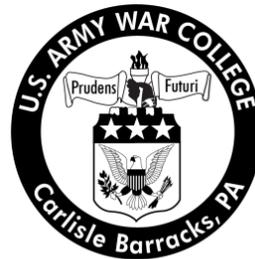


An Ounce of Prevention:
Accessions Screening to Prevent
PTSD

by

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Army National Guard



United States Army War College
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USAWC STRATEGY RESEARCH PROJECT

AN OUNCE OF PREVENTION: ACCESSIONS SCREENING TO PREVENT PTSD

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ABSTRACT

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The wars in Afghanistan and Iraq have seen an increase in the diagnoses of Soldiers with behavioral and psychological health issues, and Post Traumatic Stress Disorder (PTSD). While the United States owes nothing less than the best possible care for our veterans with these service related issues, the cost for this long term care is staggering. Studies have shown a positive correlation between intelligence levels, education levels, and personality traits to increased risk for future behavioral and psychological health issues as well as PTSD. Current recruiting and accessions procedures and standards are neither comprehensive nor strict enough to preclude prospective Soldiers who may have higher risk factors for developing long term behavioral or psychological health issues from entry into the Army. The Army must develop a thorough recruit screening process and implement strict standards for service among those applying for entry. This paper provides an overview of completed studies and current practices and provides recommendations to refine current recruiting practices in order to minimize the number of Soldiers most at risk for future behavioral and psychological health problems.

AN OUNCE OF PREVENTION: ACCESSIONS SCREENING TO PREVENT PTSD

We do not know how to treat post-traumatic stress and traumatic brain injury with the same kind of assurance that we know how to treat what I call the mechanical injuries of this war. The science is just not there.¹

—General Peter W. Chiarelli
Army Vice Chief of Staff
June 23, 2011

Many Soldiers returning home from combat operations in Iraq and Afghanistan continue to be diagnosed with Post Traumatic Stress Disorder (PTSD). The Army has developed numerous methods to combat this issue, including pre-deployment screening, PTSD awareness training, and resiliency training for Soldiers and families. There have also been great strides in breaking the stigma associated with seeking treatment for PTSD and other behavioral health issues such as depression, anxiety, and substance abuse. This change in perception has encouraged Soldiers and their families to look for signs of behavioral health problems, and to seek help when warranted. Once identified with PTSD or one of the broader behavioral health issues, Soldiers and veterans have access to either the military or Veterans Affairs health systems. Though these systems are currently overburdened, the need to provide the best care possible for our Soldiers and veterans is widely accepted by our military leadership and the nation at large, and will undoubtedly remain a high priority.

By its definition, the primary cause of Post Traumatic Stress Disorder is exposure to a *traumatic* event. Combat, by its very nature, is often made up of not one, but quite possibly, a series of traumatic events linked together during a Soldier's deployment. As long as we engage in wars and combat, we cannot prevent Soldiers from encountering

these traumatic events. What we can do, and have begun doing in earnest, is to prepare Soldiers for these events and how to deal with them as they arise.

But what if there is a population of Soldiers that, no matter how much we prepare them, are still predisposed, and at a higher risk, for developing PTSD or other behavioral health problems due to combat exposure? What if we could identify these Soldiers based on the results of a series of tests and screening procedures and preclude them from combat duty or minimize their exposure to combat? What if we took it a step further, and conducted these tests during the recruiting and accessions process and precluded these individuals from certain career fields, or from entering the Army at all?

This strategic research paper will look at current trends in the study of PTSD, with empirical research showing a correlation between certain traits as predictors of PTSD, as well as current military testing and data to determine if there is a benefit to developing new accessions standards based on these traits. As already stated, the primary factor in the development of PTSD is exposure to a traumatic event. This research paper is not meant to imply anything different, nor to assign blame or assume the root cause of PTSD is due to any individual shortcomings.

Current Trends

Estimates of the number of Iraq and Afghanistan war veterans diagnosed with PTSD remain steady at 17 - 20%.² After a slow start during the early stages of these wars, the Army has aggressively addressed PTSD and broader behavioral health issues with its Soldiers. Since 2003, the Army has implemented numerous new programs and initiatives to better prepare Soldiers to handle the traumatic events that will occur during

their deployments, as well as to better diagnose and treat PTSD and behavioral health issues that may arise during and after their deployments.

