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Book Author(s): Sarah O. Meadows, Laura L. Miller and Sean Robson

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1. The U.S. Military, Resilience, and Total Force Fitness

U.S. military personnel have been engaged in operations in Central Asia and the Middle East for the past decade. Members of the armed forces also deploy to other regions of the world. Many aspects of deployments have the potential to contribute to individual stress, such as uncertainty about deployment time lines; culture shock in theater; fear of or confrontation with death or physical injury; environmental challenges, such as extreme climates and geographical features; austere living conditions; separation from friends and family members; and reintegration after deployment. Service members and their families also manage other military-related stressors, such as frequent relocations, long work hours, and the additional family separations associated with unaccompanied tours and domestic training exercises. Some service members and their families may cope well or even thrive as they overcome adversity and accomplish challenging tasks. However, some may suffer negative consequences as a result of military-related stressors, such as physical injury, including traumatic brain injury; depression, anxiety, or other mood disorders; post-traumatic stress disorder (PTSD); spiritual crises; substance abuse; family dysfunction; marital problems and dissolutions; social isolation; and, in extreme cases, even suicide or suicide attempts (Tanielian and Jaycox, 2008; Ramchand et al., 2011). With the aim of preventing rather than simply responding to such deleterious outcomes, the study of resilience is of paramount importance.

This RAND Project AIR FORCE (PAF) report represents the overarching synthesis of a series of eight reports on resiliency. All nine reports adopt the Air Force definition of resilience: “the ability to withstand, recover and/or grow in the face of stressors and changing demands,” which, as this report will show, encompasses a range of definitions of resilience represented throughout the scientific literature. By focusing on resilience, the armed forces aimed to expand their care to ensure the well-being of military personnel and their families through preventive measures and not just by treating members after they begin to experience negative outcomes (e.g., depression, anxiety, insomnia, substance abuse, PTSD, or suicidal ideation). Below, we provide the necessary background for this report including a brief description of resilience research in the military, define the related concept of Total Force Fitness (TFF), define the objective of this resilience study, and point out some possible limitations of our approach.

Suicide Prevention and Military Interest in Resilience Research

In the 20th century, scientific interest in resilience tended to focus on attempts to understand why some children raised in poverty or under great adversity grew up to live successful lives whereas others struggled mentally, physically, or economically (Simmons and Yoder, 2013). However, after such events as the September 11th attacks, large natural disasters, such as Hurricane Katrina, and military operations in Iraq and Afghanistan, U.S. researchers began to focus on resilience following traumatic events in adulthood (Simmons and Yoder, 2013).

For the military, continuous stressful operating conditions have become a valuable setting not only in which to study resilience but also to apply existing knowledge. Many service members and their families can deal with problems in their lives; some even thrive because they survive demanding experiences. However, the military's focus on resilience seeks to reduce the number of those who cannot cope effectively and those whose mental and physical well-being suffers as a result of stress and strain.

The U.S. military's large-scale interest in resilience can be traced to leaders' alarm at the suicide rate among U.S. service members—deaths occurring despite concerted efforts to (1) educate the force about suicide risk, (2) identify at-risk individuals, (3) increase access to mental health care, and (4) reduce the stigma that attaches to those who seek help. In 2008, the reported suicide rate was highest in the Marine Corps and the Army (19.5 and 18.5 suicides per 100,000, respectively), followed by the Air Force and the Navy (12.1 and 11.6 suicides per 100,000, respectively) (Ramchand et al., 2011, p. xiv). The Army's suicide rates hit a 28-year high in 2008 (Kuehn, 2009), and Army leaders looked to the concept of resilience for a fresh approach to the problem (Simmons and Yoder, 2013). Army Chief of Staff General George W. Casey, Jr., turned to the founder of positive psychology, Martin Seligman, and his Penn Resiliency Program (PRP) for insights (Seligman, 2011).² Ultimately, General Casey invested \$145 million for the PRP to develop the Global Assessment Tool as a test for soldier resilience and psychological health, basic and advanced online resilience-related instruction for soldiers following the test, and an in-person master resilience training (MRT) program for noncommissioned officers (Seligman, 2011). General Rhonda Cornum became director of this new Comprehensive Soldier Fitness program (now Comprehensive Soldier and Family Fitness and discussed further in Chapter 2), and her own career served as a public example of the resilience ideal. As a major, Cornum served as a flight surgeon in the 1991 Persian Gulf War, where she survived a helicopter crash, multiple injuries (including broken arms that

² Other major Army efforts at this point included a five-year \$50 million agreement with the National Institute of Mental Health for a prospective study of suicidal thoughts and actions among soldiers (Kuehn, 2009).

