrades who took their own life during or after military service.

Posttraumatic stress disorder

While the relationship between combat and PTSD is widely acknowledged, we found relatively little evidence of this disorder, in its prototypic form, that is, with fear and avoidance as central symptoms. Virtually none of the operators reported fear or avoidance reactions related to thoughts or cues associated with their combat experiences. In contrast, most indicated they enjoyed their combat deployments and missed “the action.” Nevertheless, because of the large number of traumatic events it is important to evaluate operators for this disorder. Moreover, a body of research suggests a strong link between TBI and PTSD,^{7,15,16,35–39} including biological explanations of how TBI weakens working memory, increasing vulnerability to developing PTSD.⁴⁰

Anger

Some operators report problems with anger management and expression, which is not surprising given the high rates of TBI, pain, sleep disturbance, and depression. A targeted psychotherapy component for anger management has been shown to be effective for combat veterans.²

Worry, rumination, and stress reactivity

Many operators find they have great difficulty in civilian life managing worry, rumination, and stressful situations. The culture and demands of civilian life are very different from the military. Difficulties in this area often require counseling

to help operators adjust to challenges and develop the coping skills to manage stressors outside of a military context.

Marital, family, and community dysfunction

The divorce rate among operators is high, with some reporting the rate for their unit to be over 90%. Stressors, conflicts, and problems within interpersonal relationships at home are common, especially postdeployment and during the transition to civilian life when operators are faced with adjusting to the less collectivistic culture of civilian society. These difficulties can exacerbate sleep disturbance, depression, pain, and substance abuse. Individual and couples counseling can help veterans develop positive marital, familial, and social relationships.^{2,41,42}

Problems with sexual health and intimacy

Military veterans in general are at an increased risk for intimacy problems and sexual dysfunction^{43,44} as well as intimate partner violence and risky sexual behaviors.^{45,46} We also know that TBI can affect endocrine levels (specifically testosterone) which has obvious consequences for sexual functioning. Furthermore, it can be surmised that many of the other difficulties described here can contribute to sexual dysfunction or emotional problems with intimacy.

Being “on guard” or hypervigilant

Many operators report they are unable to sleep well at night or to relax during the day because they are still attuned to operational status: being “on guard,” alert, and reactive to every sound in their environment, outside the context of PTSD. While hypervigilance is adaptive in training exercises or a combat zone, it is not necessarily adaptive in the relatively safe environment of civilian life.

Memory, concentration, and cognitive impairments

Most operators report impairments in memory, concentration, and cognitive functioning, which are common in veterans with blast-wave exposure, TBI, psychopathology, and substance abuse.³¹ This represents an important domain for assessment in order to identify the areas of functional impairment that may be addressed through a variety of approaches.

Vestibular and vision impairments

Although poorly understood, many operators report impairments in vestibular and vision functioning, probably caused in part by the shearing effects of blast-wave exposure.

Challenges of the transition from military to civilian life

Many operators have spent virtually their entire adult lives as elite performers within the context of small units working in a military context, often in combat deployments. Life outside the military is typically more mundane and lacks the stimulus value of life-and-death situations. Critical ingredients to human health and well-being include a sense of purpose, daily structured activities, and continued sense of earned success and contribution. Work is one of the most important aspects of human life; yet, most operators struggle—at least for a while—to develop satisfying postmilitary career pathways for themselves. Many operators also struggle with the loss of purpose, loss of “tribe,” and reintegration into their own homes and families.

Existential issues common to operators

A number of common existential challenges are faced by members of the SOF community that requires nuanced and contextual awareness by clinicians.

A mindset that discounts the future. Because they have lived for so long with the specter of their own imminent death, many operators have difficulty thinking about and planning for a distant future that seems uncertain to them. This means they often have trouble implementing a daily lifestyle that will maximize health and quality of life in later years.

Loss and grief, survivor's guilt, and the meaning of killing. Operators have experienced loss of close friends and comrades in both accidents and combat. Many feel guilty for surviving themselves when others did not. They also have taken the life of enemy combatants, sometimes numbered in the tens or hundreds, and have an intimate familiarity with death and killing that is uncommon in civilian society.

Fear of developing “invisible wounds.” As the number of operators who have committed suicide or self-destructed in other ways (substance abuse and risky behaviors) mounts, and as the evidence regarding the significant toll taken by TBI grows, many operators are quietly wondering if they will be “next.” There is a pervasive awareness within the SOF community that the “invisible wounds” of war, including CTE or interface astroglial scarring, may claim them too.

Although each of these domains may also represent health-care needs for veterans and personnel of conventional forces, the collective pattern is much more pronounced and severe in SOF operators. The confluence of overlapping and interrelated factors creates a vicious cycle resulting in a SOF operator with compromised functioning and impaired ability to transition to civilian life. (See Figure 1 for a schematic model of “Operator Syndrome.”)