The Post-Deployment Health Assessment (PDHA), used to compare a Soldier's overall post-deployment health to pre-deployment health, spawned the Post-Deployment Health Re-Assessment (PDHRA), used to identify any health concerns 90 to 180 days after redeployment, which may not have been present immediately following their return. This allowed any symptoms of PTSD to be captured and related back to the deployment, rather than being diagnosed as newly developing issues due to some other cause.

In 2006, the Army rolled out the "Battlemind" training program, a "strengths-based approach highlighting the skills that help Soldiers survive in combat instead of focusing on the negative effects of combat."³ This training program has since been incorporated into the broader "Resilience Training" program, which is a "systematic approach to prepare Soldiers and leaders for the mental challenges they will confront throughout their military careers."⁴ Preliminary feedback shows these programs, along with the Army's Comprehensive Soldier Fitness Program, to be good tools,⁵ but there is insufficient data to show if they have reduced post-deployment incidences of PTSD or behavioral health related issues.

In order to assist Soldiers diagnosed with PTSD, the Army directed post-traumatic stress training for all its health care providers, hired an additional 250 behavioral health care specialists and 40 marriage and family therapists. These changes allowed the Army to maintain a force of over 200 behavioral health personnel deployed in support of Operations Iraqi Freedom/New Dawn and Enduring Freedom to

serve Soldiers during their deployment.⁶ These personnel have also assisted in the Army's PTSD "Chain Teaching Program," educating over 1 million Soldiers in recognizing PTSD signs and symptoms.⁷

Even with these new programs and initiatives, the Army remains woefully undermanned to handle the treatment of Soldiers with PTSD and behavioral health issues. A study released in December 2009 called the Army's mental health care system "understaffed, under tremendous pressure, and near the breaking point."⁸ For example, at the time of the study, each Army behavioral health case worker at Schofield Barracks was handling 256 cases. The Army standard is not more than 50 cases per case worker.⁹ The drawdown of troops in Iraq, and the scheduled disengagement from Afghanistan in 2014 will lead to an improved situation in the long term, but may result in increases in cases as Soldiers return from the fight in more concentrated numbers. This is an area that must be addressed by Army leadership in order to increase staffing to appropriate levels.

To date, there have been no studies to compute the total implementation costs of the Army's new PTSD training programs, policies, and procedures, but the price is undoubtedly high. There are, however, immediate and measurable costs for those Soldiers diagnosed with PTSD and undergoing treatment. A 2008 Rand study estimated that costs relating to direct treatment and lost productivity could be up to \$6 billion every two years.¹⁰ The costs do not cease when Soldiers leave the Army. Veterans diagnosed and receiving disability payments for PTSD may receive up to \$1.5 million in payments over the span of their lifetime,¹¹ and a Veterans Affairs Inspector General report covering the years 1999 - 2004 revealed the number of veterans

receiving VA disability benefits for PTSD rose from 120,265 to 215,871, with the total outlay of benefits rising from \$1.72 billion to \$4.28 billion per year.¹² These numbers will undoubtedly continue to rise as more and more veterans of our most recent wars file claims. While the actual dollar amounts are staggering, they do not take into account the immeasurable cost it will have on these veterans as they seek to transition back to civilian life to live normal, productive lives after their service to our country.

The Army is now in a position where it spends untold resources on training all its Soldiers and leaders to be more resilient, and how to spot and react to signs of behavioral health distress or PTSD in themselves or their fellow Soldiers. If and when Soldiers develop behavioral health or PTSD symptoms, they then enter an overburdened Army health care system struggling to maintain pace with an increasing workload. Continuing on this path will further strain diminishing resources in an era of fiscal constraints, and leave a legacy of disabled veterans for years to come as they continue to seek treatment.

All options must be thoroughly reviewed to find possible actions that may be taken to effectively reduce the number of Soldiers diagnosed with PTSD. While training Soldiers for the rigors of battle and the traumatic events they may witness is vital, we must not forget the accessions process that allows a prospective Soldier to be screened and placed in the Army.

Historical Military Testing for Accessions

Cognitive Testing. The idea of screening for predictors of behavioral or mental health problems is not new. For the last hundred years,¹³ the military has experimented with intelligence, psychological, and personality testing and screening for its applicants. Though the primary focus of the cognitive testing has been to screen for military

suitability, trainability, and retention; psychological testing and screening has been conducted specifically to preclude those inductees or applicants for service who are likely to be psychologically unfit for military service.