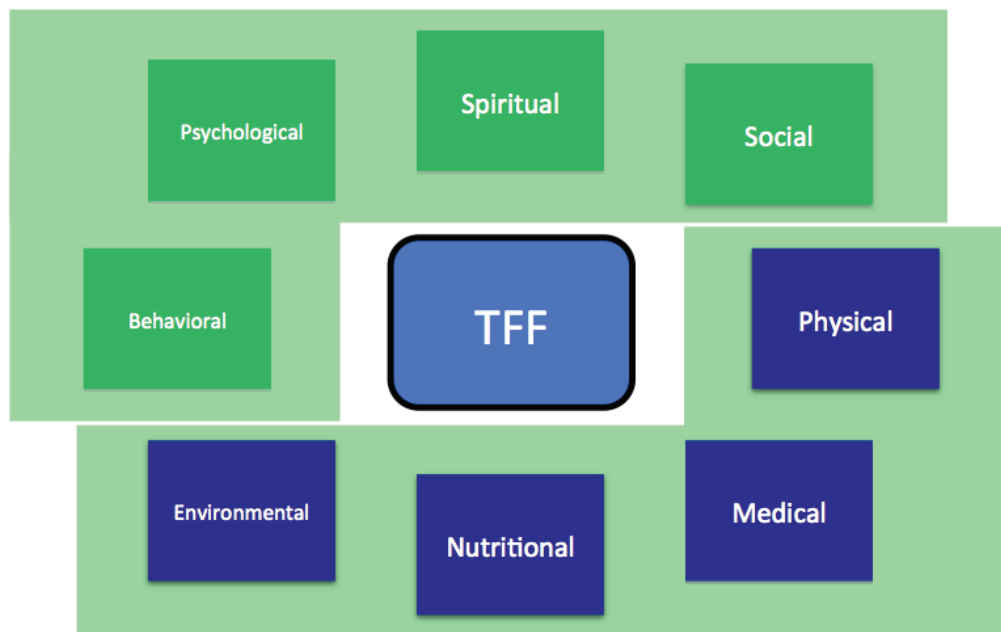
her captors left untreated for days), and more than a week as a prisoner of war (Cornum and Copeland, 1993). The Army's attention to resilience placed a spotlight on resilience scholarship that drew the other services' attention as well.

The Department of Defense Concept of Total Force Fitness

At this time, DoD more broadly was also taking steps to adopt and apply aspects of positive psychology and resilience research. In 2009, Admiral Michael Mullen, Chairman of the Joint Chiefs of Staff (JCS) from 2007 to 2011, asked the Consortium for Health and Military Performance (CHAMP) at the Uniformed Services University of the Health Sciences to develop a comprehensive Total Force Fitness (TFF) concept. Admiral Mullen outlined the TFF concept in a special issue of the journal *Military Medicine*: "A total force that has achieved total fitness is healthy, ready, and resilient; capable of meeting challenges and surviving threats" (Mullen, 2010, p. 1). Thus, this notion of "fitness" is directly related to the concept of resilience. Together with the Samueli Institute, the Institute of Alternate Futures, and members of the JCS, CHAMP hosted a workshop with over 70 experts to define what the military should focus on to keep its personnel resilient and flourishing within that operating environment. Out of that workshop emerged working groups, members of which authored journal articles that were subjected to the scientific peer review process. The ultimate product of that effort, the special issue of *Military Medicine*, reflected the collective effort of scholars, health professionals, and military personnel who drew on the research literature to outline what they saw as eight domains of TFF. These domains, shown in Figure 1.1 are medical, nutritional, environmental, physical, social, spiritual, behavioral, and psychological.

The first four domains, shown in blue, were described as elements of fitness of the body; the latter four, shown in dark green, are described as elements of fitness of the mind. This framework expanded the traditional conceptualization of resilience by looking beyond the psychological to also emphasize the mind-body connection and the interdependence of each of the eight domains. Note that the idea of total fitness applies to collectivities as well as individuals, hence the term total *force* fitness. Fitness, then, is relevant to active duty and reserve and guard Airmen, civilian Airmen, as well as their families. Ultimately, TFF is integral to the Air Force because it sets that stage for readiness.

Figure 1.1. DoD's Eight Domains of Total Force Fitness Are Interdependent



Study Objectives

In fiscal year 2011, the Air Force offices of Airman and Family Services (AF/A1S), the Surgeon General (AF/SG), and the Secretary of the Air Force, Force Management and Personnel (SAF/MRM) asked RAND to conduct a literature review on resilience using the special issue of *Military Medicine* as a point of departure. The goal was to help the Air Force understand how to assess and track the total fitness of the force and develop programs to increase the resiliency of military and civilian Air Force personnel and their families. The staff members assigned to the new Air Force Resilience Office to lead efforts on this new issue were not subject matter experts and did not have the time to research and assess the literature themselves. They wanted to ensure that their efforts were not just based on popular claims and general notions but that they aligned with current science.