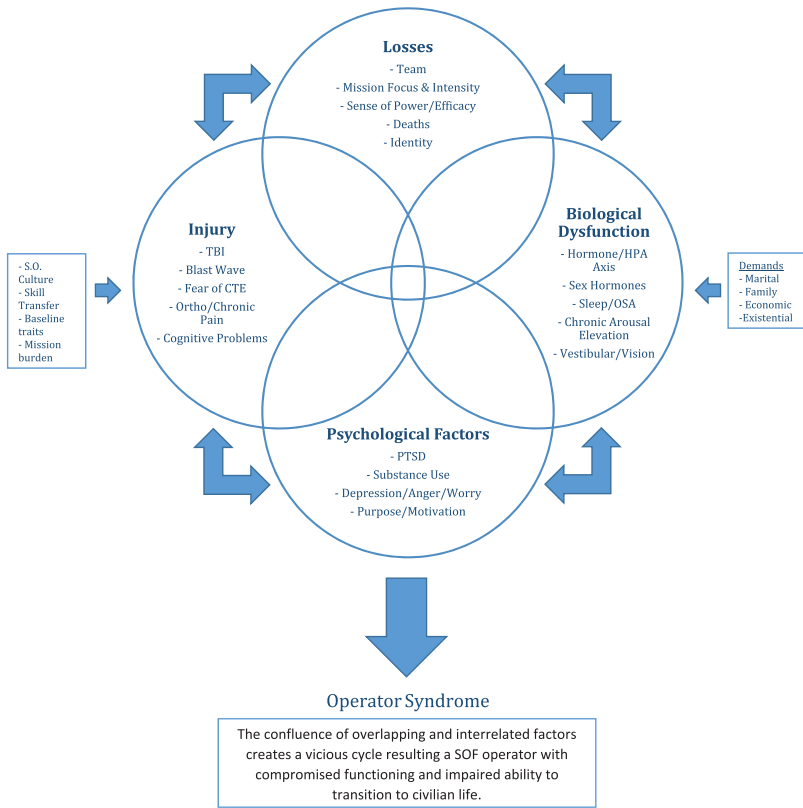


Figure 1. "Operator syndrome": Schematic model.

Discussion

In this naturalistic, observational report we identified a set of health-care difficulties within the SOF community that we and others have termed "Operator Syndrome" because of the common pattern of interrelated medical, psychological, and quality of life impairments in this unique group including TBI; endocrine dysfunction; sleep disturbance; obstructive sleep apnea; chronic joint/back pain, orthopedic problems, and headaches; substance abuse; depression and suicide; PTSD; anger; worry, rumination, and stress reactivity; marital, family, and community dysfunction; problems with sexual health and intimacy; being "on guard" or hypervigilant; memory, concentration, and cognitive impairments; vestibular and vision impairments; challenges of the transition from military to civilian life; and common existential issues. Together, these difficulties may be understood, in part, as the natural consequences of an

extraordinarily high allostatic load,⁴⁷ the accumulation of physiological, neural, and neuroendocrine responses resulting from the prolonged chronic stress inherent in a career with the military special forces over the past 20 years. As the allostatic load builds and both mind and body begin to wear down and manifest notably in a wide range of impairments during the later stages of career and early phases of transition to civilian life.

Research and comprehensive treatment programs are needed

There is a dearth of research on and appropriate treatment options for the complex needs of the SOF community. The Department of Defense has TBI-focused programs known as the National Intrepid Center of Excellence and the Intrepid Spirit Centers that provide comprehensive assessment for active duty military personnel, but these typically have long national waitlists, are not specifically tailored to the unique needs of the SOF community, and are not available to retired military personnel. Moreover, while individual health insurance may cover some of the services needed, none currently cover a comprehensive and holistic model of care.

To meet the unique needs of the SOF community struggling with “Operator Syndrome,” a uniquely tailored comprehensive programmatic approach is likely required and should include systematic data collection to further our understanding of this unique population. An intensive outpatient program is likely the most effective format for treating PTSD in conventional veterans because it improves the focus of individual patients and drastically reduces treatment drop out.⁴⁸ Extending that concept and understanding that health-care needs of SOF operators are complex and wide-ranging, we suggest the need for specialty programs that incorporate therapeutic assessment and intensive outpatient rehabilitation that engages operators in structured clinical activities for about 40 hours a week for two to six weeks, with long-term ongoing care and follow-up.^a Evaluation and treatment efforts should address each of the component areas described earlier.

Programs of this nature should be delivered to the operator (including spouses) via a centralized model of integrated clinical services by a cohesive, multidisciplinary team of medical and behavioral clinicians (neurology, endocrinology, psychiatry, psychology, orthopedics, internal medicine, physical therapy, etc.) who provide team-based care with a highly contextualized understanding of the military training, combat deployments, daily lives, and health-care issues faced by the SOF community. Such an approach would obviate the fragmentation of care typical of U.S. health-care systems, and bring all relevant clinicians together into one discussion with each operator. It is important to evaluate and address functioning in each of the following domains: neurological, endocrine, intellectual and cognitive, medical, pain, sleep, psychiatric and psychological, metabolic, microbiota, autoimmune, genetics, marital and family, social and occupational, lifestyle, exercise, sexual health, and heavy metals

exposure. It may also be important to simplify complex medication regimens associated with adverse polypharmacy.⁴⁹

While medical management should be a core feature of such programs, psychological assessment and psychotherapeutic care are essential components of the daily treatment schedule. Programs should include a standard battery of “core measures” covering relevant domains as well as individualized assessments as necessary. Ongoing assessment allows for the modification of treatment plans, personalization of evidence-based treatments, and enhanced treatment response.^{50,51} Standardized collection of clinical data (biomarkers, clinical outcomes) as a routine part of care, including longitudinal follow-up, has been used successfully by other types of behavioral health programs to improve patient outcomes and advance understanding of pathology.^{52–55}

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Declaration of conflicting interests

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Note

- a. We developed such a program, launched in January 2018 at Methodist Hospital in Houston, TX, to evaluate and treat the unique combination of medical and behavioral health issues seen in the SOF community. In July 2019, we received a grant of \$500,000 from the Texas Veterans’ Commission to fund clinical services to this community.

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