Even with the relaxed entrance standards enacted during World War I, the medical screening process precluded 47% of all prospective service members, with mental health defects accounting for 6%. Beginning in 1917, in an effort to better refine the screening process, the Army developed and administered intelligence tests to approximately two million draftees.¹⁴ The data gathered from the testing showed a positive correlation between higher measured intelligence levels and ability to make training progress. After the war, figures showed that Soldiers with “neuropsychiatric” conditions made up 10% of all World War I casualties resulting in disability. While the intelligence testing results were not measured against the neuropsychiatric casualties, the psychological screening data captured during the accessions process showed that a large percentage of these casualties had some sort of preexisting mental health symptoms that were not captured during the accessions screening process.¹⁵

The military took the lessons from World War I, and applied them in screening applicants for service in the interwar years. During this period, psychological testing for psychiatric disorders and character flaws resulted in a 10 to 15% rejection rate of military applicants.¹⁶ However, as manpower requirements increased due to the buildup for World War II, standards were again relaxed. Many men previously denied entrance to military service for psychological issues were retested, and more than 50% of these men were found acceptable for some sort of military service.¹⁷ These newer standards were retained, and the post World War II era saw psychiatric evaluations integrated into

the medical examination portion of the accessions process. However, only those applicants whose psychiatric disability “incapacitated” them in their civilian lives were being disqualified. Thus, the disqualification rate fell to less than 0.2% in the 1950s.¹⁸

After the Korean War, the individual branches of the military continued to experiment with different aptitude and psychological tests and procedures, all of which were aimed at reducing attrition and finding trainable Soldiers, Sailors, Airmen and Marines. However, none of these tests were standardized nor used as a tool to specifically preclude applicants from entry into the service. For that purpose, the military adopted the four-part Armed Forces Qualification Test (AFQT)¹⁹ as the standard screening test for entrance into military service. While not an exact match for a standardized IQ score,²⁰ there is a strong correlation, and it was recognized as a good measurement of cognitive mental aptitude. The AFQT remained the standard until 1976, when the Armed Services Vocational Aptitude Battery (ASVAB) was introduced.

The ASVAB now is made up of ten subtests, and measures “specific cognitive abilities and aptitudes predictive of entry-level Soldier performance.”²¹ Some of these subtests are used to refine certain jobs an applicant might be best suited for, but four of the ten subtests - arithmetic reasoning, math knowledge, word knowledge, and paragraph comprehension, combine to produce the new AFQT, which provides a measurement of general cognitive ability²² and is used in conjunction with education level to categorize applicants for military service.

The new AFQT model has served the Army well for what it was designed to do. For recruiting purposes, it places applicants in one of five categories: Category I - 93rd to 99th percentile, Category II - 65th to 92nd percentile, Category IIIA - 50th to 64th

percentile, Category IIIB - 31st to 49th percentile, and Category IV - 21st to 30th percentile. When coupled with level of educational achievement (Tier 1 - high school graduate, Tier 2 - alternative high school credit/GED, Tier 3 - non-high school graduate) it performs as an outstanding predictor of proficiency in a given Army career field,²³ as well as a predictor of whether or not the applicant will make it through his or her enlistment period.

Non-Cognitive Testing. In addition to longstanding cognitive tests for Soldier entrance and placement, the Army has recently begun developing non-cognitive measures in its screening processes. In 2007, as part of the Army Research Institute's long-term projects entitled "Validating Future Force Performance Measures" and "Expanded Enlistment Eligibility Metrics," over 11,000 new Soldiers participated in several non-cognitive personality tests to evaluate the prediction potential of those tests for Army success.²⁴ These Soldiers were administered the following tests: Assessment of Individual Motivation (AIM), Tailored Adaptive Personality Assessment (TAPAS), Rational Biodata Inventory (RBI), Work Preferences Assessment (WPA), Army Knowledge Assessment (AKA), and a predictor situational judgment test (PSJT).²⁵ Early results of these tests showed the AIM and TAPAS as the most reliable measures of non-cognitive traits in correlation to recruit success.

Due to the success of the AIM and TAPAS testing, the Army implemented the Tier Two Attrition Screen (TTAS) to utilize the AIM as a discriminator for prospective recruits who were classified as Tier 2 (applicants with alternative high school credit/GED), as well as the Tier One Performance Screen (TOPS) pilot program to administer the TAPAS to certain non-prior service Army, Army Reserve, and National

Guard applicants across the country.²⁶ Through the end of 2010, over 100,000 applicants had been administered the AIM and TAPAS as part of the recruiting accessions process,²⁷ providing a wealth of data for the Army to analyze in future studies.