Although the Air Force organizes its resilience efforts around the simpler four-domain scheme (mental, physical, social, and spiritual) that existed before TFF was developed, the research sponsors requested that RAND adopt the eight TFF domains as the organizing framework for the literature review. The eight domains of total force fitness can easily be integrated into the Air Force's four-domain typology, so modifying

the typology is not necessary to encompass the concepts. The spiritual and social pillars match directly. The Air Force's physical pillar then would comprise the TFF's physical, environmental, medical, and nutritional domains. The Air Force's mental pillar would include the TFF's psychological and behavioral domains. We acknowledge that all domains contain "behaviors," although, because the original conceptualization of TFF treats health behaviors as a separate, distinct domain, we have chosen to do the same.

We followed the general framework spelled out in the special issue of *Military Medicine*, although in some cases we adapted the scope of a domain to better reflect relevant research we identified. Thus, this study resulted already in eight reports, each focusing on resilience-related research on constructs, measures, and interventions to promote fitness within one TFF domain (McGene, 2013; Robson, 2013, 2014; Shih, Meadows, and Martin, 2013; Yeung and Martin, 2013; Flórez, Shih, and Martin, 2014; Robson and Salcedo, 2014; Shih et al., 2015). However, we note that these domains are not all mutually exclusive. For example, the spiritual and social domains overlap when members' religious communities provide a source of social support. The reports were designed to provide high-level overviews of the literature accessible to the nonexpert rather than long, highly technical reviews aimed at an expert, academic audience.

This overarching report builds on the foundation of eight previous reports on each domain. It brings together highlights of each review and documents the reports' relevance to Air Force metrics and programs. For the full reviews, including bibliographies, we refer readers to those reports. This report provides an in-depth introduction to resilience concepts and research, presents our model of the relationship between resilience and TFF, and documents Air Force resiliency efforts and metrics for tracking the resiliency of Air Force personnel and their families at the time of this study. By comparing information we found in the research literature to Air Force practices and data collection at the time, we could provide recommendations aimed at supporting the development of initiatives to promote resilience across the Air Force.

This report reflects resiliency concepts and Air Force-specific recommendations provided to the Air Force at the conclusion of the study along with the initial domain-specific literature reviews. However, since that time, the RAND team has authored the eight domain-specific reports and those reports have undergone scrutiny from subject matter experts in those fields. No two reports were reviewed by the same set of reviewers, and additional research was incorporated as a result of that process. Thus, because this report was published last, it benefitted from questions about the resiliency

concept that arose during those previous reviews and is able to reflect the final framing of those other literature reviews.

Study Approach and Limitations

Air Force leaders are interested in promoting resilience among active and reserve component Airmen, civilian employees, and Air Force family members. The research sponsors requested that RAND identify resilience-related constructs and measures in the scientific literature and report any evidence of initiatives that promote resilience across a number of domains. We did not limit our search to research conducted in military settings or with military personnel³; Air Force leaders sought the potential opportunity to apply results of these studies to a population not yet addressed (i.e., Airmen). Further, many Air Force services support Air Force civilians and family members. Thus, results of civilian studies would apply to these populations.

We also reviewed the types of resilience-related measures collected by the Air Force. However, it was not feasible for us to collect, synthesize, and analyze the actual data to try to create a resilience profile for different subpopulations in the Air Force community. Evaluation of the effectiveness of Air Force programs, services, or initiatives was also beyond this project's scope.

Organization of This Report

Chapter 2 explores the concept of resilience, including how scholars have defined and attempted to measure it, nonmilitary programs designed to promote it, and how it relates to the TFF concept. Chapter 3 provides a brief summary of each of the eight TFF domains: medical, nutritional, environmental, physical, social, spiritual, behavioral, and psychological. This chapter summarizes results from the TFF domain reports and provides key take-aways about important resilience factors that contribute to health and well-being. It also offers a review of interventions, programs, and policies that aim to increase the well-being in each domain. Interested readers are encouraged to refer to these individual reports for more detailed information on the TFF domains. Chapter 4 characterizes resilience-related data currently available to the Air Force. Finally, Chapter 5 offers recommendations for the Air Force to continue promoting resilience among Airmen, their families, and civilian employees. An appendix contains a table of measures developed to assess resilience and related constructs (e.g., hardiness, flourishing, and

³ It is worth noting that, relative to studies on civilians, there are fewer family resilience studies specifically focused on *military families* and even fewer that are Air Force-specific. Both are reasons for our broad search strategy.

post-traumatic growth [PTG]) among both adults and children/adolescents, along with notes about their focus, reliability, validity, and source.