Over the years, the Army has successfully utilized both cognitive and non-cognitive examinations and screening procedures in its quest to find the most qualified personnel to serve in its ranks. It has shown the ability to adjust entrance requirements based on the needs of the service in times of growth and contraction and has shown a willingness to investigate non-standard measures of quality in its recruits; but the focus remains on quality and retention. This has been a perfectly sensible approach throughout the Army's history and remains so now, especially in a resource constrained environment. When Soldiers fail to complete their training, separate from the service prior to the end of their enlistment contract, or are unable to perform in their chosen career field; the Army must expend more resources to replace or retrain these Soldiers. As successful as these processes have been, the Army must now be willing to further refine its entrance examinations and selection criteria to screen for potential future behavioral health issues such as PTSD.

Research in Predicting PTSD and Behavioral Health Issues

Post traumatic stress disorder has existed for as long as there have been traumatic events. Previously known as "shell shock" or "battle fatigue syndrome," it wasn't until Vietnam that the term PTSD came into wide use. Regardless of the terminology, the question remains: Why do some veterans return with PTSD while others do not? The research outlined below attempts to answer that question.

As interest in the study of PTSD and its possible predictors has increased in recent years, there is a wealth of newly published and ongoing research on the topic. There is also a great deal of historical research on psychological health as it relates to intelligence and personality traits. For the purpose of this research paper, I will focus on research conducted on PTSD and broader military related psychological and behavioral health issues as they correlate to cognitive measures of intelligence and non-cognitive measures of personality. The three specific areas of review are intelligence (cognitive), personality (non-cognitive), and resilience (non-cognitive).

Intelligence Research. As demonstrated in the previous section, intelligence is a key factor and fair predictor of military success, and has been used as a discriminator in Army accessions for over 100 years. In addition to providing a measurement of the ability to learn military skills, intelligence seems to have a fairly high correlation to the development of PTSD and certain behavioral health problems.

In an attempt to answer why some veterans developed PTSD while others, exposed to the same or similar events did not, a 1991 study by Orr and Pitman²⁸ examined the records of a group of 250 Vietnam War veterans from New Hampshire. Of these 250 veterans, 164 had been diagnosed with PTSD and were receiving disability benefits. Among other variables, the study looked at the veterans' pre-induction AFQT scores, self reported school difficulties, and psychiatric histories. The primary findings were that veterans with PTSD tended to have lower AFQT scores, as well as more reported difficulties in school than those veterans without PTSD, the conclusion being that "lower cognitive ability appears to be associated with an increased vulnerability for developing PTSD upon exposure to a traumatic event."²⁹

A 1998 study by Macklin et al.³⁰ of 90 Vietnam veterans provided similar results. Using pre-combat AFQT scores as a primary measurement, veterans diagnosed with PTSD were found to have lower pre-combat intelligence, fewer years of education, and lower post-combat intelligence than their fellow veterans who did not have PTSD. The study also concluded, and was careful to note, that neither PTSD nor exposure to traumatic events lowers intelligence. In an interview, the authors reiterated that while veterans diagnosed with PTSD had lower levels of measured IQ, “PTSD is caused by traumatic events, not lower intelligence.”³¹

A more recent study evaluated a group of former World War II veterans. Of the 25 subjects in the study, all had combat experience and were held as prisoners of war in World War II or the Korean War. The findings in this study revealed that the IQ level of those veterans who did not develop PTSD was “significantly higher”³² compared to those who did. Whereas the previous two studies of Vietnam veterans cited lower IQ levels as predictors of PTSD, this study concluded that those who developed PTSD had “average” IQs while those who did not had “higher IQs than average.” While the sample size of 25 may need to be expanded to provide further evidence, the study found that higher IQ levels may protect against developing PTSD.

The studies above focused on PTSD, but Orr and Pitman also noted in their 1991 study, that lower cognitive ability may be associated with increased risk for developing other psychological problems as well. They cited the Centers for Disease Control’s 1988 large scale study of Vietnam veterans, which found “veterans with lower AFQT General Technical scores at time of enlistment had a greater likelihood of reporting poorer psychological status when discharged from the military.”³³

Personal Experience. In addition to the formal studies above, I can provide personal experience to the correlation between cognitive ability and behavioral health issues. As the personnel officer for the Oklahoma Army National Guard, I was responsible for tracking and assisting in the medical processing for an Infantry Brigade Combat Team mobilization and deployment to Afghanistan. During the medical processing at the mobilization station, a number of Soldiers were diagnosed with “behavioral health issues” based on a screening process developed by the mobilization station’s Chief Psychologist. The majority of these Soldiers were eventually cleared for deployment after a psychological consultation and interview. However, a larger number than expected were disqualified for deployment to Afghanistan with their unit and were released from active duty back to National Guard control.

In the course of gathering information on these Soldiers in order to release them from active duty, I noticed that there seemed to be a disproportionate number of Soldiers with AFQT scores near the bottom of the allowable range for enlistment. Of the non-deployable Soldiers in my sample, 46% were in AFQT Category IIIB (31st to 49th percentile) and 6% were in AFQT Category IV (21st to 30th percentile). The percentages for National Guard enlistment in Categories IIIB and IV for fiscal years 2009 and 2010, the enlistment years of these Soldiers, averaged 27% and 1% respectively.³⁴ If intelligence, as measured by AFQT, did not impact behavioral health, the percentage of Soldiers being disqualified should have represented a normal distribution of AFQT scores. In my experience here, the numbers were higher than I expected. The research cited earlier validates my thoughts at the time. However,

intelligence alone cannot account for why certain Soldiers contract PTSD and others do not. Researchers continue to look for other links to explain the disorder.

Personality Traits. Philosophers, psychiatrists, and psychologists have been presenting models for personality traits since Hippocrates described the “four humours,” of sanguine, choleric, melancholic, and phlegmatic.³⁵ More recent, and more widely accepted models focus on a number of personality traits ranging from two, to sixteen, or more, and measured by various self-reporting questionnaires. Prior to reviewing the research being done in this field, it is important to present some very basic background information on the most widely utilized personality measurements and the tools most often utilized to capture those measurements. The theories and models outlined below have been used in the PTSD research to be discussed later in this section.

A very useful model that offers a broad, standard taxonomy of personality traits is the Five-Factor Model, or “Big Five.”³⁶ The Five-Factor Model was developed over a period of 30 years, with some of the earliest work being conducted by two U.S. Air Force researchers in 1962.³⁷ Building on their findings, numerous psychologists continued to narrow hundreds of different personality trait descriptions into five dimensions. They left these dimensions, or factors, very broad so that they would encompass the more specific traits being measured in the field. The five factors are: extraversion, agreeableness, conscientiousness, neuroticism, and openness/intellect.³⁸ One of the benefits of the Five-Factor Model is that it can be measured with numerous methods, such as the Big Five Aspect Scales (BFAS), the International Personality Item Pool (IPIP), or the Revised Neuroticism, Extraversion, Openness Personality Inventory (NEO-PI-R).³⁹

Over a similarly lengthy period as in the Five-Factor Model, Hans Eysenck theorized that there are only three distinct personality dimensions: Psychoticism versus impulse control; Extraversion-introversion; and emotional stability versus instability, or Neuroticism. He labeled this theory as the “PEN”⁴⁰ model of personality. His original research only accounted for extraversion and neuroticism, but he found he needed the third factor of psychoticism, to fully explain certain tendencies.⁴¹ Examples of the traits of psychoticism include recklessness, lack of “common sense,” and inappropriate emotional expressions.⁴² Extraversion-introversion is a measurement not only of those tendencies which we associate with outgoing or shy people, but also of their ability to insulate themselves from overstimulation. As for neuroticism, a simple explanation of Eysenck’s definition relates to how calm a person is, both generally and when confronted with situations of varying degrees of distress.⁴³ The most common method of testing for the PEN model is either the original or revised Eysenck Personality Questionnaire (EPQ),⁴⁴ though there are other tests which measure the three factors of psychoticism, extraversion, and neuroticism.

As with Hans Eysenck, psychologist Auke Tellegen also derived a three factor model to explain individual personality dimensions. Tellegen’s three factors are: Positive Emotionality (PEM), as a measurement of perceived well-being, social potency, social closeness, and achievement; Negative Emotionality (NEM), synonymous with neuroticism, as a measurement of reaction to negative emotions such as fear, anxiety, and anger; and Constraint (CON) a measurement of ability to control impulses, and adhere to traditional values and standards.⁴⁵ The Multidimensional Personality Questionnaire (MPQ)⁴⁶ is the standard device used to measure PEM, NEM and CON.

There are two versions, the standard version with 276 questions, and a brief version with 155 questions.

While not a model of personality on its own, the Minnesota Multiphasic Personality Inventory (MMPI) measures many of the traits listed above, as well as others. First published in 1942 to assist with the diagnosis of mental disorders and appropriate treatment methods,⁴⁷ it has since found favor in assessing the personality traits of potential candidates for various jobs, specifically in high-risk occupations such as law enforcement or other public safety related fields.⁴⁸ The MMPI has had a few revisions in its 70 years, and is now offered in two forms: the MMPI-2, unveiled in 1989 is made up of over 550 questions, and the MMPI-2-RF, which debuted in 2008, is a restructured version with only 338 questions.⁴⁹ Both versions provide a measurement of ten clinical scales describing the test taker's personality traits. These scales measure such areas as depression, hysteria, psychopathic deviance, psychasthenia (phobias and excessive anxiety), and social introversion, among others. These scales can be compiled in various configurations to measure certain personality dimensions or traits, to fit certain models such as the Five-Factor Model or Eysenck's PEN model.⁵⁰ The test results also provide a score on three validity scales to measure the test taker's honesty in answering the test questions. Though the test was somewhat of a failure in regard to its original purpose of diagnosing schizophrenia, it has become widely accepted as a reliable personality and emotional measurement tool.⁵¹

One item of note about the models and methods above is that regardless of the number of dimensions or traits, the one commonality is neuroticism. The Big Five and PEN models utilize the term neuroticism; Eysenck correlates his Negative Emotionality

(NEM) trait with neuroticism; and the MMPI measures neuroticism with its Hysteria (Hy) scale. As defined by Eysenck, neuroticism is characterized by anxiousness, moodiness, worrying, and frequent depression. This will come into play quite frequently in the studies of personality and PTSD which follow.

Personality Trait Research. Because we are still unsure if the development of PTSD causes a change in personality makeup, studies that examine a person's personality after PTSD diagnosis may not be accurate indicators of vulnerability. Because of this, I will only highlight studies which conducted personality evaluations prior to exposure to the event(s) which later resulted in a PTSD diagnosis. These studies utilize the measurements described above, as well as others, and are being published more and more frequently as new data becomes available.

Two articles published in the American Journal of Psychiatry compare pre-combat personality traits, measured by the MMPI, with post-combat PTSD diagnoses. The first, a 1993 study by Schnurr, et al., studied 131 Vietnam and Vietnam era veterans who had taken the MMPI while students in college.⁵² The second, a 2000 study by Bramsen and colleagues, studied 572 Dutch Royal Army soldiers who participated in a United Nations peacekeeping operation.⁵³ "Both of these studies, though they utilized different versions and clinical scales of the MMPI, found a significant correlation between higher scores on the psychopathic deviance and hypochondriasis scales with later onset of PTSD diagnoses. Narrative descriptions of people with high scores on the psychopathic deviance and hypochondriasis scales correspond directly to the definitions of neuroticism."⁵⁴ Like the studies concerning IQ which were highlighted earlier, both of these studies were clear in reiterating that while

certain personality traits may be predictors for PTSD, it is the traumatic event or events that a person is exposed to which triggers the onset of PTSD.

A 1999 manuscript published by Schnurr and Vielhauer, as part of the edited work *Risk Factors for Posttraumatic Stress Disorder*,⁵⁵ analyzed multiple studies of personality traits as possible precursors to PTSD. Utilizing the Five Factor Model as a basis for their analysis, the authors concluded that there was in fact ample evidence linking personality and PTSD, stating: “The most striking finding is that neuroticism and its component traits are consistently associated with PTSD.”⁵⁶ However, as the vast majority of the studies they analyzed were cross-sectional in nature, they warned that they could not yet state that pre-traumatic differences in personality were linked to PTSD, and called for more longitudinal studies to be conducted.

Five years after the Schnurr and Vielhauer manuscript, in an article published by the National Center for Post-Traumatic Stress Disorder, Mark Miller utilized Tellegen’s three-factor model of personality to analyze the relationship between personality traits and PTSD.⁵⁷ Drawing data from fifteen different studies, most of them longitudinal in nature, Miller found evidence of a “significant association between pre-trauma NEM [Negative Emotionality], and the subsequent development of PTSD.”⁵⁸ In addition to being a possible *predictor* of post-trauma onset of PTSD, his analysis of these studies also pointed to a possible link between high Negative Emotionality and the *severity* of PTSD. As, the three-factor model defines Negative Emotionality, as synonymous with neuroticism, we again see a link between that personality trait and the possible development of PTSD.

Resiliency Research. A more recent trend in the behavioral health arena, especially regarding military fitness, has been in the study of resiliency. The U.S. Army defines resilience as: “the process of adapting well in the face of adversity, trauma, tragedy, threats, or even significant sources of stress -- such as family and relationship problems, serious health problems, or workplace and financial stressors.”⁵⁹ More succinctly, it is the ability to "bounce back" after a difficult or traumatic event or experience. In response to rising levels of PTSD diagnoses, divorce rates, and suicides, the Army unveiled the Comprehensive Soldier Fitness (CSF) program. Started in 2009, the intent of the program was to teach Soldiers how to better deal with adversity by building resiliency.

The CSF program may indeed help Soldiers become better equipped to “bounce back” after a traumatic event, and the Army has recently released a report touting the effectiveness of the training as a whole.⁶⁰ However, as with PTSD and larger behavioral health issues, what if certain individuals are inherently less capable of developing resilience?

As the research reviewed earlier has shown, there seems to be a link between neuroticism and the development of PTSD, and at least one study, released in 2011, seems to show a similar correlation regarding neuroticism and lower levels of resiliency. In a study conducted by Johnson et al., and published in the journal *Military Medicine*, researchers developed the Response to Stressful Experiences Scale (RSES), in order to “evaluate individual differences in cognitive, emotional, and behavioral responses to stressful life events.”⁶¹ Utilizing the RSES, 870 US military personnel were tested and evaluated. The RSES scores showed positive correlation in areas such as resiliency

and hardiness, and negative correlation with “measures of PTSD and depressive symptoms as well as with maladaptive personality factors (e.g., neuroticism).”⁶²

As with the Johnson et al. study above, the term “hardiness” has become more and more associated with resiliency. A recent Canadian study, published in 2011 by Skomorovsky and Sudom in *Military Medicine*,⁶³ included hardiness along with the Five-Factor Model of personality to study the psychological well being and resiliency of officer candidates in the Canadian Armed Forces. The study defines hardiness as comprising three dimensions: commitment (viewing life activities as important and meaningful), control (sense that you can influence the events of your life), and challenge (perceiving stressful events as challenges).⁶⁴ Utilizing a military hardiness scale developed during a study of US Army Soldiers in 2006, the researchers found that hardiness was positively correlated with measurements of “life satisfaction,” “psychological health,” and “training satisfaction.”⁶⁵ Personality also played a major factor, with neuroticism being negatively correlated, with each of these areas as well as in the area of “training stress.”⁶⁶ While the study concluded that hardiness and personality played the main roles in the psychological well being of the subjects, Skomorovsky and Sudom stated: “it is important to note that personality (specifically neuroticism) remained significantly correlated with psychological well being,”⁶⁷ even when hardiness was statistically controlled.⁶⁸ While the studies in resiliency and hardiness are fairly new, they seem to offer excellent promise as predictors of PTSD.

Whether measuring cognitive ability as levels of intelligence, or non-cognitive traits such as personality or resilience, the bulk of the research shows a correlation between certain testable abilities and traits and the increased risk for PTSD. However,

one strong correlation, and a recurring theme in the non-cognitive studies, remains the negative correlation of neuroticism with psychological wellbeing -- whether that be the onset of PTSD, or measures of resiliency or hardiness. While some correlations are stronger than others, and would need refinement to develop a good model for military use, there seems to be ample evidence to justify pursuing that end.

Current Military Testing and Data

As discussed, the Army has been gathering cognitive and non-cognitive data on Soldiers for years. For cognitive data, the Army can draw on over 50 years of Armed Forces Qualification Test (AFQT) scores on every Soldier who has entered the service. For non-cognitive data, the Army began test phases of the Tier Two Attrition Screen (TTAS) and Tier One Performance Screen (TOPS) programs as early as 2004, with the Assessment of Individual Motivation (AIM) test being administered to certain groups of incoming Soldiers as early as 2000.⁶⁹ Further, the Army has been gathering non-cognitive data on applicants for the Special Operations Forces (SOF), utilizing the Minnesota Multiphasic Personality Inventory (MMPI), since the early 1990s. Aside from the MMPI for SOF applicants, these tests and data have historically been compiled and studied to solely measure Army retention and job performance. While this is important, especially in today's constrained resource environment, the Army must capitalize upon this wealth of data, specifically in the area of behavioral health and PTSD.

Towards that end, in 2011 the Army made a huge leap in the right direction in announcing the Study to Assess Risk and Resilience in Servicemembers (STARRS).⁷⁰ Set to run through 2014, and billed as the largest study of its type ever conducted among military personnel, its overarching goal is to: "identify factors that help protect a Soldier's mental health and factors that put a Soldier's mental health at risk."⁷¹ One of

the primary components of STARRS, the Historical Data Study, will draw from 38 databases with over 3,000 different types of information, encompassing over one billion records.⁷² While the study is primarily being framed as an in-depth look at suicide prevention and resilience factors, the “All Army Study” component of the program will look at: “psychological and physical health; events encountered during training, combat, and non-combat operations; and life and work experiences across all phases of Army service.”⁷³ As of now, the study does not address PTSD specifically, but does utilize hospitalized Soldiers who attempted suicide in their case studies.⁷⁴ Hopefully, as all areas under review relate in some way to PTSD, the Army will expand the scope of the study to include those Soldiers diagnosed with PTSD, and shed further light on the issue.

Recommendations

The Army is faced with an excellent opportunity to conduct further research in predictors of PTSD by utilizing the STARRS program. This opportunity should be capitalized upon. Based on the research outlined earlier on both cognitive and non-cognitive predictors of PTSD, I feel confident that any research conducted with the large amount of data available in the STARRS program would validate and refine what I have outlined here. Particular attention must be paid to measurements of neuroticism, as the correlation between higher measured levels of that personality trait and the diagnosis of PTSD is a common thread throughout the research literature reviewed.

Once the correlating relationships have been refined, new accessions standards could be developed to screen potential applicants for service. The Army quite often changes recruiting goals and standards, making the necessary changes relatively easy to implement. Difficulty could occur if the new standards were to shrink an already

small pool of eligible applicants for service. A 2009 study reported that 75% of Americans between the ages of 17 and 24 were not fit for military service due to physical fitness, education level, or legal trouble.⁷⁵ Additional accessions standards would predictably do nothing to alleviate this problem.

As with all Army accessions standards, there is room for identifying levels of risk to allow for waivers of the standards at certain levels. Initial feedback from the Army's Comprehensive Soldier Fitness Program shows that Soldiers can improve their levels of resiliency. The Skomorovsky and Sudom study states: "Empirical data have demonstrated that a training program can increase the level of individual hardiness."⁷⁶ Soldiers who possess certain levels of risk for contracting PTSD could be accepted into the Army, but could receive training to build higher levels of resilience.

While this process would be easy enough to implement from an administrative standpoint, it does pose risk in the areas of strategic messaging and public relations. While the studies have shown, and I have attempted to point out, that regardless of a person's cognitive level of ability or inherent non-cognitive traits, PTSD is primarily caused by exposure to a traumatic event. That message may be lost on a wider audience. Even though the Army currently screens all accessions based on cognitive ability, and applicants for certain positions, such as Special Operations Forces, based on non-cognitive personality traits, linking those issues to PTSD may cause a level of discomfort for those Soldiers and veterans who have been diagnosed with PTSD. Great care would have to be taken when implementing new accessions standards to ensure that our Soldiers and veterans understand that they are not to blame for their PTSD.

With the data at hand, there is no reason the Army should not expand the STARRS program to conduct research for predictors of PTSD. If that research confirms previous studies, the Army could then screen for those predictors during the accessions process. For those Soldiers who are already in the Army, continued training in Comprehensive Soldier Fitness should be conducted to mitigate any risks. While conducting this research and implementing these standards, every effort should be taken to ensure those who already suffer from PTSD are not forced to shoulder the blame for their condition. The cost for failing to take these actions continues to rise, and may become insurmountable.

Conclusion

There is ample evidence to suggest a direct correlation between PTSD and other behavioral health issues with certain levels of cognitive ability, certain personality traits, and levels of measured resilience. Just as we screen applicants for orthopedic and cardiovascular health, so too should we screen them for certain psychological and personality traits. The way ahead is clear -- the Army must compile and analyze all measured cognitive and non-cognitive data at its disposal and compare that to current PTSD data. Whatever correlations exist must be utilized in a more robust screening process during the recruiting and accessions process for service applicants. Based on the data collected and research completed, there may still be a place in the Army for applicants with cognitive abilities and personality traits that place them at higher risk, but they must first go through more extensive resiliency training programs, before being placed in combat roles.

As we draw the Army down to pre-9/11 strength, there is little room for error in our accessions processes. While we may never be able to completely prevent Soldiers

from contracting PTSD, we should take every precaution to preclude those applicants who are at high risk. Every Soldier we admit to service who has a greater propensity for contracting PTSD may later become a burden on our already limited resources. That is something we just cannot afford.

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